DR. PELTO'S

WELCOME PACKET

EVERYTHING YOU NEED TO KNOW TO HEAL YOUR FOOT PAIN FAST

Central Massachusetts Podiatry PC

CONTENTS

INTRODUCTION

Hi, I am Dr. Donald Pelto or just Don if you like.

I want to thank you for allowing me to see you in the office or showing interest in my patient resources.

I'm sending this package out to you either before your visit, after your visit, or because you requested some of my resources. I think in this day and age we are all so overwhelmed with activities and information and we don't get a chance to go deep and get to know each other.

I'd like to use this letter for you to get to know me a little bit more.

I hope you find this helpful. Feel free to jump to the section you find most interesting.

To Your Health,

Dr. Donald Pelto

WHAT PATIENTS ARE SAYING

I am very happy to have wonderful patients in the practice and I have included a few of the reviews below and direct links for you to see them on your own online.

GOOGLE REVIEWS | HEALTH GRADES

Richard Leahy

Dr. Pelto and the staff were very professional and most importantly listened to my concerns. The options discussed to deal with the problem ranged from simple to more complex. ...More

Melissa Ruttle

Dr. Pelto has been one of the KINDEST doctors I have met since my back/foot problem, a year-long journey began.

He did not rush our time together. ...More

Zana DiSilvano

Very good Doctor. Very friendly staff. Very clean environment. Dr. Pelto makes you feel comfortable and relaxed.

Hillary Leahy

I have visited Dr. Pelto 3 times now at Central Mass Podiatry and every time he has been so helpful and kind. He explains everything thoroughly and takes the time to answer any questions. Would definitely recommend him!

Jack Alicandro

Good visit. Personable doctor. Not in a rush to see his next patient.

Jeffrey

Wish all physician visits were like this. Extremely thorough and I was still in and out quickly. Really listened and really cared. I was provided with great insight into my issues and a solid plan to address them. Highly recommend!

Jose G Colon

Great medical office, wonderful and warm experience from start to finish. Appreciate Dr. Pelto taking the time to go over the diagnosis clearly and treatment options. Highly recommended.

Christine Bellows

Even though the office wait times were long the staff is friendly and courteous and the Dr. has a great personality! I felt like an individual. They offer a ton of educational material that helped me understand and work with my issue.

Lisa Vasile

Thorough, no rushing at all, patient, informative- highly recommended!

James Valley

I have total confidence in Dr.Pelto he makes u very relaxing/comforting further bring more confidence in him

Kirsten B

Very friendly staff. Very clean environment. Dr. Pelto makes you feel comfortable and relaxed.

Richard Mansfield

Had a great experience. Not rushed through, Dr. Pelto took time and made sure we covered everything and addressed any concerns.

Ralph Capaldi

Dr. Pelto took his time explaining my condition and he offered me several different treatment methods. I could tell he was very interested in helping me. If you are looking for someone who is interested in your overall well-being I highly recommend Dr. Pelto

Katie Meyer

Easy parking. Seen on time. Courteous staff. Dr. Pelto was invested in understanding my concerns and answering my questions. He conducted a thorough examination of my neuroma (X-ray, ultrasound) and took time to review multiple treatment options.

joeproch

Fantastic service from staff and physicians. Clearly superb.

LAURA MUSHKAT

very knowledgeable. treats patients with respect, fully explains things, and is very kind with a great bedside manner. answers questions so you understand! I highly recommend!!

Kim Terry

Had a wonderful experience today. Dr. Pelto is very friendly, informative, and thorough. The staff was very friendly also.

Sonia Louback

Very friendly staff, it was my first time there and Dr. Pelto was great and seems to be very knowledgeable and better yet it was a nice surprise to learn he "Speaks Portuguese"!! Looking forward to my treatment.

Betty Andersen

Thoroughly discussed mechanics of my anatomy leading to repeated callus & corn formation. Interested in my health experience.

Rebecca

Felt welcomed by Dr. Pelto and the rest of the team. Dr. Pelto took care of my ingrown and was very informative about the process and let me choose out of three options. He also told me about something that has bothered me my whole life ...More

barbarahuntley

This was my first visit with Dr. Pelto. He was knowledgeable about my issue and provided me with options for treatment. We decided on a plan to follow. I found Dr. Pelto to be a good listener and interested in working with me for a solution. I felt the visit was successful.

India Barnes

Great doctor friendly staff helpful information

Bob Bureau

Dr. Pelto is a wonderful doctor. He knows his profession and explains how he is working with patience and clarity. Dr. Pelto takes the time to know me as a unique individual and is interested in my overall well-being. Every visit I leave completely satisfied with his work and with the time I spent with him.

Craig McNeely

Have been with Dr. Pelto for a long time. His practice has the finest software, it is user-friendly and dovetails together seamlessly with the different apps used at the practice. I recently received "Shock therapy" to speed the healing of a foot ulcer. It worked perfectly!

Joshua Renfro

He is very knowledgeable and helped get me back on the road quickly after a running injury.

Elizabeth Requeno

Dr. Pelto cares about your concerns and puts them at ease. He is the only Doctor I've had that has ever called me the next day to check and see how I'm doing. Genuinely cares about his patients. Makes you feel like your old friends!

Elaine Bouchard

Very pleased with my appointment with Dr. Pelto! Not only was he very professional and explained things thoroughly, but he was extremely personable!

Allan Hughes

Dr. Pelto's clinical expertise and his use of new technologies in the podiatry field make him a 'must-see' for foot-related problems. He has taken a refreshing, whole-person approach to the serious issues faced by people who have developed diabetic neuropathy. I highly recommend him.

Towma Rastad

Dr. Pelto and his staff are amazing! I had bunion surgery 4 weeks ago and I was nervous to have this surgery, to say the least. But Dr. Pelto and his staff did everything they could to help make me feel comfortable and educated about my ...More

J Duncan (Jax)

Very friendly staff who all do a great job of making you feel comfortable. Dr. Pelto himself explained everything every step of the way.

Wesley Poirier

Was a very welcoming and friendly environment, Dr. Pelto was very knowledgeable and provided lots of great insight into many topics. I will surely be back!

Jerry Ayantola

Dr. Pelto was thorough and clear when it came to explaining my foot pain to me.

Mark O'Donnell

A great doctor who is willing to spend the extra time with you. He always provides a detailed plan and course of action for all your feet problems. I've known Dr. Pelto for over 10 years and he has handled my father, my kids, along with ...More

Al Walker

Dr. Pelto and his staff made me feel comfortable from the moment I arrived. The treatment session was also a learning session. Dr. Pelto took the time to explain how the normal foot was meant to work and how my foot was working. Dr. Pelto ...More

James Mason

Dr. Pelto is the kindest, most sympathetic doctor I have ever known. I am glad I have him as my doctor.

Betsy Lambert

My concerns were heard, the exam was thorough, the diagnosis was explained, all my questions were answered, and a plan was developed that was conservative and made sense. The treatment plan was provided in writing, along with resources to ...More

Mark Freeman

Always a pleasure.

Linda Arnold

Dr Pelto is one of the nicest and most efficient doctors I've ever met. At our last meeting, he made a suggestion to me about a condition I am having. He is consistently kind.

Mairgread Gray

Dr. Pelto was caring and compassionate. I see him on a regular basis for my foot problem. I am always glad to see him because he fixes me right up.

Lola Jean

Dr. Pelto listened to my health issues and was extremely pleasant to deal with. Highly recommend.

Brooke Putelis

Dr. Pelto has helped me with toenail issues that I have had for over 15 years! I can wear sandals again! He listened to my concerns and answered all my questions. He was very sympathetic to my situation. I would recommend him and the Keryflex nail restoration treatment he used to fix my nails!

Jod C

My 16-year-old daughter recently experienced a painful ingrown toenail. We tried visiting our general practitioner first in hopes that the issue would resolve on its own with antibiotics and at-home care. When it wasn't getting any better, ...More

David Dorren

Dr. Pelto is very caring and knowledgeable in his field. He explains all information in detail and in a way patients can understand. I would recommend him to anyone.

Barbara Williams

I was in pain. Dr. Pelto showed me some visuals as to what was going on with my tendon. We agreed on the interventions. Walking is very important to my job as I am on my feet all day. I was very pleased when I left the office. Also I ...More

Barbara Hulley

It was a very good experience. Dr. Pelto and the whole staff were very pleasant. The doctor answered every question and was very informative. I actually enjoyed the visit. I left with my problem expertly taken care of. I would highly recommend him.

Art Smick

Professional service! : Dr. Pelto is a very good foot specialist. I found him to be caring and intelligent! I would definitely recommend him to my friends and family members.

Robert Cook

I had the pleasure of seeing Dr. Pelto address a foot injury I suffered while running. He was extremely helpful in laying out all the different treatment options. We opted to try shock wave therapy to address the injury and I'm happy to say I'm back to running pain-free. Highly recommend!!

Denise Carlson

Dr. Pelto and the staff are the best! My 91 yr old father has dementia and he and the staff took great care of his needs. I highly recommend this practice.

Doris Karimi

The visit with Dr. Pelto was my 1st. It went so so well am still overwhelmed by how great he was. He explains every detail of what he does to satisfaction. He shows real concern and listens. His bedside mannerisms are excellent. He was so ...More

Tiffany Marie Bosse

Helped cure my plantar fasciitis very grateful and highly recommend!

Debra Lucas

The entire staff at Central Mass Podiatry are very friendly and helpful. My visit with Dr. Pelto was insightful. He is passionate about what he does and clearly explained what needs to be done to correct the problem with one of my toes. I recommend this Practice.

Eric Roberts

Dr. Pelto is not only kind, friendly, and knowledgeable but he also provided a clear explanation of my diagnosis. At his suggestion, we are taking a conservative approach to treatment using anti-inflammatory medication and stretching ...More

Chris - Signet Education

Dr. Pelto was incredibly friendly and knowledgeable. His staff members were welcoming and professional. The office is easily accessible and has great parking.

wendy johnson

Dr. Pelto is very good at explaining the treatment and discussing future solutions.

Lynn L.

Dr. Pelto is a caring doctor. He is thorough with his patients and makes sure they are comfortable and does everything he can to help them on the road to better foot care.

Jim Mason

Dr. Pelto makes you comfortable and always shows great care. I am glad to be his patient!

Luis Rentas

Dr. Pelto. Is great. Dr. I had a good experience with him. So friendly.

Joyce Brousseau

The staff was attentive. Dr. Pelto listened to my concerns, explained everything thoroughly, and offered advice. Great communication!

Michelle M (Michelle)

Dr. Pelto is wonderful! Explained everything along the way, put me at ease, and no more pain! Wish I had not put off making my appointment. Highly recommend!

Sara Fishman

Dr. Pelto saw me as an emergency. He took time to explain what he saw and when that discussion was finished he asked if I had any other concerns. I did, and his answer was very helpful.

WELCOME LETTER

First of all, I'm happy to be treating you, and I am passionate about podiatry.

HOW DID I GET INTO PODIATRY?

Many people ask me how I ever got interested in feet and doing podiatry. This happened when I was an undergraduate doing my pre-med work. I wasn't sure which area of medicine I wanted to study. Someone recommended that I start shadowing some other doctors to see what was the best fit for me.

I visited Dr. Hoover, who was a podiatrist in Fort Wayne, Indiana. At that time I was living outside of Chicago in Wheaton, Illinois and I was visiting some friends in Indiana. I went and visited this older podiatrist who liked to play jazz music and had a large practice. He saw many patients and he loved what he did.

The podiatrists I saw that loved their specialty are what motivated me to go into podiatry. Those I shadowed were passionate about their patients, they were passionate about what they did, and they liked their job and were happy.

When I shadowed other specialties or other areas of medicine, they didn't enjoy their jobs as much and they weren't as happy. The reason I went into podiatry was because they were the happiest doctors, and I think it's true to form, I enjoy my job, I enjoy seeing patients, I enjoy helping them get better, and I enjoy that my patients, for the most part, don't die because of foot-related issue.

A LITTLE BACKGROUND ABOUT ME

I want to tell you a little bit about my background. I grew up in rural Minnesota and I was in Boy Scouts and had the honor of becoming an Eagle Scout.

Being an Eagle Scout is something my wife jokes with me constantly when we go camping because I have to start the fire on the first try, without using any special "girl scout water" which is firestarter liquid.

All joking aside I'm very proud of being an Eagle Scout and there's actually one other doctor in our office Dr. Saviet and he is also an Eagle Scout. What I enjoyed about Boy Scouts were the friendships that I developed, traveling, camping, and other types of activity.

HOW I ENDED UP IN BRAZIL

And then, as I grew up, I became a Rotary Exchange Student when I had just graduated from high school. During that time, I spent a year in Brazil, and I fell in love with the culture, people, and especially with the food!

I loved the barbecues even until today! The main reason I moved to Massachusetts after podiatry school in Chicago was because of the large population of Brazilians in this area.

When I was in Brazil I learned it was possible to go into medicine because in my family there were not any doctors. I had a few aunts that were nurses, but I didn't have any doctors in the family.

While in Brazil I stayed with three families that valued their children studying, and because of that I developed confidence in my abilities and I took that as an example and went into medicine.

WHY I MAJORED IN HISTORY

I went to undergrad at the University of Illinois at Chicago and my undergraduate degree was History. Some patients see my diploma and ask why I studied history. The reason is simple: when I was a pre-med student, one of my advisors suggested I do a non-science major. In case I didn't get into medical school I would have a backup plan.

I went into history because I enjoyed learning about history, and I wanted to improve my writing ability as well. I knew that with history I would become a better writer because we had to write so many papers.

After undergrad, I went to Scholl College of Podiatric Medicine. There is a little professional battle about which is the best podiatry school and in my opinion, Scholl is the best.

I suffered there (studied there) for four years and then moved to Worcester for residency at St. Vincent Hospital and UMass. In Massachusetts, I met many Brazilians. I loved the area, and I've been here ever since. I am married to Isabela.

A LITTLE ABOUT MY FAMILY AND ME AS A MAGICIAN

My wife and I have two children, Elizabeth, and Daniel. We have been living in Shrewsbury, which is close to both of our offices, and it's been a very nice place to live and to raise a family.

Currently, I'm over-occupied in terms of my time but I have quite a few hobbies, as you'll notice in one of the treatment rooms, you're going to see I have a Toastmasters certificate as a "Competent communicator." A lot of my patients laugh at that, but I've always enjoyed doing public speaking.

And if I didn't tell you before I used to be a magician. From the age of seven to 17, that was my passion, that was my love. If I could have I would have been a magician, but, you know, being a doctor was my backup plan. But if you are interested in seeing some of my magic tricks just ask me, and especially if there are children that come in I usually run about 30 minutes behind because I'm showing them all the little sleight of hand tricks that I like to do. I'm going to include a little video here if you want to click this QR, use your phone to look at this QR code, you can see one of my sleight of hand magic tricks.

MY JOURNEY INTO PUBLIC SPEAKING

Part of the Toastmasters was doing public speaking, and I really enjoyed speaking and I enjoy doing talks for both doctors, such as Grand Round talks, and I also do different talks in the community for patients.

However, having a busy practice wasn't that conducive to doing a lot of public speaking because I was out of the office so because of that I started a local television program, and I like to be involved in the community. I was going to the television studio in Shrewsbury first and now in Worcester, and due to everything that's happened lately now done via Zoom, and that has been very fun for me.

I like to meet people, talk to people and the topic of the television program is called Healthy Living, because I'm passionate, as you'll see if you come into the office. We'll talk about the feet a little bit but I'm interested in all types of health, and both for myself and my patients and I have going on over almost 100 videos, or interviews with different people about health topics, and I talk to people about everything from weight loss, to how to get better quicker with physical therapy to having life balance. If you're interested in some of these interviews on this television program I'm going to put a link here, you can see all of the old episodes.

If you are health conscious and you're interested in a certain topic I would love to interview you about any type of topic I like to do something where I can both learn and then share that with my patients to help them get better.

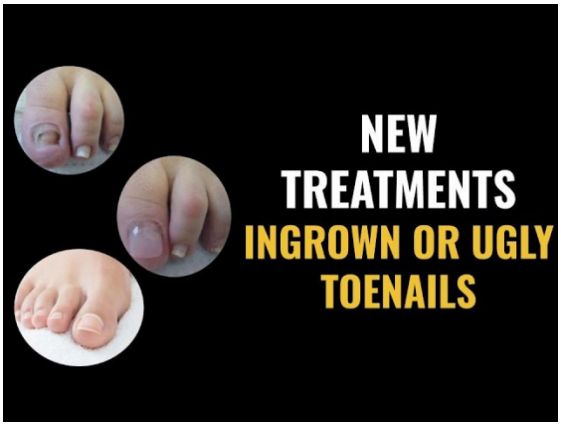
FROM PUBLIC SPEAKING TO WEBINARS

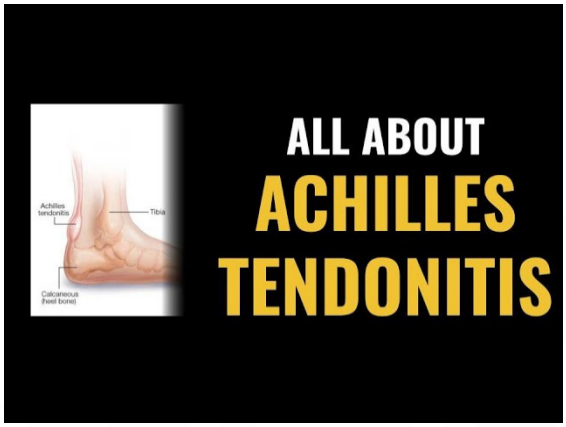
Another thing that I've been fond of, because of public speaking, is doing webinars because that's a much easier way of doing this than renting a space and having patients come in.

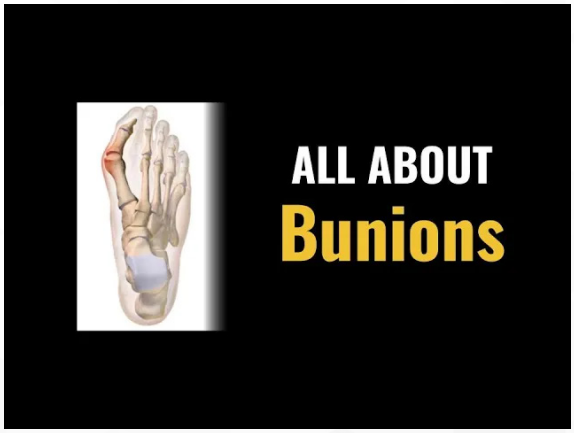
I eventually would like to do that but just with, with, with the social distancing it's kind of difficult. I think we're going to be getting back to normal probably by the time you might be reading this, but we do occasional webinars in the office and that's been just wonderful.

We can talk about a specific topic that's of interest to patients, and we get the doctors on a zoom call altogether and we record that and that has been just so much fun, so I'm going to put a link here to some of these different interviews or webinars that we've done about Ugly Toenails, Bunions, Achilles Tendonitis.

If you want to see some of the most popular webinars there are links above and pictures below.







DR. PELTO'S BLOG - WWW.DRPELTO.COM

I have a blog as well. My blog is a way for me to share information with my patients in an easy, concise and organized method. I've had this blog for years, it keeps kind of morphing into something different.

I am passionate about helping patients. And to that end, I have written several books and recorded many videos, and put together several courses and all these can be found on my blog.

This is free to everyone who I see and to everyone who finds their way to my blog. This is the central area, where I'm able to help patients, and what I try to do on this blog is put all the information in an organized fashion for my patients and so every time a patient comes into the office and if you came into the office will be coming, I'll probably link to one of these pages because I like to make it easy for patients and what I realized is that in our interactions in the office these days we don't have a lot of time together.

Maybe our appointment is 15 or 20 minutes, but to explain a condition such as plantar fasciitis or Achilles tendonitis, it can take a half-hour, and I don't have that privilege with patients. I wish I did. But because of that, I've tried to make it more efficient so I've put together different courses and what you'll find in these courses is a plethora of different diagnoses and I'm always increasing them as I have time, and you'll find there's if I have a book, there's a link to the book, and then there's a link to several videos that I've done on this topic.

These are the same links that I give to patients when they come into the office, and if you are getting this or you're reading this and you're interested, in solving a problem or maybe even avoiding many visits, I always think that if someone goes and looks at this course on let's say plantar fasciitis and does what I talk about before they come in, you can almost avoid one visit to the office. That's the key.

You can also learn what to do and it'll be a refresher for you if you do come in, but I'm proud about these courses that I put together, initially it was just the book and the videos but what I found is, I have a large YouTube video collection but no one was looking at them and it was only if people were on YouTube. Therefore I've taken these videos and put them directly in these what we call courses, so that's been fun.

As you can see I have a lot of interests but the thing that I find the most fun is learning and teaching. And that's why I've got involved in doing these, this television program, These interviews, these educational webinars, creating these courses, and I'm so happy to have you as a patient!

FINISHING UP

If you are finding something that's missing there please let me know if you want something that doesn't include it, that's not included there let me know if there's a question that you have, please let me know. You can send an email to don@centralmasspodiatry.com.

Once again I thank you for being a patient. The greatest compliment I can receive is you sending your friends and your family to visit me in the office, or even before that, please send them some of these resources that you've seen here, or even this letter itself. I would be happy to answer any questions. I'm so passionate about this on the bottom of my blog, there is an area that says ask a question, and a lot of these questions that I get I then make YouTube videos.

I have learned if someone has a question once again it's not going to be medical care, but it's just going to be a question that you have, I'll be happy to answer that there.

I appreciate having you in the practice. If you have any other needs, let me know and I look forward to seeing you, and please mention that you read this, I'd love to hear back from you.

Below you will find more of my resources that would be helpful for you to read should you know your specific foot condition.

To Your Health,

Dr. Donald Pelto

DR. PELTO'S PATIENT COURSES

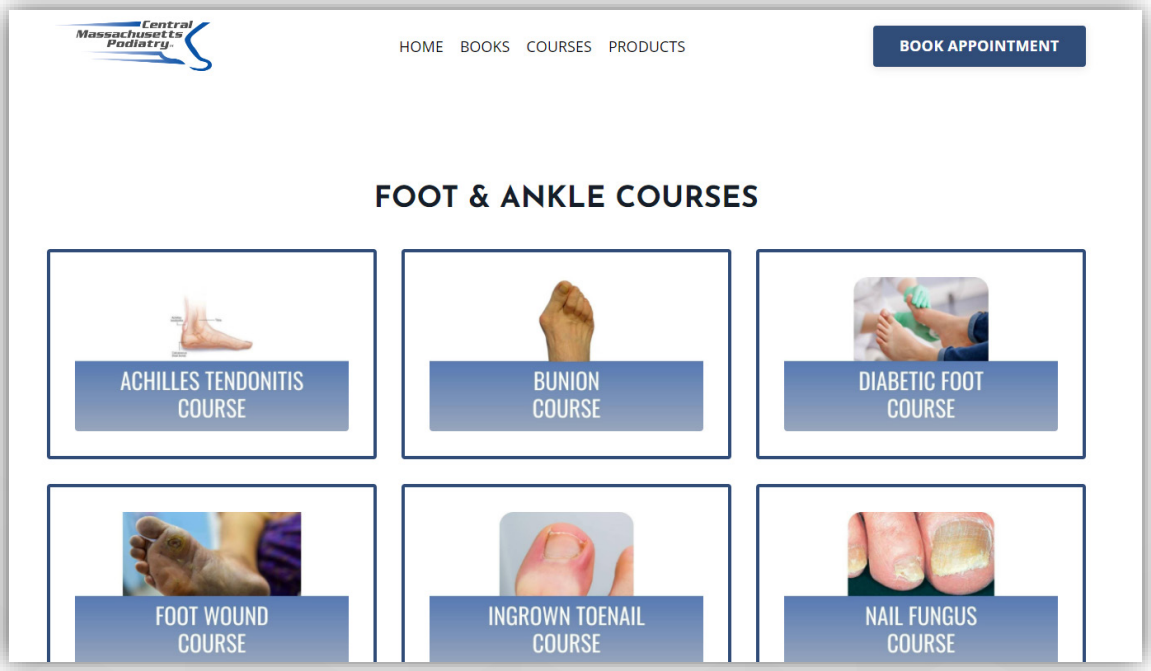
I am very pleased to offer my patients different courses on foot conditions. This is a compilation of my videos, recommendations, and books all in one place for FREE.

I have had many patients say that I should charge for these resources because they are so in-depth but my desire is that you would USE them to learn more and get better faster.

It would really make your visit to any podiatrist more helpful if you review these resources before your visit to learn more about your condition.

I am including the courses I have up to this point below but in the future, you can see all of them HERE.

FOOT & ANKLE COURSES



- Achilles Tendonitis Course
- Bunion Course
- Diabetic Foot Course
- Foot Wound Course
- Ingrown Toenail Course
- Nail Fungus Course

PROFESSIONAL EDUCATION COURSES

- Nail Salon Course
- Physician Resources

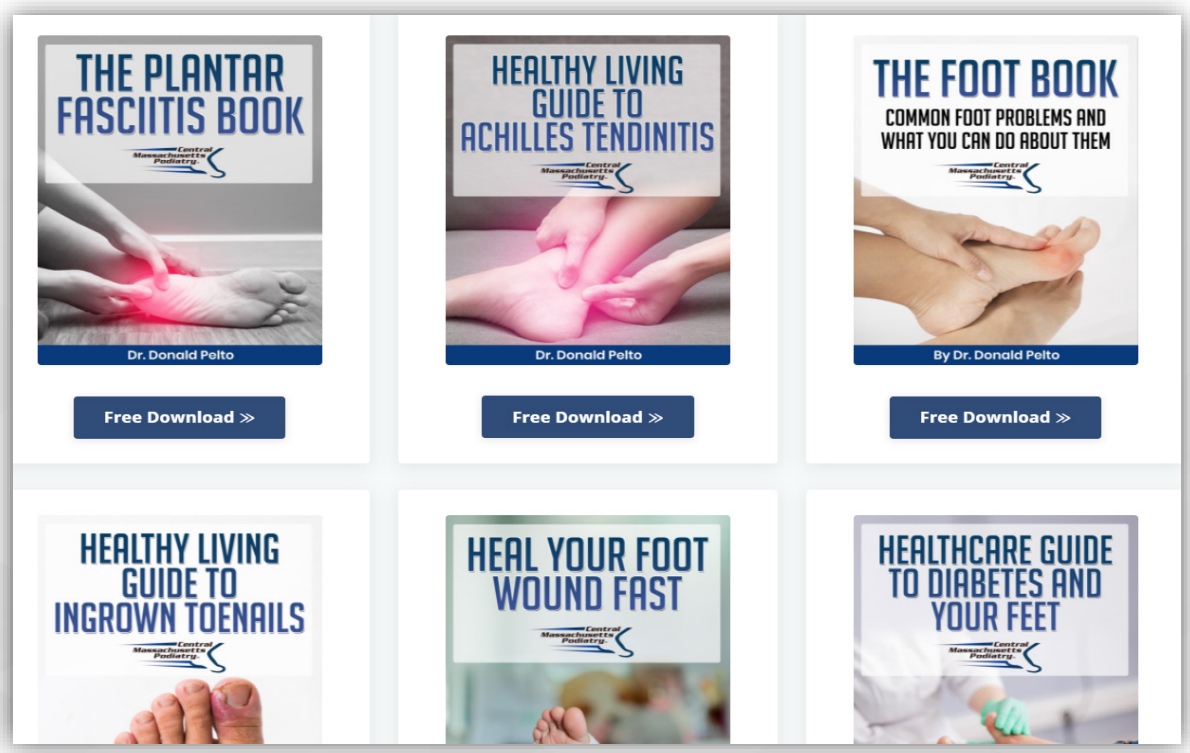
HEALTHY LIVING COURSES

- Intermittent Fasting Course

DR. PELTO'S PATIENT BOOKS & GUIDES

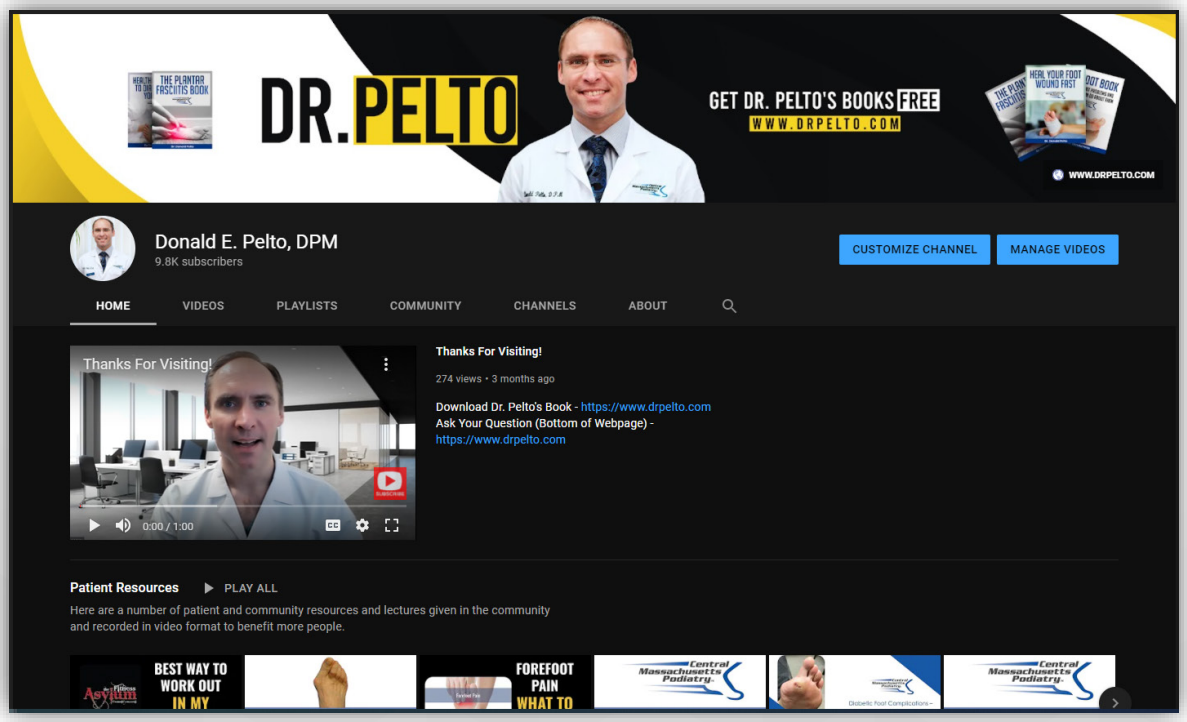
I have put together a number of publications in Book format for my patients. These are really a written version of my patient's explanation of the most common foot conditions I see in the office.

I hope you find them valuable and please feel free to share with your friends and family that you feel they would benefit from.



- The Plantar Fasciitis Book
- Healthy Living Guide to Achilles Tendonitis
- The Foot Book
- Healthy Living Guide to Ingrown Toenails
- Heal Your Foot Wound Fast
- Healthcare Guide to Diabetes and Your Feet
- Shoe Buying Guide

YOUTUBE VIDEOS



I am proud to have a YouTube page with thousands of followers! I started making videos in 2009 and I have been having fun ever since. I have over 10,000 Subscribers and would love to have you subscribe as well.

My videos are on different topics of interest to me and my patients. I started out with gross videos such as ingrown toenails but then got tired of showing those videos. After that, I have been putting them into different categories or playlists.

Please Subscribe to my YouTube channel.

SUBSCRIBE

Here are some of the playlists you may find helpful.

GENERAL VIDEOS

- Ask Dr. Pelto
- Patient Resources
- Videos in Portuguese
- Weight Loss & Intermittent Fasting

CONDITION SPECIFIC VIDEOS

- Achilles Tendonitis
- Athlete's Foot
- Bunion
- Callus and Corns
- Diabetes & Foot Wounds
- Flat Feet (Children)
- Flat Feet & Posterior Tibial Tendon Dysfunction
- Foot Fissures (Cracks)
- Foot Fractures (Broken Foot & Toe)
- Ganglion Cyst
- Gout
- Haglund's Deformity
- Hallux Limitus
- Hammertoes
- Heel Pain (Plantar Fasciitis)
- Ingrown Toenails
- Laser Nail Treatment
- Nail Fungus
- Nail Trauma
- Neuroma
- Plantar Plate Tears
- Subungual Hematoma (Blood Under Nail)
- Warts

DR. PELTO'S HEALTHY LIVING TELEVISION PROGRAM

Healthy Living
with Dr. Donald Pelto

I am also very interested in helping my patients with their overall health. I have been hosting a local television program since 2018 called "Healthy Living."

It started in Shrewsbury and is currently in Worcester and all of the episodes can be seen on my YouTube Channel.

Healthy Living TV Program

If you want to see the old episodes on the public television station you can find them here.

WCCA TV 194

I have included some of the more interesting interviews below in categories by topic you might find interesting.

RUNNING AND SPORTS MEDICINE

- Paul Hobrough talks about Shockwave for foot and ankle conditions
- Interview with Golden Harper about his running experience as a child and running technique
- Interview with Golden Harper about Natural Movement and Shoes
- Marc Waxman talks about ChiRunning
- Dr. Neil Feldman talks about work-life balance and running 100 miles
- Regenerative Medicine Discussion including PRP, Amniotic Tissue and Shockwave therapy

- Tri-State Running Group - Interview with Joanna Anderson about running and staying healthy
- What is shockwave therapy?
- What is regenerative medicine? How is it used in the foot and ankle?
- Trail Running - Common Foot and Ankle Injuries
- Dr. Pelto Talks about Plantar Fasciitis
- When do I need physical therapy for heel pain and plantar fascia pain?
- Interview with Dr. Neil Feldman after running the Boston Marathon and ear surgery for melanoma

SHOE GEAR & CORRECT TOES

- Correct Toes and natural footwear to help foot problems
- Interview about minimal shoe gear with Steve Perna
- What Shoe Is Best? Shoe Buying Tips

LIFE HACKS

- Healthy Living Tips
- Interview with Reilly Sweetland founder of FollowUpThen.com
- Interview with Shannon Waller about the Scary Times Success Manual

GENERAL HEALTH - IMPROVING YOUR HEALTH

- Walking Tips & Tricks
- Cold Injuries Causes and Treatments
- Interview with Lisa Vasile, NP on Integrative Healthcare
- All about pelvic floor problems
- Interview with Dr. Bill Foley about Osteopathic Medicine
- Oral Health in Worcester
- Interview with Erica Saccoccio about Physical Therapy
- Dr. Jason Mehling and poor blood flow
- Interview with Gary Kracoff about health and compounding medications

- Talking about the gut, nutrition, and health with functional dietitian Tamara Luck
- Interview with Jonathan Daige about Beating Cancer
- Interview with Andre Brisson on living healthier
- Interview with Ron Ernenwein about health and life-work balance
- Compassion Fatigue with Bob Bureau
- Do I have skin cancer on my foot? - Interview with Dr. Camille Roberts
- How to treat your varicose veins?
- What is the best way to treat your nail fungus?
- What do I need to know before foot surgery?
- Skin Conditions of the Foot and Ankle
- Interview with Dr. Brittany Falcone DC
- How do I stay healthy as a senior citizen? Interview with Dr. Harvey Clermont
- When to go to Urgent Care?

DIABETES INFORMATION

- How does Diabetes affect your teeth, eyes, and feet?
- Nuts and bolts of diabetes and your feet
- Diabetes Awareness Month
- Patient interview Charcot foot vs Lymphoma
- 8 Steps of a Comprehensive Diabetic Foot Examination
- What do you need to know to prevent a foot wound (ulcer)?
- Diabetic Foot Complications - Lecture to Endocrinology Fellows at UMass

OBESITY, WEIGHT LOSS & FASTING

- Dr. Florencia Halperin talks about Obesity and Weight Loss
- Intermittent Fasting and Low Carb with Mark Cucuzzella
- Interview with Dr. Bret Scher the medical director at DietDoctor.com
- Introduction To Intermittent Fasting [Zoom Lecture]
- Interview with Tro Kalayjian about Intermittent Fasting
- Interview with Jeremy Golding about exercise and having a healthy diet
- Intermittent Fasting For Beginners - Shrewsbury Public Library
- Interview with Brian Roberts of Central Mass Fat Loss

- Intermittent Fasting Interview with Joe
- Tips on Losing Weight Michael Stanton
- Diabetes and Weight Loss - Interview with Dr. Nina Rosano
- Losing Weight - Interview with Bonnie Lefrak of the Fitness Asylum
- Lost 60lbs with Intermittent Fasting - Interview with Jason Kurland
- Intermittent Fasting Interview with Nadia Brito Pateguana - Part 1
- Intermittent Fasting Interview with Nadia Brito Pateguana - Part 2
- Tips for helping with weight loss and obesity
- Interview with Paul Cyr about living healthy
- Fitness Together - Interview with Steven Lichtman

NAIL CONDITIONS

- New Treatment Ugly and Ingrown Toenails
- Nail Salon Safety - Interview with Lorri Ducharme from Prestige Nails

DR. PELTO'S ARTICLES PUBLISHED OR REVIEWED ON FOOT VITALS

I have published many articles online and was asked a few years ago to contribute numerous articles to Foot Vitals. Here are the articles that I have contributed to or reviewed on different foot conditions.

MUSCLE CONTUSION OF THE FOOT – WHAT YOU CAN DO

A muscle contusion (more commonly known as a bruise) occurs as a result of a blunt force injury that damages blood vessels—usually capillaries—causing blood to seep into the surrounding tissue, which in turn causes the bruise to spread and darken.

Medically speaking, a visible bruise is a type of *hematoma*—that is, a collection of blood outside the blood vessels, which in some cases may form a lump under the skin.

Bruises can appear in any type of tissue, even bone, and a bruised foot muscle is a common injury, especially among physically active people such as athletes and small children.

Generally speaking, small bruises are nothing to be concerned about, and in most cases they will go away on their own without treatment within two or three weeks.

If a bruise is large enough or severe enough, however, it may be a sign of a serious internal injury, and even mild bruising can be cause for concern for people who suffer from conditions such as hemophilia, which can interfere with blood clotting.

SYMPTOMS OF A BRUISED FOOT MUSCLE TO PAY ATTENTION TO

Not all bruises are visible black-and-blue marks. The discoloration most of us associate with bruising happens when blood leaks from damaged blood vessels, but it is possible for muscle fibers and other tissue to be damaged without internal blood leakage occurring.

Depending on the nature of the injury, symptoms of a bruised foot muscle may include:

- Discoloration of the skin
- Pain when the affected area is touched, or with weight bearing
- Swelling of the affected area
- Appearance of a lump at the site of the injury

COMMON CAUSES OF A BRUISED FOOT MUSCLE

Foot contusions are most likely to happen to athletes, who are often so focused on the game they are playing that they do not even realize they have been injured until much later.

Bruising of the foot muscle may occur in the course of a fall, for example, and the athlete may just get right back up and resume play.

People who play hockey or basketball are especially prone to this type of injury due to the sudden turns they must frequently make, and hockey players may also be struck accidentally by one another's sticks or skates.

Children also have a tendency to bruise their foot muscles in the course of rough play, and their inherent clumsiness makes them especially vulnerable.

WHEN TO SEE YOUR DOCTOR ABOUT YOUR BRUISED FOOT MUSCLE

While most contusions heal on their own within a few weeks, often without causing any inconvenience to the sufferer, there are times when a bruised foot requires immediate medical attention.

If you suffer from hemophilia or any other condition that interferes with blood clotting, or if you are on blood thinning medication, you are probably well aware of the potential seriousness of even a minor bruise.

If you are an athlete, you need to be able to distinguish a minor bruise—which you will of course inevitably suffer from time to time—from a more serious injury that may affect your ability to play for years to come.

You must also consider the possibility that the injury that bruised your foot muscle may also have fractured a bone.

Possible complications of a foot muscle contusion may include:

- Development of scar tissue caused by a return to active use before the muscle has healed
- Compartment syndrome, a potentially serious condition that occurs when fluid buildup in a muscle disrupts blood flow, depriving the tissue of nourishment

- Myositis ossificans, a condition that occurs when rehabilitation of an injury is rushed, in which the bruised foot muscle begins to grow bone material rather than muscle cells

HOW DO I TREAT A BRUISED FOOT MUSCLE?

If the injury is not too severe, the most effective treatment may be simple RICE—Rest, Ice, Compression, and Elevation. Ice should be applied to any suspected bruising injury as soon as possible, and the foot should be kept elevated.

Compression can be applied with bandages, although you should take care not to bandage your foot so tightly as to cut off circulation.

Your doctor will most likely prescribe non-steroidal anti-inflammatory drugs (NSAIDS). Refrain from massaging the injury or rubbing it excessively, and take whatever medication your doctor prescribes.

If a large hematoma appears and does not go away within a few days, your doctor may want to drain it surgically.

HOW CAN I PREVENT A BRUISED FOOT MUSCLE?

The best way to prevent this type of injury is to be careful. If you are involved in a sport that presents a significant risk of contusions, always be sure to keep your head in the game—don't be careless. Wear whatever protective gear is permitted by the rules and encouraged by experienced players.

Bruises cannot always be prevented. If you are an athlete, you accept this as part of the game. If you have recently become the parent of a small child, you will need to resign yourself to eighteen years of occasional cuts, scrapes, bruises, and sometimes even broken bones.

Either way, it is helpful to remember that injuries can build character if they are not too serious.

TALKING TO YOUR DOCTOR

Here are some questions to ask your doctor about your bruised foot muscle:

- Is this the minor injury it appears to be, or do you think it may be more serious than it seems?
- How long will it take my bruised foot muscle to heal?
- How soon will I be able to resume my normal activities (e.g., sports, jogging, dancing, etc.)?
- Will I need to stay off my feet for a few days?
- Will I need to get around on crutches for a while?

MEDICAL REFERENCES:

NYU Dept of Pediatrics http://pediatrics.med.nyu.edu/conditions-we-treat/conditions/contusion-general American Academy of Orthopaedic Surgeons http://orthoinfo.aaos.org/topic.cfm?topic=a00341 Harrison's Principles of Internal Medicine. 17th ed. United States: McGraw-Hill Professional, 2008. Harrison's Principles of Internal Medicine.

This page was last updated on October 1st, 2015

FOOT MASSAGE

Everyone enjoys a good foot-rub every now and then, especially from a spouse or significant other. There's something deeply soul-satisfying about coming home after a hard day at work, pulling your shoes off, and allowing someone else to relieve the day's accumulated pressure from our long-suffering feet.

But there's more to foot massage than simple domestic tranquility; foot massage is a big business, and it has real, tangible medical benefits.

In this article we will explore the therapeutic and medical benefits of various types of foot massage. We will also explore the darker side of the massage industry, and explain how con artists peddle New Age massage "therapies" with no medical value whatsoever.

MEDICAL BENEFITS OF FOOT MASSAGE

It may surprise you to learn this, but real medical authorities have established actual medical benefits associated with massage in general, and foot massage in particular. Studies have demonstrated that massage is effective for reducing muscle tension, muscle and joint pain, and stress.

In addition to pain and tension relief, foot massage stimulates the muscles and improves blood circulation.

TYPES OF FOOT MASSAGE

There are myriad types of massage—the Wikipedia entry on the subject lists nearly forty, including Shiatsu, Ayurvedic, and many others. For our purposes here, however, all types of foot massage can be divided into four categories:

- Swedish massage
- Deep massage
- Sports massage
- Trigger point massage

Swedish massage, the most widely practiced massage technique in America, is effective for reducing joint pain and stiffness. The technique uses five different types of strokes: gliding (which enhances blood flow); kneading (which reduces muscle tension); and tapping, friction, and vibration (all of which stimulate the nerves).

Deep massage is done more slowly and more forcefully. Deep massage is generally used to help treat injury-related damage to muscles, especially in deeper layers of muscle and connective tissue that may not be reachable with gentler massage techniques. Deep massage is not necessarily as relaxing as Swedish massage, and may even be painful.

Sports massage is also known as manual therapy, and typically involves kneading of the muscles and manipulation of the joints in order to mobilize them and restore range of motion following an injury. For athletes, regular sports massage can also help to prevent injuries.

Trigger point massage, also known as myofascial release or MFR, is medically controversial. In the simplest terms, this is a massage technique that focuses on tight knots of muscle fiber that can form after injury or overuse.

There is also the loosely associated idea that these knots can cause pain in other areas of the body, and some practitioners even go so far as to tout the effectiveness of MFR as a cancer treatment. However, the American Cancer Society says there is no good scientific evidence to support such claims.

HOW TO GIVE YOURSELF A FOOT MASSAGE

Sit down on a chair or other piece of furniture that you find comfortable. Pour a generous amount of lotion or baby oil into your hand. Rub the lotion or oil into your skin, gently working your fingers around your entire foot, including the toes and heel.

Then begin working your knuckles into the sole and arch. Also squeeze firmly with your thumb. Knead the muscles and tissues the same way you would knead a lump of dough if you were making bread.

BENEFITS OF FOOT MASSAGE FOR DIABETICS

Diabetics must always be on the lookout for foot problems. While more study is needed, there is preliminary evidence to suggest that massage in general—not necessarily just foot massage—may have benefits for diabetics.

Small studies have suggested that massaging the injection site just prior to injecting insulin may aid insulin absorption. It is also possible that massage may improve blood glucose levels and symptoms of diabetic neuropathy. However, these studies have not used statistically useful sample sizes (i.e., the number of people studied), and other proper controls may not have been observed. The reader is advised to be careful when searching the Internet for information about this topic, as much of what has been written on the subject is potentially misleading.

BENEFITS OF FOOT MASSAGE FOR RUNNERS

Obviously a massage feels good after a run. However, there are a great many myths surrounding the benefits of massage for runners. Contrary to widespread belief, a massage after a run can't push "toxins" out of the muscles tissue and into the bloodstream where they can be eliminated (nor is there any reason to believe such a thing is necessary).

Foot massage can benefit runners in other ways, however. Massage can soften clenched muscles, reduce inflammation, and remove adhesions between muscles and fascia tissue. It can also reduce the severity of a condition that athletes are susceptible to known as *delayed onset muscle soreness*.

The upshot of all this is that foot massage—and massage, generally—can enable runners to tolerate longer and more rigorous training with less risk of injury.

RISKS AND DANGERS OF FOOT MASSAGE

While most people benefit to varying degrees from foot massage, there are circumstances under which it is not medically advisable. Foot massage is not advisable if you have an unhealed injury or burn on your foot, or if you have recently suffered a break or fracture.

Foot massage may also not be a good idea if you suffer from deep vein thrombosis or severe osteoporosis. Consult a podiatrist if you are uncertain whether foot massage is safe and medically advisable for you.

It is also dangerous to use any type of massage as a substitute for proper medical treatment. There are a great many massage techniques touted by practitioners as effective treatments for various diseases and conditions—with no sound scientific evidence. Reflexology is one of the more prominent of these pseudo-scientific "therapies."

The idea behind reflexology is that disease or poor healing of injuries can be caused by an imbalance in an invisible energy field they call *qi* or *chi*, and that manipulation of the feet can fix this problem. Each part of the foot is supposedly a "mirror" for some other part of the body that is "reflexively" connected to it. For example, the big toe is a reflex area for the head, and manipulation of the big toe is supposed to be able to treat headaches.

Needless to say, there is zero evidence that this practice is beneficial in any way. Although most people consider them harmless, these kinds of treatments can in fact cause great harm (apart from their monetary cost) by discouraging patients from getting proper medical treatment for real problems.

MEDICAL REFERENCES:

Robertshawe P. (June 2007). "Massage for Osteoarthritis of the Knee". Journal of the Australian Traditional-Medicine Society 13 (2): 87. Harvard University Health Publications http://www.health.harvard.edu/mind-and-mood/foot-massage-the-pause-that-refreshes-and-it-good-for-you The Mayo Clinic http://www.mayoclinic.org/healthy-lifestyle/stress-management/in-depth/massage/art-20045743 http://www.webmd.com/balance/massage-therapy-styles-and-health-benefits?page=2 The American Cancer Society Ades TB, ed. (2009). "Myofascial release". American Cancer Society Complete Guide to Complementary and Alternative Cancer Therapies (2nd ed.). American Cancer Society. pp. 226–228. The Skeptic's Dictionary http://skepdic.com/reflex.html Runner's World http://www.runnersworld.com/injury-prevention-recovery/the-pros-and-cons-of-massages-for-runners The American Diabetes Association http://spectrum.diabetesjournals.org/content/14/4/218.full

This page was last updated on March 14th, 2016

YOUR COMPLETE GUIDE TO EPAT FOR HEEL PAIN

If you are suffering from heel pain caused by plantar fasciitis, your podiatrist may recommend extracorporeal pulse activation therapy, more commonly known by the acronym EPAT. Developed in Europe, EPAT is effective for heel pain—over 80 percent of patients report improvement in their symptoms.

The most common condition for which EPAT therapy is prescribed is plantar fasciitis, a condition affecting the plantar fascia.

The plantar fascia is a ligament that supports the arch and acts as a shock absorber. Overuse of the plantar fascia via excessive activity or athletics can cause tearing, scarring, and inflammation—i.e., plantar fasciitis.

While EPAT has been demonstrated to be most effective for treatment of plantar fasciitis, it is also used in the treatment of other foot conditions involving soft tissue, such as Achilles tendonitis. EPAT is also helpful for treating chronic muscle pain.

HOW DOES EPAT WORK?

Extracorporeal Pulse Activation Treatment is a type of shockwave therapy, and it works by delivering pulses of sound waves that cause what is known as microtrauma, which is essentially what it sounds like—a microscopic "injury" to the soft tissue.

This in turn stimulates and improves blood circulation in the affected area, which facilitates healing. EPAT also breaks up tissue that is calcified or fibrotic.

WHAT TO EXPECT DURING YOUR EPAT PROCEDURE

When you arrive at the doctor's office for your appointment, a special gel will be applied to the skin on the bottom of your foot, particularly around your heel.

The purpose of this gel is to improve conductivity for the sound waves produced during the course of the EPAT procedure. The doctor will then apply the EPAT applicator to your skin and move it in a circular motion around the affected area. The entire treatment takes no more than fifteen minutes.

Most patients will require three weekly treatments, and it may be as long as three months before you see the maximum benefit from your EPAT, although most patients experience some pain relief within less than a month, and many experience some degree of pain relief immediately.

It is generally recommended that patients refrain from using over-the-counter anti-inflammatory medication and ice two weeks prior to the EPAT procedure, and for four weeks afterward. Tylenol is acceptable, however.

ARE THERE ANY SIDE-EFFECTS OR COMPLICATIONS ASSOCIATED WITH EPAT?

EPAT is non-invasive, but in some cases patients have reported discomfort, redness, or bruising immediately following treatment.

AM I A CANDIDATE FOR EPAT?

Because of the cost of EPAT (see below), among other considerations, your doctor will most likely want to address your heel pain with conservative treatment methods first.

These treatments may include stretching exercises, anti-inflammatory medications, orthotics, physical therapy, new shoes, and injections. EPAT is more effective for chronic plantar fasciitis.

You should not have EPAT for heel pain if you are taking blood-thinning medication, or if you have deep vein thrombosis or peripheral vascular disease.

EPAT VS ESWT – WHAT TO KNOW

Extracorporeal Pulse Activation Treatment (EPAT) should not be confused with Extracorporeal Shockwave Therapy (ESWT), an older type of shockwave therapy.

ESWT equipment takes up much more space, and many doctors found it cost prohibitive to have in the office. The two treatments are similar, but use slightly different technology to achieve the same end.

One important difference is that for ESWT you need to anesthetize the foot, and for EPAT you do not. ESWT usually involves only one treatment, whereas EPAT, as noted above, usually requires three.

HOW MUCH DOES AN EPAT FOR HEEL PAIN COST?

Unfortunately, EPAT is seldom covered by health insurance. The cost of each treatment is generally in the neighborhood of $200, so the necessary series of three treatments usually come to around $600.

MEDICAL REFERENCES:

National Institutes of Health http://www.ncbi.nlm.nih.gov/pubmed/22734281 WSOC TV http://www.wsoctv.com/news/news/health-med-fit-science/plantar-fasciitis-shockwave/nGxSw/ The Blue Ridge Foot and Ankle Clinic http://www.brfootandankle.com/services/shockwave-therapy/

This page was last updated on October 1st, 2015

TRIGGER TOE – SYMPTOMS, CAUSES, TREATMENT & PROGNOSIS

Trigger toe is an injury that most commonly affects ballet dancers, due to the physical demands of dancing *en pointe*, a position that requires a dancer to stand on her or his toes, placing all body weight on the big toe (the *hallux*).

Inflammation of the *flexor hallucis longus* (FHL) tendon caused by this stress makes it difficult or impossible to flex the big toe.

WHAT ARE THE SYMPTOMS OF TRIGGER TOE?

Trigger toe symptoms are usually mild at first, and the affected individual may experience only mild discomfort.

If the sufferer is a ballet dancer, however, he or she will eventually find it difficult or impossible to dance en pointe, and will experience especially sharp pain when lowering the foot from pointe position to a flat position.

The toe may lock up, and the individual may find it necessary to use his or her hands to manipulate the toe until it can be moved or flexed. The affected person may also experience a "clicking" sensation when trying to move the toe, or a feeling like the toe is "caught."

WHAT CAUSES TRIGGER TOE?

The flexor *hallucis longus* muscle runs down the leg, through the calf and ankle, along the bottom (plantar) side of the foot—becoming a tendon along the way—and ending at the big toe.

The conditions that result in trigger toe occur when the FHL tendon begins to move in an irregular way through the pulley mechanism that guides it through the ankle.

When the FHL becomes inflamed or swollen, it may not fit properly into the sheath of tissue that surrounds and supports it (a partial rupture of the tendon may also cause this).

As the condition worsens, the FHL tendon may become frayed or scarred, which can cause it to adhere to the tissue sheath around it. The resulting friction prevents the FHL from gliding smoothly back and forth, resulting in trigger toe.

WHAT ARE THE RISK FACTORS FOR TRIGGER TOE?

The primary risk for trigger toe is ballet dancing—specifically the *en pointe* or demi-pointe positions. Trigger toe is rare outside the profession of dancing.

ARE THERE COMPLICATIONS OF TRIGGER TOE?

If trigger toe is not diagnosed and treated properly (and in some cases even if it is), it can mean the end of a dancer's career.

HOW IS TRIGGER TOE TREATED?

If you believe you are experiencing symptoms of trigger toe, you should make an appointment to see a podiatrist as soon as possible because early diagnosis may improve your chances of recovery.

Conservative treatment may begin with rest, ice, and nonsteroidal anti-inflammatory drugs (NSAIDs) to reduce the inflammation.

Your doctor may also recommend physical therapy. If you continue to dance while undergoing treatment for trigger toe, you will probably be advised to perform slow, careful stretches of your big toe and the ball of your foot prior to rehearsing or performing.

If your case is severe, surgery may be necessary to release the ligament portion of the FHL sheath, after which the tendon can be repaired.

HOW CAN I PREVENT TRIGGER TOE?

Most people will never need to worry about preventing trigger toe, as the condition is rare outside the world of professional ballet.

For dancers, unfortunately, there is little that can be done; trigger toe is simply one of the many dangers of ballet dancing. You can minimize your risk of trigger toe by making sure to warm up thoroughly before each rehearsal or performance.

WHAT IS THE PROGNOSIS FOR TRIGGER TOE?

With treatment, trigger toe can be overcome, and it may be possible for a dancer to resume his or her career.

MEDICAL REFERENCES:

The National Institutes of Health http://www.ncbi.nlm.nih.gov/pubmed/4091639 Wikipedia http://en.wikipedia.org/wiki/Flexor_hallucis_longus_muscle http://en.wikipedia.org/wiki/File:Gray442.png The Harkness Center for Dance Injuries/NYU Langone Medical Center http://hjd.med.nyu.edu/harkness/patients/common-dance-injuries/footankle

This page was last updated on October 2nd, 2015

REITER'S SYNDROME AND REACTIVE ARTHRITIS – WHAT TO KNOW

The term *Reiter's syndrome* refers to a specific type of *reactive arthritis*, a condition in which the joints—most often the knees, ankles, and foot joints—experience swelling and inflammation resulting from an infection elsewhere in the body (usually the genitals or intestines).

These conditions most often result from sexual activity or food poisoning.

SYMPTOMS OF REITER'S SYNDROME AND REACTIVE ARTHRITIS

Most forms of reactive arthritis are characterized by pain, swelling, and inflammation in the toes and in the joints of the foot, ankle, and knees. There is also commonly heel pain or Achilles tendon pain.

With Reiter's syndrome, the eyes and urethra are also affected, and symptoms may include conjunctivitis (pink eye), uveitis (eye inflammation), iritis (inflammation of the iris), pain or burning with urination.

In addition to joint pain in the foot and ankle, people suffering from Reiter's syndrome may also have nodules or pus-filled sores on the soles of their feet and on the toes.

The unique way in which Reiter's syndrome affects the eyes, the urinary tract, and the feet is summarized in a mnemonic device of unknown age and origin: "Can't see, can't pee, can't climb a tree."

The initial infection that brings on a case of reactive arthritis may present itself in the form of diarrhea or other gastric distress—especially if the infection was acquired through food poisoning—but in some cases there are no symptoms until the reactive arthritis begins to affect the ankles or other joints.

CAUSES AND RISK FACTORS OF REITER'S SYNDROME TO KNOW ABOUT

Reactive arthritis is more commonly seen in white males between the ages of 20 and 40 than in any other demographic group, and women tend to experience milder symptoms than men.

Men and women are equally likely to develop reactive arthritis after contracting food poisoning, but men are more likely to develop it in response to sexually transmitted infections.

The bacterial infections that most commonly trigger Reiter's syndrome are sexually transmitted infections such as chlamydia and food-borne bacteria such as salmonella, yersinia, and shigella. However, not everyone who is exposed to these bacteria becomes afflicted with reactive arthritis.

It is believed that there is also a genetic component to reactive arthritis, and that certain people are genetically predisposed to be susceptible to these conditions.

About 80 percent of people who suffer from Reiter's syndrome are carriers of the HLA-B27 gene, which is also common among people who suffer from other types of reactive arthritis.

Correlation does not equal causation, however, and it is important to remember that it is possible to contract this condition even if you are not a carrier of the HLA-B27 gene. A family history that includes any type of reactive arthritis is also cause for concern.

Reactive arthritis is thought to be an autoimmune condition. Triggered by the infection, the immune system overreacts and begins to attack the body's own tissues, causing pain and inflammation.

DIAGNOSING REITER'S SYNDROME – WHAT TO EXPECT AT YOUR DOCTOR'S OFFICE

If your doctor suspects Reiter's syndrome or some other form of reactive arthritis, he or she will probably want to take a blood sample to test for the presence of infection or evidence of infection in the recent past.

Genetic testing may also be conducted to determine whether you are a carrier of the HLA-B27 gene.

Your doctor may also take a sample of your joint fluid to look for uric acid crystals (which might indicate that the problem is gout), bacterial infection in the joint (i.e., septic arthritis), or an elevated white blood cell count (which may also indicate infection).

HOW IS REITER'S SYNDROME TREATED?

Unfortunately, there is no cure for Reiter's syndrome, but in its early stages the symptoms can be managed with nonsteroidal anti-inflammatory drugs (NSAIDs), which reduce inflammation and alleviate pain. Ibuprofen (e.g., Motrin or Advil) is often used for this purpose.

As with other forms of arthritis, physical therapy can help to improve joint function and alleviate stiffness.

In severe cases, corticosteroids may be injected directly into the affected joint(s), and drugs such as sulfasalazine or methotrexate may be prescribed to suppress the activity of the immune system.

Another measure that may be taken in severe cases is the use of tumor necrosis factor (TNF) inhibitors. These drugs block the action of a protein that is responsible for causing inflammation.

TNF inhibitors are also sometimes used to treat the symptoms of rheumatoid arthritis. X-rays of your joints may also be taken to rule out other types of arthritis or other causes of joint pain.

CAN REITER'S SYNDROME BE PREVENTED?

The only way to prevent Reiter's syndrome or other forms of reactive arthritis is to avoid the kinds of infections that can cause these conditions.

While there is no way to guarantee with 100 percent certainty that you will not contract such an infection, you can improve your chances by not having unprotected sex with someone who may have a sexually transmitted disease (in principle, this means anyone not personally known to you), and by not eating at restaurants that have not been properly inspected by local health authorities.

It is also important to make sure the food in your home is stored at a sufficiently low temperature to properly preserve its freshness, and that it is cooked thoroughly before it is eaten.

WHAT IS THE PROGNOSIS OF REITER'S SYNDROME?

Although Reiter's syndrome cannot be cured, symptoms will resolve on their own in most cases, usually within a year, and sometimes within a matter of months, or even weeks.

MEDICAL REFERENCES:

The Mayo Clinic http://www.mayoclinic.org/diseases-conditions/reactive-arthritis/basics/definition/con-20020872 Spondylitis Association of America http://www.spondylitis.org/about/reactive.aspx The American College of Rheumatology https://www.rheumatology.org/Practice/Clinical/Patients/Diseases_And_Conditions/Reactive_Arthritis/ National Institutes of Health http://www.nlm.nih.gov/medlineplus/ency/article/000440.htm University of Maryland Medical System http://umm.edu/health/medical/altmed/condition/reiter-syndrome Mark A. Marinella (1 September 2001). Recognizing Clinical Patterns: Clues to a Timely Diagnosis. Hanley & Belfus. p. 44

This page was last updated on October 1st, 2015

POISON IVY ON YOUR FEET – WHAT YOU CAN DO

If you spend a lot of time outdoors in the spring and summertime, particularly if you like to go barefoot, you run the risk of contracting poison ivy on your feet.

Poison ivy can grow in a multitude of environments: out in the woods, in parks, or even in your own backyard.

Here we will discuss the various ways you can protect yourself against poison ivy, poison oak, and poison sumac, and how to treat the rash that often results from exposure to these plants.

SYMPTOMS OF POISON IVY ON THE FEET TO WATCH FOR

Most of us are familiar with the symptoms that occur after exposure to poison ivy, poison sumac, or poison oak. The condition caused by these plants is known as *contact dermatitis*, which is nothing more than an allergic reaction.

Most people—an estimated 80 to 90 percent of people, in fact—are susceptible to this condition, which is characterized by itchiness and a red rash on affected areas of skin. The skin may appear to have raised bumps on it, and in some cases blisters may even appear.

These symptoms will generally appear on your feet within twelve to forty-eight hours of your contact with the offending plant.

If your poison ivy is on your feet and you were barefoot at the time of your exposure, then the resulting rash and blisters will most likely be concentrated in the plantar region (the sole).

If you were wearing sandals or sneakers without socks, your soles will have been protected, and the worst of the poison ivy on your feet will probably be around your ankles.

HOW DID I DEVELOP POISON IVY ON MY FEET?

The terrible, itchy rash on the feet that results from exposure to poison ivy, oak, or sumac is caused by an oil known as *urushiol*, which is found inside the leaves of all three plants.

When the leaves are broken, bruised, or damaged in any way, the oil is released and can get on your skin if you touch the plant.

This oil is also in the stems and fruit of the plant, but human exposure usually results from contact with the leaves, which are especially tender and subject to bruising in the summertime.

It is actually possible to touch poison ivy without contracting the associated rash, since the urushiol oil is found inside the plant and not on its surface, but because these plants are so fragile it is rare to find one that is completely intact.

COMPLICATIONS—WHEN TO SEEK MEDICAL TREATMENT FOR POISON IVY ON YOUR FEET

In most cases, a poison ivy rash on your feet will resolve itself within a week or so without medical care. However, you should go immediately to the emergency room if you experience any of the following symptoms:

- Trouble swallowing
- Trouble breathing
- Spreading of the rash to cover a significant portion of your body
- Spreading of the rash to your face or genitals

TREATMENT OPTIONS FOR POISON IVY ON YOUR FEET

The first thing you should do after realizing you have walked through poison ivy (or some other poisonous plant) is wash your feet several times with soap and water.

If you are able to wash your feet quickly enough, you may be able to minimize and possibly even avoid the effects of poison ivy on your feet. Once the rash appears, however, all you can do is wait it out.

Calamine lotion will ease the itching somewhat, and it may be helpful to soak your feet as often as possible in a solution of warm water and baking soda or Epsom salts.

Be sure to wash all clothing that may have come into contact with the urushiol oil. If your socks have been contaminated, it may be best simply to throw them away.

As noted earlier in this article, medical treatment for poison ivy on your feet is generally not necessary, and the rash will go away on its own within two or three weeks.

Contrary to popular myth, poison ivy rash cannot be spread by scratching—by the time the rash develops, the oil that has caused it will have long since washed away (assuming, of course, that you are reasonably diligent about your personal hygiene on a day-to-day basis).

HOW CAN I PREVENT GETTING POISON IVY ON MY FEET?

The best way to prevent poison ivy on your feet is to wear proper footwear, especially if you are going hiking in the woods. Sneakers are preferable to sandals, and good, solid hiking boots are even better.

It is also important to wear socks, especially if you are wearing sneakers that leave your ankles exposed. Long pants are better than shorts, for obvious reasons.

If you're spending an afternoon in a public park, think twice before going barefoot. If your exercise routine includes barefoot running, consider your route carefully, and try walking it first while wearing shoes, looking for places where poison ivy, poison oak, or poison sumac may be hiding.

Most important—learn to recognize poisonous plants on sight so that you can avoid touching them by accident. Each leaf comprises three leaflets, the middle of which is longer than the other two. Remember the old rhyme: leaves of three, let it be.

When working to rid your lawn and garden of these plants, always uproot them so that they do not grow back, and ***never burn them***! Burning poison ivy (or any plant whose leaves contain urushiol) releases toxic smoke that can cause much worse problems than itchy feet if it is inhaled.

MEDICAL REFERENCES:

The National Institutes of Health http://www.nlm.nih.gov/medlineplus/ency/article/000027.htm The Mayo Clinic http://www.mayoclinic.org/diseases-conditions/poison-ivy/basics/symptoms/con-20025866 The American Academy of Dermatology http://www.aad.org/dermatology-a-to-z/diseases-and-treatments/m---p/poison-ivy http://poisonivy.aesir.com/ The Centers for Disease Control and Prevention http://www.cdc.gov/niosh/topics/plants/

This page was last updated on October 1st, 2015

WHAT TO EXPECT WHEN YOU HAVE A LOST OR SEVERED TOE

Losing a toe is a traumatic experience, and adjusting to the loss, physically and emotionally, is no picnic.

In this article we will explore some of the ways a toe may be lost or severed, and what effect this loss may have on your ability to walk, run, and participate in the same kinds of activities you did before the loss.

HOW CAN SOMEONE LOSE THEIR TOE?

A toe can be lost in many ways—it can be severed in an accident (lawnmowers are a common cause of this type of mishap), or it may need to be amputated due to an infection following an improperly treated injury.

The number one reason for amputation of a toe, however, is diabetes. Because diabetes interferes with the body's ability to fight infection, foot health is a matter of particular concern for diabetics.

Small injuries can become infected more easily, and in the infection is not treated promptly enough, the infection may become severe enough to require amputation of the toe, or even the entire foot.

This problem is exacerbated by other complications that may arise from diabetes, including diabetic neuropathy, which can interfere with an individual's sensation of pain, causing them to ignore an injury until it has become severely infected, and poor circulation, which can lead to gangrene.

COMPLICATIONS ARISING FROM THE LOSS OF A TOE

Regardless of whether you had your toe severed in an accident or amputated in a hospital, life will be slightly different with your toe gone; how different depends largely on which toe you have lost.

The loss of the fifth toe (the little one) is generally of minimal consequence to one's gait (i.e., manner of walking). While you may experience some unsteadiness at first, most people learn rather quickly to adapt to the loss of the fifth toe, and are thereafter able to walk normally, and even run.

The loss of the hallux—the big toe—is somewhat more serious, and may be more difficult to learn to compensate for.

The big toe is the last part of the foot to push off with every step we take, and while doing so it carries about 40 percent of the body's weight.

Many people learn to walk—and even to run—following the loss of this toe, but it usually takes longer than recovery from the loss of the little toe, and may be more painful.

Also, because they are not designed to carry as much weight as the big toe, the other toes are not as strong, and may begin to hurt after you have been walking for a while.

Another problem with the loss of a toe, especially the hallux, is that over time, the bones of the foot may begin to shift positions.

Heather L. Lawver describes on her web site, Notoes.com, how this happened to her after her own big toe was amputated.

Her arch began to shift so that the inner edge of her foot curved inward, and her first metatarsal began to collapse onto the second metatarsal, pinching the major nerves running between the toes and causing intense, stabbing pain.

Finally, while stubbing your toe can be an extremely painful experience, stubbing a toe stump can be much more painful.

The bone of a toe stump may be much closer to the surface than the bone of an intact hallux, and it lacks both the cushioning and the flexibility of the toe, making unexpected impacts much more unpleasant. For this reason, most insurance companies are willing to cover the cost of a prosthetic toe.

Despite these concerns, with proper medical care the loss of a big toe need not result in significant disability in the long run, according to a study published in *Clinical Orthopaedics and Related Research*.

EMERGENCY TREATMENT FOR A SEVERED TOE

If you or someone you know suffers an accident that results in a severed toe, it is important to remain calm.

If you are not the victim, do whatever you can to keep the afflicted person from panicking—an amputation injury is frightening, and viscerally upsetting as well.

Keep the foot raised, if possible, and try to apply direct pressure to the wound to minimize the bleeding. If enough of the toe remains to tie a tourniquet onto the stump, do so.

If the severed toe can be recovered, keep it away from dirt or other contaminants, and rinse it in clean water, if possible.

Wrap it in a clean, damp piece of cloth, put the cloth in a zip-lock plastic bag, and put the bag in ice-cold water.

Do NOT place the toe directly in ice water. Avoid putting the toe directly on ice—especially dry ice—as this may cause frostbite. Keep the toe as cool as possible without freezing it, and keep it away from heat.

A severed toe that is kept cool may be reattachable for as long as 18 hours after the accident; if not kept cold, it may only last as little as four hours.

ADJUSTING TO THE LOSS OF A TOE

Following the loss of a toe, there will be a period of emotional adjustment, which may be complicated by the pain of recovery. You may experience anxiety about walking again, and some people begin to fret over the change in the cosmetic appearance of their feet.

After the loss of a limb or digit, many people experience phantom pain—the sensation that the lost toe is still there, and it hurts! Phantom itching is also common. These sensations are unpleasant, but they will pass eventually. Ask your doctor what can be done about them.

MEDICAL REFERENCES:

No Toes (For Those of Us Who Can't Count to 20) http://www.notoes.com The American Orthopaedic Foot & Ankle Society (AOFAS) http://www.aofas.org/footcaremd/conditions/diabetic-foot/Pages/Diabetic-Foot-Problems.aspx The National Institutes of Health http://www.nlm.nih.gov/medlineplus/ency/article/000006.htm The Amputee Coalition http://www.amputee-coalition.org/limb-loss-resource-center/resources-by-amputation-level/partial-foot-toes/index.html Scientific American http://www.scientificamerican.com/article/no-big-toe-no-go/ The Straight Dope http://boards.straightdope.com/sdmb/showthread.php?t=596134

This page was last updated on January 1st, 2016

OSTEOPOROSIS IN YOUR ANKLE AND FOOT

For those who suffer from it, the degenerative bone condition known as osteoporosis is one of the more significant aspects of aging.

Most of us lose a little bit of bone mass as we get older, but the bones of people who suffer from osteoporosis become brittle and can break from even mild impact. Osteoporosis has special implications for the feet and ankles, which we will discuss here.

WHAT IS OSTEOPOROSIS?

Because they are not soft like other tissue, it is easy to forget that our bones are living, organic matter. Just like other soft tissues in our body, bone cells are subject to a constant cycle of degeneration and regeneration.

Older tissue is absorbed back into the body, and new tissue is generated. When we are young, especially during our growing years, bone mass is built (regenerated) faster than the rate at which the tissue is absorbed (degenerated).

At some point in our late teens or early twenties, we reach peak bone mass, after which the rate of replacement slows. From this point on, as we age, we begin to lose bone mass faster than we create it. If this deficit is severe enough, the condition is called osteoporosis.

It is estimated that 54 million Americans have osteoporosis, which occurs in approximately 50 percent of women and 25 percent of men at some point in their lives.

Because people affected by this condition tend to be older, many of them have poor vision and are not as agile as they may have once been. This makes them especially susceptible to foot and ankle injuries, which can often be serious because of their brittle bones.

A younger person may heal quickly after breaking a toe or ankle, with no sign that they were ever injured, but for older people suffering from osteoporosis, such injuries can result in lifelong pain and disability due to lack of proper bone healing.

In addition to being more vulnerable to trauma-related fractures, people with osteoporosis are also more susceptible to stress fractures in their feet.

These types of fractures are rarely due to any sudden violent incident; rather, they occur as a result of prolonged overuse and microscopic trauma. Something as simple as a daily walk for an older person can lead to stress fractures in the foot or ankle.

Young, healthy people may get stress fractures as a result of participation in sports, but older people can get them with much lighter activity due to osteoporosis.

HOW DOES OSTEOPOROSIS DEVELOP?

The most common risk factor for osteoporosis in your ankle and foot is age, but there are other risk factors that make some people more vulnerable than others. Women, as statistically shown above, are twice as susceptible as men, and whites and Asians are considerably more likely to suffer osteoporosis than people of other races.

Your physique—how you're built—also plays a role. The more bone mass you acquire in your youth, the more you can afford to lose later in life. People with smaller body frames are somewhat more likely to suffer osteoporosis when they get older.

Diet—in adulthood as well as in childhood—is another key factor. Low calcium intake, as you may have guessed, can lead to osteoporosis later in life. The same is true for people whose diet does not contain sufficient vitamin D.

Certain gastrointestinal surgeries have been linked to osteoporosis later in life, and people who have part of their stomach or intestinal tract removed need to be conscientious about how they eat, in order to ensure that they get enough calcium.

Other factors that contribute to the development of osteoporosis include excessive use of alcohol or tobacco, sedentary habits (i.e., spending more time sitting than exercising), and long-term use of certain steroid medications.

If you spend most of your day sitting, or if you have more than two alcoholic drinks per day, it may be time to reevaluate your lifestyle.

SYMPTOMS OF OSTEOPOROSIS IN THE FEET AND ANKLES

Unfortunately, there are often no symptoms of osteoporosis until bones begin to break. For this reason, this condition is sometimes known as "the silent disease," and it can be difficult to catch in its early stages.

There are symptoms in some cases, however; if you suffer from osteoporosis you may have back pain caused by fracture or collapse of your vertebrae.

Osteoporosis is sometimes associated with diabetes, possibly because excess body weight and a sedentary lifestyle can contribute to both conditions. Osteoporosis can present particular dangers to your foot and ankle. As we age, our balance inevitably deteriorates, making us more susceptible to falls and subsequent fractures.

Also, your toes can unexpectedly be broken if they strike the coffee table as you walk across your living room. The best way to minimize both of these risks is to wear good, sturdy shoes throughout the day, except when showering or sleeping. Good shoes will protect your toes from injury and make it easier for you to maintain your balance (most indoor falling injuries occur to people who are barefoot or wearing only socks).

HOW IS OSTEOPOROSIS TREATED?

Most treatment for osteoporosis in your ankle and foot involves improvements in diet, increased exercise, and other changes in lifestyle. There are medications available, such as alendronate, risedronate, ibandronate, and zoledronic acid, but many of these medicines are associated with side effects, including abdominal pain, nausea, and trouble swallowing. A drug called teriparatide has been shown to effectively stimulate new bone growth, and may be worth asking your doctor about. Your podiatrist may also suggest special ankle braces to improve your balance.

MEDICAL REFERENCES:

National Institutes of Health http://www.nlm.nih.gov/medlineplus/osteoporosis.html
http://www.nlm.nih.gov/medlineplus/ency/article/000360.htm
http://www.niams.nih.gov/Health_Info/Bone/Osteoporosis/osteoporosis_ff.asp
http://www.niams.nih.gov/Health_Info/Bone/Osteoporosis/Conditions_Behaviors/diabetes.asp The National Osteoporosis Foundation http://nof.org/articles/7 National Osteoporosis Society http://www.nos.org.uk/page.aspx?pid=325&article=92753cf0-5135-4516-8ddf-a70928744894 The Mayo Clinic http://www.mayoclinic.org/diseases-conditions/osteoporosis/basics/symptoms/con-20019924 Columbia University http://ps.columbia.edu/news/broken-ankle-may-signal-early-osteoporosis The American Academy of Orthopaedic Surgeons http://orthoinfo.aaos.org/topic.cfm?topic=a00379

This page was last updated on October 1st, 2015

SEPTIC ARTHRITIS IN THE ANKLE – WHAT YOU CAN DO

The condition known as septic arthritis is different from ordinary arthritis as most people understand it. While the term *arthritis*, as it is conventionally used, refers to pain and inflammation in the joints, *septic arthritis* is a bacterial infection in the joint cavity, usually caused by *staphylococcus aureus* bacteria (in layman's terms, a staph infection).

While it occurs more often in the knee than in other joints, septic arthritis in the ankle is not uncommon.

It can occur at any age, but when it occurs in children it is most often seen in children under the age of 3. It is also sometimes called *suppurative arthritis* due to the pus that often accompanies bacterial infection.

This condition is a medical emergency, and if you experience any of the symptoms described here you should see a doctor immediately. In an infant, it can be recognized by the child's behavior—the baby may cry whenever the affected foot is moved or touched.

SYMPTOMS OF SEPTIC ARTHRITIS IN THE ANKLE TO LOOK FOR

Septic arthritis in the ankle is usually accompanied by:

- Severe pain
- Swelling
- Redness
- Warmth emanating from the joint
- Fever

It is the combination of these symptoms that most strongly suggests an infection of this type—particularly the fever and the warmth of the ankle.

CAUSES AND RISK FACTORS FOR SEPTIC ARTHRITIS

As noted above, the most common cause of septic arthritis in the ankle is staph infection. Good health and personal hygiene do not rule it out; staphylococcus bacteria are everywhere, and they can live even on the skin of a healthy person.

The synovial membrane that lines your joints is ill-equipped to fend off infections, and your body reacts to the problem by inflaming the surrounding tissue, which reduces blood flow and increases pressure, thereby making the problem worse.

Other types of bacteria can also cause septic arthritis. Candida bacteria can even cause *chronic* septic arthritis, although this is rare.

Fungal infections are also a possibility. Regardless of the type of microorganism that causes it, this condition occurs when the bacterial or fungal agent responsible gets to the affected joint via the bloodstream, often because of direct injury to the ankle.

In rare cases, the infection can be contracted during surgery (or afterward, if the surgeon's post-operative wound-care instructions are not followed correctly).

Factors that can increase the risk of this condition include:

- Existing bacterial infection elsewhere in the body (e.g., a respiratory infection), which can spread to the joint through the bloodstream
- Prosthetic joint implants. Ankle joints are particularly susceptible—the infection rate for them is about 9%. If this happens, the joint implant will most likely need to be removed.
- Certain chronic illnesses, including diabetes, or any disease that weakens the immune system
- Existing problems with the ankle joint, such as gout, rheumatoid arthritis, or osteoarthritis
- Medication for osteoarthritis, rheumatoid arthritis, and other conditions: Any medication that suppresses the functioning of the immune system can make you more susceptible to infection, and immunosuppressive drugs are sometimes used to treat some forms of arthritis that occur when the immune system attacks the synovial membranes.
- IV drug use (heroin, for example). People who use illegal drugs sometimes risk infection by sharing unclean needles.
- Recent arthroscopic surgery
- Recent ankle injury

In sexually active young adults, gonorrhea is one of the most common causes of this kind of infection.

PROGRESSION AND COMPLICATIONS OF SEPTIC ARTHRITIS

If septic arthritis in the ankle is left untreated, it can cause degeneration in the joint, leading to permanent damage.

DIAGNOSIS AND TREATMENT OF SEPTIC ARTHRITIS

If your doctor suspects septic arthritis, he or she will insert a needle into the joint cavity and withdraw a small sample of the synovial fluid (the fluid that fills all joint cavities), for analysis.

Blood tests will also be performed in order to look for the presence of certain bacteria in your bloodstream. An x-ray of your ankle may also shed light on the problem.

Once the problem has been diagnosed, it can be treated. The bacterial infection will be addressed with antibiotics, which will be administered intravenously at first; later you will be given oral antibiotics to take (be sure to follow your doctor's instructions for these).

It will also be necessary to drain the infected synovial fluid from the joint. This may be done with a needle, or with arthroscopic surgery, which involves a tiny video camera at the tip of a small, flexible tube that also carries tiny surgical instruments.

While you are recovering from your surgery, you may find that you experience side effects from the antibiotics you are taking, including nausea and diarrhea. Be sure to inform your doctor if this happens, and he or she may be able to find a different antibiotic that does not affect you quite so strongly.

WHAT IS THE PROGNOSIS FOR SEPTIC ARTHRITIS?

If treatment is administered promptly with antibiotics, the prognosis is excellent. In some cases the situation may be complicated—for example, a prosthetic implant may need to be removed and possibly re-implanted at a later date—but most patients recover from septic arthritis with minimal long-term damage if the problem is diagnosed before the infection has a chance to do serious harm.

MEDICAL REFERENCES:

The National Institutes of Health http://www.ncbi.nlm.nih.gov/pubmed/10974757
http://www.nlm.nih.gov/medlineplus/ency/article/000430.htm The Mayo Clinic
http://www.mayoclinic.org/diseases-conditions/bone-and-joint-infections/basics/definition/con-20029096 The Cleveland Clinic Foundation
http://www.clevelandclinicmeded.com/medicalpubs/diseasemanagement/rheumatology/septic-arthritis/

This page was last updated on October 1st, 2015

RAYNAUD'S PHENOMENON – WHAT YOU CAN DO

Raynaud's Phenomenon (pronounced Ray-NOSE) was named for Maurice Raynaud, the French doctor who first described it in 1862. It is a condition of the circulatory system in which the extremities (the toes, fingers, and ears) become unusually sensitive to cold temperatures or emotional stress.

When the affected person is exposed to a situation that produces stress or anxiety, the arteries feeding the toes and fingers respond by constricting, causing the affected digits to feel cold, numb, and painful.

This response is called a *vaspospasm*, and it can be provoked by even the most trivial drop in temperature—for example, by stepping into a pool of slightly cold tap water.

This response is normal, to some extent; the body's response to cold temperatures has evolved as a way to maintain core body temperature under freezing conditions (thereby protecting the brain and internal organs) by reducing blood flow to our extremities, which minimizes unnecessary heat loss.

In a person who suffers from Raynaud's Phenomenon, however, this response is exaggerated, and can be triggered with very little provocation. These attacks can be brief, lasting only a minute or so, or they can last for hours.

According to the Raynaud's Association, 28 million Americans (about 5 percent of the population) suffer from this condition. Because the symptoms are seldom more than a nuisance, many of these people never seek treatment or even realize they have a medical condition; they often think, *I just have poor circulation in my feet*.

WHICH SYMPTOMS OF RAYNAUD'S PHENOMENON SHOULD I LOOK FOR?

The symptoms Raynaud's sufferers experience during attacks include

- Tingling
- Swelling
- Throbbing pain
- Changes in skin color—skin may turn white as circulation becomes restricted, then blue as oxygen deprivation begins to affect the tissues.

When the attack ends and circulation is restored, the affected toes will usually turn bright red, and tingling sensations will increase for a while before abating.

People who suffer chronic Raynaud's attacks will sometimes have brittle nails with longitudinal ridges. Sometimes just one or two toes will be affected, usually the same ones on each foot.

PRIMARY AND SECONDARY RAYNAUD'S PHENOMENON

There are two recognized types of Raynaud's Phenomenon—*primary* and *secondary*.

Primary Raynaud's Phenomenon exists with no apparent cause, in the absence of any underlying condition or disease known to provoke vascular spasms, and is much more common among women and among people who live in cold climates. The primary type of this condition is also called Raynaud's Disease, and it is more common than secondary Raynaud's. It tends to develop between the ages of 20 and 40.

Secondary Raynaud's Phenomenon involves an underlying condition that is observed to cause the attacks. It often occurs in people over the age of 40 (depending on condition that causes it), and is more likely than primary Raynaud's to be painful.

CAUSES AND RISK FACTORS OF RAYNAUD'S PHENOMENON

The risk factors for primary Raynaud's Phenomenon include:

- Age—the condition usually develops in ages 20–40.
- Gender—by some estimates, women are nine times more likely to suffer this condition than men, and 75 percent of all cases of primary Raynaud's are women aged 15 to 40.
- Climate—people who live in colder climates are more often subjected to temperature extremes that can trigger attacks.
- Family History—while there is not yet any solid evidence of a genetic cause, there is some anecdotal evidence suggesting that in many cases more than one family member is affected.

The risk factors for secondary Raynaud's Phenomenon include:

- Arthritis
- Diseases such as scleroderma, Buerger's disease, and lupus
- Smoking
- Excessive caffeine intake
- Constant use of vibrating tools such as jackhammers, chainsaws, etc.
- Constant repetitive motion such as typing or playing the piano
- Having previously suffered frostbite
- Carpal tunnel syndrome
- Arteriosclerosis
- Peripheral vascular disease
- Thyroid disease

WHAT ARE THE COMPLICATIONS OF RAYNAUD'S PHENOMENON?

Truly severe cases of Raynaud's Phenomenon are rare, but people who suffer from extremely bad cases may get ulcers on affected toes, and in very rare cases tissue death may result from impaired circulation, leading to gangrene.

HOW IS RAYNAUD'S PHENOMENON DIAGNOSED?

Raynaud's Phenomenon shares many symptoms with chilblains, and one condition can sometimes be misdiagnosed as the other.

If your doctor suspects Raynaud's, however, he or she will probably want to perform a *nailfold capillaroscopy* in order to determine whether you have primary or secondary Raynaud's Phenomenon.

During the course of this procedure the doctor will examine your nailfold (the skin at the base of the nail) under a microscope or a hand-held ophthalmoscope in order to study the tiny blood vessels called *capillaries*.

The doctor will be looking for abnormalities—if the capillaries are enlarged, for example, this may indicate that you suffer from an underlying tissue disease that may be causing your symptoms.

Your doctor may also want to conduct blood tests to rule out certain autoimmune diseases that can cause symptoms of Raynaud's Phenomenon.

HOW IS RAYNAUD'S PHENOMENON TREATED?

No cure exists for primary Raynaud's, but there are certain types of drugs that can dilate blood vessels to reduce the severity of attacks:

- Vasodilators, which open up blood vessels
- Calcium-channel blockers, which lower blood pressure by preventing calcium from being absorbed by the cells of blood-vessel walls:
    - Felodipine (Plendil)
    - Nifedipine (Procardia)
    - Verapamil (Calan, Isoptin)
    - Bepridil (Vascor)
    - Amlodipine (Norvasc)
    - Diltiazem (Cardizem)
    - Nisoldipine (Sular)
- Alpha blockers (which can help prevent blood-vessels constriction):
    - Doxazosin (Cardura)
    - Prazosin (Minipress)

If you suffer from Raynaud's Phenomenon, there are many steps you can take to prevent attacks or reduce their duration or severity:

- Swing your arms around when you feel an attack coming on; this helps to encourage blood circulation
- If possible, stick your feet into a tub of warm water as soon as an attack begins
- Exercise regularly—this is good for your circulation in general, and it also promotes a general sense of well being, which may reduce stress and prevent anxiety attacks that can lead to Raynaud's attacks.
- Limit your intake of caffeine and nicotine
- Consume foods high in omega-3 fatty acids, which are found in fish oil. This has been found to help minimize the symptoms of primary Raynaud's Phenomenon.

In very rare cases, surgery might be considered to cut the nerves that open and close the arteries of the affected digits.

This is only a last resort to avoid amputation, however, and cases of Raynaud's Phenomenon severe enough to justify even considering such a drastic step are *extremely* rare.

MEDICAL REFERENCES:

The Cleveland Clinic http://my.clevelandclinic.org/heart/disorders/vascular/raynauds.aspx The New York Times http://www.nytimes.com/health/guides/disease/raynauds-phenomenon/overview.html University of Maryland Medical Center http://umm.edu/health/medical/altmed/condition/raynauds-phenomenon Raynaud's Association, Inc http://www.raynauds.org/ National Institutes of Health http://www.nlm.nih.gov/medlineplus/raynaudsdisease.html http://www.nlm.nih.gov/medlineplus/ency/article/000412.htm The Arthritis Foundation http://www.arthritis.org/conditions-treatments/disease-center/raynauds-phenomenon/ The Mayo Clinic http://www.mayoclinic.org/diseases-conditions/raynauds-disease/basics/definition/con-20022916

This page was last updated on October 1st, 2015

VERTICAL TALUS: SYMPTOMS, CAUSES, AND TREATMENT OPTIONS

Vertical talus, also known as "rocker-bottom foot," affects one out of every 10,000 newborns, and it affects both feet in about half of these cases.

Infants suffering from this condition have rigid, inflexible feet that turn outward, with a reversed arch that curves outward like the bottom of a rocking chair.

SYMPTOMS OF VERTICAL TALUS TO LOOK FOR

The appearance of rocker bottom results from a malformation of the talus bone in the ankle. The talus (pronounced *tay-lus*) normally serves as part of the system that connects the leg to the foot, and it helps to distribute weight evenly among the bones of the ankle.

In an infant with vertical talus, however, the bone has formed in the wrong position, causing the other bones that would normally be in front of it to shift position so that they lie on top of it instead (if this is difficult to visualize, see our article on the anatomy of ankle bones).

This causes the arch to curve in the wrong direction, so that the plantar region of the foot is lower than the toes and the heel. In especially severe cases, the toes may even touch the shinbone.

Because of its rarity, vertical talus is sometimes misdiagnosed as some other form of neonatal flatfoot, or even as clubfoot.

WHAT CAUSES VERTICAL TALUS?

Congenital vertical talus is *idiopathic* in most cases, meaning that the cause is unknown. It is believed to be genetic in origin, and is in some cases associated with chromosomal abnormalities.

On the other hand, many cases are associated with otherwise well-understood congenital neuromuscular diseases such as neurofibromatosis, arthrogryposis, or spinal bifida.

Some studies have suggested that abnormal positioning of the fetus *in utero* may cause this deformity. If your child is born with this condition, it is important to understand that it is not your fault; vertical talus is not preventable.

WHAT ARE THE COMPLICATIONS OF VERTICAL TALUS?

Despite its appearance, this condition is is not painful for newborns, and even toddlers with uncorrected vertical talus can walk without much discomfort. If the condition remains untreated, however, the long-term consequences can be severe and disabling.

It is important for this condition to be treated as quickly as possible, before the deformity progresses. The ideal time for treatment is after six months but before the age of two.

If your child's rocker-bottom foot is not treated before he or she begins to learn to walk, painful skin conditions such as calluses—and worse—will develop.

Eventually the foot will not be able to bear weight without pain, and the child will develop a severely abnormal gait (most likely walking on the inside of the foot), and will probably have difficulty balancing. Finding shoes to fit the deformed foot will be extremely difficult.

Once this has happened, painful and difficult physical therapy will be necessary in order for your child to walk normally, even after the problem has been corrected.

SURGICAL TREATMENT OF VERTICAL TALUS – WHAT TO EXPECT

Historically, vertical talus has been treated with surgery. The major reconstructive procedures employed to this end are accompanied by a host of potential complications, including surgical wound necrosis (tissue death leading to gangrene) and joint stiffness.

Often these procedures undercorrect the deformity, and further surgery is needed later.

Surgical correction involves realigning the bones into their correct positions and inserting pins to keep them in place.

Some ligaments and tendons may need to be surgically lengthened as well. (Some more drastic surgical procedures exist that even involve fusing the bones together to prevent recurrence.) Following surgery the child will have to wear a cast for four to six weeks, after which a brace may be necessary to prevent the foot from reassuming its improper position.

NON-SURGICAL TREATMENT OF VERTICAL TALUS – WHAT TO EXPECT

The good news is that less painful and invasive treatment methods have been developed that may eventually make surgery unnecessary. Surgeons at St. Louis Children's Hospital, led by Dr. Matthew Dobbs, are developing a modified version of the Ponseti method, a nonsurgical technique for correcting clubfoot.

This method, which is often used in conjunction with the surgery it may one day replace, involves stretching of the foot and ankle followed by the application of casts to hold it in place.

Once the correction is complete, the child undergoes a minimally invasive minor surgery in which a pin is inserted to keep the now properly aligned bones in place.

Following this procedure, a cast is placed on the foot and leg and left there for two weeks, after which it is replaced with a brace and a new cast. After another month, the cast and the pin are removed.

At this point a labor-intensive phase of the correction begins for the parents, who now bear the brunt of the responsibility for ensuring that their child's rehabilitation holds up over time.

The child is now given a brace that must be worn for 23 hours each day for two months, and then for 14 hours a day over the next two years. The parents are also taught stretching exercises that must be performed on the child's foot four times daily.

While this procedure is difficult, the advantage of it is that it obviates the need for numerous invasive and painful surgeries that might still not fully correct the problem, leading to arthritis and other problems farther down the road, possibly as soon as adolescence.

TALKING TO YOUR DOCTOR

Here are some questions you can ask your doctor about vertical talus:

- Do you recommend surgery for my child's vertical talus, or is there some other option?
- If you recommend the modified Ponseti method, what are my child's chances for a complete recovery when the years of therapy are finally over with? What will be the consequences if I am insufficiently diligent about the stretching exercises?
- If you recommend surgical correction, how soon do you think we should begin? Will there be other treatment prior to surgery?
- Does my child suffer from any other related conditions?

VERTICAL TALUS: SYMPTOMS, CAUSES, AND TREATMENT OPTIONS

Vertical talus, also known as "rocker-bottom foot," affects one out of every 10,000 newborns, and it affects both feet in about half of these cases.

Infants suffering from this condition have rigid, inflexible feet that turn outward, with a reversed arch that curves outward like the bottom of a rocking chair.

SYMPTOMS OF VERTICAL TALUS TO LOOK FOR

The appearance of rocker bottom results from a malformation of the talus bone in the ankle. The talus (pronounced *tay-lus*) normally serves as part of the system that connects the leg to the foot, and it helps to distribute weight evenly among the bones of the ankle.

In an infant with vertical talus, however, the bone has formed in the wrong position, causing the other bones that would normally be in front of it to shift position so that they lie on top of it instead (if this is difficult to visualize, see our article on the anatomy of ankle bones).

This causes the arch to curve in the wrong direction, so that the plantar region of the foot is lower than the toes and the heel. In especially severe cases, the toes may even touch the shinbone.

Because of its rarity, vertical talus is sometimes misdiagnosed as some other form of neonatal flatfoot, or even as clubfoot.

WHAT CAUSES VERTICAL TALUS?

Congenital vertical talus is *idiopathic* in most cases, meaning that the cause is unknown. It is believed to be genetic in origin, and is in some cases associated with chromosomal abnormalities.

On the other hand, many cases are associated with otherwise well-understood congenital neuromuscular diseases such as neurofibromatosis, arthrogryposis, or spinal bifida.

Some studies have suggested that abnormal positioning of the fetus *in utero* may cause this deformity. If your child is born with this condition, it is important to understand that it is not your fault; vertical talus is not preventable.

WHAT ARE THE COMPLICATIONS OF VERTICAL TALUS?

Despite its appearance, this condition is is not painful for newborns, and even toddlers with uncorrected vertical talus can walk without much discomfort. If the condition remains untreated, however, the long-term consequences can be severe and disabling.

It is important for this condition to be treated as quickly as possible, before the deformity progresses. The ideal time for treatment is after six months but before the age of two.

If your child's rocker-bottom foot is not treated before he or she begins to learn to walk, painful skin conditions such as calluses—and worse—will develop.

Eventually the foot will not be able to bear weight without pain, and the child will develop a severely abnormal gait (most likely walking on the inside of the foot), and will probably have difficulty balancing. Finding shoes to fit the deformed foot will be extremely difficult.

Once this has happened, painful and difficult physical therapy will be necessary in order for your child to walk normally, even after the problem has been corrected.

SURGICAL TREATMENT OF VERTICAL TALUS – WHAT TO EXPECT

Historically, vertical talus has been treated with surgery. The major reconstructive procedures employed to this end are accompanied by a host of potential complications, including surgical wound necrosis (tissue death leading to gangrene) and joint stiffness.

Often these procedures undercorrect the deformity, and further surgery is needed later.

Surgical correction involves realigning the bones into their correct positions and inserting pins to keep them in place.

Some ligaments and tendons may need to be surgically lengthened as well. (Some more drastic surgical procedures exist that even involve fusing the bones together to prevent recurrence.) Following surgery the child will have to wear a cast for four to six weeks, after which a brace may be necessary to prevent the foot from reassuming its improper position.

NON-SURGICAL TREATMENT OF VERTICAL TALUS – WHAT TO EXPECT

The good news is that less painful and invasive treatment methods have been developed that may eventually make surgery unnecessary. Surgeons at St. Louis Children's Hospital, led by Dr. Matthew Dobbs, are developing a modified version of the Ponseti method, a nonsurgical technique for correcting clubfoot.

This method, which is often used in conjunction with the surgery it may one day replace, involves stretching of the foot and ankle followed by the application of casts to hold it in place.

Once the correction is complete, the child undergoes a minimally invasive minor surgery in which a pin is inserted to keep the now properly aligned bones in place.

Following this procedure, a cast is placed on the foot and leg and left there for two weeks, after which it is replaced with a brace and a new cast. After another month, the cast and the pin are removed.

At this point a labor-intensive phase of the correction begins for the parents, who now bear the brunt of the responsibility for ensuring that their child's rehabilitation holds up over time.

The child is now given a brace that must be worn for 23 hours each day for two months, and then for 14 hours a day over the next two years. The parents are also taught stretching exercises that must be performed on the child's foot four times daily.

While this procedure is difficult, the advantage of it is that it obviates the need for numerous invasive and painful surgeries that might still not fully correct the problem, leading to arthritis and other problems farther down the road, possibly as soon as adolescence.

TALKING TO YOUR DOCTOR

Here are some questions you can ask your doctor about vertical talus:

- Do you recommend surgery for my child's vertical talus, or is there some other option?
- If you recommend the modified Ponseti method, what are my child's chances for a complete recovery when the years of therapy are finally over with? What will be the consequences if I am insufficiently diligent about the stretching exercises?
- If you recommend surgical correction, how soon do you think we should begin? Will there be other treatment prior to surgery?
- Does my child suffer from any other related conditions?

MEDICAL REFERENCES:

Gurnett CA, Keppel C, Bick J, Bowcock AM, Dobbs MB (September 2007). "Absence of HOXD10 mutations in idiopathic clubfoot and sporadic vertical talus". Clinical Orthopaedics and Related Research 462: 27–31. American Academy of Family Physicians http://www.aafp.org/afp/2004/0215/p865.html University of Maryland Medical Center http://umm.edu/programs/orthopaedics/services/pediatric/flat-feet St. Louis Children's Hospital http://www.stlouischildrens.org/our-services/center-foot-disorders/vertical-talus http://www.stlouischildrens.org/sites/default/files/services/foot_disorders/files/SLC6645%20Vertical%20Talus%20Insert%20web.pdf http://www.stlouischildrens.org/our-services/center-foot-disorders/ponseti-method-clubfoot/treatment American Academy of Orthopaedic Surgeons http://orthoinfo.aaos.org/topic.cfm?topic=A00612 National Center for Biotechnology Information http://www.ncbi.nlm.nih.gov/pubmed/18160500 http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2656724/ American Orthopaedic Foot & Ankle Society http://www.aofas.org/footcaremd/overview/Pages/Glossary.aspx

This page was last updated on October 1st, 2015

ONYCHIA AND PARONYCHIA OF THE TOE – WHAT YOU CAN DO

The terms *onychia* and *paronychia* refer to a type of bacterial or fungal infection that strikes the fingernails and toenails. Onychia is an infection of the nail itself, which causes inflammation of the nail and swelling of the surrounding tissue.

Paronychia is an infection of the surrounding tissue, where the nail meets the skin; a paronychia infection causes inflammation, and may also lead to the formation of pus-filled abscesses.

SYMPTOMS OF ONYCHIA AND PARONYCHIA YOU SHOULD KNOW ABOUT

If you are suffering from onychia or paronychia that has been caused by bacterial infection resulting from an injury, the folds of skin and tissue at the base of your toenail will begin to appear red and swollen within two to five days following the injury.

In most cases, there will also be pain. Abscesses may form under the nail, and the pus that forms there may eventually begin to lift the nail from the nail bed, causing additional pain.

To some extent, the progression of onychia and paronychia symptoms will depend on the cause of the infection. Bacterial paronychia infections will appear suddenly, whereas fungal infections will take more time.

In rare cases, the infection may eventually spread to the bones, tendons, or bloodstream, or it may result in permanent malformation of the toenail.

WHAT CAUSES ONYCHIA AND PARONYCHIA?

The most common cause of onychia and paronychia is trauma—that is, a break in the skin. The injury does not have to be a serious one, and indeed it usually isn't. The cause can be a hangnail, a splinter, or a badly stubbed toe.

Bacteria (most commonly *Staphylococcus aureus*) can enter the body through such small wounds if they are not properly disinfected. Cases of onychocryptosis (ingrown toenail) can sometimes lead to bacterial infections of the toenail.

Onychia and paronychia sometimes result from unsanitary conditions in nail salons—usually manicuring implements that have not been properly disinfected.

This is not to discourage our readers from getting pedicures, which can be beneficial in many ways; it is important, however, to choose a reputable salon, and it may be advisable to bring your own implements.

ACUTE AND CHRONIC PARONYCHIA – WHAT TO KNOW

Doctors divide paronychia into two classes: *acute* and *chronic* paronychia. Chronic paronychia is often caused by multiple factors, and is usually a reaction to allergens or to persistent irritants.

Recurrent acute paronychia can sometimes evolve into chronic paronychia (this is often seen in patients who take poor care of their feet). Chronic paronychia is a common complication of diabetes.

WHAT ARE MY TREATMENT OPTIONS FOR ONYCHIA AND PARONYCHIA?

If you have been experiencing symptoms of paronychia—such as redness and pain around the base of your toenail or pus oozing out from underneath it—you should seek medical attention as soon as possible; your doctor will want to examine you in order to make a diagnosis.

In most cases, your doctor will be able to diagnose onychia or paronychia just by looking at your toe, but determining the extent of the problem will require further examination.

The doctor will take your toe between his or her fingers and apply a little bit of pressure, causing the skin under the toenail to blanche. If there is an abscess, this action will reveal the outline of it.

If an abscess has not formed, your doctor may merely advise you to apply warm compresses to the toe or to soak it in warm water—or maybe in vinegar or Burrow's solution (aluminum acetate dissolved in water).

Your doctor may also prescribe non-steroidal anti-inflammatory drugs (NSAIDs) for the pain. If you are diabetic, however, you may be advised not to soak your foot, although there is still some disagreement within the medical profession about why this precaution is necessary, if at all.

If there is an abscess, the doctor will drain the pus from it (this may require a small incision), and he or she may want to take a sample of the pus for a biopsy in order to determine the nature and cause of your infection.

If there has been no improvement after two days, further intervention may be necessary, possibly including a deeper surgical incision and removal of part of the nail plate.

In some cases, if the condition resists treatment, surgical excision of the proximal nail fold may be necessary.

Another surgical option that may be considered is *eponychial marsupialization*, which involves the removal of a narrow strip of skin next to the nail. The purpose of this procedure is to make the nail folds less vulnerable to infection.

Other treatment options for infections of the toenail and the base of the nail may involve antibiotics (for a bacterial infection) or topical antifungal cream (for a fungal infection).

PREVENTION TIPS FOR ONYCHIA AND PARONYCHIA

While onychia and paronychia can happen to anyone, there are precautions you can take in everyday life to prevent them:

- Wash your feet every day.
- Bring your own pedicure tools to nail salons.
- Do not use cuticle removers—trimming the cuticle damages the skin at the nail base.
- Trim your toenails about once a month, cutting them straight across, without rounding the edges.
- Always trim your toenails immediately after taking a bath or shower; they are softer at this time, and you are less likely to cut yourself.

QUESTIONS TO ASK YOUR DOCTOR ABOUT ONYCHIA AND PARONYCHIA

- Are the redness and pain in my toe the result of an infection?
- Is it a bacterial infection or a fungal infection?
- Are there any non-surgical remedies for this condition?
- If surgery is necessary, how long will it take for my toe to heal?

MEDICAL REFERENCES:

Nails Magazine http://www.nailsmag.com/encyclopedia/64072/onychia Cleveland Clinic http://my.clevelandclinic.org/disorders/paronychia/hic-paronychia-nail-infection.aspx Podiatry Today http://www.podiatrytoday.com/article/255 National Institutes of Health http://www.nlm.nih.gov/medlineplus/ency/article/001444.htm http://www.ncbi.nlm.nih.gov/pubmed/2022845 The American Academy of Family Physicians http://www.aafp.org/afp/2008/0201/p339.html Beauty and the Bath http://www.beauty-and-the-bath.com/toe-nail-disease.html John Hopkins http://www.hopkinsmedicine.org/healthlibrary/conditions/adult/dermatology/other_bacterial_skin_infections_85,P00302/ Baran R, Barth J, Dawber RP. Nail Disorders: Common Presenting Signs, Differential Diagnosis, and Treatment. New York, NY: Churchill Livingstone; 1991:93–100.

This page was last updated on October 2nd, 2015

BRITTLE TOENAILS: CAUSES AND TREATMENT OPTIONS

If you suffer from brittle nails, you're not alone. Experts believe that up to 20 percent of the US population suffers from *onychorrhexis* (the medical term for brittle toenails or fingernails).

Brittle nails can cause considerable misery for people who suffer from them; the split ends that look like they've been gnawed by a hungry animal are bad enough, but the ridges are the icing on a very unattractive cake.

Women who try to grow their nails to any length generally find that the nail breaks—unevenly—as soon as it gets more than a millimeter past the end of the toe or finger.

While weakness of the nails can take many forms—split nails, crumbling nails, etc. — the term *onychorrhexis* refers to a specific condition that is characterized by splitting and by the formation of longitudinal (lengthwise) ridges on the surface of the nail.

This condition can have many causes, and in some cases, doctors are unable to determine the exact reason for a patient's brittle toenails, and must settle for diagnosing the condition as *idiopathic*—medical jargon for "who knows?"

WHY ARE MY TOENAILS BRITTLE?

Brittle, easily broken toenails have a variety of possible causes. There is often not one single cause, but rather a number of factors working together. Possible causes of onychorrhexis include:

- Hypothyroidism: Along with weight gain and fatigue, brittle nails and hair are among the more notable symptoms of an underperforming thyroid gland.
- Vitamin deficiencies and other nutritional problems can cause onychorrhexis, as can eating- and nutrition-related disorders such as bulimia, anorexia, and anemia.

- Overuse of chemical products: Women who paint their toenails and change colors too often can acquire brittle nails. Ironically, one of the most susceptible professions is nail salon work; the polish removers and cuticle solvents that nail salon workers are exposed to throughout their workdays can easily contribute to onychorrhexis of the fingernails.
- Excessive exposure to strong soap, such as may result from certain occupations (e.g., dishwashing), can cause brittle fingernails. Compulsive washing of the hands or feet can also contribute to brittle nails.
- Age: As we get older, our bodies become less able to retain moisture, which eventually causes our hair and nails to become brittle and easily damaged.
- Toenail fungus can weaken your nails, causing them to split or crumble.
- *Raynaud's Phenomenon* is a poorly understood medical condition in which blood flow to the toes and fingertips is too easily hindered by the subject's extreme sensitivity to cold. This can cause the toenails to be deprived of sufficient oxygen, making them brittle.
- Psoriasis, eczema, and other skin conditions can also attack the nails, making them weak and brittle.

One frustrating aspect of the brittle nail problem is that it can be the result of too little moisture—or too much. Swimming coaches, lifeguards, and others who spend a lot of time in the water often report brittle nails, which are often directly attributable to their occupations.

On the other hand, the damage that occurs to the fingernails of someone who works with chemicals all day is generally caused by dehydration of the nail.

Also, as noted above, the reason our nails become increasingly fragile and brittle as we get older is that our bodies lose some of their ability to retain moisture as we age.

HOW ARE BRITTLE NAILS TREATED?

The B complex vitamin biotin has been demonstrated to strengthen weak, brittle nails. Over-the-counter biotin supplements such as Appearex can be found in most chain drugstores. Studies appear to show that 2.5 milligrams of biotin daily will improve nail strength.

Since a nail takes about six months to replace itself, it may take at least that long for the benefits of biotin supplements to become apparent, but 25–30 percent of people who try biotin see improvement within four to six months.

Another product that shows promise in the treatment of brittle nails is Genadur. Unlike biotin supplements, Genadur is available only with a prescription.

The significance of this product is that it is the first treatment for fragile, brittle nails that has been approved by the FDA.

According to Genadur's manufacturer, Medimetriks Pharmaceuticals, a once-daily brush-on application may produce results within two or three weeks.

UNPROVEN TREATMENTS FOR BRITTLE TOENAILS YOU SHOULD KNOW ABOUT

The following products and supplements have all been touted at one time or another, and they all have one thing in common: none of them have ever been clinically proved to work.

- Silicon
- Horsetail (an herbal supplement)
- Calcium supplements
- Iron
- Vitamin A
- Cysteine
- Zinc

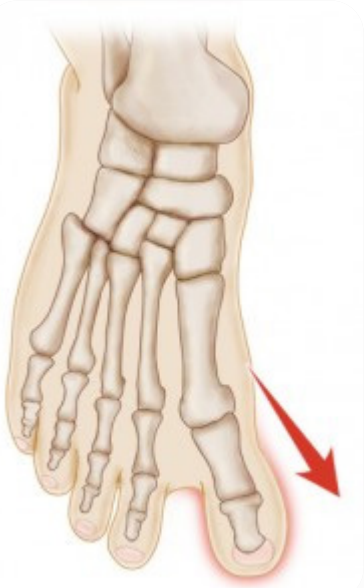
That's not to say for sure that none of the items on this list will help, but the studies that have been conducted to date have been inadequate, and in some cases have been funded by companies involved in marketing them as miracle cures for brittle nails. When more research is needed, the consumer should always be skeptical.

TALKING TO YOUR DOCTOR ABOUT BRITTLE NAILS

Here are some questions to ask your doctor if you suffer from brittle toenails:

- What is causing my brittle toenails?
- Will biotin supplements help strengthen my nails?
- What is meant by the term *onychorrhexis*?
- Can you tell me more about Genadur?
- Are my eating habits to blame for this condition? Do I suffer from a vitamin deficiency?
- Is it possible my brittle toenails are a sign of some more serious underlying condition?

WHAT YOU SHOULD KNOW ABOUT HALLUX VARUS



Hallux varus is a common deformity of the big toe, in which the first metatarsal joint of the hallux (i.e., the big toe) deviates away from the foot, toward the body's midline.

Unlike its opposite condition, hallux valgus (bunions), hallux varus, while not uncommon, is not a widespread problem in the developed countries of Western Europe and the Americas.

In the developing Third World, however, where much of the population does not wear shoes, hallux varus afflicts much of the adult population.

HALLUX VARUS SYMPTOMS YOU SHOULD BE AWARE OF

The most obvious symptom of hallux varus is the appearance of the big toe, which bends away from the foot—and in the direction of the other foot—in much the same manner that a hitch-hiker's thumb bends away from his or her hand.

Hallux varus is generally painful, and the pain is generally accompanied by limited range of motion, instability, and difficulty with balance. Patients suffering from this condition may have great difficulty walking normally, or even fitting into shoes.

If the hallux varus has been caused by an injury, the condition may appear to become more pronounced when weight is placed on the foot.

On the other hand, hallux varus may in some cases be asymptomatic, meaning that the condition is not severe enough to affect the patient's use of the foot or their general well-being. In such cases treatment is generally unnecessary.

WHAT CAUSES HALLUX VARUS?

Hallux varus may be congenital (meaning that the patient was born with the condition), or it may be acquired via an injury or from long-term wear of inappropriate or inadequate shoes.

Injuries that can cause hallux varus include various kinds of blunt trauma or severe burns that cause muscles or tendons to contract. Arthritis or other inflammatory diseases may also lead to hallux varus in some cases.

Hallux varus can also result from failed bunion surgery, or it may arise as a complication of an attempt to surgically address polydactyly (extra toes on the foot), or from removal of a sesamoid bone from the big toe. Of all the causes listed here, overcorrection in the course of bunion surgery is by far the most common.

HOW IS HALLUX VARUS TREATED?

If mild hallux varus is caught and treated in its early stages, splinting may be beneficial, but in more severe cases this will become less effective as the condition progresses.

If the condition is asymptomatic—that is, if the deformity is not too pronounced and the toe is still reasonably flexible—then treatment may not be necessary.

If treatment *is* necessary, however, and conservative treatments fail, then surgery may be required. Surgical treatments may include:

- Transfer of the abductor hallucis, a muscle that lies along the medial edge of the foot (the side toward which the affected toe bends)
- Tendon transfer, a procedure in which a non-critical tendon is moved to a position from which it can help to straighten the big toe
- Relocation of the medial sesamoid bones
- Lengthening of the EHL (the extensor hallucis longus muscle), which is involved with the flexing of the big toe

There are a number of surgical remedies available for hallux varus, but most of them have similar objectives: releasing soft medial tissue, tightening soft lateral tissue, and transfer of muscle or tendon to correct the deformity.

Surgery is also valuable for preventing further complications that might otherwise arise in the future.

While you recover from surgery, your doctor will most likely instruct you not to put weight on the affected foot for at least two weeks, and you will be given a cast or surgical shoe to wear.

It is very important that you follow your doctor's instructions while recovering from your surgery; if you insist on continuing to walk around normally, you will risk undoing the surgeons' work.

HOW IS HALLUX VARUS DIAGNOSED?

If you suspect that you are suffering from hallux varus, your best course of action is to visit a podiatrist as soon as possible.

Your doctor will want to be apprised of your medical history in order to learn whether you have ever had surgery to correct bunions, polydactyly, or some other foot condition. Your doctor will also be interested in your family medical history—for example, whether any of your relatives have ever suffered from hallux varus.

QUESTIONS TO ASK YOUR DOCTOR ABOUT HALLUX VARUS

- My big toe has always bent slightly in this direction; is this anything I need to be concerned about? Will it get worse as years go by, or will it stay this way?
- My toe has not been the same since I injured it in an accident; is there anything that can be done to remedy the resulting hallux varus?
- My arthritis has begun to cause me terrible pain in my feet as I have gotten older; what are the chances I will develop hallux varus?
- Can my hallux varus be treated without surgery, or will an operation be necessary?
- If we first attempt to treat my hallux varus with conservative measures such as binding, how long will we continue this treatment before we consider surgery?

- After my surgical procedure, how long will it be before I can resume my normal activities? Can I get by on crutches, or will I need a wheelchair? How long will I need to remain in bed before I can at least become partially mobile?

MEDICAL REFERENCES:

Mercy Medical Center, Baltimore, MD http://mdmercy.com/centers-of-excellence/orthopedics-bone-and-joint/institute-for-foot-and-ankle-reconstruction/conditions-we-treat/problems-of-the-big-toe-hallux/hallux-varus?sc_lang=en National Institute of Health http://www.ncbi.nlm.nih.gov/pubmed/7951954 http://www.ncbi.nlm.nih.gov/pubmed/19232992 Podiatry Institute http://www.podiatryinstitute.com/pdfs/Update_1997/1997_10.pdf Podiatry Today http://www.podiatrytoday.com/treating-undiagnosed-charcot-neuroarthropathy-following-traumatic-hallux-varus-repair

This page was last updated on November 21st, 2015

POSTERIOR TIBIAL TENDONITIS – WHAT YOU SHOULD KNOW

Posterior tibial tendonitis is a condition in which the tendon that connects the calf muscles to the foot becomes painful and inflamed.

Symptoms of this type of tendonitis include pain and swelling on the inside of the affected foot or ankle, along with limited range of motion.

Most cases are treated with rest, immobility, and other non-surgical methods, but surgery to repair the tendon or fuse bones at the midfoot may be used in more advanced cases in which the arch has fallen (a condition known as flat foot).

WHERE IS THE POSTERIOR TIBIAL TENDON?

The posterior tibial tendon runs along the instep, from the ankle to the bottom of the foot. It connects the calf muscle to the bones of the instep. This tendon works to turn the foot inward while walking and is also important in supporting the arch. Problems with this tendon, such as tendonitis, can lead to a loss of arch support in the foot.

SYMPTOMS OF POSTERIOR TIBIAL TENDONITIS TO WATCH FOR

The symptoms of posterior tibial tendonitis are not necessarily distinctive, unless the tendon has ruptured. In many cases the first sign of posterior tibial tendonitis will be pain and swelling in the area of the tendon, in the instep, and at the ankle. The symptoms can include:

- Pain in the instep and on the inside of the ankle, which may worsen with activity
- Swelling along the instep and inside the ankle
- An unsteady gait
- Flatfoot deformity, which occurs in cases in which the tendon has ruptured or fails to function properly

WHAT CAUSES POSTERIOR TIBIAL TENDONITIS?

The feet are constantly being used, and the tendons in the foot endure daily wear and tear. Tendons are made of collagen, and the individual strands of collagen that make up the tendon can wear down or break.

This can occur due to an injury, with overuse, or as a result of the aging process — our tendons weaken as we get older.

Over time the tendon starts to become irritated, and eventually it can actually become inflamed. The cycle of inflammation and subsequent healing can lead to scarring. The scarred portion of the tendon can become thickened and form nodules.

Sections of the tendon that have nodules are weak points, and are more susceptible to becoming inflamed and developing tendonitis. There is also a greater risk of rupture at the weakened points.

Tendonitis is also common after an injury, such as an ankle sprain. Athletes who play basketball, tennis, or soccer are at risk for posterior tibial tendonitis, either from ankle injury or from repetitive use.

DIAGNOSIS OF POSTERIOR TIBIAL TENDONITIS – WHAT TO EXPECT WHEN VISITING YOUR DOCTOR

Diagnosis of posterior tibial tendonitis requires a physical examination. A podiatrist, orthopedist, or other healthcare professional will look at the history of the symptoms occurring in the foot and ankle.

Healthcare professionals look for several signs in a patient that may point to posterior tibial tendonitis. One is swelling along the tendon, running along the inside of the foot to the ankle.

Another is the presence of a flat foot — that is, a foot with a collapsed arch. The foot may also be at an unusual angle when the patient is standing — the heel may splay outward instead of being in line with the toes.

When viewed from behind the heel, the foot may appear off center, with the toes clearly visible where they would normally be obstructed from view by a heel that is in the proper position.

A patient with posterior tibial tendonitis may have difficulty standing on tiptoe on the affected foot. In some cases there may be restricted mobility in the foot, which is apparent when trying to move the foot from side to side.

The ankle may also display limited mobility when using the muscles in the ankle to bring the toes up toward the calf.

Imaging studies such as x-rays, magnetic resonance imaging (MRI), and ultrasound may also be used to help diagnose posterior tibial tendonitis.

In some cases, these imaging studies may be ordered not only to confirm the diagnosis of posterior tibial tendonitis, but also to rule out the possibility of another condition, such as arthritis. MRI in particular may show any inflammation present in the tendon.

NON-SURGICAL TREATMENT FOR POSTERIOR TIBIAL TENDONITIS

Some methods of treatment for posterior tibial tendonitis begin at home, and other treatments are administered in a doctor's office on an outpatient basis.

- **Anti-inflammatory medications:** Anti-inflammatory medications, whether over-the-counter or prescribed by a healthcare professional, may help quell the pain and inflammation. Pain medication should be used short-term, however, and other therapies will be needed to actually treat the tendonitis.
- **Arch support:** If the patient has a flat foot, an orthotic or arch support may help to support the foot in a more natural position.
- **Rest:** Often the first step in resolving an injury to the tendons, resting the foot can also help reduce inflammation. Even walking can continue the cycle of inflammation, so complete rest of the foot may be necessary, and in some cases it may be necessary to immobilize the foot as described below.
- **Walking boot:** A walking boot can be used to immobilize the foot and ankle and resolve the initial pain and inflammation. These boots are often worn for four to eight weeks, or until the tendon has had time to heal.
- **Casting:** A cast on the lower leg and foot can provide complete immobility of the ankle and foot in order to allow the tendon to heal.

- **Orthotics:** An orthotic worn inside the shoe can help support the arch in cases of flat foot. Orthotics are available over the counter, but a podiatrist can also make an orthotic that is custom-molded to a patient's foot.
- **Iontophoresis:** Cortisone may be used to treat the tendonitis, and it can be administered by iontophoresis. Iontophoresis is a method of delivering medication through the skin by electrical stimulation. Cortisone can be administered in this way to treat the inflammation from tendonitis. During iontophoresis, a physical therapist or other healthcare professional attaches electrodes (usually with tape) to the body near the source of the pain. The electrodes are connected to an electrical stimulation machine. When the machine is switched on, any medication that was applied to the electrodes will enter the body. Patients are usually lying down and relaxing while receiving this treatment, which feels like an electrical pulse at the site where the electrodes are attached.

Cortisone injections are used to treat many types of inflammation, but they are not typically used to treat tendonitis. An injection into the tendon carries a risk of rupture, and is therefore not recommended.

SURGICAL TREATMENT FOR POSTERIOR TIBIAL TENDONITIS

Posterior tibial tendonitis that has not responded to non-surgical methods might be considered for surgical correction. The types of surgery used to treat this condition include lengthening the Achilles tendon, tenosynovectomy, tendon transfer, osteotomy, and fusion.

Tenosynovectomy: During this surgery, the inflamed outer portions of the tendon may be removed (debrided). It may be successful in cases in which the arch has not collapsed and the pain is caused by thickening of the tendon. This surgery involves making a small incision in the foot in order to remove the inflamed material. The tendonitis may still recur after this type of surgery, however.

Lengthening the Achilles tendon: In this surgery, the muscle in the calf is lengthened in order to improve range of movement in the foot. After this surgery, patients may find some "pushing off" movements with the foot to be more difficult.

Tendon transfer: The tendon is repaired in this surgery by taking a tendon from another part of the foot and either replacing or augmenting the posterior tibial tendon.

The tendon that is frequently used in this procedure is the flexor digitorum longus, which is responsible for moving the little toes.

If the posterior tibial tendon is left in place, degraded portions of the tendon may be removed before the new tendon is grafted to it. Although it may help resolve the tendonitis, a complete return to athletic activities may not be possible after this type of surgery. This surgery is performed in cases where tenosynovectomy has not been successful, and may be done in conjunction with osteotomy or fusion.

Osteotomy: The heel bones are cut, and bone may be grafted to the outside of the foot in order to create an arch and correct flat foot. In some cases, the bones of the midfoot may also be fused together.

Fusion: In cases in which other surgeries have been unsuccessful, or if a flat foot has caused a deformity, the bones in the back of the feet may be fused together. Fusion begins with the removal of the cartilage between the joints, which normally serves to keep the bones separate. With the cartilage gone, the bones are held together with pins or screws until they grow together. After this surgery, side-to-side motion in the foot may be lost.

Any surgery risks potential complications, such as infection. Some types of surgery to correct posterior tibial tendonitis may not be successful — and more surgery may be needed in such cases — but most patients have a successful outcome and the tendonitis pain is resolved.

Rehabilitation is often needed after surgery and may continue for as long as four months. Athletes who expect to return to their sport may require as long as six months to heal before that is possible.

MEDICAL REFERENCES:

Beals, T.C., Pomeroy, G.C., Manoli, A. 2nd. (1999) Posterior tendon insufficiency: diagnosis and treatment. J Am Acad Ortho Surg. 7(2), 112-118. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/10336306 Lhoste-Trouilloud, A. (2012) The tibialis posterior tendon. J Ultrasound. 15(1):2-6. doi: 10.1016/j.jus.2012.02.001. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/23396570 Mosier-LaClair, S., Pomeroy, G., Manoli, A. 2nd. (2001). Operative treatment of the difficult stage 2 adult acquired flatfoot deformity. Foot Ankle Clin. 6(1):95-119. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11385931 van der Krans, A., Louwerens, J.W., Anderson, P. (2006). Adult acquired flexible flatfoot, treated by calcaneocuboid distraction arthrodesis, posterior tibial tendon augmentation, and percutaneous Achilles tendon lengthening: a prospective outcome study of 20 patients. Acta Orthop. 77(1):156-163. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/16534717

This page was last updated on October 2nd, 2015

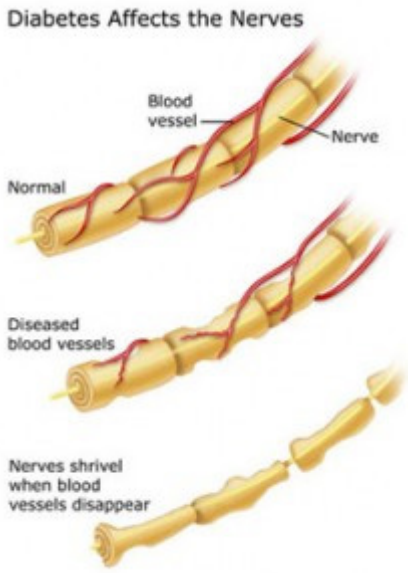
YOUR COMPLETE GUIDE TO DIABETIC NEUROPATHY

Diabetic neuropathy is a condition that affects the nerves of people who have diabetes. Peripheral neuropathy can cause tingling, loss of feeling, and pain in the feet. Those most at risk include diabetics who have uncontrolled blood glucose levels, are older, have had diabetes for many years, or are overweight and smoke.

Neuropathy can be prevented and treated by controlling the underlying diabetes and taking precautions to keep the feet healthy and the skin on the feet intact. Injuries such as blisters can lead to more chronic problems and poor outcomes in those who have neuropathy in their feet.

WHAT IS DIABETIC NEUROPATHY?

Diabetes can cause nerve damage in the body, and the feet are especially affected. There are several types of neuropathy, but the kind that affects the feet is known as *peripheral neuropathy*.



If the nerves in the feet are not working properly, an individual can experience difficulty walking and standing, and neuropathy can cause a person with diabetes to walk differently.

Numbness and weakness in the muscles of the feet and ankles can lead to injuries and other foot conditions, including bunions, hammertoes, and claw toes. Without sensation in the feet, people with neuropathy are more susceptible to injury, and they may not even know when an injury has occurred.

WHAT CAUSES DIABETIC NEUROPATHY?

The causes of diabetic neuropathy are poorly understood, but it is likely the result of a combination of several factors. One of the most important factors is uncontrolled diabetes.

Diabetes is classified as an auto-immune disease—that is, a disease in which the immune system attacks healthy cells. This abnormal immune response can cause nerve inflammation and lead to symptoms of neuropathy.

Nerves may also be affected if damaged blood vessels are not supplying them with sufficient nutrients and oxygen. An individual's genetic makeup may also play a role.

WHO IS AT RISK FOR DIABETIC NEUROPATHY?

Diabetic neuropathy is very common, and 60 to 70 percent of people with diabetes develop the disorder. There are several factors that can increase the risk of developing diabetic neuropathy:

Long-standing disease: Those who have had diabetes for more than 25 years are more at risk for developing neuropathy. After 20 years with diabetes, about 40 percent of people will have neuropathy.

Age: Older individuals who have diabetes are more likely to develop neuropathy than those who are younger. Those over the age of 40 are especially at risk.

Poorly controlled diabetes: Having blood glucose (blood sugar) levels that are frequently too high can increase the risk of neuropathy.

Blood pressure: High blood pressure is more common in people who have diabetes. A blood pressure outside the normal range (higher than 130/80 mm Hg) can cause damage to blood vessels. Damaged blood vessels can contribute to the development of neuropathy.

High cholesterol: People who have diabetes, especially those who have type 2 diabetes, tend to have higher cholesterol levels. Controlling the levels of cholesterol in the blood can help slow the advancement of diabetic neuropathy.

Obesity: Having a BMI (body mass index) greater than 23 can put people with diabetes at risk for diabetic neuropathy.

WHAT ARE THE SYMPTOMS OF DIABETIC NEUROPATHY?

In some cases, diabetic neuropathy may be without symptoms, but when symptoms are present they include:

- **Foot pain:** Most people with diabetic neuropathy don't have pain, but for those who do the pain can be intense, and it can worsen while resting. Pain can also be a significant problem at night, which can prevent patients from getting proper rest.
- **Tingling in the feet:** A tingling or pins-and-needles sensation in the toes is sometimes the first symptom of diabetic neuropathy.
- **Numbness in the feet:** Numbness can mean an inability to feel temperature changes or pressure in the feet.
- **Foot drop:** Nerve damage can cause difficulty in working the muscles in the feet while walking. This can result in the foot being raised up high in order to prevent the toes from catching on the ground, and dropping back down with a slap.

TREATING DIABETIC NEUROPATHY

Treating diabetic neuropathy in the feet requires close inspection of the feet on a regular basis. Measures must be taken to help the patient cope with pain and control the underlying diabetes.

Foot care: Complications of neuropathy in the feet, such as small injuries, can occur suddenly and quickly become unmanageable. The American Diabetes Association recommends that people with diabetes have their feet examined regularly by a healthcare professional and undergo a comprehensive examination at least once per year.

It is also recommended that patients examine their own feet on a daily basis and seek prompt treatment for any injuries, even seemingly minor ones such as blisters. This is particularly true for people with peripheral neuropathy that affects feeling in the feet; an injury that is not painful can still become serious.

Pain control: Peripheral diabetic neuropathy can cause severe foot pain.In some cases, the pain may start after a change in health status, such as pain that begins during an episode of poor glucose control. The pain may improve without treatment, but this can sometimes take a few weeks to a few months.

Medications are commonly used to treat pain, and several different classes of drugs may be used to control foot pain from diabetic neuropathy. Over-the-counter pain relievers are not effective—and not recommended—for treatment of diabetic neuropathy pain. Different medications may be taken together or alone in order to achieve optimal pain management. Some of these include:

- **Tricyclic antidepressants:** These types of antidepressants are sometimes given to treat diabetic neuropathy pain, but the dosage is much lower than what would be used to treat depression.
- **Duloxetine (Cymbalta):** Another form of antidepressant, duloxetine is a serotonin-norepinephrine reuptake inhibitor (SNRI) that has been shown to lessen diabetic neuropathy pain.
- **Gabapentin (Neurontin):** This drug is an anti-seizure medication that has been approved to treat diabetic neuropathy pain.
- **Pregabalin (Lyrica):** This anticonvulsant is approved as a first-line treatment for pain from diabetic neuropathy, but it should not be used along with gabapentin. This drug has the potential to be habit-forming and should not be discontinued abruptly.
- **Lidocaine:** Lidocaine is a topical pain reliever that is administered in a patch form and applied directly to the painful area.
- **Alpha-lipoic acid (ALA):** While alpha-lipoic acid is available over the counter, there is still a lack of good research demonstrating its effectiveness at treating pain from diabetic neuropathy. The effects of its long-term use are not well understood. It is sometimes given to patients who can't tolerate other treatments, and may be more effective when administered intravenously—but again, good evidence for its efficacy is lacking.

- **Narcotics:** Opiate-based narcotics are not a first-line therapy for diabetic neuropathy pain, but these medications may be used in the short term while other avenues for pain management are being investigated. Narcotics have the potential to become addictive, and there is always the risk that the patient can overdose.

Controlling diabetes: Because diabetic neuropathy is associated with poor blood glucose control, keeping blood glucose within the appropriate range is important. When a person with diabetes discovers that their current regimen is no longer effective for controlling high blood glucose, the plan should be adjusted by a healthcare professional.

Patients should monitor their blood glucose levels carefully, and discuss any changes or difficulty in keeping it under control with their physician.

COMPLICATIONS OF DIABETIC NEUROPATHY

Diabetic neuropathy can result in a variety of complications in the feet, and some of them can be very serious, in some cases even requiring amputation. It's estimated that as many as half of all amputations due to diabetic neuropathy are preventable if feet are cared for properly.

Infection: Even small injuries to the feet can result in infection. Because people with neuropathy can experience a loss of sensation in their feet, they may not realize when they have a sore or a blister.

Unnoticed and untreated, even a small sore can develop an infection that quickly becomes troublesome and can invade the bone. An infection that has reached the bone may result in all or part of the foot having to be amputated. Amputations of toes or even the entire foot can be risky for people who are already in poor health, and can result in a person becoming disabled.

Chronic ulcers: Chronic ulceration in the feet is also a major cause of amputation in people who have diabetic neuropathy. Ulcers in the foot require prompt care, including debridement (removal of dead skin) and treatment of any infection.

In some cases, however, ulcers do not heal, and remain inflamed. Neuropathy can contribute to this difficulty in healing, especially when it causes blood flow in the feet to be less than optimal.

PREVENTING DIABETIC NEUROPATHY IS POSSIBLE

Preventing diabetic neuropathy and potential complications means instituting a robust foot-care regimen and controlling the diabetes.

Aside from daily foot inspections and regular foot check-ups from a healthcare professional, good foot care should be practiced.

Patients who are at risk for neuropathy or who already have neuropathy should take care in choosing appropriate footwear, avoid activities that might result in foot injury, and learn how to care for long toenails and dry skin.

Footwear should not pinch the skin or restrict blood flow, and should have a wide, soft toe box. Any activity that could result in a foot injury should be avoided. This includes not only high-risk activities, but also walking barefoot or exposing the feet to extreme heat or cold.

Toenails should be trimmed carefully and filed with a nail file. If necessary, this can be done by a professional instead of at home. Dry skin or any other foot conditions should be managed promptly. Good control of blood glucose and any other conditions associated with diabetes is also important to preventing diabetic neuropathy. In some cases, when blood glucose is brought to the proper levels, the symptoms of diabetic neuropathy may lessen.

Self-checking of blood glucose levels is important, as is following dietary recommendations and medication or insulin schedules. Patients should work with their healthcare providers to learn how to manage high blood glucose levels.

MEDICAL REFERENCES:

American Diabetes Association. (2003). Preventive Foot Care in People With Diabetes. Diabetes Care. 26 (1), s78-s79. doi: 10.2337/diacare.26.2007.S78. Retrieved from http://care.diabetesjournals.org/content/26/suppl_1/s78.full#sec-4 Sumpio, B. E. (2012). Contemporary Evaluation and Management of the Diabetic Foot. Scientifica (Cairo). 435-487. doi: 10.6064/2012/435487 Retrieved from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3820495/ Wernicke, J. F., Pritchett, Y. L., D'Souza, D. N., Waninger, A., Tran, P., Iyengar, S., Raskin, J. (2006). A randomized controlled trial of duloxetine in diabetic peripheral neuropathic pain. Neurology. 67(8), 1411-1420. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/17060567 Ziegler, D., Nowak, H., Kempler, P., Vargha, P., Low, P. A. Treatment of symptomatic diabetic polyneuropathy with the antioxidant alpha-lipoic acid: a meta-analysis. Diabet Med. 2004; 21:114-121. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/14984445

This page was last updated on October 1st, 2015

CLAW TOE: SYMPTOMS, CAUSES, AND TREATMENT OPTIONS

Claw toe, which is also sometimes called claw foot, typically affects the four smaller toes. The toes bend in such a way as to resemble a claw. While the angle of the toes may make them painful, in some cases there is no pain.

Most often claw toes are treated conservatively, with proper footwear and exercise. Extreme or painful cases of claw toe may be treated with surgery.

SYMPTOMS OF CLAW TOE

The most defining sign of a claw toe or a claw foot is the abnormal position of the toes. A claw toe is so named because the toe bends at the second knuckle (the middle/proximal phalanx joint) and the first knuckle (distal interphalangeal).

The toe is bent in such a way that it may actually curl under itself. The overall impression, due to the position of the toe, is that of an inflexible "claw."

Claw toes may also cause toe pain, but in some cases there is actually no pain. The toes sometimes develop a callus from the knuckle rubbing against the top of the shoe or from friction on the ball of the foot.

CLAW TOE OR HAMMERTOE?

Claw toe and hammertoe are often confused, but they affect different muscles in the foot. A hammertoe bends at the second knuckle, which similar to a claw toe. But in a hammertoe, the first knuckle does not bend under the foot.

The second toe is usually affected by a hammertoe. Another difference is that claw toes often affect several toes at once, with the big toe being spared, while a hammertoe can affect just one toe.

WHAT CAUSES CLAW TOES?

There may be no underlying cause, but claw toe sometimes occurs after an injury to the ankle, surgery on the ankle, nerve damage, or inflammation.

Wearing shoes that don't fit properly is also a common cause of claw toes. Claw toes can also be associated with certain chronic or acute conditions.

Claw toes can occur when the muscles in the toes become tight due to being confined in shoes that do not have enough space in the toe box.

The higher the heel and the smaller the toe box, the more cramped the toes become. The tendons can actually shorten, which makes straightening out the toes more difficult.

Conditions that are often associated with claw foot are:

Alcoholism: Nerve damage from alcoholism can weaken the muscles in the foot, which can result in claw toes or other deformities.

Diabetes: Foot problems are common in people who have diabetes. Claw toe, in particular, is associated with foot ulceration. Foot ulcers in patients with diabetes can lead to complications such as infection.

Cerebral palsy: This disorder, largely considered to be congenital, affects muscle tone. When the muscles in the foot are affected, claw toes and other foot problems can be the result.

Charcot-Marie-Tooth disease: This type of inherited muscular dystrophy, also known as Charcot foot, results in muscle and nerve damage and can cause various foot problems, including claw toes.

Rheumatoid or osteoarthritis: Ligaments that are weakened by arthritis inflammation can lead to foot problems such as claw toes.

Spinal cord disease: Any problem with the spinal cord, such as a tumor, can cause the nerves in the foot to be affected and result in claw toes.

Polio: This viral disease is no longer common in developed countries, but still continues to be a problem in the developing world. Polio is potentially deadly, and can attack the spinal cord, causing foot deformities.

Stroke: A stroke can cause imbalances in the foot, resulting in claw toes.

WHAT ARE THE COMPLICATIONS OF CLAW TOES?

Claw toes are not usually not dangerous by themselves, but they can cause other complications, such as corns.

Calluses (also known as corns): Claw toes can force the foot into a position that causes the shoe to put pressure on the other structures of the foot. This may cause calluses or corns to form, especially on the ball of the foot or the knuckle.

Other common places for corns are between the toes and at the distal end of the toes. Treating the underlying claw toe can help prevent or resolve calluses.

WHAT ARE THE TREATMENT OPTIONS FOR CLAW TOES?

Prompt treatment of claw foot is necessary to prevent permanent bending of the toes and associated conditions such as corns. When claw toes first become evident, they may be flexible, and can still be straightened.

Orthotic devices such as toe crests can be worn under the toes to keep them straight while in shoes. Hammertoe splints can also be placed over the toes to hold them in place and correct or prevent bending. Treatments for claw toes that can be done at home include:

- Obtaining proper footwear that has a large, soft toe box.
- Strengthening toe muscles with exercises, such as using toes to pick up small objects.
- Stretching exercises for the muscles and tendons in the toes.
- Covering corns with padding so they do not rub against the shoe.

Claw toes are not necessarily harmful in and of themselves, but if the toe bend is permanent and/or painful, surgery may be desired.

Surgery may be performed on the shortened tendon, in order to lengthen or reposition it in order to facilitate the straightening of the toes. In other cases, steel pins may be inserted into the toe, forcing it to straighten.

HOW CAN CLAW TOES BE PREVENTED?

Some cases of claw toes are a result of improperly fitted shoes. It is recommended to wear shoes that fit properly, do not constrict the toes, and have a low heel. Claw toes from other causes can sometimes be prevented by treating the underlying condition.

People with diabetes, especially, should have a healthcare professional examine their feet on a regular basis. Any corns that may develop could require treatment to avoid the development of foot ulcers.

If you suspect that you could be developing a claw toe or some other foot deformity, such as a hammertoe, see a podiatrist or qualified healthcare professional for evaluation of your feet.

MEDICAL REFERENCES:

Bus, S. A., Maas, M., Michels, R. P. J., Levi, M. (2009). Role of Intrinsic Muscle Atrophy in the Etiology of Claw Toe Deformity in Diabetic Neuropathy May Not Be as Straightforward as Widely Believed. Diabetes Care. 32(6), 1063–1067. Published online 2009 March 11. doi: 10.2337/dc08-2174 Laurent, G., Valentini, F., Loiseau, K., Hennebelle, D., Robain, G. (2010). Claw toes in hemiplegic patients after stroke. Ann Phys Rehabil Med. 53(2), 77-85. doi: 10.1016/j.rehab.2009.12.005. Epub 2010 Jan 13. Schrier, J. C., Verheyen, C. C., Louwerens, J. W. (2009). Definitions of hammer toe and claw toe: an evaluation of the literature. J Am Podiatr Med Assoc. 99(3), 194-197.

This page was last updated on October 2nd, 2015

SINUS TARSI SYNDROME – CAUSES & TREATMENT

The sinus tarsi is the cavity on the lateral (outer) side of the foot in front of the ankle. The sinus tarsi space is filled with many connective tissues that contribute to the stability and the proprioception of the ankle (proprioception is the unconscious perception of movement and spatial orientation arising from stimuli within the body itself).

In sinus tarsi syndrome, the ligaments around the sinus tarsi—the interosseous and cervical ligaments—are injured, causing instability of the subtalar joint. This joint allows inversion and eversion of the foot, which is the ability to move the foot in toward the body (pronation) or out away from the body (supination).

With instability of the subtalar joint, these movements are exaggerated. This causes stress across the sinus tarsi tissues, which leads to inflammation and anterolateral ankle pain characteristic of sinus tarsi syndrome.

Injury to the ligaments around the sinus tarsi can occur in athletes such as runners and dancers whose chosen sports require a lot of jumping or sudden, quick movements and sudden stops. Sinus tarsi syndrome is thought to occur after a single traumatic event or a series of ankle sprains.

SINUS TARSI SYNDROME SYMPTOMS TO KNOW ABOUT

Athletes with sinus tarsi syndrome often have two symptoms:

- Deep, sharp, or pinching pain along the top and/or outer side of the foot and ankle when the foot is dorsiflexed, such as when walking up stairs; the pain may increase with time on the feet and be relieved by rest.
- A feeling of unsteadiness when walking on uneven surfaces.

Affected athletes may report having a previous ankle injury or one or more ankle sprains. An athlete with recurrent ankle sprains may have sinus tarsi syndrome.

WHAT CAUSES SINUS TARSI SYNDROME?

The most common cause of sinus tarsi syndrome is trauma (in 70 percent of cases); inflammatory conditions, ganglion cysts, and foot deformities are responsible for the remaining 30 percent of cases (Radiology, 2001).

The exact reason why sinus tarsi syndrome develops is a matter of debate. One theory suggests that scar tissue, which is part of the natural healing process, causes thickening of the joint capsule. The thickened joint capsule becomes pinched between the bones in the ankle, leading to chronic inflammation.

It has also been suggested that sinus tarsi syndrome develops after ankle inversion sprains that are not treated properly. If the sensory receptors responsible for proprioception in your ankle do not heal well after a sprain, they may not regain their pre-injury ability to sense changes in ankle position.

HOW IS SINUS TARSI SYNDROME DIAGNOSED?

Your doctor will examine your foot and perform several tests to assess the stability of the subtalar joint and surrounding joints, including the talocrural joint. You will be asked to stand so that your posture can be assessed.

Some athletes with sinus tarsi syndrome may appear to have pes planus (flat feet) due to pronation, or inward leaning, of the ankle. Your doctor will manually move your foot to test passive range of motion of the ankle and subtalar joint.

This test may reveal excessive motion or looseness of the joint. A typical sign of sinus tarsi syndrome is pain in the sinus tarsi when your foot is turned in or turned out, or if you feel pain on palpation of the area.

The muscles that cross the ankle joint will also be assessed to see whether there is any loss of strength. The unaffected foot will be evaluated to compare the differences in joint mobility between both feet and to determine whether you might have instability.

Stability of the subtalar joint can be assessed in a few ways. Your doctor may hold onto your forefoot with one hand while applying an inversion and internal rotational force to your heel with the other hand.

Or you may be asked to stand on the affected foot while keeping the other foot raised and perform rotating motions of the leg and foot to reproduce symptoms.

You may be referred for imaging studies. These may include radiographs of the foot, computed tomography, magnetic resonance imaging (MRI), or stress fluoroscopy—a method of visualizing the motions of the subtalar joint in real time using low-level radiation.

MRI is considered the best method to visualize the structure within the sinus tarsi, especially the interosseous and cervical ligaments. Ankle arthroscopy can also be used to evaluate the sinus tarsi for damaged tissue.

SINUS TARSI SYNDROME TREATMENT OPTIONS

After your doctor has evaluated you and a diagnosis of sinus tarsi syndrome has been confirmed, conservative treatment of sinus tarsi syndrome can be administered at home. Such treatment involves:

- RICE (Rest, Ice, Compression, and Elevation) to reduce inflammation and swelling in the ankle
- Identifying and eliminating the activity that may be exacerbating your subtalar joint injury to decrease the tension and thickening of the joint capsule
- Muscle-strengthening exercises to restore proper ankle proprioception

Your doctor may recommend anti-inflammatory medications, stable shoes, an ankle sleeve or brace, and over-the-counter orthotics. If your symptoms persist after conservative treatment, you may need a course of oral corticosteroids, a series of corticosteroid injections into the joint, physical therapy, or custom orthotics.

Surgery is rarely indicated, although it may be considered for patients whose symptoms do not improve after corticosteroid injections.

Most patients have two options: open surgery (through an incision for reconstruction of the subtalar joint) or closed surgery (via arthroscopic exploration).

WHEN TO RETURN TO PLAY AFTER SINUS TARSI SYNDROME

You should be able to resume your normal activities within a few days, depending on your ability to move in all directions and at appropriate speeds. You may need further treatment if symptoms return, however, in order to prevent chronic inflammation of the sinus tarsi tissues.

MEDICAL REFERENCES:

K. Helgeson, PT, DHSc, "Examination and Intervention for Sinus Tarsi Syndrome," North American Journal of Sports Physical Therapy, 2009;4(1):29-37. N. Lektrakul, MD, C. B. Chung, MD, Y. Lai, MD, D. J. Theodorou, MD, J. Yu, MD, P. Haghighi, MD, D. Trudell, RA, and D. Resnick, MD, "Tarsal Sinus: Arthrographic, MR Imaging, MR Arthrographic, and Pathologic Findings in Cadavers and Retrospective Study Data in Patients with Sinus Tarsi Syndrome," Radiology, 2001; 219:802-810.

This page was last updated on October 1st, 2015

STUBBED TOE – DIAGNOSIS & TREATMENT OPTIONS FOR YOU

A stubbed toe is a common foot injury in adults and children, often the result of walking barefoot and colliding with a piece of furniture or a curb.

Most stubbed toe injuries are not serious. After the pain subsides, we often go about our day as usual. However, there are times when a stubbed toe needs to be treated. Here are signs that you should see your doctor.

HOW TO TELL IF A STUBBED TOE IS BROKEN

- Pain that persists for a few hours or returns when putting pressure on the toe
- Discoloration that lasts for a few days
- Swelling that lasts for a few days
- Bleeding, an abnormal appearance of the toe, and an audible sound at the time of the injury are other signs that suggest a broken toe. People who have broken a toe are often able to walk, and they may not be in any pain following the initial injury, although walking and wearing shoes may be difficult because of swelling.

The symptoms listed above do not always mean a toe fracture has occurred, but they still warrant a visit to the doctor. An untreated fractured toe may result in complications. In some instances, these complications may end up causing more pain and costly or time-consuming treatment.

HOW ARE STUBBED TOES DIAGNOSED?

In addition to toe fracture, a stubbed toe can result in a ligament sprain, contusion, dislocation, tendon injury, or other soft tissue injury.

These injuries are caused by the same mechanisms that produce toe fractures. Your doctor may order radiographs to determine whether you have a toe fracture or other injury.

Stubbed toe injuries in children, particularly of the big toe, can result in a more serious injury. According to one study, "stubbing injuries to the great toe can be a cause of occult open fractures and osteomyelitis" (J Pediatr Orthop, 2001).

Infections such as osteomyelitis can develop if treatment of an open fracture is delayed. Parents should keep a close watch on a child who stubs his or her toe and seek medical attention if any symptoms of a fracture develop.

WHAT ARE THE COMPLICATIONS OF A STUBBED TOE?

The two most likely complications of a stubbed toe are:

- Infection
- Osteoarthritis

An infection may occur when the skin near your injured toe is broken. Stubbing a toe with a benign ingrown toenail may cause an ingrown toenail infection, necessitating debridement and/or antibiotics.

A stubbed toe in an immunocompromised person—such as someone with diabetes who is more susceptible to infection after minor injury—can lead to a foot ulcer or infection of the bone.

Osteoarthritis is referred to as a "wear and tear" disease because the condition typically develops over time with the breakdown and eventual loss of cartilage in one or more joints.

Osteoarthritis may also develop after an injury, however, or even months or years after the injury. Osteoarthritis in the big toe, for example, is often caused by stubbing the toe or by dropping something on it.

WHY IS A STUBBED TOE SO PAINFUL?

There are two reasons for the excruciating pain we experience upon stubbing our toes.

Our toes are densely populated by nerve endings that relay sensory feedback, such as pain sensations, to the central nervous system.

Our brains are programmed to give high priority to sensory input from the feet because they are in touch with the ground and play a critical role in preventing harm to the body.

Unlike other areas of our body, the toe has little fatty tissue or muscle to absorb the force of an impact. So when that large piece of furniture collides with a fast-moving child's toe—with little tissue and lots of nerve endings—the result is going to be OUCH!

BEFORE SEEKING HELP FOR YOUR STUBBED TOE

A "wait and see" approach to a stubbed toe is appropriate in most cases. Stubbed toe injuries often resolve without treatment. If symptoms persist after a few days, it is always best to contact your primary doctor.

Your doctor will ask for a detailed explanation of how the injury occurred and the symptoms you experienced at the time of injury and afterward. Be prepared to provide the following details:

- Description of how you were injured
- Initial symptoms at the time of injury and symptoms that you had before and after the injury
- Any other health issues you may have
- Your current medications and dietary supplements

EXAMINATION AND DIAGNOSTIC TESTS

If your doctor recommends that you come to the office for an evaluation, he or she will perform an examination of the entire foot. This may include:

- Inspection of the skin and nails for open wounds or significant injury, such as a bleeding under the nail (subungual hematoma).
- Inspection of all the toes for deformity; a visible deformity may indicate a displaced fracture or dislocation.

- Palpation of the toes and foot to reveal any point tenderness, which is typically present over the site of a fracture. Localized tenderness of a contusion may mimic the point tenderness of a fracture.
- Application of gentle maneuvers that move the toes upward and downward. This can help distinguish a contusion from a fracture.
- Assessment of capillary refill, the rate at which blood refills empty capillaries. Your doctor will take a toenail and apply pressure to blanch the nail bed. He will then release the toenail and watch to see how long it takes to go from a white, blanched appearance to a red, flushed appearance. This should take about two seconds. Delayed capillary refill may indicate circulatory compromise.
- Radiographs of the toes and foot if a fracture is suspected.
- Your doctor may be able to treat the injured toe in the office, or you may be referred to an orthopedist for further treatment.

HOW TO TREAT A STUBBED TOE

Although a stubbed toe often requires no treatment, applying ice to the toe may help reduce pain and swelling.

It is important to inspect your injured toe to make sure the skin is intact. Any break in the skin may invite infection; this is especially true in the case of an ingrown toenail. Cleaning the wound and applying an antibacterial cream is advisable.

Use common sense when wearing shoes after stubbing your toe. It may be best to avoid tight-fitting shoes until any pain or swelling subsides.

When taking care of a child with a stubbed toe, be sure to apply the same consideration about footwear.

Remember to check the toe over the next few days for any changes. If any new symptoms develop, it is wise to contact your doctor.

MEDICAL REFERENCES:

R. L. Hatch, MD, MPH and S. Hacking, MD. "Evaluation and Management of Toe Fractures" (Am Fam Physician, 2003) 68(12):2413-2418 "http://www.aafp.org/afp/2003/1215/p2413.html"http://www.aafp.org/afp/2003/1215/p2413.html Mayo Clinic, Broken Toe, http://www.mayoclinic.com/health/broken-toe/DS01159 D. R. Kensinger, J. T. Guille, B. D. Horn, M. J. Herman. "The stubbed great toe: importance of early recognition and treatment of open fractures of the distal phalanx" (J Pediatr Orthop, 2001) 21(1):31-4 Big Question: Why does it hurt so much when I stub my toe? http://www.marquette.edu/magazine/recent.php?subaction=showfull&id=1317661200

This page was last updated on October 2nd, 2015

LASER TREATMENT FOR TOENAIL FUNGUS — WHAT TO EXPECT

Onychomycosis—or toenail fungus, as it is more commonly known—is an infection of the nail with dermatophytic fungi, associated with athlete's foot (*tinea pedis*). The onset is often slow and asymptomatic. The infection will most commonly be found in the big toe (hallux), but in some cases all ten toes may be affected. Fortunately, laser treatment for toenail fungus is often effective.

TOENAIL FUNGUS SYMPTOMS TO WATCH FOR

- Yellow toenails
- Hardened or thick toenails
- Foul smells rising from toenail
- Toenails that appear to be crumbling
- Splitting of the nails
- Pit marks on the nails
- Tenderness in the toe
- Pain
- Appearance of debris build-up under the infected nail

WHAT CAUSES TOENAIL FUNGUS?

Toenail fungus can be caused by many different things, including:

- Improper footwear, especially tight-fitting shoes
- Medical conditions such as diabetes, immune diseases, and other circulatory conditions
- Unsanitary pedicures
- Toenail polish that is applied in layers

- Hyperhydrosis (excessive sweating) causing recurrent *tinea pedis* or "athlete's foot" infections
- Hosiery, socks, and shoes that do not allow the feet to breathe
- Age

Fungal infections in the nails are typically caused by a group of fungi called dermatophytes, although yeasts and molds can also cause toenail fungus.

A person can contract toenail fungus by using shared showers, or in locker rooms, gyms, and other warm, damp places, including home showers that are shared by multiple family members.

WHAT ARE DERMATOPHYTIC FUNGI?

Dermatophytic fungi live in warm, moist environments like showers, bathrooms, swimming pools, shared showers (i.e., dorm room showers) and gym locker rooms.

The fungi enter under the nail plate and feed off the keratin in the nail. They more commonly affect toenails than fingernails, and can be classified in the following groups:

- Dermatophytes Trichophyton rubrum: found in approximately 70 percent of all cases
- Trichophyton mentagrophytes: found in approximately 20 percent of all cases
- Epidermophyton floccosum

AM I AT RISK FOR TOENAIL FUNGUS?

It is estimated that 10–12 percent of the adult population is affected worldwide. Older people have a higher rate of onychomycosis, with an estimated 20 percent of the population aged 60+ and 50 percent of people aged 70+.

Onychomycosis is present in approximately one third of people with diabetes mellitus. It is a significant predictor of foot ulcers, and can be clinically serious.

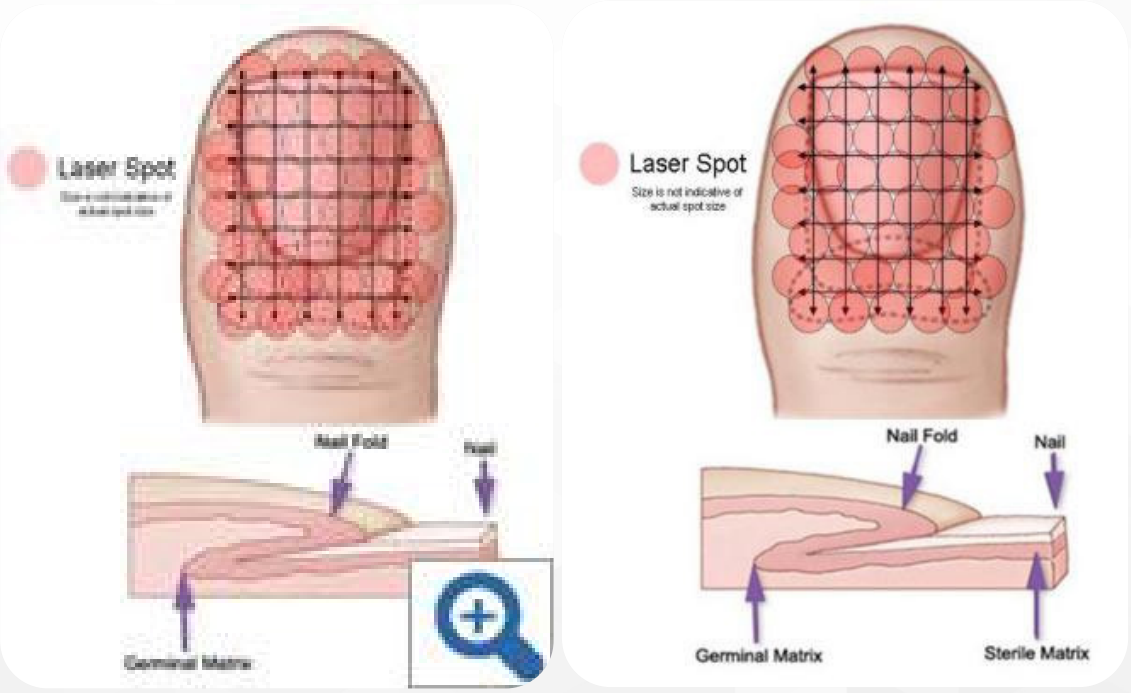
HOW IS TOENAIL FUNGUS TREATED?

Traditional methods of treatment include topical creams, lacquers, and oral medication.

Topical creams or lacquers are applied to the nail and surrounding skin daily. The success of these treatments is limited due to the difficulty of ensuring patient compliance and the creams' limited ability to penetrate the nail bed effectively.

Oral medications have a higher success rate, but they are not without potential risks. Patients taking oral medication for toenail fungus should consult with their podiatrist about their alcohol intake and should have regular liver-function tests to ensure that their liver function isn't adversely affected.

Laser technology has been used to treat toenail fungus for decades, but recent advances in lasers have prompted a significant increase in patient and physician demand for this procedure. Laser is fast becoming the preferred method of treatment because it is safe and effective, with a 70–100% reported success rate for mild to moderate onychomycosis.



HOW DOES LASER TREATMENT FOR TOENAIL FUNGUS WORK?

Laser treatment for toenail fungus will take your doctor approximately twenty minutes to perform.

The treatment is very tolerable, requiring no anesthesia or numbing agent, and there is no downtime following the procedure.

Laser treatment for toenail fungus is a safe and effective procedure that does not require a lifestyle change or regular blood tests to monitor liver function. Unlike oral medications, laser therapy is targeted directly at the infection.

Unlike topical treatments, laser therapy is able to penetrate the nail plate to get to the fungus. After three to six months a healthy nail grows out.

Laser therapy works in a similar manner to how your body fights off an infection. If you become sick, your body develops a fever in order to raise your temperature to fight the viral infection. The same principle is used to treat toenail fungus with a laser.

The laser is directed at the nail to heat it up until the fungal spores are killed. This allows a new nail to grow out fungus-free.

WHAT WILL I EXPERIENCE?

Fungal laser treatment is done in an office setting. Your nail polish will be removed, if you are wearing any. A temperature probe on the device will measure the temperature of the skin and nail.

Each nail needs to reach a certain temperature to properly treat the fungal infection. If the heat becomes too painful, your doctor will move on to the next nail.

You will be able to walk in and walk out the same day, with minimal pain from the procedure.

There is no need for any injections or anesthesia, as most people can handle the procedure quite well. The treatment takes only about twenty minutes.

Topical antifungal creams may be prescribed for any skin infection, and you may be given instructions for shoe sterilization. You can put on nail polish after only twenty-four hours.

You will be seen again by your doctor within four to six weeks for another treatment. Keep in mind that the nail grows slowly, and it may be over three months before you see results.

LASER TREATMENT FOR TOENAIL FUNGUS MAY BE FOR YOU IF:

- Your doctor has told you not to take medication because it could harm your liver
- You have taken Lamisil before and the fungus has come back
- You don't want to take any more pills
- You have tried multiple topical agents and they have failed
- You are frustrated and embarrassed about how your nails look

Many patients find laser treatment to be a safe alternative to medications and topical treatments. It is not usually covered by insurance, and the cost is around $1,000. It usually takes two to four treatments to resolve the nail fungus.

MEDICAL REFERENCES:

Thomas et al, J Clin Pharm Ther. 2010 Oct;35(5):497–519; Mayser et al, Am J Clin Dermatol. 2009;10(4):211–20 .; Winston & Miller, Clinical Diabetes, Volume 24, Number 4, 2006; McDonnell, http://secure.pharmacytimes.com; Kemna, J Am Acad Dermatol 1996; Iorizzo, Curr Opin Infect Dis 2007; NB Therapeutics; Topica Pharmaceuticals; IMS Health as cited by Anacor Pharmaceuticals, Halcygen, *GlobalData. http://www.footanklehealth.com/toenails/toenail-fungus.html Gupta A, Uro M, Cooper E. Onychomycosis Therapy: Past, Present and Future, Journal Drugs and Dermatology. 2010. Kozarev J, Dr. Evaluation of long pulse Nd: YAG laser therapy in treatment of onychomycosis, Journal of the Laser and Health Academy.

This page was last updated on January 1st, 2016

TOP OF FOOT PAIN – SYMPTOMS, CAUSES & TREATMENT

Pain on the top of the foot can make it difficult to walk, run, or stand. Top-of-foot pain can be mild or severe, intermittent or chronic.

Did you know the average person stands for five hours a day and takes up to 10,000 steps? That is a lot of stress to place on the feet. Our feet are complex structures built to absorb the shock of each step, but overuse, medical conditions, and injuries can all lead to pain on top of the foot.

Each foot comprises twenty-six bones and thirty-three joints, bound together by more than 100 muscles, ligaments, and nerves.

Our feet support our weight, act as shock absorbers, propel our legs forward, and help us keep our balance on uneven surfaces. With such important and constant duties to perform, our feet are susceptible to pain.

TOP OF FOOT PAIN SYMPTOMS TO LOOK FOR

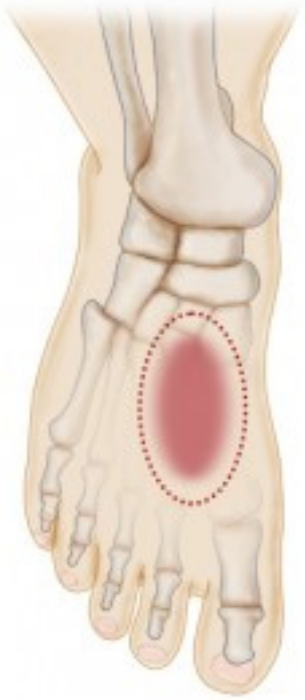
The pain itself may be all you experience, but additional symptoms may be present depending on the cause of the problem. These may include:

- Warmth at pain site
- Tenderness of the foot
- Redness
- Swelling
- Pain that worsens when walking or standing and decreases when resting
- Difficulty walking and standing

WHAT CAUSES PAIN ON THE TOP OF THE FOOT?

There could be various reasons why you are experiencing pain on the top of your foot. Common causes of this include:

- Bone spurs
- Stress fractures
- Nerve entrapment
- Metatarsalgia
- Tendonitis
- Improper footwear
- Sprain or strain
- Ganglion cyst
- Medication
- Aging
- Hormonal imbalance
- Pregnancy
- Excessive use of feet
- Ingrown toenail
- Hammertoe



Stress fractures are a common cause of pain on top of the foot. Metatarsal fractures are also a common cause. Fractures can be caused by repetitive movements, weak muscles, improper alignment of the bones in the lower extremity, arthritis, reduced bone density, and injury or trauma.

Diseases such as gout, diabetes, tendonitis, and arthritis also lead to top-of-foot pain. Occasionally the nerves become traumatized when pressure is applied to them.

A tight pair of shoes can cause pressure. Hormonal imbalances, such as occur during pregnancy or menopause, can also cause the top of the foot to ache.

As we age, many parts of our body begin to weaken, especially our feet. Using your feet excessively throughout your life can lead to pain on the top of the foot when you are older.

WHEN TO SEE YOUR DOCTOR ABOUT PAIN ON THE TOP OF YOUR FOOT

If you are experiencing pain on top of your foot, you should consider seeing your doctor as soon as possible. Pain in this location is not normal, and usually indicates a more serious problem.

Catching conditions and injuries such as stress fractures in their early stages is vital to successful treatment.

Diagnosing problems within the complex structure of the foot is difficult enough, but if a condition or injury is left untreated, it can develop into a more serious problem and could require more extensive treatment.

DIAGNOSING PAIN ON THE TOP OF YOUR FOOT

If you are experiencing pain on the top of your foot, you should take it seriously and contact a podiatrist or your primary doctor. Your doctor will perform a physical and visual exam with weight-bearing and non-weight bearing movements.

He or she will also ask you about your activities leading up to the pain, as well as your medical history. Muscles, nerves, tendons, bones, and ligaments will also be examined with x-rays, MRIs, and bone scans to rule out specific conditions or injuries.

Your doctor may also want to take a look at your shoes to ensure that they fit properly and to note abnormal wear patterns.

TOP OF FOOT PAIN TREATMENT OPTIONS

There are several things you can do to treat the pain on top of your foot. Seeing a podiatrist or foot specialist should be your first step.

Treatment for your top-of-foot pain will be based on the cause and the severity of the pain. Foot doctors often use the RICE method to relieve foot pain. RICE stands for: Rest, Ice (applied for twenty minutes at a time), Compression, and Elevation.

These are the four basic elements used to treat any kind of injury to the foot. Other treatment options may include:

- Over-the-counter medication (Tylenol, aspirin, ibuprofen and naproxen) to reduce pain and discomfort.
- Shoe inserts or other types of orthotics
- Medications prescribed for more severe symptoms
- Stretching the foot muscles
- Switching foot wear
- Strappings and/or paddings
- Limiting activities
- Surgery (for severe cases)

Crutches may be necessary to allow your foot to rest during the healing process. If a fracture is present, recovery may take four to six weeks.

If the pain is caused by improper footwear, the problem may be solved as soon as new, proper-fitting footwear is purchased. Your doctor will create an appropriate treatment plan based on the underlying cause of the pain. This may include the options listed above.

TALKING TO YOUR DOCTOR

Here are some questions you may want to ask your doctor if you are experiencing top-of-foot pain:

- Once treatment is given, how long will the pain last?
- What will happen if I do not address this problem?
- What are the chances this pain will continue?

- Is there an underlying cause for this problem that also needs to be addressed in order to prevent a recurrence?
- What changes, if any, do I need to make in my diet?
- Will plantar fasciitis exercises help relieve the pain?
- If the pain continues, how long should I wait before coming back?
- If I have to come back, what diagnostic tests should I expect?

MEDICAL REFERENCES:

Top of Foot Pain, Causes and Treatment, http://www.topoffootpain.org

American Academy of Orthopaedic Surgeons, Stress Fractures of the Foot and Ankle, http://orthoinfo.aaos.org/topic.cfm?topic=a00379

M. Beers "Merck Manual of Medical Information" 2nd home edition (Pocket Books, 2003) 354; 422-423

This page was last updated on October 1st, 2015

HOW TO GET RID OF THE SORENESS IN YOUR FEET

Sore feet are a very common problem for people all over the world. Sore feet can make things such as standing, walking, running, dancing, or working extremely difficult.

Unfortunately, most people do not pay attention to their feet until they are sore. Sore feet are sometimes a symptom of an underlying problem or condition.

Our feet can become sore due to overuse, or due to a condition such as plantar fasciitis or bunions. The soreness may be felt in the arch, in the ball of the foot, or in the heel.

SORE FEET SYMPTOMS TO PAY ATTENTION TO

Depending on the cause of the soreness, additional symptoms may be present, including:

- Redness
- Tenderness to the touch
- Inflammation
- Aching, dull pain
- Pain felt in other areas of the body, such as ankles, knees, hips or back
- Difficulty walking
- Difficulty wearing shoes

WHY ARE MY FEET SORE?

There is a long list of reasons why you may be experiencing sore feet. Some causes are simple and require simple fixes, while others are more complicated and require more complex treatment.

Simple causes for a sore foot include:

- Overuse
- Improper footwear or ill-fitting footwear

- New pair of shoes
- Age
- Obesity
- Pregnancy
- Muscle strain
- Foot trauma
- Sports injury
- Ligament strain
- Flat feet

More serious causes for sore feet include:

- Foot fracture
- Broken foot
- Sprained ankle
- Arthritis
- Ankle strain
- Bunions
- Plantar warts
- Bone tumor
- Koehler's disease
- Athlete's foot
- Tendonitis
- Achilles tendonitis
- Gangrene
- Blocked arteries
- Foot ulcer

- Metatarsalgia
- Gout
- Foot disorder
- Foot deformity
- Plantar fasciitis
- Morton's neuroma
- Nerve entrapment
- Diabetes
- Tarsal tunnel syndrome

This list focuses on the more common causes of sore feet, and it is is not at all complete. There are many different causes of sore feet, so if you are experiencing this problem chronically, it is important that you seek medical attention from a podiatrist for a proper diagnosis.

Finding the underlying cause will enable you to minimize or eliminate the soreness in your feet.

Remember, the soreness can be caused by any of the twenty-six bones, thirty-three joints, or the more than 100 muscles, ligaments, and tendons in the foot.

Here is a look at the most common causes of sore feet, based on region:

- **Heel**: Plantar fasciitis, heel spurs, calluses, and dry, cracked heels
- **Arch**: Flat feet, pes planus or fallen arches, plantar warts, Metatarsalgia, pes cavus, and overpronation
- **Toes**: Broken toe, bunions, hallux rigidus, turf toe, and hallux limitus
- **Ball of foot**: Metatarsalgia and Morton's neuroma

DIAGNOSING SORE FEET – WHAT TO EXPECT

Your doctor will want to know more about the symptoms you are experiencing, and the location and severity of the soreness.

He or she will also want to know more about your daily activities and the activities leading up to the problem. To rule out specific causes, your doctor may use one or more of the following diagnostic testing methods:

- Physical examination
- Imaging tests such as x-rays, ultrasounds, MRI, and CT scans to rule out fractures, strains and sprains
- Blood tests, rule out conditions such as diabetes
- Nerve conduction velocity study, to rule out neuropathy
- Electromyelogram (EMG), to rule out neuropathy
- Synovial joint fluid aspiration, to rule out joint-related problems

HOW CAN I GET RID OF MY SORE FEET?

Seeing a podiatrist about your sore feet does not mean that you will have to spend hundreds of dollars to relieve the pain.

After a diagnosis, your doctor will be able to create an appropriate, cost-effective treatment plan for you based on the severity and cause of the soreness.

Many of these treatment options can be purchased over-the-counter. Here is a look at some of the most common treatment options for sore feet:

- Orthotics such as shoe inserts and additional padding to increase arch support
- Over-the-counter medication to reduce pain, such as ibuprofen or aspirin
- Massage
- Stretching exercises (See Plantar Fasciitis Exercises)
- RICE method (rest, ice, compression and elevation)
- Water-type exercises such as swimming

- Weight loss
- Soaking feet in warm water
- Multivitamin supplements

In most cases, sore feet can be eliminated with a little TLC during the times when you are not up and around.

The most common cause of a sore foot is overuse. If you have no choice but to be on your feet, you may benefit from shoes that offer more support, foot and ankle stability, and protection. These are things that should be discussed with your podiatrist before purchasing shoes.

The treatment options listed above can also be used as preventive measures. For example, performing stretching exercises before bed, before getting out of bed in the morning, and before and after any type of exercise routine can prevent sore feet by allowing the muscles to warm up before exertion.

If you are gaining weight for reasons other than pregnancy, you can also try to prevent sore feet and additional symptoms by losing weight in a healthy way. Eating right can also give your muscles and bones the nutrients they need to stay strong and healthy.

TALKING TO YOUR DOCTOR

Here are some questions you may want to ask your doctor about sore feet:

- I have to be on my feet for work, what types of shoes are best for my job?
- What are the best over-the-counter medications to relieve my symptoms?
- What are the best stretching exercises to relieve my symptoms?
- If the pain persists, how long should I wait to see you again?
- What prevention measures can I take?

Medical References:

M. Beers "Merck Manual of Medical Information" 2nd home edition (Pocket Books, 2003) 403-405

Sports Injury Clinic, Foot Pain, Heel Pain, and Toe Pain,
http://www.sportsinjuryclinic.net/cybertherapist/foot_injuries.php

This page was last updated on January 26th, 2016

PLANTAR FASCIITIS EXERCISES: A COMPLETE LIST

Plantar fasciitis is a condition in which the plantar fascia (the band of tissue that runs along the bottom of your foot from your heel to toes) becomes inflamed after excessive stretching or overuse.

Heel pain is a common result of plantar fasciitis, as irritation turns into inflammation or swelling. To prevent heel pain and additional symptoms, and to regain mobility, podiatrists recommend doing exercises to control the condition and to strengthen the plantar fascia.

Plantar fasciitis exercises are proven to be successful in dealing with the symptoms of the condition, but certain exercises—such as running, jumping, or excessive pounding of the foot—can worsen the condition.

The exercises described below should never cause pain, but rather a pulling feeling. It's recommended you try to do these exercises two or three times per day, and not in one sitting. Below are some exercises you can learn to stretch the arch of your foot.

Common exercises that relieve symptoms of plantar fasciitis include:

Achilles Tendon Stretch: While standing on a step (such as on a staircase), slowly lower your heel over the edge of the step as you relax your calf muscles. Hold for about fifteen to twenty seconds, then tighten your calf muscle to bring your heel back up to the level of the step. Repeat four times. Items you'll need: a staircase

Calf Stretch: While standing against a wall with your back to it, lean forward with one knee straight and your heel on the ground. Place the other leg in front on you with the knee bent. Push your hips towards the wall for ten seconds to stretch the calf muscle and heel cord. You should be able to feel the calf muscle stretching. Doctors recommend repeating this exercise twenty times for each foot. Items You'll Need: a wall.

Hamstring Stretch: Extend one leg in front of you with that foot flexed (toes pointed up while the heel is pointed at the ground—also known as dorsiflexon movement). While bending your other knee, lean back slightly. Your pelvis should be tilted forward. Keep your upper body upright and hold the stretch for ten to twenty seconds. Switch sides and repeat. You should be able to feel your hamstring stretching all the way up your calf and thigh. Items you'll need: A wall to help you balance.

Plantar Fascia Stretch: While seated, cross your legs at the knee with the affected foot on top of the other foot. Grab the toes of the affected foot and pull them towards you slowly with your hand on the plantar fascia. Hold this position for ten seconds and repeat twenty times. Items you'll need: a chair.

Towel Stretch: This exercise requires you to place a small towel on the floor in front of you. While sitting on a chair, place your feet flat on the towel. Keep your heel on the ground and use your toes to pull the towel towards you little by little. Many doctors suggest that you begin doing this exercise with a lightweight towel and move up to using a heavier towel as the foot becomes stronger. Items you'll need: A chair and towel.

Foot Flexing: This exercise is recommended before getting out of bed, when the pain of plantar fasciitis is most commonly felt. This exercise involves flexing your foot up and down ten times before standing, slowly and with one foot in the air, one foot at a time. Items you'll need: none.

Pencil Pick-Up: This exercise requires you to place a pencil on the ground in front of you while you are seated in a chair. Using your toes, pick the pencil up and hold it for a few seconds at a time. Repeat this exercise ten times. Many people also use items such as marbles to do this exercise. Items you'll need: a chair and a pencil or marble.

Toe Walking: You should do this exercise slowly at first. Stand on your tip-toes and walk ten to fifteen steps at a time. Once you get good at doing this, increase your distance from to twenty to twenty-five steps, and more as you get stronger. Items you'll need: none.

Rolling Stretch: At first this exercise should be done while seated, either on a chair or on the edge of your bed. While seated, use the arch of one foot to roll a tennis ball or rolling pin back and forth ten times, then switch feet and repeat. Once you have practiced this awhile, begin doing it while standing up. Items you'll need: a chair and a ball or circular item that you can roll under your foot.

Rotational Hamstring Stretch: While standing with your weight on your left foot, place your right heel on a table that is level with your waist. Facing forward, rotate your left foot outward about forty-five degrees, keeping your weight on your left foot. Lean forward with your shoulders until you feel a pull in the hamstring of your right leg (leg on table).

While keeping your right hamstring tight, simultaneously rotate your right knee clockwise, then counter-clockwise twenty times. Try your best to stay relaxed during the entire process. Once you are finished, remove your right leg and rest it for a moment.

When you are ready again, place your right leg back onto the table, but this time keep the left foot rotated inward approximately ten degrees and do twenty more repetitions (clockwise and counter-clockwise). Repeat with your left leg on the table. Items you'll need: a table that is waist height.

Tri-Plane Achilles Stretch: Stand with your left foot six to ten inches in front of your right foot. Shift most of your weight onto your left leg and bend your left knee. Make sure your left foot remains flat on the ground; your right foot should only have the toes on the ground.

Move your left foot slowly to the left while trying to point the knee in a somewhat lateral direction. Bring your knee back to a straight position and then move it to the right. You should be able to feel a side-to-side pull in your left Achilles tendon.

When you return your knee from the right, straighten it out again. You have completed one rep. Do twenty reps, change feet, and do twenty more. Items you'll need: none, unless you need a wall or chair nearby for balancing purposes.

Rotational Plantar Fascia Stretch: You will need to be barefoot for this exercise. Stand with your feet hip-width apart, with your left foot two or three inches ahead of your right foot. Make sure the toes of your left foot come into contact with a wall, so the toes are in a dorsiflexion position.

Your heel and the sole of your left foot should be on the ground, with your toes on the wall and your left knee bent slightly. Keep your weight evenly distributed. Slowly rotate your left foot to the inside, then slowly rotate your left foot to the outside, shifting the weight to the outside of your foot. Repeat this movement fifteen timesbefore switching feet and repeat. Items you'll need: a wall.

TALKING TO YOUR DOCTOR ABOUT PLANTAR FASCIITIS EXERCISES

If you do not understand one of the exercises above, ask your doctor to demonstrate it for you. Here are some questions to ask your doctor about plantar fasciitis exercises:

- Which of the exercises listed above would benefit me most?
- Should I be seeking physical therapy?
- How often should I perform normal exercises such as running?
- Are there any other exercises that might help my condition?

To learn more about additional treatment options and symptoms of Plantar Fasciitis.

MEDICAL REFERENCES:

M. Beers "Merck Manual of Medical Information" 2nd home edition (Pocket Books, 2003) 407-408

This page was last updated on November 30th, 2015

A COMPLETE GUIDE TO FOOT SUPPORT & ORTHOTICS

Orthotics are orthopedic devices made of lightweight materials that range in complexity from simple shoe inserts bought over-the-counter to custom-made devices that require impressions, casting, and computer technology to create.

The two should not be confused, however, since there is a great difference is quality and effectiveness.

Mass-produced, "one-size-fits-all" orthotics cost less, but do not always properly correct the problem in the buyer's foot, and they sometimes do more harm than good. Still, the purpose of all orthotics is to permit the healing of various foot conditions such as Achilles tendonitis, bunions, plantar fasciitis, and tarsal tunnel syndrome, among others.

If you are suffering from one of these conditions, you may want to discuss orthotics first with your podiatrist.

Orthotics are helpful in various ways. They help restore your ability to walk, run, and jump by reducing pain and swelling, and they increase the stability of unstable joints and provide better arch support.

They also ease problems in other parts of the body, such as the back and hips. Other benefits of orthotics include:

- Improving the overall health of the foot and ankle
- Aligning and supporting the body, including the feet and ankles
- Preventing foot deformities

For example, if you are about to begin a new job as a valet attendant, your job is going to entail a great deal of running. Before starting work, you may want to consider purchasing a shoe insert.

The insert provides additional cushioning to your feet and ankles, which can prevent or reduce soreness and inflammation.

If you are an athlete, you may want to consider having a custom-made device prescribed by your doctor, especially if you are a runner.

These custom-made devices cost more than those bought over-the-counter, but they are sometimes more supportive and last longer. Get information on new foot and ankle orthotics here.

TYPES OF ORTHOTICS YOU CAN CHOOSE FROM

Generally, foot specialists group orthotics into two categories: functional orthotics and accommodative orthotics.

However, there are several types of orthotics. Functional orthotics are designed to support abnormal foot biomechanics. They are usually made of materials such as plastic polymer and are good for reducing foot pronation (foot flattening).

They also help with shock absorption while you are walking or in motion. Functional orthotics are used to correct various foot deformities while supporting the rear foot and the mid-foot regions. There are also orthotics that combine both functional and accommodative features.

Examples of accommodative orthotics are braces, splints, casts, gait plates, and night bars. These types of orthotics can be used by anyone, and are used to relieve mild foot pain and to correct minor foot problems.

Orthotics also differ in the materials they are made from. Rigid orthotic devices are typically made of plastic or carbon fiber. Devices made of these materials are usually used to control motion of the joints in the foot.

Soft orthotic devices are typically made of soft, compressible materials such as silicone or foam. These devices are effective if a person has arthritis or a foot deformity that causes a loss of protective fatty tissue on the bottom of the foot.

Semi-rigid orthotic devices are a combination of soft, compressible materials that are reinforced by more rigid materials. Athletes benefit most from this type of orthotic material. Additional types of materials used to create orthotics include rubber, metal, leather, and plastics.

Shoe modifications can be made to reduce pressure on sensitive areas by redistributing weight to areas that are pain-free. For example, heel wedges can be made to promote inversion (turning inward) while resisting eversion (turning outward), and vice versa.

Here is a look at the different types of shoe modifications that can be used to improve stability and support.

Cushioned (Sach) heel: This cushion is a wedge of compressible rubber that is inserted into the heel to absorb impact during the heel strike. The cushion is also used to reduce unnecessary knee movement by allowing more rapid ankle plantar flexion (when in motion, this is the point when the heel is off the ground and you are moving forward).

Heel wedges: Depending on their design, these are used to promote inversion (turning inward) or eversion (turning outward), and prevent the hind foot (the ankle region) from sliding down the incline created by the wedge.

Heel flares: These are used to resist inversion or eversion and to provide stability.

Extended heel: Also known as a Thomas heel, it runs up the front of the medial side to provide support to the medial longitudinal arch (the highest and strongest of the three arches located in each foot). This can also be reversed to support the front side of the lateral side to provide stability to the lateral longitudinal arch.

Heel elevation: This is a shoe lift to help those who have conditions or deformities that leave one leg shorter than the other by more than a quarter of an inch.

Metatarsal bars: These bars have a flat surface placed behind the metatarsal head, and are used to relieve pressure from the metatarsal heads.

Sole wedges: These medial wedges are used to promote supination or pronation, based on their medial or lateral design.

Rocket bar: When patients have problems such as ulcers, this device can be used to shift the rollover point from the metatarsal head to the metatarsal shaft in order to avoid discomfort. This orthotic is evenly curved and lies behind the metatarsal head.

Steel bar: This orthotic is placed between the inner and outer sole, and is used to reduce forefoot motion when the metatarsals and phalanges are under stress

Sole flare: These promote stability and can be used to resist either inversion or eversion, depending on their design.

Metatarsal pads: Like rocket bars, these pads are used to redistribute pressure and stress from the metatarsal heads to the shafts in cases of Metatarsalgia.

Inner sole excavation: This is a soft pad filled with compressible materials. It can be placed under one or more of the metatarsal heads, thereby reducing pressure.

Toe crests: These are crescent-shaped pads that are placed behind the second, third, and fourth phalanges to reduce stress and fill the void under the proximal (closer to the body or metatarsals) phalanges.

Scaphoid pads: These provide additional support to the bones and joints in the midfoot and hindfoot.

Orthotics can also be made for the entire foot. Foot orthoses extend from the posterior border of the foot (the heel bone), to a point just behind the metatarsal heads (the forefoot region) to accommodate an abnormal foot and to help restore more normal lower limb biomechanics.

For example, sesamoid inserts are a ¾-inch-thick addition to an orthosis, with an extension under the big toe to transfer the pressure from the shorter, first metatarsal head onto its shaft.

UCBL (University of California at Berkeley Laboratory) inserts are made of rigid plastic that is fabricated over a cast of the foot. This device embraces the heel and mid-foot regions, and it has medial, lateral, and posterior walls.

ANKLE-FOOT ORTHOTICS

Orthotics can also be classified by the region of the foot for which they are meant. For example, AFOs, or ankle-foot orthotics, are designed to control the ankle directly, controlling its position and motion while compensating for weakness or deformities.

AFOs are one of the most common types of orthotics, accounting for about 26 percent of all orthotics provided in the United States. AFOs are often used to treat disorders that affect muscle function, such as peripheral neuropathy or strokes.

AFOs can also be used to indirectly control other parts of the body, such as the knee or lower leg. They can provide support to weakened or wasted limbs, and they can help to improve conditions that affect one's gait, such as foot drop or arthritis.

In fact, AFOs are sometimes referred to as foot-drop braces. Their design is simple: lightweight polypropylene-based plastic in the shape of an 'L' with the calf supported by the upright portion and the bottom of the foot and heel supported by the lower portion.

Straps are used to secure the brace to the ankle and leg, and the AFO can either have a fixed or unmovable 'L' shape. Or it can be jointed to give the ankle different levels of control.

Here is a look at some of the most common types of AFOs:

Flexible AFOs: These provide dorsiflexion movement, but do not stabilize the subtalar joint.

Anti-Talus AFOs: These do not provide much stabilization to the subtalar joint, and they block all ankle motion.

Rigid AFOs: These block all ankle motion, but they also stabilize the subtalar joint and help control adduction and abduction of the forefoot (adduction is bringing part of your body closer to the sagittal plane, which is the center, vertical line separating the left side of your body from the right. Abduction is the opposite of adduction).

Tamarack Flexure Joint AFOs: These may sometimes help with conditions such as foot drop, depending on their design. They provide subtalar stabilization while allowing dorsiflexion movement and restricting plantar flexion.

KAFO: Standing for knee-ankle-foot orthosis, this AFO provides stabilization to the ankle, calf, and knee, and features a self-locking and self-releasing mechanism to improve a person's gait cycle. These are mainly used on people who suffer from a weak knee joint. They are made of metal, leather, or plastic, and designs include double upright metal KAFOs, single upright metal KAFOs, and Scott-Craig metal KAFOs.

Solid AFOs: This has a wider calf shell and does not allow dorsiflexion and plantar flexion movement. Plus, it prevents varus (twisted inward, towards the body) and valgus (twisted away from body) deviations.

Spiral AFOs: This is a shoe insert with a spiral that starts in the middle of the structure and passes around the front of the leg, ending at the medial tibial flare, where the calf band is attached. This controls the ankle's dorsiflexion, plantar flexion, eversion, and inversion movements.

Hemispiral AFOs: This is a shoe insert with a spiral that starts on the outside of the shoe insert, passes up the back of the leg, and ends at the medial tibial flare, where the calf band is attached.

Hinged AFOs: This orthotic has an adjustable ankle hinge that can be set to allow certain dorsiflexion and plantar flexion movements.

Trafo (Tone-Reducing AFO): This device has a broad foot plate that is used to support most of the foot, extending distally under the toes and up over the foot laterally (outside) and medially to maintain the subtalar joint's normal alignment. TRAFOs are typically used on patients who suffer from cerebral palsy.

Posterior Leaf Spring (PLS): This is the most common type of AFO. It has a narrow calf shell and a narrow ankle trim line behind the malleoli (plural for *malleolus*, the bulge on both sides of the ankle). This device helps weak ankle dorsiflexion movements by resisting ankle plantar flexion movements while walking and during swing phase, with no middle or side control of the ankle.

There are also several types of orthotics for your lower limbs. KAFO is one example. There are also hip-knee-ankle-foot orthotics called HKAFOs, which consist of pelvic girdles, bands, and belts in addition to a KAFO.

Hip-joint orthotics position the wearer sitting upright at 90 degrees, while the knee joint is centered over the medial femoral condyle. The bulge at the bottom of the femur bone that articulates with the tibia and patella to form the knee joint. You can see the femoral condyle best when the knee is bent.

THKAFOs, or trunk-hip-knee-ankle-foot orthotic,s consist of a spinal orthosis in addition to a HKAFO for control of trunk motion and spinal alignment. Patients with paraplegia often use these devices.

Special-purpose lower-limb orthotics are also available to help people with weight-bearing issues, fractures, deformities, and congenital hip dislocation problems.

These special-purpose devices can help patients regain or resist joint movements, take weight off the lower limbs, and correct or control an abnormal gait or deformities such as clubfoot.

HOW ARE ORTHOTICS MADE?

Here we will discuss how custom orthotics are made. Usually the doctor will make a plaster cast of the patient's foot, called a negative impression. The cast is then sent to the lab with a prescription for recommended modifications.

While at the lab, the negative cast is turned into a positive cast by pouring plaster into it. When it dries it is removed, giving the shape of the bottom of the patient's foot. Once the dried cast is ready, a lab technician custom-molds the orthotic device using the recommended modifications as a guide when making adjustments.

Once all adjustments have been made, the device is sent back to the doctor, who then fits the patient, typically within weeks of the initial casting. The orthotic provides support, stability, cushioning, and alignment to the patient's feet, ankles, and lower body. This allows the patient to gradually become free of pain.

AM I A CANDIDATE FOR ORTHOTICS?

Just about anyone who feels they need some type of additional support for walking or running is a good candidate for orthotics.

Orthotics are especially good for people who want to relieve or prevent common foot problems that are known to cause pain, swelling, and discomfort.

Even those without pain can often benefit from orthotics, however. Here is a look at common symptoms that indicate a need for orthotics due to misalignment of the feet:

- Bunions
- Abnormal shoe wear (for example, if one side of your shoe wears down quicker than the other)
- Chronic heel, knee, or lower back pain
- Flat feet
- Shin splints
- Frequent ankle sprains
- Gait abnormalities (when your feet point inward or outward when walking)

If you feel discomfort when you walk, you should seek help from a podiatrist, a foot and ankle surgeon, or some other type of foot specialist. They may be able to help you decide which orthotics device would be best for you. Remember, the longer you leave a problem untreated, the more likely the condition will worsen.

POPULAR ORTHOTICS BRANDS

Here is a brief look at some of the most popular brands of orthopedic devices available over the counter:

- Dr. Scholl's
- Superfeet
- Footminders
- Foot Levelers
- Lynco
- WalkFit
- Shields O&P
- Spenco
- Foot Orthotics

- Aetrex
- ACOR
- Vasyli
- Orthaheel
- Adidas
- K-Swiss

Each of these brands offers different sizes, styles, colors, and types of devices, ranging from inserts and wedges to orthotic sandals and shoes. The best way to figure out which brand and style are right for you is to speak with a foot specialist—a podiatrist, not the sales representative at Foot Locker.

POPULAR STORES TO BUY ORTHOTICS

Here is a small list of places to buy orthotics:

- Your podiatrist's office
- Fleet Feet and other specialty retailers
- Footsmart
- Good Feet
- Foot Solutions
- eBay

COST OF ORTHOTICS

The cost of your orthopedic device will depend on the brand name, the location of purchase, whether the device is over-the-counter or prescription, the type of device (insert, custom-made, etc.), and your insurance coverage.

Generally, inserts and wedges can be bought at a local pharmacy or specialty retailer and range in price from $7–$50. Custom-made devices can range from $100–$500, but this too depends on the doctor, the materials used, and the type of insurance coverage you have.

Orthotic shoes made by companies such as Adidas, New Balance, Brooks, K-Swiss, and others can be found ranging from $20–$150. AFOs can usually be found priced from $500–$700.

QUESTIONS TO ASK YOUR DOCTOR

If you are curious about orthotics, or think you may need a device, talk with your podiatrist or another type of foot specialist about the problems you would like to address.

He or she will be able to help you decide on the best type of orthotic device for you. Questions that you may want to consider asking your doctor about orthotics include:

- Which materials would benefit me most during activities such as _____? (Fill in the blank with the activities you participate in most)
- What brand offers the best support and comfort?
- Can the orthotic device you recommend be purchased over the counter or for less money?
- If I begin using orthotics, will I need to wear them for the rest of my life?
- Is there anything else I can do to prevent foot problems or foot injuries?

If you are interested in reading more about orthotics that benefit parts of the body other than the foot or ankle, please visit
http://emedicine.medscape.com/article/314838-overview

WHAT TO EXPECT FROM PHYSICAL THERAPY FOR YOUR FEET

Physical therapy, or PT, is a medical specialty that deals with improving a patient's mobility and relieving pain following an injury, or sometimes an illness. Foot and ankle physical therapy most often focuses on the various joints of the foot and ankle, which may be impaired in their movements by such events as foot injuries or ankle sprains, or by congenital foot or ankle conditions such as clubfoot.

Physical therapy can also address problems related to recovery from foot or ankle surgery, or problems caused by footwear or lifestyle, such as bursitis or hammertoes.

Sports-related injuries are perhaps the most common reason for doctors to recommend physical therapy. Some sports and activities—such as football, basketball, and ballet dancing—can be dangerous to your feet and ankles because they put unusual stress on the joints due to sudden stops and turns while running, or due to unnatural weight bearing. Accordingly, many physical therapists specialize in sports medicine.

Your doctor will be the one to tell you if physical therapy for your foot or ankle would benefit you, or if it is necessary for your recovery from one of the above-mentioned conditions. If this is the case, your doctor will prescribe physical therapy and refer you to a licensed physical therapist.

WHAT IS INVOLVED IN PHYSICAL THERAPY FOR FEET AND ANKLES?

The regimen your physical therapist will subject you to depends mostly on the nature of the problem, and also to some degree on your doctor's recommendations. Stretching exercises may be necessary to loosen joint capsules, tendons, or ligaments that have been injured and become "frozen" by a condition such as adhesive capsulitis, for example.

Massage is frequently an important component of foot or ankle physical therapy, as is the application of heat or cold to the affected area—indeed, many PT sessions begin with a ten-minute application of heat to the foot or ankle, and end with the application of a cold pack for approximately the same length of time. If the PT center where your therapy is being conducted is equipped with a pool or Jacuzzi, these may also play a role in your therapy.

Sometimes foot or ankle physical therapy involves the use of ultrasound techniques such as EPAT. This painless procedure involves the use of ultrasound waves directed at the injured or affected area. This serves to break up scar tissue and replace it with healthy tissue in order to restore mobility to stiffened joints.

QUALIFICATIONS OF A PHYSICAL THERAPIST

While physical therapists are not doctors, they *are* licensed and well-educated medical professionals. Generally speaking, a physical therapist must earn at least a BS (Bachelor of Sciences) degree, although many have a Master's degree, and most programs offer a path for a Doctor of Physical Therapy degree.

The curricula for these programs are accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE). Following graduation from such a program, a candidate must pass the National Physical Therapy Examination in order to become a licensed physical therapist.

SOME TYPICAL PHYSICAL THERAPY EXERCISES FOR FEET AND ANKLES

Below are some examples of exercises frequently recommended for people who have suffered from certain foot or ankle injuries, or who suffer from a condition that can be helped by foot or ankle physical therapy.

These examples are provided here *for illustrative purposes only*. Do *not* attempt to use this article as a substitute for a consultation with a doctor if you are suffering from undiagnosed foot or ankle pain. Your doctor is the only person qualified to tell you what needs to be done to treat your pain.

PHYSICAL THERAPY EXERCISES FOR AN ANKLE SPRAIN

If you have sprained your ankle, your physical therapist may recommend certain exercises to strengthen the ankle once it has healed enough to bear weight and you have regained sufficient range of motion.

The simplest of these exercises requires you to place your foot against a heavy object such as a couch or doorway, with the object against the inside of your foot (the big-toe side). You will then attempt to turn your foot toward the object, which will offer resistance. Hold this position for a ten-count and repeat ten times, then switch positions and press in the opposite direction with the other side of your foot.

Other physical therapy exercises for an ankle sprain involve exercising the same muscles by using an elastic resistance band, which may be provided from the therapist (if not, you can easily get one from a sporting goods store). Simpler exercises can also be used to address range of motion issues—your therapist may ask you to simply trace the alphabet with your toe, or sit in a chair with your feet pressed to the floor, moving your knees from side to side without moving your feet.

PHYSICAL THERAPY TREATMENT FOR CLUBFOOT

Clubfoot is a congenital condition (i.e., one is born with it) in which the bones of the foot become malformed, causing the foot to turn inward and upward (if you are having difficulty picturing this, see our Clubfoot article for a more detailed explanation with pictures). Treatment for this condition begins in infancy, and sometimes involves physical therapy for the foot as well as surgery.

Using a method known as the French Physical Therapy Technique, a therapist manipulates the foot in order to stretch and loosen the ligaments and tendons that are holding the bones in their deformed positions. The foot is then placed in a cast to hold the foot in its corrected position. This procedure is repeated every week or two until surgery becomes necessary.

TALKING TO YOUR DOCTOR

Here are some questions to ask your doctor about physical therapy for your foot or ankle:

- Do you think physical therapy would help me regain my full range of motion?
- Would PT help with the pain I am experiencing?
- How often will I need to make appointment to see the therapist, and for how long?

MEDICAL REFERENCES:

The California Physical Therapy Association www.ccapta.org The American Academy of Orthopaedic Surgeons http://orthoinfo.aaos.org/PDFs/Rehab_Foot_and_Ankle_4.pdf The National Institutes of Health http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2759597/ http://www.ncbi.nlm.nih.gov/pubmed/23628755 The American Orthopaedic Foot & Ankle Society (AOFAS) https://www.aofas.org/footcaremd/how-to/foot-injury/Pages/How-to-Ankle-Sprain-Strengthening-Exercises.aspx Cigna Health and Life Insurance Company http://www.cigna.com/healthwellness/hw/medical-topics/sprained-ankle-te7604 The American Physical Therapy Association http://www.capteonline.org/Programs/ The Federation of State Boards of Physical Therapy http://www.fsbpt.org/Default.aspx?404;http://www.fsbpt.org:80/ForConsumers/PhysicalTherapy/index.asp

This page was last updated on November 3rd, 2015

FOOT AND ANKLE MRI — WHAT YOU SHOULD KNOW

Magnetic resonance imaging, otherwise known as MRI, uses a combination of magnetic fields and radio waves to take images of the internal structures of your body. Your doctor, with the help of a radiologist, can then examine these images to determine whether there is anything wrong with your foot or ankle.

MRI can provide more detailed images than x-rays, CT scans, or other imaging methods, and the way the images are obtained enables the radiologist to view cross-sections of your body as though you had been sliced like a loaf of bread.

HOW MRI WORKS

An MRI machine is a large, cylinder-shaped device, inside which is a hollow, tube-shaped space surrounded by a ring-shaped magnet. The patient lies on an examination bed that slides in and out of this device

Unlike x-rays and other imaging scans, MRI does not use ionizing radiation, which makes it somewhat safer to use (although x-rays nowadays are not dangerous for most patients).

For this reason, MRI is often preferred over CT scanning, even in cases in which either method would be able to provide the same information.

WHAT ARE THE ADVANTAGES OF MRI OVER X-RAYS AND OTHER METHODS?

The complex, three-dimensional anatomy of the foot and ankle makes this one of the most difficult regions of the body from which to obtain medically useful images.

MRI addresses this problem well because it provides your medical team with a way to view three-dimensional images of your foot and ankle—if necessary from multiple angles. Additionally, it provides a high degree of contrast between soft tissues, denser tissue, and bone; it can even show bone marrow.

Another advantage of MRI is that unlike CT scanning, it does not usually require the injection of "contrast material" to improve the contrast in the images produced. When such material does need to be employed, it is less likely to cause an allergic reaction than the iodine-based materials used for CT.

MRI is not *always* the most appropriate choice of imaging method—it is far more expensive than x-rays, and in some cases the enormous amount of detail it provides may be too much for the doctor to sift through; one doctor at the American Academy of Podiatric Sports Medicine likens it to traveling across the country with a map that shows every single road and side street, rather than one that only shows the major highways you need to take.

It is, however, extremely useful for diagnosing a wide variety of injuries and conditions, including Morton's neuroma, plantar fasciitis, Tarsal tunnel syndrome, stress fracture, and others. MRI is particularly helpful for evaluating soft tissue injuries.

WHAT YOU SHOULD EXPECT DURING YOUR FOOT/ANKLE MRI

Unlike some other medical tests, an MRI does not require you to fast the night before. You may eat normally and take whatever medications you would normally take. When you arrive for your appointment, the technician may ask you to change into a medical gown.

You will also be asked to remove all jewelry (including wedding ring), as well as eyeglasses, hairpins, dentures, or a hearing aid. Make sure not to wear an underwire bra that day, if it can be avoided.

When it is time for the MRI to begin, you will lie down on the examination table, which will then slide into the open end of the tube in the machine. The technician conducting the scan will monitor you from another room, and you will have an intercom through which you can communicate if necessary.

The procedure usually takes 30–60 minutes, and it is completely painless. You will not be able to feel the magnetic field or the radio waves. It will be necessary for you to remain as still as possible, however, and some people find this stillness difficult to maintain for the duration of the scan.

Throughout the procedure, the machine will make a variety of very loud, unpleasant noises—clanking, banging, and buzzing that resembles a car alarm—which most patients find disconcerting, to say the least. The technician conducting the scan will probably provide you with earplugs, and sedation may be an option.

IS MRI DANGEROUS?

When magnetic resonance imaging is done properly and all appropriate safety guidelines are observed, the procedure presents no danger whatsoever. However, if you suffer from claustrophobia, you may need to be sedated.

Also, if you have any kind of metal implant or electronic device inside your body or on your person, it may interfere with the imaging process, and there is even a chance that it can create a safety hazard. Examples of such objects and devices include:

- Prosthetic joints with metal parts
- Pacemaker
- Cochlear implant
- Shrapnel, bullets, etc.

Before getting a foot or ankle MRI, it is advisable to inform your doctor if you are pregnant or think you may be.

MEDICAL REFERENCES:

The Mayo Clinic http://www.mayoclinic.org/tests-procedures/mri/basics/definition/prc-20012903 The National Institutes of Health http://www.nlm.nih.gov/medlineplus/ency/article/003335.htm http://www.nlm.nih.gov/medlineplus/mriscans.html http://www.ncbi.nlm.nih.gov/pubmed/9306033 The Radiological Society of North America http://www.radiologyinfo.org/en/info.cfm?pg=bodymr American Academy of Podiatric Sports Medicine http://www.aapsm.org/eight-test.html The American Academy of Family Physicians http://www.aafp.org/afp/2007/1001/p975.html

This page was last updated on October 30th, 2015

TOENAIL REMOVAL – BEFORE, DURING, AND AFTER SURGERY

Surgical toenail removal (also known as avulsion of the nail plate) is a common method of treatment for a variety of conditions, including "ram's horn nails" (onychogryphosis) and an ingrown toenail.

Toenail removal may be partial or complete, and in some cases a doctor may recommend permanent toenail removal. This involves the destruction of the nail matrix, the layer of cells at the root of the nail that produces keratin, the material the nail is composed of.

To put it more simply, the matrix creates the nail and causes it to grow. Permanent toenail removal may be recommended for both children and adults who suffer from chronic infected ingrown toenails.

The toenail removal procedure is simple and usually takes no more than twenty minutes—the surgeon injects a local anesthetic into the toe and then removes (or *avulses*) the nail.

While this may be disturbing for the reader to contemplate, the operation is generally quite painless. After the nail plate has been removed, it may in some cases be necessary to destroy the nail matrix.

This is necessary in cases in which the patient's condition is so severe (or has gone so long without treatment) that the orientation of the nail matrix has been permanently altered by scarring, making it impossible for the nail to ever grow properly again.

If the toenail is allowed to grow from a matrix that has been damaged in this way, it may not adhere properly to the nail bed. Destruction of the nail matrix can be performed chemically or surgically.

Chemical cauterization of the nail matrix with a chemical called *phenol* is most common. Although phenol is about 90 percent effective at destroying the nail matrix, there are some cases in which the nail does in fact grow back.

If chemical cauterization is not effective, surgical matrixectomy (removal of the nail matrix) is indicated. This involves surgically creating a flap of the skin at the base of the nail, retracting it back and surgically removing the nail matrix.

REASONS FOR TOENAIL REMOVAL

In addition to being useful for the treatment of conditions such as ingrown toenails, warts, nail tumors, or fungal infections like onychomycosis or paronychia , nail avulsion is sometimes useful for diagnostic purposes—a doctor may want to explore the nail bed, the matrix, and the nail folds before deciding whether to conduct a biopsy on the nail bed.

THE NAIL AVULSION PROCEDURE: WHAT TO EXPECT

Your toenail removal operation will most likely not take very long. To begin, the surgeon will have you lie on your back, either with your knee flexed and your foot flat on the table, or with the knee extended so that the foot hangs off the edge of the table.

Partial nail avulsion: This is usually indicated for ingrown toenails. A local anesthetic is injected into the toe, and the surgeon cuts away the ingrown portion of the nail with surgical scissors, being careful not to injure the nail bed (the skin underneath the nail plate).

It may take three to four months for the excised portion of the nail to grow back, unless a permanent removal or cauterization of the nail matrix was performed.

Complete nail avulsion: This procedure involves complete removal the entire nail with as little trauma as possible. Again, while this may be unsettling for the reader to contemplate, it is almost painless.

Matrixectomy: If your doctor believes the destruction of the nail matrix is necessary after removing the toenail, he or she will perform a partial or full *matrixectomy* (or *matricectomy*), which is permanent toenail removal by applying a chemical agent (most commonly phenol or sodium hydroxide) to the matrix.

In some cases the nail matrix is destroyed with electrocautery ablation, using electricity to burn it away. Laser procedures can also be used for this purpose, but the necessary equipment is prohibitively expensive for most practices, and in the majority of cases unnecessary.

WHAT ARE THE COMPLICATIONS OF TOENAIL REMOVAL?

Complications of toenail removal are not common, but may include partial regrowth of the nail in cases of incomplete matrixectomy. Postoperative infection of the nail bed is also a possibility. Most commonly, patients will have some drainage and tenderness for a week or two following the procedure.

RECOVERY FROM TOENAIL REMOVAL SURGERY

After your toenail is removed, you will most likely wear a bandage or a Band-Aid for two weeks, during which time your mobility may be somewhat limited. You will be advised to keep your foot elevated as much as possible, but most patients are able to walk easily after toenail removal.

The first night there may be some throbbing, but ibuprofen or acetaminophen should be sufficient to keep the pain under control. Within a few days, you will be nearly back to normal, and within about two weeks you should be able to resume all your normal activities.

After the procedure, typically the bandage is kept on for 24 hours. After 24 hours, you may remove your bandage and soak the affected toe in lukewarm water and Epsom salt for 20 minutes once or twice a day.

Following soaking, cover the procedure site with a topical antibacterial and a Band-Aid. Your doctor will want to see you within a week or two in order to make sure no infection is present and to clean out the procedure site.

MEDICAL REFERENCES:

The American Orthopaedic Foot and Ankle Society http://orthoinfo.aaos.org/topic.cfm?topic=A00154 National Institutes of Health http://www.ncbi.nlm.nih.gov/pubmed/22565429 The Student Doctor Network http://forums.studentdoctor.net/threads/surgical-matricectomy-post-procedure-pain.310006/ The American Academy of Family Physicians http://www.aafp.org/afp/2002/0615/p2547.html The Straight Dope http://boards.straightdope.com/sdmb/showthread.php?t=601985

This page was last updated on October 2nd, 2015

AN IN-DEPTH LOOK AT THE VARIOUS TOENAIL TUMORS

When most people hear the word *tumor*, they think *cancer*. But not all tumors are cancerous; the medical definition of a tumor is merely "an abnormal growth of tissue."

Tumors, also known as *neoplasms*, are classified as either benign or malignant (i.e., cancerous), and there are several distinct types of tumors that can affect the toes and toenails.

Some of these toenail tumors are harmless and easily treated, while others are cause for serious concern. Some of them can permanently alter the shape or appearance of the *nail plate* (what you probably think of as "the nail"), or even destroy it.

Some of these tumors even have the potential to spread and become life threatening.

In this article we will discuss some of the various types of toenail tumor, and we will attempt to dispel some of the anxieties that may arise if you should happen to be diagnosed with one of them.

ONYCHOMATRICOMA

Onychomatricoma is a tumor of the nail matrix that most often occurs in middle age. This type of tumor is generally benign, but it has the potential to become malignant.

Onychomatricoma may be accompanied by alarming symptoms—long, finger-like projections may appear throughout the nail, causing the nail to thicken and become grooved.

Yellow discoloration of the toenail with multiple cavities (holes) at the distal (far) margin of the nail may also occur.

Onychomatricoma is a rare condition that was not even described in medical literature prior to 1992. Due to its rarity it has not been well studied, and the exact cause of onychomatricoma tumors is therefore not known.

It is possible that they may be related in some way to fungal infections of the toenail, which appear in roughly half of all cases. It is also possible that heredity may play some role, as there is a notably greater incidence among Caucasians than among other races.

Most patients do not report the occurrence of any trauma or injury in conjunction with their tumor. Diagnosis is obtained by a simple clipping of the end of the nail (as opposed to the base of the nail), which will show multiple cavities filled with serous fluid.

WARTS

Warts are the most common benign non-cancerous type of tumor, and they are caused by the human papillomavirus (HPV), which affects the skin.

While warts are most commonly seen in the plantar region (the bottom of the foot), they can also appear on the skin surrounding the toenails, or in some cases, even beneath the nail plate.

Treating a wart underneath the nail may require avulsion (removal) of the nail plate itself (a procedure described in more detail here).

Many other types of skin lesions, even including malignant lesions like squamous cell carcinoma or malignant melanoma, can look like warts. This is exactly why it is essential to see your doctor about any suspicious lesions on your feet.

The best diagnostic aid is excision and histologic analysis of the lesion itself to rule out any possibility of malignancy. Treatments are various and include cryotherapy, laser therapy, chemical ablation, and surgical excision.

GLOMUS TUMOR

A glomus tumor is yet another type of benign tumor—although it should be noted here that the word *benign*, when used in a medical terminology, does not necessarily mean "harmless."

On the contrary, glomus tumors, like many benign growths (especially under the nail plate) can be quite painful.

While these types of tumors often appear under the nail, they can also appear elsewhere in the foot or elsewhere on the body. Regardless of where they appear, glomus tumors are tender to the touch and extremely sensitive to cold; even cold tap water can be excruciatingly painful.

Glomus tumors arise from glomus bodies, which control shunting of blood for temperature regulation. Clinically, a glomus tumor may appear as a tender, red, subungual (beneath the nail) nodule or as a small, subtle area of blue pigmentation.

A pulsating pain is the most common complaint. Surgical excision is typically required for treatment.

CANCER

While most toenail tumors are not life threatening (even if they are painful), some turn out to be malignant. Most of us are accustomed to the idea that we need to keep an eye on our skin and notice when new moles appear, or when existing moles change in size or shape.

But it is important to remember that the skin under our fingernails and toenails is also susceptible to malignant tumors. The most common malignant tumors that affect the nail matrix and nail bed are melanomas.

This type of cancer affects the thumb, index finder, and big toe more often than it strikes any other toe or finger. The easiest warning sign to spot is a dark, longitudinal stripe running from the nail fold to the tip of the nail. This should be cause for special concern if:

- The stripe has soft, blurry edges
- It is very dark or black
- Its appearance changes over time
- The base of the stripe is wider and narrows as it progresses up the nail

The appearance of this kind of stripe on your nail should be cause for particular concern if there is cancer in your family's medical history.

However, it is also important to keep in mind that amelanotic melanoma (lack of pigmentation) is also very common. Therefore, it is safest to have any unusual lesion examined by your physician. People of African descent are more susceptible to toenail cancer than people of other ethnic backgrounds; in fact, reggae legend Bob Marley died from cancer that began under his toenail (melanoma).

Unwilling for religious reasons to heed his doctor's recommendation that the toe be amputated, Marley sought other, less medically sound remedies, and his toenail cancer took his life.

DIAGNOSIS OF TOENAIL TUMORS – WHAT TO EXPECT WHEN VISITING YOUR DOCTOR

Because some types of tumors under the toenail can be initiated by trauma, they can in some cases go unreported and undiagnosed for months. The reason for this is that the affected person mistakes the pain and discoloration for a bruise under the nail, only seeking treatment when the mark does not go away for months, or when they begin to experience other symptoms.

The web site LiveScience recently reported the story of a man in his forties who noticed a two-millimeter-wide dark blue line running the length of his nail after an injury. Assuming that it was merely a splinter (the nail had thickened, adding to the appearance of a foreign object under it), the man did nothing for three years.

When he finally sought medical attention, however, the line turned out to be *onychocytic matricoma*, another type of benign nail matrix tumor. After the tumor's removal, there was no further trouble related to it. The key to diagnosis is a biopsy by your physician.

If you notice any sort of inexplicable growth or discoloration under your nail, you should see a doctor as soon as possible to have it examined. Not all toenail tumors turn out to be benign.

MEDICAL REFERENCES:

http://www.bonetumor.org/tumors-vascular-tissue/glomus-tumor Taylor, Elizabeth J. (2000). Dorland's Illustrated medical dictionary. (29th ed.). Philadelphia: Saunders. p. 1184. Freedberg, et al. (2003). Fitzpatrick's Dermatology in General Medicine. (6th ed.). McGraw-Hill. ISBN 0-07-138076-0. Onychomatricoma: benign sporadic nail lesion or much more? Rashid RM, Swan J. Dermatol Online J. 2006 Oct 31;12(6):4. Dermatology Consultants http://www.dermconsultants.com/general-dermatology/nail-health LiveScience http://www.livescience.com/43155-fingernail-tumor-splinter.html Medscape http://emedicine.medscape.com/article/1106626-overview#a0199 The American Institute of Ultrasound in Medicine http://www.jultrasoundmed.org/content/29/5/803.full.pdf CBS News New York http://newyork.cbslocal.com/2014/02/28/doctors-warn-of-potentially-deadly-form-of-nail-cancer/ Podiatry Today http://www.podiatrytoday.com/blogged/what-most-effective-treatment-mucoid-cysts

This page was last updated on October 2nd, 2015

WHAT TO KNOW ABOUT VARICOSE VEINS IN THE FEET

The veins in our legs, feet, and ankles can sometimes become swollen and twisted, a condition known as *varicose veins*.

This happens to many of us as we get older, but it also sometimes occurs even in younger people who suffer from certain medical conditions or are obese. To varying extents, this condition affects nearly 30 percent of adults.

Varicose veins in the feet can often be painful, and even if they are not they can, for cosmetic reasons, be distressing to people who suffer from them.

A less severe condition known as *spider veins* often appears in conjunction with varicose veins or as a precursor to them. Spider veins are so named because they resemble dark, bluish-colored spiderwebs just below the skin.

Even if they do not cause any discomfort or anxiety over their appearance, spider veins and varicose veins may still be a good reason to see a doctor because they may be a symptom of an underlying condition affecting your circulation.

SYMPTOMS OF VARICOSE VEINS TO WATCH FOR

If you develop varicose veins in your feet, the most obvious symptom will be the visibility of the veins themselves. Your legs and feet may ache and appear swollen, and you may experience some itching.

If the problem becomes severe, you may begin to experience pain in your legs and feet after standing or sitting for long periods. Your skin may begin to thicken and harden, and you may develop sores or skin ulcers, especially around your ankles.

HOW VARICOSE VEINS DEVELOP

Your circulatory system chiefly comprises arteries—which carry blood from the heart toward the more distant parts of your body—and veins, which return that blood to the heart.

The veins in your legs and feet must fight the force of gravity in order to do their job; they are able to do this because valves inside the veins combine with muscle contractions in your legs to act as pumps to keep the blood moving forward and upward, back to the heart.

These valves open to allow blood to pass through them and shut to prevent it from flowing backward.

If the valves become weak, however, or if the veins themselves begin to lose elasticity, the blood flow can get backed up. Blood can begin to pool in spots within the veins, causing them to swell and become twisted.

CAUSES AND RISK FACTORS OF VARICOSE VEINS

This loss of elasticity in the veins and their valves can happen as we get older, or it can occur as the result of disease. Some people simply have a congenital disposition toward this problem, such as a defect in the valves in their veins.

Pregnancy can also cause varicose veins; when you become pregnant, the volume of blood in your body increases, but blood flow from the legs to the pelvis decreases in order to provide circulatory support for the baby—resulting in varicose veins.

Some female hormones can relax the walls of the veins, which exacerbates the problem. (For this reason, women are more prone to varicose veins than men.)

Obesity is another frequent contributor to the problem of varicose veins in the feet and legs. Carrying extra weight can put extra pressure on the veins, causing them to work harder than they would otherwise have to. People whose jobs require them to sit or stand for prolonged periods are also at risk.

Other possible causes and risk factors include:

- Family history
- Birth control pills
- Menopause
- Hormonal therapy for menopause
- Frequent wearing of tight clothing, especially pants, undergarments, and shoes
- Various diseases of the heart, liver, or circulatory system

TREATMENT FOR VARICOSE VEINS IN YOUR FEET

Varicose veins are common—as noted earlier, they affect nearly three out of ten adults—and they rarely constitute a serious medical condition in themselves. If your varicose veins are causing you pain, however, or if their appearance is distressing to you, there are ways they can be treated.

The most conservative treatment for varicose veins in the feet and legs is compression therapy, which involves wearing specially fitted compression stockings that exert pressure on the legs and feet, reducing the diameter of the varicose veins and improving blood circulation.

Other treatments for varicose veins in the feet include:

- Sclerotherapy, which involves the injection of a sclerosing solution into the affected veins, causing them to collapse and vanish
- Laser therapy, which is more effective for the treatment of spider veins than for treating larger varicose veins
- Endothermal ablation, in which heat is used to seal the damaged veins

In severe cases it may be necessary to consider surgery. In most cases, varicose veins in the feet and legs can be removed without seriously compromising circulatory function because the deeper veins are responsible for returning 90 percent of the blood to the heart.

PREVENTING VARICOSE VEINS – IS IT POSSIBLE?

There is little we can do to prevent varicose veins as we get older, especially if we are genetically predisposed toward them. We can minimize their severity, however, and some of us may be able to avoid them entirely by losing weight and getting more exercise.

If possible, try to avoid sitting or standing for too long; if your job requires you to sit at a desk all day, try to remember to take a few moments every hour to move around.

MEDICAL REFERENCES:

Cleveland Clinic http://my.clevelandclinic.org/heart/disorders/vascular/varicosespiderveins.aspx The British National Health Service http://www.nhs.uk/conditions/Varicose-veins/Pages/Whatarevaricoseveins.aspx National Institutes of Health http://www.nlm.nih.gov/medlineplus/ency/article/001109.htm The Mayo Clinic http://www.mayoclinic.org/diseases-conditions/varicose-veins/basics/definition/con-20043474

This page was last updated on October 1st, 2015

WHAT YOU NEED TO KNOW ABOUT BUERGER'S DISEASE

Buerger's disease (also known to doctors as *thromboangiitis obliterans*) is a rare disease that affects the veins and arteries in the legs and arms. It was named for Leo Buerger, who first described it in 1908.

When this disease is present, these blood vessels become inflamed and swollen, and blood clots may eventually appear, interfering with circulation and causing tissue damage in the extremities. Left untreated, Buerger's disease can have serious consequences for your feet.

SYMPTOMS AND SIGNS OF BUERGER'S DISEASE TO LOOK FOR

Symptoms that sufferers of Buerger's disease may experience include:

- Pain in the legs and feet (particularly in the arch) that tends to accompany use of the feet—walking, running, etc.—and tends to ease when at rest
- Raynaud's phenomenon—toes turn color and become numb and sensitive when exposed to even mildly cold air or water
- Painful open sores on the toes

Signs of Buerger's disease that a doctor may recognize upon physical examination include vein inflammation just below the surface of the skin (this is caused by blood clots).

WHY DID I DEVELOP BUERGER'S DISEASE?

The primary risk factor for Buerger's disease is tobacco use, especially smoking. The disease tends mostly to strike men under the age of 40 (usually at around the age of 35), and only one patient in ten is a woman.

It is a rare condition in the United States—affecting just 12 people out of every 100,000—and becoming rarer as tobacco use declines, but it is more common in other parts of the world, particularly in the Middle East, where heavy smoking is more common.

While the greatest risk is to heavy smokers (those who smoke a pack and a half or more per day), Buerger's disease can also result from the use of other tobacco products, including snuff or chewing tobacco.

Despite the fact that virtually all cases of Buerger's disease occur in people who use tobacco, the connection between the disease and the habit is not entirely clear; it is possible that the condition may arise from irritation to the lining of the blood vessels caused by chemicals present in tobacco.

Another possibility is that the disease arises as part of an autoimmune response (an attack on the body's tissues by its own immune system) that is somehow triggered by the tobacco.

This idea seems to be supported by the fact that while children are seldom the victims of this condition, it can sometimes occur in children suffering from systemic autoimmune diseases.

Buerger's disease differs from circulatory disorders like peripheral vascular disease in that symptoms are not caused by narrowing of the artery due to the buildup of arterial plaque, but by the inflammation of arterial walls and the development of blood clots that block circulation.

Buerger's disease has also been linked to chronic gum infection; the reason for this connection is not quite clear, but it may be related to the use of chewing tobacco or snuff.

UNDERSTANDING THE PROGRESSION AND COMPLICATIONS OF BUERGER'S DISEASE

The initial symptom will be pain in the toes (and possibly the fingers) during exercise. This pain will radiate from the toes and into the feet and legs. At first, the sufferer will find that the pain disappears when he is at rest.

Eventually, however, the pain will be present even while resting, and the subject may experience occasional tingling in the toes. The toes may also turn white and become numb or painful upon exposure to cold (Raynaud's phenomenon).

Eventually sores will begin to appear on the toes, and the subject will develop gangrene, necessitating the amputation of affected toes, or possibly even the entire foot.

HOW IS BUERGER'S DISEASE DIAGNOSED?

Buerger's disease can easily be mistaken for any of a number of diseases that cause impaired circulation in the extremities, including atherosclerosis, endocarditis (an infection in the heart), lupus, and scleroderma, to name just a few.

In pursuit of a diagnosis, a doctor who suspects Buerger's disease may order an angiogram of the affected extremities.

An angiogram is an imaging technique whereby a radiation-opaque substance (i.e., something through which radiation cannot pass) is injected into the bloodstream and fluoroscopic images (like an x-ray, but a moving picture) are taken of the affected foot.

If the doctor's suspicions are correct, the angiogram may show the blood clots, and it will also show that the blood vessels in the ankle have been twisted into a "corkscrew" shape characteristic of Buerger's disease.

TREATMENT AND PREVENTION OF BUERGER'S DISEASE

While the symptoms of Buerger's disease can be treated to some extent (if only by resorting to the extreme step of amputating gangrenous toes and fingers), the only way to treat or prevent the disease itself is immediate smoking cessation.

The inflammation that accompanies this condition does not respond to steroidal anti-inflammatory drugs, nor does it respond to NSAIDs (non-steroidal anti-inflammatory drugs). Similarly, anticoagulation therapy—for example, thinning the blood with aspirin—is ineffective at preventing blood clots from forming.

Only tobacco use causes Buerger's disease, and only quitting tobacco can stop it. Furthermore, while smoking cessation slows the progress of this disease, it does not halt it—so it is best to stop smoking *before* you begin to experience symptoms. There is no cure.

WHAT IS THE PROGNOSIS FOR BUERGER'S DISEASE?

The prognosis for Buerger's disease somewhat depends on how far the condition has advanced at the time it is diagnosed, and on the degree to which the patient is willing to cooperate when asked to give up smoking immediately.

Mild cases may show some improvement, but if the patient is unwilling to give up tobacco, his case is likely to end in amputation and death.

MEDICAL REFERENCES:

Vascular Disease Foundation. http://vasculardisease.org/buergers-disease/ Johns Hopkins Vasculitis Center http://www.hopkinsvasculitis.org/types-vasculitis/buergers-disease/ Centers for Disease Control and Prevention http://www.cdc.gov/tobacco/campaign/tips/diseases/buergers-disease.html National Institutes of Health http://www.nlm.nih.gov/medlineplus/ency/article/000172.htm The Mayo Clinic http://www.mayoclinic.org/diseases-conditions/buergers-disease/basics/definition/con-20029501

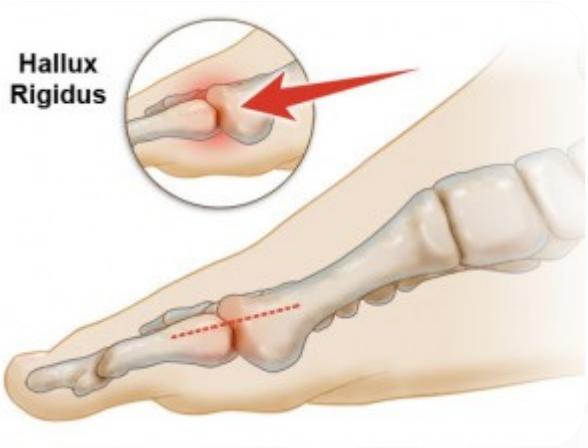
This page was last updated on October 1st, 2015

EVERYTHING YOU NEED TO KNOW ABOUT ARTHROPLASTY SURGERY

The surgical repair or replacement of a diseased joint is known as arthroplasty. This procedure may be considered when conservative treatments no longer provide adequate relief from joint pain and/or disability.

The joint can be repaired by resurfacing the bones or replaced with a prosthesis. Many people who have undergone arthroplasty report substantial improvement in their joint pain, which in turn improves their quality of life.

Arthroplasty is used to treat a variety of foot and ankle conditions that cause destruction of cartilage and bones, such as arthritis. In patients with arthritis, replacing an arthritic joint allows for greater range of motion, and thus less stress is transferred to adjacent joints.



This decreases the chances of arthritis developing in those joints. Arthroplasty can be a minor or major surgery, depending on what type of procedure is performed. Your surgeon will determine whether you are a suitable candidate for surgery.

WHEN IS ARTHROPLASTY APPROPRIATE?

Arthroplasty may be appropriate if you have chronic joint disease, long-standing pain, or severe disability. Many factors will determine whether you a good candidate for surgery.

Regardless of the type of procedure, a recommendation for surgery is typically made only after conservative treatments have been exhausted and after you are deemed healthy enough for surgery.

However, it is ultimately up to you whether to proceed with surgery.

If you have one of the following conditions of the foot or ankle, joint repair or replacement surgery may be an option for you:

- Advanced arthritis of the ankle
- Rheumatoid arthritis
- Osteoarthritis
- Bone fracture
- Infection
- Moderate to severe hallux rigidus (arthritis of the big toe joint)
- Previous unsuccessful bunion surgery
- Claw toes, mallet toes, or hammertoes

PREPARING FOR ARTHROPLASTY SURGERY

To be cleared for surgery, you will need to see your primary care physician or internist for a general medical evaluation.

You will also have preoperative visits with your surgeon. You may need to take several types of tests, including blood tests, a cardiogram, a urine sample, and a chest radiograph.

The amount of preparation you need for joint repair surgery is less than for joint replacement surgery.

The latter procedure is more complex, has a higher risk of complications, involves more hospital resources, and requires a longer recuperation period. To ensure that you are adequately prepared for either surgery, make sure you:

- Understand your procedure by asking questions and voicing any concerns.
- Write down all your medical information and bring it with you to every doctor's appointment; this includes your emergency contacts, healthcare providers, medical conditions, medications, allergies, dietary restrictions, insurance coverage, and legal arrangements.
- Stay healthy or take steps to improve your health before your surgery.

- Avoid drinking alcohol 48 hours before surgery.
- Plan for your return home: arrange for someone to pick you up from the doctor's office or hospital and stay with you after the surgery, and make sure your home is equipped with everything you need to make your recovery as comfortable as possible.
- Follow your surgeon's instructions for what to do in the 24 hours before surgery.

THE ARTHROPLASTY PROCEDURE

Arthroplasty can be performed in multiple ways with varying degrees of complexity and may be done as part of another surgery. Procedures for joint replacement and joint repair are described below:

JOINT REPLACEMENT

The surgical approach for joint replacement may vary. Total joint replacement for the ankle and big toe are described here:

ANKLE REPLACEMENT

Ankle replacement is most often recommended for patients with advanced arthritis of the ankle, destroyed ankle joint surfaces, and an ankle condition that interferes with daily activities. The procedure is done under general anesthesia in the hospital.

Your surgeon will make an incision in the line of the tibialis anterior muscle, and then a sharp incision through the connective tissue and muscle sheath, bordering the lateral side of tendon to avoid the neurovascular bundle.

Vessels that cross the joint transversely are diathermied (burned). A retractor is used to expose the anterior tibia and the ankle joint capsule. Your surgeon will continue to cut through the tissues and bones (the medial and lateral malleoli) until the ankle joint is opened.

At this point, the goal is to remove all the damaged bone and cartilage and reshape the three remaining bones (the tibia, fibula, and talus) to accommodate the prosthetic implant. The parts of the new artificial joint are attached to the cut bony surfaces.

A special glue or bone cement may be used to hold them in place. To help support the artificial ankle, screws may be inserted through the two leg bones (the fibula and tibia). A bone graft is implanted between the ends of the fibula and tibia.

This makes your new ankle more stable. After putting the tendons and tissues back into place, your surgeon closes the wound with sutures. A splint, cast, or brace may be applied to keep the ankle from moving.

BIG TOE

Patients who undergo metatarsophalangeal joint replacement for hallux rigidus will receive general or regional anesthesia. Your surgeon will make an incision in the skin over the joint and then divide the tissue and retract the tendon to expose the joint capsule.

He or she then removes the joint and clears away part of the medullary canals of the first metatarsal and proximal phalanx to accommodate the prosthetic joint implant.

A preliminary reduction with a trial implant is done to ensure a snug fit, and the implant components are then placed in each canal. After the joint capsule and incision are closed, a flexible splint is applied.

JOINT REPAIR

Here are a few techniques used to repair joints in the foot and ankle:

INTERPOSITIONAL ARTHROPLASTY

This procedure consists of removing some of the damaged bone and replacing it with a piece of soft tissue from the foot, such as tendon or capsule, between the joint to allow for some motion.

This may be an option for the patient with moderate to severe hallux rigidus, arthritis of the big toe joint. The surgery is performed under regional anesthesia. A dorsal linear incision is created just medial to the extensor hallucis longus tendon.

A sharp and blunt dissection is made, taking care to protect the neurovascular structures. The joint is exposed. Any inflamed tissue or loose bodies are removed. Tunnels are created for the new tissue. The new tissue is attached using stiches.

Before closing the incision, range of motion is tested. A light, sterile compressive dressing with toe tape (spica) is applied. Removing part of the bone shortens the big toe slightly but preserves some movement.

DISTRACTION ARTHROPLASTY

This technique stretches the joint apart for a while. It may be recommended for a patient who has ankle arthritis. Appropriate candidates are young active patients with arthritis, which is usually the result of an injury rather than a deformity.

The surgery is done in two stages. The first stage is the application of an external frame with wires or pins from the tibia down to the foot. The second surgery, which is done approximately three months later, is to remove the frame and apply a splint or cast dressing.

The incisions where the pins and wires are placed are very small. You may be allowed to put weight on the foot and walk and participate in physical therapy while in the frame.

RESECTION ARTHROPLASTY

This procedure involves increasing joint space by removing the damaged portion of the joint. It is mainly recommended for older patients, those with severe arthritis, or those who have previously had unsuccessful bunion surgery.

Typically, surgery takes about one hour, and patients are able to go home within two hours afterwards.

AFTER ARTHROPLASTY SURGERY

Most people have some pain after foot and ankle surgery. You will be given medication for pain at the time of surgery and a prescription for pain medication along with instructions for how to relieve pain at home.

Elevating your foot above the level of your heart for one to two weeks following surgery is usually advised.

A physical therapy regimen may be prescribed to help you regain strength in your foot or ankle and to restore range of motion. When you can resume ordinary daily activities will be determined by your doctor.

Your activities may be limited for three to four months after major surgery. You may need special shoes or braces.

Surgery can relieve joint pain and make it easier for you to perform daily activities. Full recovery can take four to nine months or more, depending on the severity of your condition before surgery and the complexity of the surgery.

RISKS OF ARTHROPLASTY TO BE FAMILIAR WITH

The potential complications of joint repair surgery are similar to those for any type of surgery — infection, scarring, persistent pain, and surgical failure.

With distraction arthroplasty, it is common to have irritation at one of the pin or wire sites, and some patients may experience nerve pain as the frame stretches the ankle joint.

With any joint replacement surgery, the implant may loosen or fail over the years. Additional surgery may be necessary if the implant failure is severe. Other risks involved with joint replacement surgery are:

- Joint weakness, stiffness, or instability
- Skin not healing after surgery
- Nerve damage
- Blood vessel damage
- Bone break during surgery
- Dislocation of the artificial joint
- Allergic reaction to the artificial joint

MEDICAL REFERENCES:

American Academy of Orthopedic Surgeons, "Arthritis of the Foot and Ankle," September 2008, http://orthoinfo.aaos.org/topic.cfm?topic=a00209 American Orthopedic Foot & Ankle Society, "Hallux Rigidus," http://www.aofas.org/footcaremd/conditions/ailments-of-the-big-toe/Pages/hallux-rigidus.aspx American Orthopedic Foot & Ankle Society, "Distraction arthroplasty," http://www.aofas.org/footcaremd/treatments/Pages/Distraction-Arthroplasty.aspx G. C. Berlet, MD; C. F. Hyer, DPM; T. H. Lee, MD; T. M. Philbin, DO; J. F. Hartman, MS, M. L. Wright, BS, "Interpositional Arthroplasty of the First MTP Joint Using a Regenerative Tissue Matrix for the Treatment of Advanced Hallux Rigidus," (Foot & Ankle International, 2008) 29(1):10-21.

This page was last updated on October 2nd, 2015

TOE FALLING OFF (AINHUM) – WHAT YOU CAN DO

Ainhum, also known as *dactylolysis spontanea*,is a poorly understood condition in which the fifth toe (the little one) becomes constricted at its base and eventually falls off.

This condition was first described over 100 years ago by the English surgeon Robert Clarke, who called "dry gangrene," and we are not much closer to understanding it today than we were then.

Even the origin of the condition's name is unclear—*ainhum* is either of African or Portuguese origin, possibly derived from the African Yoruba word *ayùn*, meaning "to saw (off)."

WHAT CAUSES OF AINHUM?

The exact cause of toes falling off is still unknown. It is almost never linked to injury of any kind, and the most intuitively likely causes—bacteria, viruses, parasites, and fungi—have all been ruled out.

Some evidence exists linking ainhum to walking barefoot in childhood, but many cases have been observed in which the victim never went barefoot.

In many cases —but by no means in all—corns or warts have been observed to appear on the end of the doomed toe shortly before the first lesion is noticed, but what relevance this has (if any) has yet to be determined.

Ainhum almost exclusively strikes people of African descent, especially people who live in West Africa, India, and South America.

The evident role of race as a predisposing factor in this condition suggests that it may be genetic in origin, and there have been reports of ainhum running in families.

Men appear to be more susceptible than women; the ratio of male victims to female is two to one. Victims tend to be in their thirties and forties, although at least one case has been reported involving a seven-year-old child.

Ainhum is very rare—few cases have ever been reported in the United States (mostly in the South, and almost never in the Northeast), and even fewer in Europe, although the condition is much more common in Nigeria, where it strikes nearly two people out of every thousand.

SYMPTOMS AND PROGRESSION OF AINHUM

Ainhum generally begins with the appearance of a small groove in the plantar-digital fold, at the base of the little toe, on the bottom (it almost never happens to any other toe).

Over a period of months—and sometimes years—this groove becomes deeper and longer, eventually encircling the entire toe.

The rate at which the condition spreads varies greatly from one case to the next; in some cases the band around the toe is a complete circle within a few months, and in other cases the process takes years.

Both feet are affected in about 75 percent of cases, although the condition is usually more severe and more pronounced in one foot than in the other.

The condition is painful in about 78 percent of cases due to pressure on the nerves lying beneath the band of constriction.

As the condition worsens, fracture of the phalanx may occur, or sepsis may set in, either of which causes severe pain. However, a toe falling off is less painful than one might expect, and in some cases there is no pain.

Eventually the end of the toe swells up until it resembles a potato. This swelling is due to the accumulation of lymphatic fluid in the distal part of the toe (the part that is on the far side of the constriction band).

When the condition has reached this stage, crusts may begin to form in the groove, and there is a risk of *Staphylococcus* infection.

As the groove becomes deeper, blood vessels, tendons, and nerves become compressed, worsening the pain.

The pressure causes bone to be absorbed into the toe, and eventually everything in front of (or *distal* to) the point of constriction is compressed into a cord of tissue with no blood vessels running through it.

The connection between the foot and what is left of the toe becomes slim and tenuous, and if the toe is not amputated it will eventually fall off on its own. Surprisingly, there is no bleeding when this occurs.

While the progress of *dactylolysis spontanea* varies, it generally takes five years from the first appearance of the groove for the toe to drop off completely.

HOW IS AINHUM DIAGNOSED?

Due to its rarity, ainhum is easily misdiagnosed, and it is sometimes confused with leprosy, diabetic gangrene, and other conditions.

HOW IS AINHUM TREATED?

Unfortunately, because the phenomenon of toes falling off is so poorly understood, there is no way to prevent it and not much that can be done to treat it. If the condition is caught in its early stages, the groove can be excised and the scar treated with a plastic surgery procedure known as *Z-plasty*.

This action will relieve the pain and can sometimes stop the progress of ainhum, thereby saving the toe. Advanced cases can sometimes be treated by disarticulating the metatarsophalangeal joint (separating the phalanx bone at the base of the toe from the foot's metatarsal bone), which relieves pain and maintains the stability and usefulness of the foot.

These treatments are not always possible, however, and in most cases surgical amputation of the toe is the only recourse.

MEDICAL REFERENCES:

Tropical dermatology. Landes Bioscience. 2001. pp. 338–340 Browne, SG. (1965). "TRUE AINHUM: ITS DISTINCTIVE AND DIFFERENTIATING FEATURES.". J Bone Joint Surg Br. PMID 14296246. James, William; Berger, Timothy; Elston, Dirk (2005). Andrews' Diseases of the Skin: Clinical Dermatology. (10th ed.). Saunders. The National Center for Biotechnology Information http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1618292/?page=5 http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1618292/?page=1 http://www.ncbi.nlm.nih.gov/pubmed/2423578 JAMA—the Journal of the American Medical Association http://jama.jamanetwork.com/article.aspx?articleid=665159 http://en.wikipedia.org/wiki/Ainhum Oxford Dictionary http://www.oxforddictionaries.com/definition/english/ainhum

This page was last updated on October 2nd, 2015

THE MOST DANGEROUS SPORTS FOR YOUR FEET AND ANKLES

Athletic competition is important to all societies. It encourages physical fitness and teaches children the value of teamwork and sportsmanship. … and, perhaps more important, it's fun! But sports can also be dangerous.

In this article we will discuss which sports are most likely to cause foot and ankle injuries, and how to minimize the risk of such injuries.

FOOTBALL

American football is one of the best loved pastimes in the US, but it is a rough game that can cause myriad injuries to the head, neck, shoulders, arms, and legs—and to the feet and ankles.

The damage it can do:

- High ankle sprain. This is one of the most common injuries in the game. A high ankle sprain affects the syndesmotic ligaments, which are located above the ankle, and it is caused by outward twisting of the ankle and foot.
- Shin splints are pain that attacks the places where the calf muscles attach themselves to the bone. Shin splints are caused by overwork and repetitive stress.
- Achilles tendonitis is an inflammation of the Achilles tendon, which connects the calf muscle to the heel bone. This is a short-term injury, but if it is not properly treated it can turn into a chronic condition known as *Achilles tendonosis*.
- Blisters can occur from excessive exposure to bad weather (not uncommon in football, given the time of year during which the game is played) or from poorly fitted footwear.
- Turf toe is named for the place where it most commonly occurs—on the playing field. Turf toe happens when a toe is forcibly jammed or bent too far back, causing hyperextension of the ligaments.
- Lisfranc injury. A fracture or dislocation of the bones of the midfoot is called a Lisfranc injury (it is named for the French surgeon who first diagnosed it in the early nineteenth century).

How to Protect Yourself:

The practice of ankle taping is tedious and time consuming, but it is one of the best ways to minimize the kinds of ankle injuries that are almost inevitable in football. Safe, regular practice and muscle conditioning are also important.

BASKETBALL

The damage it can do:

- Stress fractures are caused by repetitive stress that overwhelms the ability of the muscles to act as shock absorbers. This stress is then transferred to the bones. The risk of stress fracture can be heightened by sudden increases in activity when a player has not been training regularly and keeping in shape.
- Achilles tendonitis. The constant jumping and running required in basketball puts players at risk for Achilles tendon problems.
- Ankle sprain. Basketball players are very prone to ankle sprains—especially high ankle sprains—due to the nature of the sport, which constantly requires them to stop quickly and turn while running at high speeds.

How to Protect Yourself:

The most important steps a basketball player can take to prevent foot and ankle injuries are to take the time to tape his ankles and to choose his footwear properly. If you play basketball, consult with your coach, get the advice of a podiatrist, and spend some time researching shoes online.

SOCCER

While soccer—known to the rest of the world as football—has never enjoyed the same popularity in the US that it does abroad, it is on the rise here, and soccer-related injuries are rising with it.

The damage it can do:

- Achilles tendonitis. Like many other sports, soccer carries a high risk of Achilles tendonitis.
- Ankle sprains are perhaps the most common soccer injury. The game requires constant pivoting and turning in much the same way that basketball does.
- Metatarsal fractures also happen frequently to soccer players due to the constant kicking the game requires.
- Ankle impingement (also known as "footballer's ankle"), a condition in which bone spurs form on the bones of the ankle and pinch the nerves and soft tissue, causing considerable pain.

How to Protect Yourself:

After any extended period of inactivity, you should resume your training program gradually. Begin with aerobic exercise and strength training, and resist the urge to over-train. Proper shoes are also important.

TENNIS

Tennis players face risks of foot and ankle injury similar to those faced by basketball and soccer players, and for similar reasons—the game requires a player to run very quickly in a small space, frequently making instantaneous changes of direction. Tennis players are therefore at constant risk for ankle sprains, stress fractures, and Achilles tendonitis. Tennis players are also at increased risk for plantar fasciitis, an inflammation of the band of tissue that runs along the bottom of the foot.

How to Protect Yourself:

As with any other sport, proper footwear, attentive ankle taping, and gradual warmup before strenuous play will go long way toward preventing injuries.

RUNNING

In a way, running is the mother of all sports-related foot and ankle injuries. Participation in any competitive sport requires constant running, which leads to the risks of acute foot and ankle injury and chronic foot and ankle problems. But pastimes like jogging and sports in which running itself is the object—including sprinting and marathon running—pose special risks.

The damage it can do:

- Shin splints
- Plantar fasciitis
- Ankle sprains
- Achilles tendonitis
- Stress fractures
- Blisters

How to Protect Yourself:

If you run on a regular basis, whether competitively or just to keep yourself fit, you need to take the same precautions as any other type of athlete. Proper shoes will help you to:

- Protect your ankles and arches from repetitive stress
- Protect your skin from blisters
- Protect your tendons from excessive wear and tear
- Reduce stress on your calves, thereby reducing the incidence of shin splints

Whatever sport you participate in, make sure to do your research so that you are well informed about the type of protective gear you need to wear, and always be sure to warm up gradually before competing or practicing.

MEDICAL REFERENCES:

http://www.nsmi.org.uk/# http://www.stopsportsinjuries.org/football-injury-prevention.aspx Lievers WB, Frimenko RE, Crandall JR, Kent RW, Park JS (2012). "Age, sex, causal and injury patterns in tarsometatarsal dislocations: a literature review of over 2000 cases". Foot 22 (3): 117–124. http://abcnews.go.com/Health/PainManagement/story?id=117542 http://www.ektio.com/ NYU Langone Medical Center http://www.med.nyu.edu/content?ChunkIID=13817 University of California San Francisco Medical Center
http://www.ucsfhealth.org/education/tips_for_preventing_foot_and_ankle_injuries/ US Soccer http://www.ussoccer.com/stories/2014/03/17/12/24/100915-anklesprains

This page was last updated on October 1st, 2015

PERIPHERAL VASCULAR DISEASE OF THE FEET

The term *peripheral vascular disease* (or PVD) refers to any obstruction of large arteries in the limbs, most commonly in the legs and feet. The condition is also known as peripheral artery disease (PAD), and the two terms are often used interchangeably.

Peripheral vascular disease can cause pain, weakness, numbness, and changes in color of the affected limb.

Peripheral vascular disease eventually causes narrowing and hardening of the arteries that carry blood to the feet, and the decrease in blood flow can cause injury to the nerves. PVD is estimated to affect 12 percent of the general population, and up to 20 percent or more of Americans over the age of 70.

Most sufferers are men, although woman can become more susceptible during and after menopause.

SYMPTOMS OF PERIPHERAL VASCULAR DISEASE

Some cases of peripheral vascular disease are mild, and in about 20 percent of cases there are no symptoms at all. In more severe cases, however, patients may experience:

- Claudication—pain in the legs that occurs with walking and impairs mobility
- Weakness
- Numbness
- Tingling sensation in the feet and toes
- Change in color (the limb or digits may appear pale or even blue)
- Chronic discomfort in the thigh or calf muscles
- Impotence
- Varicose veins
- Hair loss on the legs and feet
- Sores or wounds that heal very slowly or do not heal at all

In the early stages of peripheral vascular disease, sufferers may find that vigorous exercise has begun to seem more difficult. As the disease progresses, even mild exercise tends to aggravate the symptoms, and eventually those symptoms even present themselves when the sufferer is at rest.

THE CAUSES OF PERIPHERAL VASCULAR DISEASE

The most common cause of PVD is arteriosclerosis. This is a buildup of plaque on the walls of the arteries, which stiffens them and narrows the space through which blood needs to flow.

The problem is exacerbated by the stiffening of the artery walls, which prevents the arteries from dilating to allow more blood flow. In some cases blood clots may also form in the arteries, further inhibiting blood flow.

While arteriosclerosis is the most common cause of peripheral artery disease, the condition can also be caused by trauma or infection. Patients who suffer from coronary artery disease also tend to suffer from peripheral artery disease.

CATEGORIES AND STAGES OF PERIPHERAL VASCULAR DISEASE

There are two categories of PVD—*functional* and *occlusive*. Occlusive PVD involves blockage of the artery (usually by plaque). In cases of functional PVD, the artery spasms and constricts. Raynaud's Phenomenon, a condition that makes sufferers unusually sensitive to cold, especially in their extremities, is thought to be a type of functional peripheral vascular disease.

Raynaud's Phenomenon causes many of the same symptoms as other forms of peripheral vascular disease, and sufferers may also experience brittle nails.

In 1954 the progress of peripheral vascular disease was divided into four stages by René Fontaine; these stages are now called the Fontaine Stages:

- **Stage I**: The arterial obstruction is not yet significant, and the subject is not experiencing symptoms
- **Stage II**: Mild pain when walking
- **Stage III**: Pain is present even when the subject is at rest
- **Stage IV**: Gangrene begins to set in

RISK FACTORS FOR PERIPHERAL VASCULAR DISEASE TO BE AWARE OF

Peripheral artery disease is most common among men over the age of 50, especially those who are are heavy smokers. Anyone who has ever had a stroke is also at elevated risk. Additional risk factors include:

- High Cholesterol
- High blood pressure
- Diabetes
- Heart or kidney disease

WHEN SHOULD YOU SEEK MEDICAL ATTENTION?

Never let anyone tell you that pain and numbness in your legs is just a normal part of the aging process. It is not normal; it is a potentially serious medical condition that requires treatment.

If peripheral vascular disease is left untreated it will progress, and there is even the possibility—however small—that you might lose a foot, or even a leg.

Contact your healthcare provider immediately if you have leg pain while walking, or if you have numbness or tingling in your limbs.

Even if you are not experiencing any of the symptoms of PVD, you should be screened for it periodically if you are over the age of 70, or if you are over the age of 50 and have risk factors such as diabetes, obesity, or tobacco use.

Complications of untreated peripheral vascular disease can include:

- Blood clots
- Coronary artery disease
- Heart attack
- Stroke
- Deep vein thrombosis (a blood clot in a vein travels to the lungs and blocks a vein, causing a life-threatening pulmonary embolism)

- Gangrene, possibly requiring amputation (this usually appears first in the form of sores that do not heal)
- Ulcerations or non-healing wounds of the feet or legs

PREVENTION AND TREATMENT OF PERIPHERAL VASCULAR DISEASE

While peripheral vascular disease is very common, there are many lifestyle choices that can help to prevent it, or at least to reduce your risk. Tobacco cessation is the first and simplest of these choices.

If you have diabetes or hypertension, work with your primary care doctor to keep it under control. Watch your diet, and ask your doctor for his or her advice on controlling your cholesterol intake.

Lastly, it is important to exercise regularly; if you can manage 30 minutes of vigorous exercise daily, you should do so. At the very least, make a habit of going for a 20-minute walk each day, if you can.

Treatment of peripheral vascular disease may involve surgery such as angioplasty (surgical widening of obstructed or narrowed arteries) or plaque excision, in which the plaque that is blocking the artery is scraped away.

Your doctor may attempt to treat your peripheral vascular disease with medications rather than surgery (or in addition to it).

A variety of medications are available for the control of blood sugar, cholesterol, high blood pressure, and blood clots, and your doctor may want to try a medication-oriented approach before resorting to surgery.

TALKING TO YOUR DOCTOR

Here are some questions you can ask your doctor about peripheral vascular disease:

- What is the cause of the numbness and tingling in my feet?
- Do I need to change my eating habits?
- Should I take medication for high blood pressure?
- What kind of an exercise regimen do you recommend?

- Are there any non-surgical ways we can handle this condition?
- Why are my feet cold all the time?
- Why does the hair on my legs not grow anymore?
- Why won't these sores on my feet and legs heal?
- What does my blood sugar have to do with blood supply to my feet?

MEDICAL REFERENCES:

Shammas NW (2007). "Epidemiology, classification, and modifiable risk factors of peripheral arterial disease". Vasc Health Risk Manag 3 (2): 229–34. Anderson ME, Moore TL, Lunt M, Herrick AL (March 2007). "The 'distal-dorsal difference': a thermographic parameter by which to differentiate between primary and secondary Raynaud's phenomenon". Rheumatology 46 (3): 533–8 Fontaine R, Kim M, Kieny R (1954). "Die chirugische Behandlung der peripheren Durchblutungsstörungen. (Surgical treatment of peripheral circulation disorders)". Helvetica Chirurgica Acta (in German) 21 (5/6): 499–533 The Mayo Clinic http://www.mayoclinic.org/diseases-conditions/peripheral-artery-disease/basics/symptoms/con-20028731 The University of Chicago Department of Medicine http://www.uchospitals.edu/online-library/content=P00236 National Institutes of Health http://www.nlm.nih.gov/medlineplus/ency/article/000170.htm

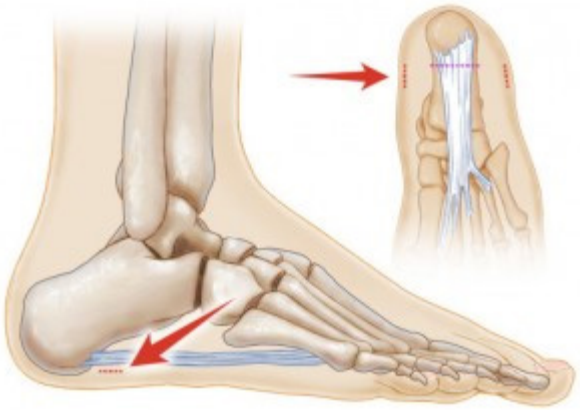
This page was last updated on October 1st, 2015

ENDOSCOPIC PLANTAR FASCIA RELEASE – YOUR ULTIMATE GUIDE

Endoscopic plantar fascia release is a surgical procedure that involves cutting the plantar fascia ligament to relieve tension and inflammation (plantar fasciitis).

According to the National Institute of Health, approximately 20 percent of people with heel pain/plantar fasciitis undergo endoscopic plantar fascia release or some other type of surgical procedure to treat this problem.

However, up to 25 percent of those people may continue to experience pain, difficulty walking, and other symptoms associated with plantar fasciitis after the procedure.



The term *endoscopic* is used because of the arthroscope, an instrument inserted into the incision to enable the surgeon to see the entire plantar fascia ligament during the procedure. If an arthroscope is not used, the procedure is simply called *plantar fascia release*.

WHO NEEDS ENDOSCOPIC PLANTAR FASCIA RELEASE?

Surgery for plantar fasciitis is reserved for severe cases only. In fact, it is estimated that only 5 percent of people with heel pain/plantar fasciitis receive surgical treatment.

Often this type of surgery is performed only after all non-surgical treatment methods have been exhausted, or if symptoms persist after a year of aggressive conventional treatment. Non-surgical methods may include:

- Stretching and physical therapy
- Corticosteroid injections
- Taping
- Orthotics such as heel pads
- Extracorporeal shockwave therapy
- Anti-inflammatory medications (steroidal and non-steroidal)

ON THE DAY OF YOUR ENDOSCOPIC PLANTAR FASCIA RELEASE PROCEDURE

Your doctor will give you specific instructions prior to the procedure—whether or not to drink or eat on the morning of the procedure and how early to arrive to the appointment. Instructions vary from patient to patient. You will need to designate a driver to take you home after the surgery.

After your surgery, you will be limited in the amount of weight you place on your foot, but you will not have to wear a brace or other type of orthotic.

Regular shoes may be worn again as soon as you can comfortably do so. Most patients who undergo this procedure are able to resume their normal activities within three to six weeks, although running and jumping are typically not allowed for up to three months after surgery.

COMPLICATIONS OF THE ENDOSCOPIC PLANTAR FASCIA RELEASE PROCEDURE

Unlike traditional plantar fascia release, this procedure can sometimes cause complications such as nerve damage.

In order to prevent this, the surgeon may free the abductor halluces, the thickest part of the foot muscle, to prevent nerves from becoming entrapped during the healing process. This typically reduces the chances of nerve damage. Tarsal Tunnel Syndrome is another common nerve disorder that sometimes develops.

As mentioned above, 25 percent of people who undergo this last-resort surgical treatment will continue to experience pain. Although it is rare, some people experience worse symptoms following surgery. Infection at the incision site and delayed healing are also possible.

TALKING TO YOUR DOCTOR ABOUT ENDOSCOPIC PLANTAR FASCIA RELEASE

When meeting with your doctor, be sure to ask questions such as:

- Are there any other treatment options available other than surgery?
- Would I benefit more from endoscopic surgery or regular plantar fascia release?
- How long will the procedure take?
- When will I be able to drive again?
- Do I need to come back for a follow-up appointment?
- If pain persists after the surgery, what other options do I have?

MEDICAL REFERENCES:

Hake DH. Endoscopic plantar fasciotomy: a minimally traumatic procedure for chronic plantar fasciitis. The Ochsner Journal 2000; 2: 175-178 National Institutes of Health, Endoscopic plantar fasciotomy in the treatment of chronic heel pain, http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2552945/ American Academy of Orthopaedic Surgeons, Plantar Fasciitis and Bone Spurs, http://orthoinfo.aaos.org/topic.cfm?topic=a00149

This page was last updated on October 2nd, 2015

HEALTH BENEFITS OF FOOT PEDICURES

Getting your nails done is a time-honored way for women—and nowadays also for men—to relax. Getting a pedicure makes you feel pampered and well cared for, and when you're done, you feel clean and energized.

Most women get their toenails done for cosmetic and therapeutic reasons, but there are also numerous health benefits associated with pedicures.

The practice has been with us for most of recorded human history—the ancient Egyptians were doing pedicures at least 2,400 years ago. Here we will discuss the benefits, risks, and costs of getting a pedicure.

WHAT'S INVOLVED IN GETTING A PEDICURE?

Having a pedicure takes less than an hour in most cases, and that often includes the wait time, depending on how busy the salon is. When it is time for your pedicure to begin, you will be seated in a special chair that has been fitted with a tub of water for your feet.

This water is filtered and salinized or chlorinated like the water in a swimming pool, and it can be aerated like the water in a Jacuzzi.

After your feet have been soaking for a few minutes, a nail specialist will come to take care of you and your feet. First, your toenails will be trimmed straight across (as our site recommends), after which your nails will be filed to a rounder shape.

Some doctors discourage rounded toenails on the grounds that they can more easily become ingrown; if this is a concern for you, ask your podiatrist for advice.

Your specialist may also want to use cuticle pushers; this is another practice that is discouraged by some doctors on the grounds that the cuticles constitute a natural barrier that protects the body from bacteria and other environmental hazards.

In addition to cutting your toenails, your pedicure specialist will rub your feet with a pumice stone in order to remove dead skin and calluses. Most salons will also offer to massage your feet for a few minutes (and sometimes your calves as well), and will finish your pedicure by painting your toenails.

BENEFITS OF A GETTING A PEDICURE

Of course there is an obvious cosmetic benefit to getting your toenails done—they look clean and pretty—but there are also numerous health benefits. The foot massage that come with most pedicure services helps to stimulate circulation in the feet, which is important for your overall foot health.

The removal of calluses on the feet can prevent the formation of pressure points from uneven weight distribution, and having your nails trimmed by a skilled nail specialist can prevent ingrown toenails.

Regular pedicures are also a good way to prevent blisters, corns, and blackened toenails (one of a number of running-related injuries that can be prevented with conscientious nail care).

HOW MUCH DOES A PEDICURE COST?

The cost of getting a pedicure can vary greatly, depending on the level of service provided. A simple pedicure usually involves soaking, nail shaping, caring for the cuticles, callus removal, and massage, which can cost around $30, depending on where you live.

A more extravagant pedicure may also include an exfoliating scrub, moisturizing paraffin wax treatment, and moisturizing foot and calf massage.

HOME PEDICURES – WHAT YOU SHOULD KNOW FIRST

If you don't have the money to get your nails done professionally, or if you don't have the time to go to a nail salon, you can always give yourself a pedicure at home. A home pedicure is easy:

1. Blend two tablespoons of baking soda into a basin filled with warm water. If you like, you can throw in a few drops of lavender oil.
2. After you have soaked your feet for a few minutes, scrub with a mixture of one part water, three parts baking soda, and one part brown sugar.
3. Trim your nails to whatever length you desire; cut them straight across—do not round them.
4. After drying your feet, apply moisturizer, and wrap your feet with a warm towel. Sit with your feet in the towel for five to ten minutes.

PEDICURE RISKS AND PRECAUTIONS

While getting a pedicure every now and then is generally pretty safe and beneficial, there can be risks involved if the salon where you have your feet and toenails done does not observe the laws and regulations governing their operating procedures.

These laws are designed to protect public health, and egregious violations should be reported to the health department.

- The whirlpool baths in which customers soak their feet must be cleaned and disinfected between uses, and the water must contain some kind of antimicrobial agent.
- Don't have your nails painted too often; give them an occasional break. Fungi can grow in the darkness underneath nail polish, and nail polish remover can eat away the enamel on your toenails if it is used too often.
- Pumice stones and exfoliating scrubs are fine, but *avoid foot razors*. These devices, which shave skin off the foot, can do serious damage if they are incorrectly used, and they are illegal in some states. Overly aggressive abrasion to remove calluses is likewise unsafe.
- Don't shave or wax your legs before getting a pedicure; tiny little cuts—even if they are too small to be seen—can allow bacteria to invade your body.
- Don't round the edges of your toenails; this can contribute to an ingrown toenail.
- Leave your cuticles alone! They protect your body from microbes.
- If possible, schedule an early morning appointment. The foot baths are cleanest at this time of day.
- Ask your salon about their disinfectant procedures.
- Don't let a pedicurist put your feet in a bowl of dead-skin-eating "doctor fish." The use of these fish is illegal in many states, and for good reason—they spread disease.
- For your own protection and for the safety of others, don't have a pedicure if you have any cuts or wounds on your feet, even a bug bite. Microorganisms are the chief danger found in nail salons, and any opening that can allow them to enter or exit your body should disqualify you from getting your nails done that week.

QUESTIONS TO ASK YOUR DOCTOR ABOUT PEDICURES

- Do you think rounded toenails are a health risk? What is an attractive way for me to have my toenails cut without risking an ingrown toenail?
- Is having a pedicure done at home less risky?
- Do you recommend that I not wear nail polish?
- What is the best way to determine whether a nail salon is hygienic enough to use?

MEDICAL REFERENCES:

The EPA http://www.epa.gov/pesticides/factsheets/pedicure.htm US News http://health.usnews.com/health-news/articles/2012/06/14/pedicure-or-pedicurse-proceed-with-caution The Washington Post http://www.washingtonpost.com/national/health-science/manicures-and-pedicures-look-great-but-you-can-get-infections-or-harm-your-nails/2012/05/04/gIQAYfZA8T_story.html Arm & Hammer http://www.armandhammer.com/solutions/solution-110/Exfoliating-Pedicure.aspx?gclid=CIyKurGVor0CFaVxOgod3WMALg http://www.blissonbroadway.com/ http://www.sallybeauty.com/What-are-the-benefits-of-a-pedicure%3F/FAQ_NAILS_025,default,pg.html http://www.ambianceskincare.com/nails.htm http://thealternativepress.com/articles/the-many-benefits-of-a-pedicure

This page was last updated on October 2nd, 2015

HOW TO GET RID OF HAIR ON FEET AND TOES

Many of us have unwanted hair on our feet and toes, and it can be challenging to find effective, safe, inexpensive ways to remove it.

You can shave it, but this can be tedious, and hair that has been shaved grows back quickly, and it often begins to itch after it has been growing for a day or two.

You can simply learn to live with it, of course, but if you find hair on your feet and toes to be unsightly, there are many ways to handle it, some of which are more effective than others.

ELECTROLOGY

Electrolysis, also known as electrology, is a form of hair removal that has been used in the United States since the late 19th century.

The advantage to this procedure is that it is permanent. There is a downside, however; electrology is an expensive, time-consuming, painstaking and painful process.

A tiny, hair-thin probe is inserted into each individual hair follicle. This probe delivers an electrical current to the follicle, damaging it so that it is no longer able to grow hair.

Although the probe does not puncture the skin if it is correctly inserted, the procedure is still painful, and a complete course of electrolysis can take years to complete. Electrolysis has been in decline since the advent of laser hair removal, but many people still use it to get rid of hair on their feet and toes.

LASER HAIR REMOVAL

Laser hair removal works by exposing the hair follicles to pulses of laser light, and it has been in use since the 1990s. Laser hair removal is not as permanent as electrolysis, but it is much faster and less expensive.

The US Food and Drug Administration (FDA) allows practitioners of laser hair removal to claim that their technique achieves "permanent reduction" of hair, rather than "permanent removal."

The reason for this distinction is that all the hairs growing on a given area of the body (such as the feet or toes) are at different stages of growth at any given time, and a laser can only affect hair follicles that are in the active *anagen* growth stage.

Because of this, multiple sessions are required to achieve complete hair removal, although a single session will noticeably reduce the density of hair growth on your feet.

WAXING

Waxing is, of course, a simpler method of hair removal, and many people favor waxing because it can be done quickly and inexpensively in the privacy of one's home.

While waxing sensitive areas of the body (the face or underarms) is a job for a licensed esthetician, anyone can use wax strips to quickly and easily remove unwanted hair on their feet and toes.

Waxing is not permanent, but it removes the hair by its root, and significant regrowth does not occur for four to six weeks, although some people may see regrowth sooner due to the variation in hair growth cycles discussed above.

Some people are susceptible to skin damage from waxing. Do NOT use wax to remove hair from your feet and toes if:

- You suffer from a skin condition such as psoriasis or eczema
- You have recently suffered a sunburn on your feet
- You have recently had surgery on your feet
- You have unusually sensitive skin

SUGARING

Sugaring works in much the same way as waxing—a sticky substance is applied to the skin and torn away when it has cooled, pulling the hair out by the root.

Sugaring is a much messier process than waxing, but it requires a lower temperature, which may make it a better option for people with sensitive skin.

Sugaring paste is easy to prepare at home. The easiest recipe calls for one part fresh lemon juice (don't use concentrate), one part water, and eight parts sugar.

Heat the ingredients until they are uniformly liquified, and the solution has achieved a light gold color. Do not allow it to become too dark.

Allow the solution to cool to room temperature and apply to your feet after dusting them lightly with baby powder. Press a strip of cloth into the solution and pull it away; the hair on your feet and toes will come with it.

THREADING

Threading is one of the oldest methods known to man for getting rid of hair on the toes and feet. The practice originated in ancient India, but has recently gained popularity in the West.

The practitioner takes a length of thread and doubles and twists it, rolling it over the area where the unwanted hair grows.

Like waxing, threading pulls the hair out by the root. The accuracy that threading allows makes it ideal for areas like the eyebrows, where precision is important, but it is not as effective or simple a method as waxing for removing hair from the feet or toes.

DEPILATORIES

Depilatory creams such as Nair and Veet are less messy than waxing or sugaring, and not as painful. They are also inexpensive and easy to use. The downside to them is that they smell terrible and can irritate the skin if they are used incorrectly or if the user is allergic to them.

Also, depilatories are only marginally more effective than shaving; they only affect hair above the skin's surface, so regrowth happens within a few days

HAIR REMOVAL METHODS TO AVOID

Many companies manufacture products for getting rid of hair on the feet and toes, and it is important to be skeptical of the claims they make. In the 1920s one company made a device called the Tricho System, which promised to remove hair with x-rays.

Some women went in for as many as 20 treatments or more, and many of them suffered severe skin damage or contracted cancer. Reports of injuries caused by these machines appeared in medical literature as late as the 1940s. Today, x-ray hair removal is illegal in the United States.

Some of today's hair-removal methods are no more effective and no less dangerous than the variety of snake oils con artists have peddled throughout human history. For your safety—and to save yourself from being conned—you should be very cautious about:

- Photoepilators
- Dietary supplements that claim to reduce unwanted hair
- Transcutaneous hair removal
- Microwave Hair Removal
- Over-the-counter ointments or pills

MEDICAL REFERENCES:

Quackwatch http://www.quackwatch.com/01QuackeryRelatedTopics/Hair/hairindex.html The FDA http://www.fda.gov/Radiation-EmittingProducts/ResourcesforYouRadiationEmittingProducts/ucm252761.htm http://www.electrology.com/ http://en.wikipedia.org/wiki/Sugaring_%28epilation%29

This page was last updated on October 2nd, 2015

POLYDACTYLY OF THE FEET – CAUSES, TYPES, AND SURGERY INFO

Polydactyly of the feet is a rare, congenital condition (*congenital* meaning, "present from birth") in which an individual may have more than five toes on one or both feet.

The term *polydactyly* is also used to describe the condition of having extra fingers on one or both hands, but this article will focus primarily on polydactyly of the feet.

An individual with polydactyly is also said to have *supernumerary digits*.

A person with polydactyly of the feet may have a fully functional extra toe — complete with nerve endings, bones, and even joints — or the extra digit may be just a fleshy, boneless nub.

The condition can be bilateral (each foot has an extra toe) or unilateral (only one foot has an extra toe).

Roughly 50 percent of cases are bilateral. In rare cases, there may even be more than one extra toe; the record for greatest number of digits belongs to Akshat Saxena of India, who in 2010 was born with thirty-four of them — seven fingers on each hand and ten toes on each foot. Perhaps more famous — if less astounding — is the case of actor and comedian Drew Carey, whose 1997 autobiography, *Dirty Jokes and Beer: Stories of the Unrefined*, reveals that he was born with six toes on his right foot.

DIFFERENT TYPES OF POLYDACTYLY

Polydactyly, whether of the hands or the feet, is classified as:

- Radial, or preaxial
- Ulnar, or postaxial
- Central

In postaxial polydactyly, which accounts for 80 percent of all cases, the extra digit is located on the far side of the hand or foot, next to the little toe (or finger).

In cases of preaxial polydactyly, the extra toe or finger is on the radial side, near the thumb or big toe. Central polydactyly, in which the extra digit is located between the others, is far less common.

WHAT CAUSES OF POLYDACTYLY?

Polydactyly of the feet (or hands) is genetic. As noted above, it is very uncommon, being present in only one out of every 1,000 live births.

For reasons that are not well understood, this condition is considerably more prevalent among African-Americans, among whom it appears in four or more out of every 1,000 live births. Male children are slightly more likely than females to have extra toes or fingers.

While polydactyly is genetically transmitted, it is still an abnormal condition caused by genetic mutation.

It may be associated with a variety of genetic disorders, including syndactyly (webbed toes), Down's syndrome, and Ellis–van Creveld syndrome (AKA six-fingered dwarf syndrome, a disorder that has been observed to be prevalent among Amish populations).

It is also possible that polydactyly may have some association with diabetes; one study of eighteen mothers of children with preaxial polydactyly found that eleven of them had pre-pregnancy insulin-dependent diabetes.

HOW IS POLYDACTYLY TREATED?

In many cases polydactyly of the feet causes no health problems, and many people who are born with an extra toe live out their lives with it. Indeed, polydactyly of the feet may be more common than is generally realized, as the condition often goes unreported.

If the extra toe does need to be removed, whether for cosmetic or orthopedic reasons, in most cases the surgery is performed in early childhood, usually when the child is a year old.

If the toe is just a boneless nub, treatment may in some cases involve nothing more than attaching a vascular clip at the base, which stops blood flow, causing the digit to eventually fall off, just as the stump of a belly button does within a few days after we are born.

In fact, some cases can easily be treated at birth by tying a suture tightly around the base of the extra toe. The extra toe falls off, and the foot soon heals.

If the case is central rather than preaxial or postaxial, further surgery may be needed after the extra toe has been removed in order to prevent other deformities that might otherwise develop in the wake of the amputation, or to move or reconnect certain bone structures.

In some instances it may difficult to determine which toe needs to be removed, and the development of the feet will need to be monitored closely for some time before the surgeon can decide which toe to amputate.

In most cases, the toe that is best aligned with the long bones is the one that is saved. When the "bad" toe has been removed, the one that has been saved can sometimes be made more functional by transferring tendons from the amputated toe. Sometimes the surgeon will need to reconstruct a joint.

SURGERY FOR POLYDACTYLY — WHAT TO EXPECT

In postaxial polydactyly, an oval incision is made at the base of the most lateral toe and carried through the fascia. The capsule of the metatarsophalangeal joint is divided, and the toe is removed.

If necessary, the surgeon will remove any T- or Y-shaped extensions of the metatarsal head. After surgery, a bandage or cast will be applied. In preaxial polydactyly, the medial toe is usually the one that is removed.

In central polydactyly, a similar, oval-shaped incision is made at the base of the toe that is to be removed, on the dorsal side (the top).

During the course of this surgery, ligaments may need to be moved into different positions in order to prevent the forefoot from becoming deformed or widened.

After surgery a cast or orthosis may be used for this purpose. Following any type of polydactyly surgery, a cast or dressing will be left in place for about six weeks

WHAT ARE THE COMPLICATIONS OF SURGERY?

The most common complication resulting from preaxial polydactyly surgery is a foot deformity known as hallux varus. Patients with central polydactyly may suffer a widened forefoot after surgery.

QUESTIONS TO ASK YOUR DOCTOR ABOUT POLYDACTYLY

- Will my child's extra toe cause him or her to develop problems walking at some point in the future?
- Can the extra toe be removed easily, or will surgery be required?
- What is the likelihood of complications following surgery?
- How long is recovery from surgery likely to take?
- If the extra toe is not expected to cause health problems, but is cosmetically unappealing, will insurance cover its removal?
- Are my future children or grandchildren likely to be born with extra fingers or toes?

MEDICAL REFERENCES:

Medscape http://emedicine.medscape.com/article/1260255-overview National Institute of Health http://www.nlm.nih.gov/medlineplus/ency/article/003176.htm Seattle Children's Hospital http://www.seattlechildrens.org/medical-conditions/bone-joint-muscle-conditions/polydactyly/ The deformities of the human foot: with their treatment By William Johnson Walsham and William Kent Hughes, 1895
http://books.google.com/books?id=PRsPAAAAYAAJ&pg=PA540&lpg=PA540&dq=Supernumerary+toes&source=bl&ots=sEbXlPnm4r&sig=HiYJ4OfGJmuO41vcXAf96Fu5tVc&hl=en&sa=X&ei=WVgKU5jTKMS2kQfj5IH4Dw&ved=0CGEQ6AEwCQ#v=onepage&q=Supernumerary%20toes&f=false

This page was last updated on October 2nd, 2015

SESAMOIDITIS OF THE FOOT: YOUR COMPLETE GUIDE

Sesamoiditis of the foot is an inflammation of the sesamoids, the two tiny bones located on the underside of your forefoot—one on each side of the base of the big toe. Sesamoid bones, unlike other bones in the body, are not connected to neighboring bones by a joint.

They are held in place by tendons within muscles. These bones are tiny, about the size of a pea, and they are essential to normal foot function.

They modify pressure when standing and walking, and they diminish friction in the soft tissues under the toe joint with movement of the big toe.

The tissues surrounding the sesamoid bones can become inflamed for many reasons. Sesamoiditis is considered an overuse injury because it often results from repeated toe movements, as when dancing and running. Stress fractures of the sesamoid bones can also cause sesamoiditis.

Although sesamoiditis used to be a rare cause of foot pain and disability, it has become more common in recent years, and it is sometimes reported in young athletes, who are now participating in sports at earlier ages and with higher levels of intensity.

If you think you may have sesamoiditis, it is important to have your foot evaluated by a podiatrist or orthopedist. Fortunately, nonsurgical treatment is often successful.

WHAT ARE THE COMMON CAUSES OF SESAMOIDITIS?

Sesamoiditis is characterized by chronic inflammation of the sesamoid bones and their surrounding tendons. The injury occurs most often in ballet dancers, baseball catchers, and runners.

The condition may be precipitated by a sudden and excessive upward bending force on the big toe or other type of foot trauma. The type of shoes you wear can aggravate sesamoiditis if they cause misalignment of the sesamoid bones.

High-heeled shoes, for instance, can cause the feet to become imbalanced or too flexible. This may place excessive pressure on your sesamoid bones and increase the risk of fracture.

SYMPTOMS OF SESAMOIDITIS TO WATCH FOR

Most people with sesamoiditis have pain under the great toe on the ball of the foot. The pain is felt most when the forefoot is flexed, such as when you are walking and your back foot pushes off so you can take your next step.

Pain caused by an overuse injury usually develops gradually and worsens over time. The pain may be intermittent and intensify when wearing certain shoes or engaging in certain activities. You may also notice swelling and bruising, especially if sesamoiditis occurs in association with an injury or stress fracture.

Some people complain of numbness or difficulty bending and straightening the great toe.

In those who put off seeking medical attention, sesamoiditis may lead to gait changes, such as limping to avoid walking on the painful area. Gait changes can in turn lead to other problems in the joints of the knee, hip, and lower back.

HOW IS SESAMOIDITIS DIAGNOSED?

Your physician will ask you for a complete medical history and a description of your current symptoms. He or she will examine your foot for any abnormalities or signs of injury or infection, and evaluate your other foot for comparison.

The goal of the foot examination is to determine whether certain toe movements produce pain and whether any part of the foot is tender to the touch.

To accomplish this, your physician will attempt to reproduce the pain by manipulating the foot and bending the great toe upward, or by asking you to bend and straighten your toes.

Often an x-ray of the forefoot is required to make a correct diagnosis. The x-ray can be helpful in identifying the presence of a fracture. In some cases, the x-ray will reveal a sesamoid bone that looks like it is divided into two or more separate bones.

This is normal.

If you have a fracture of the sesamoid bone, the edges of these bone pieces may appear jagged rather than smooth, which is generally how they appear on x-rays. Your physician may also request an x-ray of your opposing foot.

When x-ray findings are inconclusive, further testing with a bone scan may be considered. The intravenous agents used during a bone scan accumulate in areas where bone tissue is stressed. Other imaging tests, such as magnetic resonance imaging, may also be useful.

HOW IS SESAMOIDITIS TREATED?

While conservative therapies for sesamoiditis are usually effective, they can take some time to work. This is because every time you stand or walk, you put pressure on your feet.

So it is impossible to avoid all aggravating activities until the foot heals completely. Your podiatrist or orthopedist will be able to tell you more about the frequency and duration of various recommended therapies. In general, conservative therapies for sesamoiditis include:

- Discontinuation of the aggravating activity.
- Use of over-the-counter pain medications and non-steroidal, anti-inflammatory drugs, such as ibuprofen and aspirin.
- Applying ice to the sole of the foot.
- Wearing shoes with soft soles and low heels.
- Fitting shoes with a cushioning pad of dense foam rubber to relieve stress.

If you have severe pain, your doctor may recommend cortisone injections to reduce inflammation, or he may recommend the use of a removable brace on the leg for four to six weeks in order to foster healing of the bones and reduce inflammation.

Most patients with sesamoiditis will not require surgery. If the condition fails to resolve after conservative therapy, several procedures may be considered. These include:

- Bone removal to remove part or all of one sesamoid bone. Removing both sesamoid bones is typically avoided because the toe muscles will not be able to function as normal.
- Scraping of extra tissue in patients with chronic plantar keratosis (a deep callus that develops beneath the sesamoid bones).
- Bone graft for patients with nonunion stress fractures. A bone graft may help the parts of the bone heal together.

WHAT YOU SHOULD DO AFTER SESAMOIDITIS TREATMENT

Overuse injuries can recur. To prevent a future episode of sesamoiditis, it is important to return to activity gradually and continue wearing a cushioning pad under the sesamoids to support them.

Avoid vigorous activities for several weeks to allow pain and inflammation to subside. When possible, avoid movements that put your weight on the balls of the feet.

Simple modifications to your footwear may be all that is needed to help you resume normal walking. Some patients may benefit from a four- to six-week course of physical therapy to help resume normal function. It can take several months for the condition to completely resolve.

MEDICAL REFERENCES:

American Academy of Orthopaedic Surgeons. "Sesamoiditis," OrthoInfo, Last reviewed September 2012. http://orthoinfo.aaos.org/topic.cfm?topic=A00164 M. L. Omey, L. J. Micheli. "Foot and ankle problems in the young athlete," Medicine and Science in Sports and Exercise. 1999;31(7 Suppl):S470-S486.

This page was last updated on October 1st, 2015

1. C. R. Wheeless, III, MD. "Compartment Syndrome." Duke Orthopaedics presents Wheeless' Testbook of Orthopaedics. Last updated August 3, 2012. http://www.wheelessonline.com/ortho/compartment_syndrome_of_the_foot 2. American Academy of Orthopaedic Surgeons. "Compartment Syndrome." OrthoInfo Web site. October 2009. http://orthoinfo.aaos.org/topic.cfm?topic=a00204 3. M. Frink, MD, F. Hildebrand, MD, C. Krettek, MD, J. Brand, MD, S. Hankemeier, MD, "Compartment Syndrome of the Lower Leg and Foot," Clinical Orthopaedics and Related Research. 2010l;468(4):940-950. 4. W. R. Frontera, J. K. Silver, T. D. Rizzo, eds. Essentials of Physical Medicine and Rehabilitation: Musculoskeletal Disorders, Pain, and Rehabilitation. 2nd ed. Philadelphia: Saunders Elsevier; 2008. 5. A. G. Schubert, PT, DPT, "Exertional Compartment Syndrome: Review of the Literature and Proposed Rehabilitation Guidelines Following Surgical Release," International Journal of Sports Physical Therapy. 2011;6(2):126-141.

This page was last updated on October 30th, 2015

PERIPHERAL ARTERIAL DISEASE IN THE FEET – WHAT YOU CAN DO

Peripheral arterial disease (also called peripheral artery disease) is a common circulatory problem in which arteries become narrowed as a result of plaque buildup, reducing the flow of blood to your limbs.

This condition is a normal part of the aging process, and varies in severity from patient to patient. Over time, the decreased flow of oxygen-rich blood can cause a variety of symptoms, most frequently leg pain when walking.

It is possible, however, to have peripheral arterial disease and not know it, because the condition can take a lifetime to develop and symptoms do not become apparent until there is significant narrowing of the arteries.

As the disease progresses and blood flow becomes severely impaired or partially blocked in your leg or foot, pain and numbness in the affected areas can develop. A complete lack of blood flow can lead to gangrene (tissue death**).**

The buildup of plaque, a process known as atherosclerosis, can occur anywhere in the body. The plaque, which is made up of fat, cholesterol, and other substances, hardens and may limit blood flow to major organs as well as your legs.

This hardening of the arteries, as it is often called, can be greatly mitigated by dietary changes and exercise. If you have unexplained leg or foot pain, don't assume it is just a sign of aging. Contact your podiatrist to find out whether your pain may be part of more widespread disease.

If you are 70 years or older; 50 years or older and have a history of smoking or diabetes; or under 50 but have diabetes and one or more risk factors for atherosclerosis, you should ask your podiatrist about peripheral arterial disease even if you don't have any symptoms.

WHAT ARE THE RISK FACTORS FOR PERIPHERAL ARTERIAL DISEASE?

Certain factors are associated with an increased risk of peripheral arterial disease. These include:

Smoking: Your risk of peripheral arterial disease increases four times if you smoke or have a history of tobacco use.

Old age: Plaque builds up in your arteries as you age. About one in every 20 Americans over the age of 50 has peripheral arterial disease. The risk continues to rise as you get older. Old age combined with other risk factors, such as smoking or diabetes, also puts you at higher risk for P.A.D.

African American ethnicity: Although peripheral arterial disease affects millions of people in the United States, African Americans are affected more than any other racial or ethnic group.

Other health problems: Your risk of peripheral arterial disease is higher if you have one or more of the following health problems or a family history of them:

- Diabetes (About one in three people older than 50 who has diabetes also has peripheral arterial disease)
- High blood pressure
- High blood cholesterol
- Coronary heart disease
- Stroke
- Metabolic syndrome

WHICH SYMPTOMS OF PERIPHERAL ARTERIAL DISEASE SHOULD I KNOW ABOUT?

Intermittent claudication—muscle pain in the leg or foot that typically occurs when walking or climbing stairs and subsides with rest—may be the first symptom of peripheral arterial disease.

This pain has been described as cramping, numbness, aching, and heaviness in the leg muscles. It occurs during activity, when your muscles need increased blood flow, and decreases while resting, when muscles need less blood flow.

Other signs and symptoms of peripheral arterial disease include:

- Weak or absent pulses in the legs or feet
- Sores or wounds on the toes, feet, or legs that heal slowly, poorly, or not at all
- A pale or bluish color to the skin
- A lower temperature in one leg compared to the other leg
- Poor nail growth on the toes and decreased hair growth on the toes, feet, and legs
- Erectile dysfunction, especially among men who have diabetes

HOW IS PERIPHERAL ARTERIAL DISEASE DIAGNOSED?

An evaluation for peripheral arterial disease will include your medical and family histories, a physical examination, and a few tests.

This evaluation should be performed by a podiatrist. If you have advanced disease or signs of coronary heart disease, you will be referred to a vascular specialist or cardiologist for further evaluation.

During the history taking, your podiatrist will ask you questions about your diet and how often you smoke. It is very important that you be honest in your responses and accurate when describing your symptoms. You should also have a list of all medicines and supplements you are taking.

Part of the physical examination will include evaluation of the pulses in the feet, ankles, legs and thighs by palpation. The podiatrist uses his or her hands to feel for these pulses. This examination will help determine the strength of blood flow to the legs.

The podiatrist will also look for signs of poor wound healing and abnormalities in your hair, skin, or nails such as discoloration, dryness, brittle nails, thickening of the nails, thinning skin, etc.

Testing for peripheral arterial disease may include:

Blood tests: Your doctor may order a complete blood cell count, chemistry test, enzyme test, blood clotting tests, and and other blood tests to assess heart disease risk.

NON-INVASIVE TESTING:

Ankle-brachial index: This test shows how well blood is flowing in your lower limbs, and it takes about 10 to 15 minutes. A blood pressure cuff is placed on each ankle and either arm, one at a time, to compare blood pressure in these areas. The pressures of the ankle are compared to the arm to arrive at a value that determines the severity of lower limb PAD.

Segmental Pressures: This test is performed much like the ankle-brachial test, except that various pressure cuffs are used all along the leg from the ankle up to the groin. The pressures in the respective limbs are compared to one another.

PPG: Photoplethysmography: This test measures pressures in the limb. It is particularly good for measuring toe pressures, as these vessels are small and cannot be tested by other non-invasive means.

Tanscutaneous oximetry: This test measures the oxygen level at the skin's surface; it is also non-invasive.

Treadmill test: Walking on a treadmill can reveal the severity of symptoms and the level of exercise that brings them on. Your doctor may perform an ankle-brachial indextest before and after this exercise.

Doppler ultrasound: This test produces images of the blood flow in the major arteries and veins of your limbs. The results can help determine the severity of disease.

INVASIVE TESTING:

Magnetic resonance angiogram (MRA): This test can show the location and severity of a blocked blood vessel. It requires contrast dye to be injected.

Arteriogram: A dye is injected through a needle or catheter into one of your arteries to help pinpoint the exact location of a blocked artery.

HOW IS PERIPHERAL ARTERIAL DISEASE TREATED?

Peripheral arterial disease may be treated with medicine and/or surgical intervention, but how well your body responds depends largely on your ability to make lifestyle changes. Treatment combined with lifestyle changes can slow or stop disease progression and reduce the risk of complications.

A variety of factors will determine whether you require medication or surgical intervention or a combination of both.

Your doctor may prescribe statins to reduce cholesterol, antihypertensive medication to reduce high blood pressure, anticoagulants to prevent clots, and narcotic pain relievers or neuropathic pain relievers to help ease leg or foot pain.

Surgical interventions include bypass grafting to bypass the blocked part of the artery using a graft (a harvested vein from another part of the leg); angioplasty and stenting to restore blood flow through a narrowed or blocked artery; or atherectomy to remove plaque buildup from an artery.

Lifestyle changes often require a great deal of commitment to alter deleterious behaviors and habits. The following actions are recommended for all patients with peripheral arterial disease:

- Quit smoking
- Be physically active
- Eat healthy foods that are low in fat, cholesterol, and sodium (for example, fruits, vegetables, and low-fat dairy products)
- Lose weight if you are overweight or obese
- Manage any underlying health problems (high cholesterol, high blood pressure, etc.) by following your doctor's instructions and returning for follow-up as directed
- Practice good foot and skin care (see foot hygiene tips below)

FOOT HYGIENE TIPS FOR PATIENTS WITH PERIPHERAL ARTERIAL DISEASE

To maintain good foot hygiene, keep the following tips in mind:

- Examine your legs and feet daily for any wounds, blisters, redness, increased warmth, ingrown toenails, corns, or calluses. If you can't see an area, use a mirror or have a family member look for you**.** Patients with PAD should see a podiatrist at least twice per year if they are at higher risk or have already developed compounding problems. A podiatrist can make that assessment based on their experience with working with patients with PAD.
- Apply a moisturizing cream or lotion to your legs and feet once or twice a day to prevent dry skin and cracking. Do not apply moisturizer between the toes. Keep your feet clean and dry, especially between the toes.
- Have your nails trimmed regularly.
- Get regular physical examinations from a podiatrist.
- Wear comfortable shoes that fit well.
- Seek professional medical treatment from your podiatrist for corns, bunions, or calluses.
- Follow your podiatrist'sadvice regarding management of minor foot and skin problems.

MEDICAL REFERENCES:

National Heart, Lung, and Blood Institute. "What Is Peripheral Arterial Disease?" April 1, 2011. http://www.nhlbi.nih.gov/health/health-topics/topics/pad/ Cleveland Clinic, "Peripheral Arterial Disease (PAD) Overview" http://my.clevelandclinic.org/heart/disorders/vascular/pad.aspx

This page was last updated on October 1st, 2015

CHILBLAINS: SYMPTOMS, CAUSES, AND TREATMENT

Chilblains, also known as *pernio*, are small, itchy, red-purple patches on the skin that develop when the body begins to warm after prolonged exposure to cold temperatures.

This abnormal reaction to cold can occur in temperatures of 32–60° Fahrenheit (0–16° Celsius) after about one to five hours' exposure.

Chilblains most commonly occur on the toes and the fingers but can also appear on the ears, nose, and other areas that are not protected from the cold.

These skin patches, which are often painful, are the result of the inflammation of small blood vessels and can also appear as swellings, blisters, or ulcerations.

Chilblains can occur at any age, although children and elderly persons are the most vulnerable to cold-induced skin disorders. The condition is reported to occur frequently in athletes, particularly ice skaters, hockey players, and speed skaters, and in persons with circulation problems.

Although usually a temporary condition that resolves on its own, chilblains can become chronic and recur for years during cold months. The condition may also occur as part of cutaneous lupus erythematosus.

Chilblains may or may not require treatment, depending on the severity of symptoms. The best approach is to prevent chilblains from developing by limiting your exposure to cold and dressing warmly.

Because chilblains can lead to infection, it is important to monitor your skin carefully during the healing process.

CHILBLAINS SYMPTOMS TO WATCH FOR

Skin changes caused by chilblains may include one or more of the following:

- Small, itchy patches with reddish purple discoloration
- Swelling
- Pain
- Burning sensation
- Blistering
- Ulceration

WHY DO I HAVE CHILBLAINS?

Why chilblains develop in some people and not others is unknown. The abnormal reaction of the body to rewarming after cold exposure may be caused by a defect in the small blood vessels near the skin's surface.

As a result, these blood vessels expand more quickly than the adjacent larger blood vessels can handle, and the small vessels respond by leaking blood into nearby tissues. This inflammation manifests as the characteristic skin changes.

Chilblains more commonly occur during the winter months. Certain factors may increase your risk of developing chilblains:

- Occupation that requires work in cold or damp conditions
- Female sex
- Weight is 20 percent below average for height and age
- Poor circulation
- Previous diagnosis of Raynaud's phenomenon (skin turns white after temperature changes or emotional events)
- Geographic location can be factor if the area has below-normal temperatures

WHEN SHOULD I SEE A DOCTOR?

You may not need to see a doctor if you can manage chilblains on your own with an over-the-counter cream or lotion. If the pain, itching, and skin changes persist after a week or two, contact your healthcare provider.

Most people can still function despite the symptoms. Chilblains on the foot should not cause problems with walking. Severe pain, painful swelling, blistering, and ulceration can be signs of a more serious condition or infection.

If you have any of these symptoms, you should seek immediate medical attention. For those with poor circulation or diabetes who discover chilblains, it is important to see a doctor immediately to prevent possible complications.

HOW ARE CHILBLAINS DIAGNOSED?

Your primary doctor may be able to diagnose your chilblains simply by looking at your skin, performing a physical examination, and asking you questions about your condition and medical history.

In some instances, your doctor may refer you to a dermatologist if the diagnosis is unclear, or to a cardiologist if a circulatory disorder is suspected.

Chilblains may be harder to diagnose when the condition occurs at an unlikely time of year, or if the skin changes are atypical. Chilblains can also occur in other areas on the body, so be sure to point out any skin changes to your doctor.

Chilblains can be confused with other conditions, such as Kaposi sarcoma (a low-grade vascular tumor associated with human herpes virus-8 infection). It can occur in association with lupus erythematosus and circulation disorders.

If your doctor cannot rule out these conditions on the basis of your symptoms and medical history, you will be referred to a specialist.

A diagnosis is usually made after an examination of the skin of the feet and hands and other areas of the body that present the characteristic purple-red patches of chilblains. You may not need any further evaluation unless another underlying condition is suspected.

WHAT ARE MY TREATMENT OPTIONS FOR CHILBLAINS?

Chilblains usually resolve within one to three weeks. During this time, you can manage the condition yourself by keeping the affected skin warm and by using an over-the-counter cream or lotion that is designed to alleviate itching and swelling.

These over-the-counter products may help, but there is no evidence that they can reduce the symptoms of chilblains. The affected skin should be cleaned with an antiseptic and bandaged to prevent infection.

It is important to avoid scratching the area, as this can lead to breaks in the skin. Once the skin is broken, infection is more likely to occur.

People with poor circulation, who tend to be more sensitive to changes in temperature, may be given a prescription for a medication that lowers blood pressure or improves blood flow.

These drugs can be taken orally and are sometimes used to treat chilblains because they can open up blood vessels.

CAN CHILBLAINS BE PREVENTED?

If you have had chilblains, you may develop them again. It is important to protect your skin from cold temperatures, and when you are exposed to the cold, rewarm your skin gradually.

- Keep the affected areas warm by staying out of the cold, dressing warmly, and wearing gloves, socks, and hats when outdoors.
- If you use tobacco, consider quitting. Smoking can make chilblains worse.

MEDICAL REFERENCES:

J. A. McMahon, A. Howe. "Cold weather issues in sideline and event management." Current Sports Medicine Reports. 2012;11(3):135-141. S. Vano-Galvan, C. Moreno, M. Fernández-Lorente, P. Jaén, "Classic Kaposi sarcoma mimicking chilblains," Dermatology Online Journal. 2011;17(2):16. http://escholarship.org/uc/item/3273j8gw

This page was last updated on October 1st, 2015

BONE TUMOR OF THE FOOT — SYMPTOMS AND CAUSES

Most people who have foot pain do not have a bone tumor, and few bone tumors are malignant (cancerous). A bone tumor develops when cells multiply abnormally within a bone. The tumor may replace healthy bone tissue or it may weaken the bone, causing a fracture.

Bone tumors of the foot are rare, comprising only three to six percent of all bone tumors, and are benign in 75 to 85 percent of cases (Sarcoma, 2013). A benign bone tumor of the foot will manifest as a lump, with or without pain, whereas bone cancer is most often accompanied by pain at the location of the tumor.

The World Health Organization has identified 82 different benign and malignant foot lesions. A study that looked at the differential diagnosis of foot lumps found that the toes and dorsum of the foot were the most commonly affected areas, and the heel was the least commonly affected area (Annals of The Royal College of Surgeons of England, 2007).

You should not become alarmed if you notice a lump in your foot, as the chance of a malignant bone tumor developing is quite small.

However, you should have the lump examined by your primary care physician to see whether further evaluation or treatment by an orthopedist is necessary. This is especially important if your lump is painful.

SYMPTOMS OF A BONE TUMOR IN YOUR FOOT

Bone tumors of the foot may be painless. Foot injury can cause a tumor to start hurting. Bone that is already weakened by a tumor can break, causing severe pain. In some instances, the appearance of the lump may coincide with other symptoms, such as fevers and night sweats.

Pain is the most common complaint, and it is often described as a dull ache in the area of the tumor. The pain may or may not be associated with activity. Some people may awaken during the night because of the pain. If you have a bone tumor, you may have one or more of the following symptoms:

- Pain
- Footwear problems
- Cosmetic concerns
- Numbness or pins and needles (paraesthesia)

BENIGN BONE TUMORS OF THE FOOT

The majority of bone tumors are benign. Common types of benign bone tumors include:

Simple bone cyst: This tumor occurs most often in children aged 4 to 10. The lesion remains asymptomatic unless complicated by fracture. It enlarges during skeletal growth and becomes inactive after skeletal maturity.

Osteochondroma: This tumor typically affects teenagers and young adults in their twenties, but it occasionally appears in older adults. The tumor presents as a painless lump that increases in size with the patient's growth. It is almost always located on the metatarsals.

Enchondroma: Adults aged 20 to 40 may have this tumor, which often causes pain during activities or after injury, usually after a small fracture. A lump may not be visible or palpable. The phalanges are often affected. A giant cell tumor may be mistaken for enchondroma, and either can occur in the foot in similar locations.

Giant cell tumor: A giant cell tumor may be found on the toes, anywhere on the surface of the foot, or deep inside the foot. It always involves a tendon sheath. It often appears as a painful, firm, irregular lump in adults aged 20 to 50. The tumor grows slowly, and can reach a maximum of about 4 cm. As the tumor grows, it can cause erosion of the adjacent bone from the pressure of the tendon rubbing against it.

MALIGNANT BONE TUMORS OF THE FOOT

Bone cancer of the foot is very rare. Certain types of malignant bone tumors of the foot are reported more than others. These tumors can be aggressive. The prognosis is usually worse in patients who present with metastatic disease. A few of the more common malignant bone tumors of the foot include:

Chondrosarcoma: This tumor may occur in adults between 40 and 70 years of age. It more commonly develops in the pelvis, femur, or shoulder. When chondrosarcoma develops in the foot, it can be difficult to distinguish from an enchondroma.

Ewing's sarcoma: Children and adults up to 20 years of age may have Ewing's sarcoma. The tumor may be present for many months before it becomes large enough to cause pain and swelling. The chances of survival are better for those who have a bone tumor of the forefoot than those with a bone tumor of the hindfoot.

Osteosarcoma: Osteosarcomas of the foot can easily be misdiagnosed, especially because they almost always occur in adults, whereas most cases of osteosarcoma in other parts of the body occur in teenagers. They can occur in any bone the foot, although the calcaneus is the most commonly involved bone.

HOW ARE BONE TUMORS IN THE FOOT DIAGNOSED?

While evaluating a possible bone tumor of the foot, your doctor will need to rule out other conditions that can affect the foot, such as infection and stress fracture.

You will be asked to provide detailed information about your general health, your family medical history (especially any previous tumors or cancers in a family member), your current symptoms, and the medications you're taking.

The physical examination will focus on the type, size, location, and tenderness of the tumor, and on the range of motion of the foot.

Your doctor may examine other parts of your body to determine whether they may also be affected. This is important when there is suspicion of bone cancer, which can metastasize. Malignant tumors can be misdiagnosed. You may want to get a second opinion to confirm a diagnosis of bone cancer. You will most likely need to undergo some radiographic testing of the foot, which may include x-rays, computerized tomography, or magnetic resonance imaging.

Occasionally, benign bone tumors may be discovered incidentally when radiographs are taken for other reasons, such as a sprained ankle. The radiographic findings will vary depending on the condition. In some cases, more invasive testing — for example, a biopsy — may be needed for diagnosis.

TREATMENT OPTIONS FOR A BONE TUMOR OF THE FOOT

Some benign bone tumors of the foot may not require treatment. For instance, a benign bone tumor that occurs in a child may resolve over time. Monitoring of the tumor may be all that is needed. Some people with bone tumors can be treated effectively with medication. Others, such as those with osteochondroma, may require surgery. Excision of the tumor often solves the problem, although bone tumors can recur. For people with malignant bone tumors, treatment may involve several specialists and a combination of interventions, including radiation therapy, chemotherapy, and surgery. The surgeon will need to take out the tumor and some of the healthy tissue and bone around it.

In some instances, the excised bone can be replaced with a metallic implant or bone transplant (this is known as limb salvage surgery). In cases of advanced bone cancer, amputation of the foot may be necessary. After you have been treated for a bone tumor, you will have to return for follow-up and undergo more radiographic testing so your doctor can make sure that the treatment was successful and that the tumor has not recurred.

MEDICAL REFERENCES:

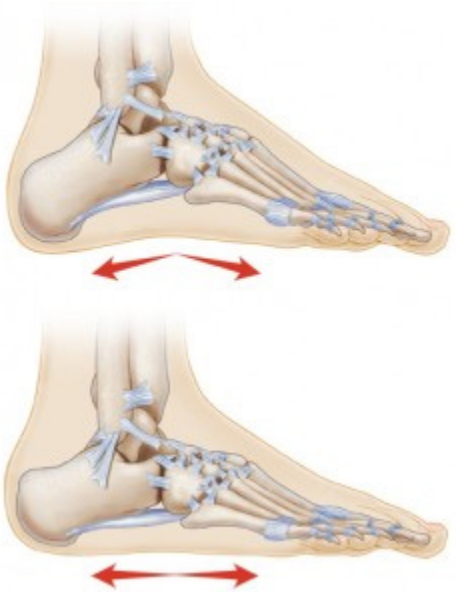
M. Brotzmann, F. Hefti, D. Baumhoer, A. H. Krieg, "Do Malignant Bone Tumors of the Foot Have a Different Biological Behavior than Sarcomas at Other Skeletal Sites?" Sarcoma. 2013, 8 pages. A. Decomas, D. Lurie, M. Meyer. "Chondrosarcoma of the foot." American Journal of Orthopedics (Belle Mead NJ). 2011;40(1):37-9. D. J. M. Macdonald, G. Holt, K. Vass, A. Marsh, C. S. Kumar, The Differential Diagnosis of Foot Lumps: 101 Cases Treated Surgically in North Glasgow Over 4 Years." Annals of The Royal College of Surgeons of England. 2007;89(3): 272–275.

This page was last updated on October 30th, 2015

The Merck Manual Home Health Handbook. Kohler's Bone Disease. Last reviewed February 2008. http://www.merckmanuals.com/home/childrens_health_issues/bone_disorders_in_children/k%C3%B6hlers_bone_disease.html?qt=kohler&alt=sh#v821464

This page was last updated on December 31st, 2015

LAX LIGAMENTS — CAUSES, SYMPTOMS, AND TREATMENT



Lax ligaments, or ligament laxity, may occur anywhere in the body and can be a major cause of chronic pain. Loose ligaments — a condition sometimes referred to as being "double jointed" — may be confined to the feet, but more often the condition is present in all joints.

When this condition affects joints over the entire body, it is called generalized joint hypermobility. Young people with this condition may lose some of their hyper-laxity as they age, but people over the age of 40 often have recurrent joint problems and almost always have chronic pain.

Joint hypermobility is also a common feature of chronic fatigue syndrome.

WHY DO I HAVE LAX LIGAMENTS?

Ligament laxity may be genetic and affect an individual from a very early age. Joint hypermobility may be a feature of several genetic disorders, including Marfan syndrome, Ehlers-Danlos syndrome, and Down's syndrome.

Joint injuries often damage ligaments as well, either by stretching them abnormally or by tearing them.

An injured ligament that does not heal properly, even after the application of RICE (Rest, Ice, Compression, and Elevation), may be loose or lax. Lax ligaments are not capable of supporting joints as effectively as healthy ones.

Thus, affected persons may be prone to further injury, and may compensate for the weakness by overusing other parts of their bodies.

LAX LIGAMENTS SYMPTOMS TO LOOK FOR

People with extremely lax (or hypermobile) joints can bend their elbows or knees past a position of neutrality. They can also easily place their hands flat on the floor while bending forward from the waist. The ability to touch the thumb to the forearm is also common.

People with lax ligaments may not have any pain or other symptom, but foot and ankle problems may develop as a result of lax ligaments, and these conditions can cause pain. Such conditions include:

- **Flexible flatfoot:** This is caused by lax ligaments in the foot, resulting in a flattened arch. The bones and joints in the arch of the foot are otherwise normal. Flexible flat feet are normal in all children under the age of three. After that age, children usually outgrow flexible flatfoot as their foot ligaments develop. Ligaments that remain lax into later childhood are usually not painful. Although some affected children may report pain after playing sports, most will be able to function normally. The development of future foot problems, such as arthritis, tendonitis, and deformities, is unlikely in children with flexible flat feet.
- **Ankle sprains**: Ankle sprains may be caused by awkward foot placement, irregular surfaces, weak muscles, or wearing shoes with spiked heels. You may be more likely to sprain an ankle if your ligaments are loose. The symptoms of a sprained ankle usually follow trauma. You may have severe pain and not be able to put any weight on your foot, or you may walk with a limp. Sometimes the foot becomes swollen, red, or bruised.
- **Osteoarthritis**: Extreme hypermobility may decrease one's ability to sense joint position. This can contribute to joint damage and ultimately lead to degenerative joint conditions, such as osteoarthritis. A similar scenario can occur in people with severe ligament injury. The injured ligament may tighten up or be permanently stretched, leaving some degree of laxity or looseness in the adjacent joint. The residual laxity creates a sense of instability during activity, which can result in further injury or a predisposition to premature arthritis in the involved joint.

HOW ARE LAX LIGAMENTS DIAGNOSED?

Your doctor will assess ligament/joint laxity by measuring range of motion. A simple test for loose ligaments is to see how far your index finger bends backwards. If you can bend it backward 90 degrees without discomfort, you have loose ligaments.

Your doctor may use a tool called the Beighton score. One point is assigned for each elbow and knee that can extend more than 10 degrees, for each thumb that can be apposed to the flexor surface of the forearm, and for each fifth finger that can be bent backward more than 90 degrees; one point is also assigned for placing the palms on the floor with the knees straight.

A score of 5 or more is considered positive, but you may still have joint laxity if the test is negative.

Your doctor will also look for signs of connective tissue disorders and joint hypermobility syndromes—for instance, people with Ehlers-Danlos syndrome often have skin elasticity.

If your doctor suspects one of these conditions, you may be referred for further evaluation with an echocardiogram, ophthalmologic examination, or other type of testing.

HOW ARE LAX LIGAMENTS TREATED?

Because lax ligaments themselves often do not cause pain, they generally do not require treatment.

However, if you have musculoskeletal problems caused by lax ligaments or hypermobility, your doctor will probably suggest conventional medical treatments, which include physiotherapy and pain medicines. Strength training of muscles may also be recommended.

People who suffer from hereditary joint laxity are advised to avoid joint hyperextension, impact activity, and resistance exercise to minimize the risk of subluxation and dislocation.

Myofascial release (with heat, massage, or other means) may provide some pain relief. A lifelong program of low-resistance muscle toning, gradually increasing repetitions and frequency of exercise, helps stabilize loose joints and may minimize future pain and/or delay the onset of arthritis.

Surgical intervention to improve joint stability often fails or provides only temporary benefit.

Flexible flatfoot is not a benign condition, and it often results in osteoarthritis and long-term disability.

Orthotic therapy can help stabilize the foot and ankle to reduce injuries and prevent irreversible damage to joints. Heel cord stretching can reduce any tightness in the calf and lower limb muscles.

If you have painful flexible flatfoot, your doctor will first determine the anatomical cause of the pain. In some cases, surgery may be indicated, but it is not recommended in patients with joint hypermobility, such as those with Marfan syndrome, Ehlers-Danlos syndrome, or Down's syndrome.

For an ankle sprain or ligament injury, early treatment involves RICE to prevent and resolve any associated swelling.

When the swelling and pain have subsided, further examination will reveal which ligaments are affected and how severe the injury is. Surgical repair of lax ligaments will generally be considered, although in most cases conservative measures are attempted first.

MEDICAL REFERENCES:

Duke Orthopaedics presents Wheeless' Textbook of Orthopaedics, "Pes Planus / Flat Foot," Last updated August 19, 2013. http://www.wheelessonline.com/ortho/pes_planus_flat_foot OrthoInfo, Flexible Flat Feet," http://www.pedortho.com/files/PIPFoFlat.pdf H. P. Levy, "Genetic Causes of Joint Laxity," Internal Medicine News, April 1, 2008, http://www.internalmedicinenews.com/views/genetics-in-your-practice/blog/genetic-causes-of-joint-laxity/99bd9877f4693693a35b3249aa9e91c9.html

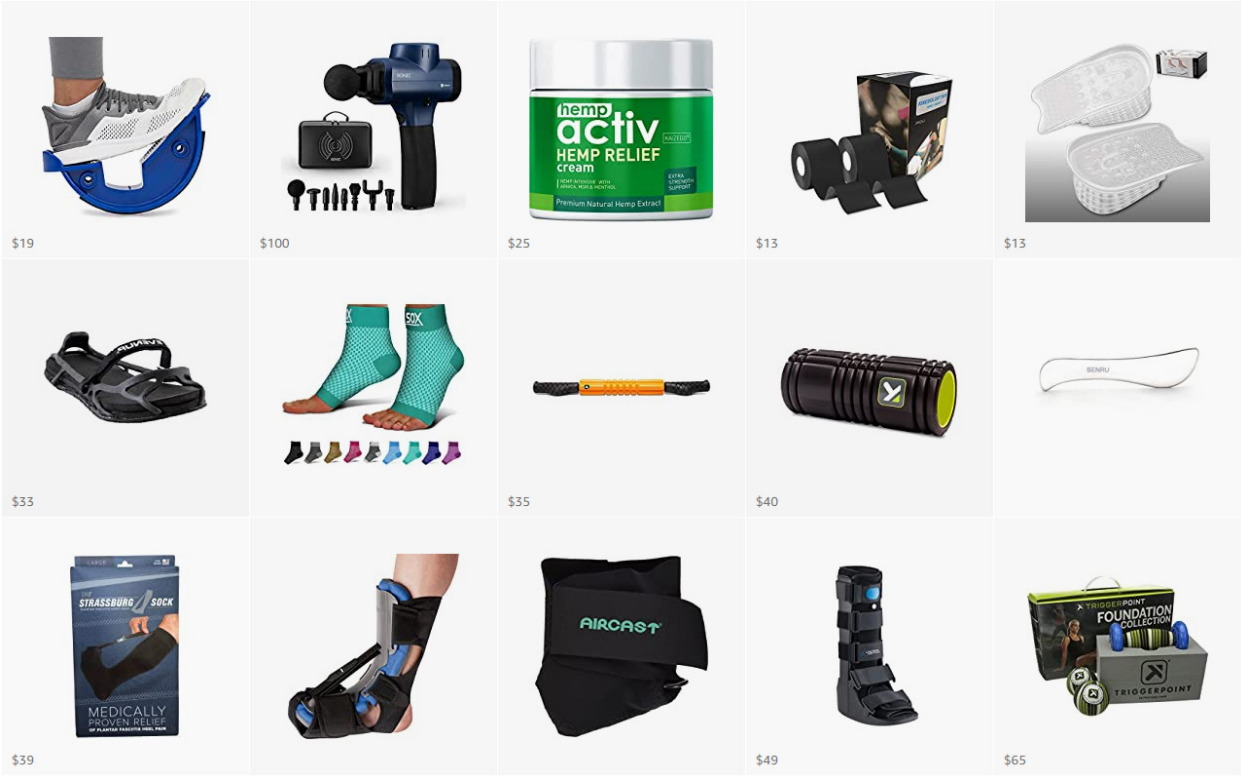
This page was last updated on January 1st, 2016

DR. PELTO'S AMAZON RECOMMENDATIONS

Many of my patients want to know what I recommend for certain foot-related conditions. That is why I have put together some of my favorite recommendations based on the diagnosis you will find here and they can be purchased on Amazon.

Remember this does not replace medical care but it is a good place to start based on your diagnosis.

ACHILLES TENDONITIS

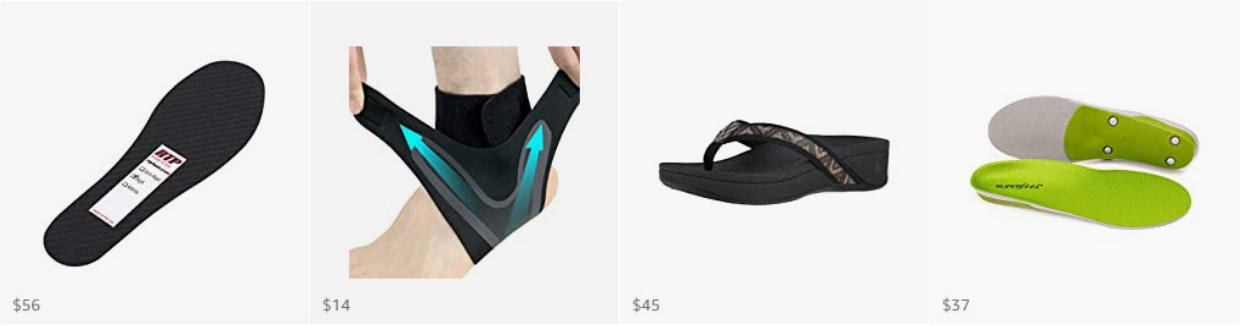


CLICK HERE TO PURCHASE

ANKLE SPRAIN

CLICK HERE TO PURCHASE

ARTHRITIS



CLICK HERE TO PURCHASE

ATHLETE'S FOOT

$9

Best Seller

$10

$19

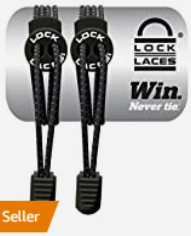
$21

$6

$6

CLICK HERE TO PURCHASE

BALANCE PROBLEMS



Best Seller

$9

Best Seller

$14

$18

CLICK HERE TO PURCHASE

BUNION

CLICK HERE TO PURCHASE

CALLUS AND CORNS


$7


$10


$10

$13

$16


$9


$14


$10

$13

$15


$15

CLICK HERE TO PURCHASE

CAVUS FOOT (HIGH ARCH)

$14 $59

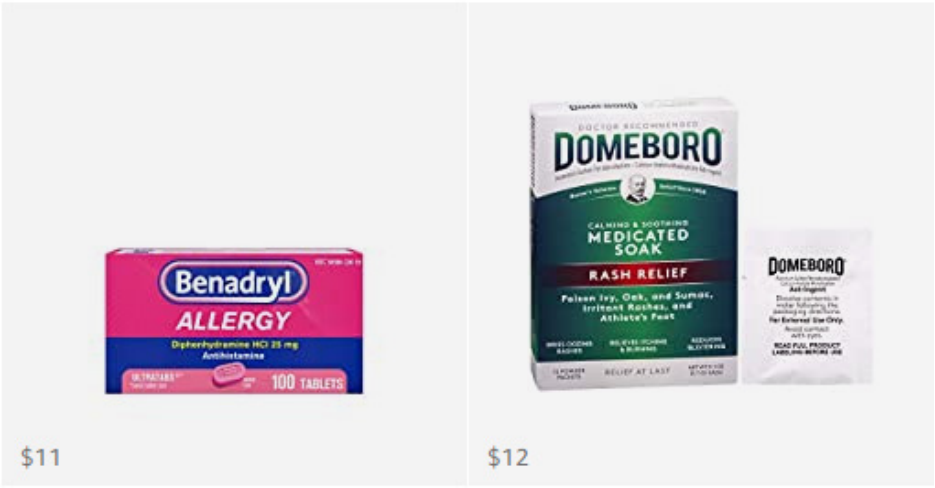
CLICK HERE TO PURCHASE

COLD FEET

$33 $30

CLICK HERE TO PURCHASE

DERMATITIS (ITCHY FEET)



CLICK HERE TO PURCHASE

DIABETES & FOOT WOUNDS

CLICK HERE TO PURCHASE

DROP FOOT

CLICK HERE TO PURCHASE

DRY SKIN

CLICK HERE TO PURCHASE

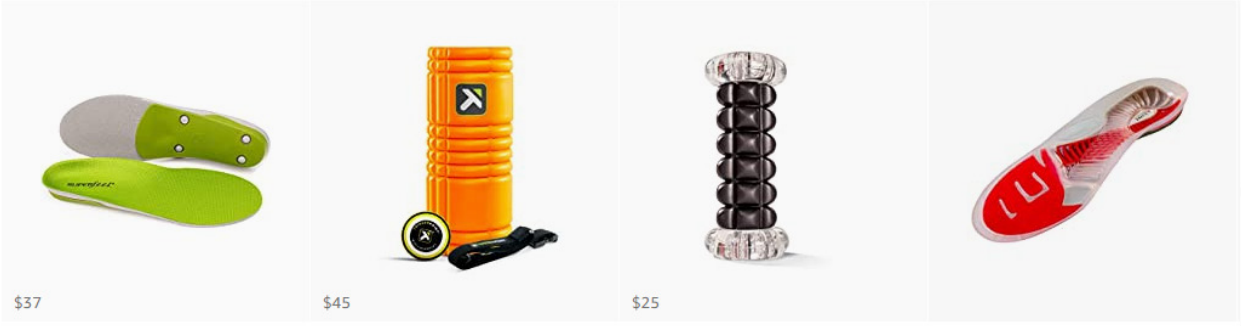
EXTRA DEPTH SHOES

$49

$33

CLICK HERE TO PURCHASE

FLAT FEET



$37

$45

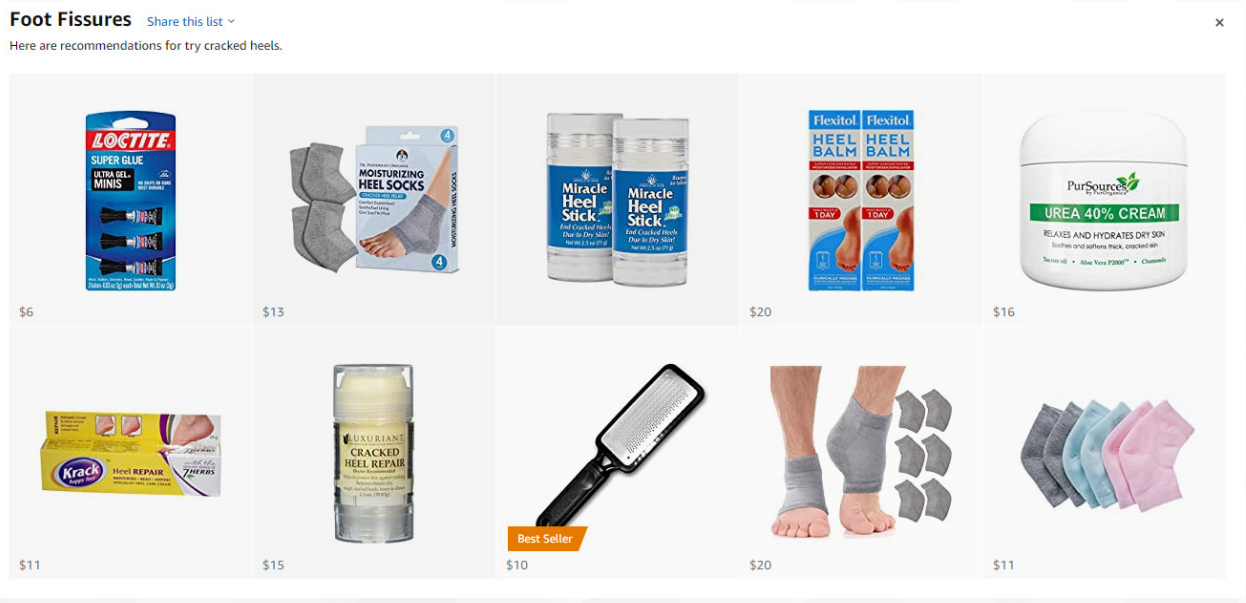
$25

CLICK HERE TO PURCHASE

FLAT FEET & POSTERIOR TIBIAL TENDON DYSFUNCTION

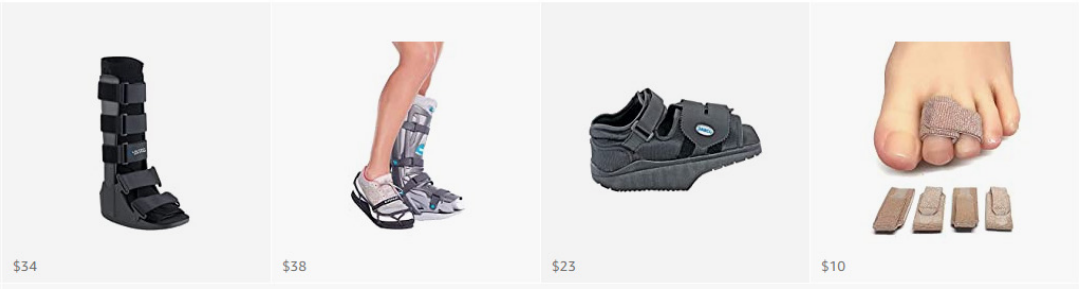
CLICK HERE TO PURCHASE

FOOT FISSURES (CRACKS)



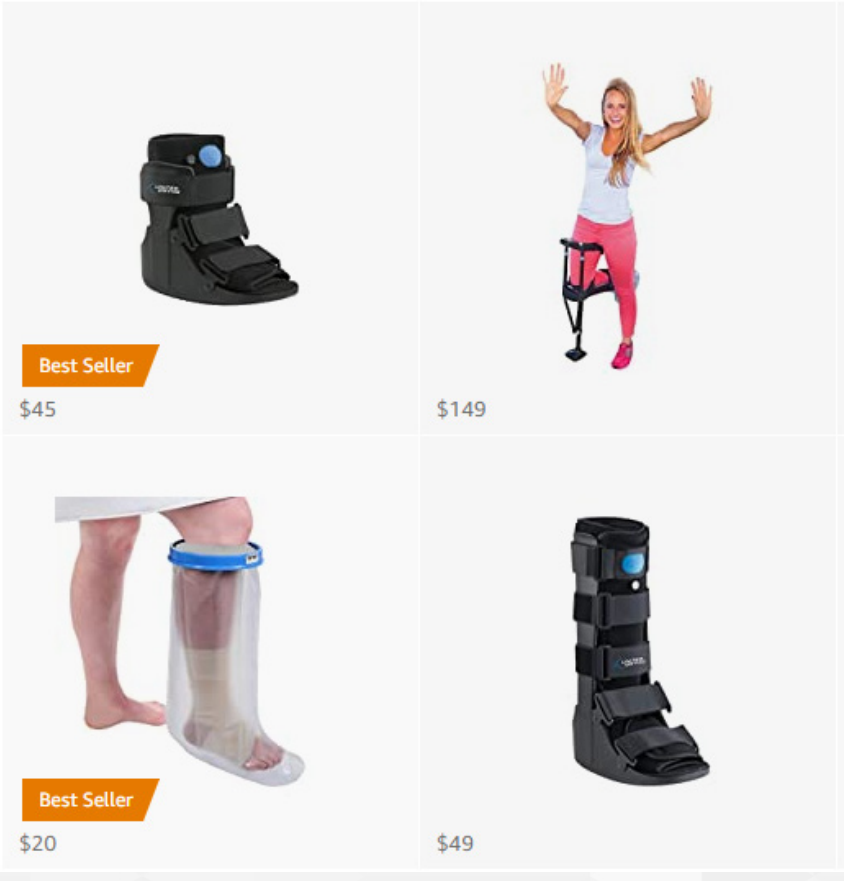
CLICK HERE TO PURCHASE

FOOT FRACTURES (BROKEN FOOT & TOE)



CLICK HERE TO PURCHASE

FOOT SURGERY



CLICK HERE TO PURCHASE

GANGLION CYST

CLICK HERE TO PURCHASE

GOUT

Gout Share this list

Here are some recommendations for gout.

CLICK HERE TO PURCHASE

HAGLUND'S DEFORMITY

Haglund's Deformity Share this list

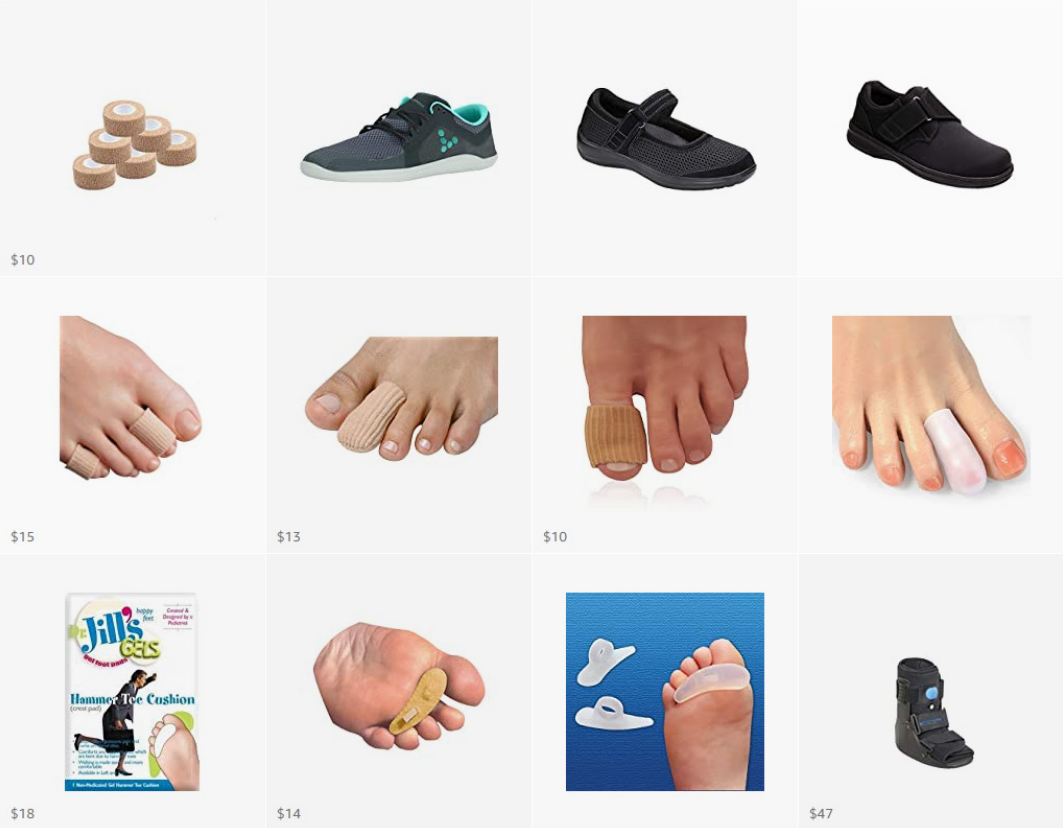
Here are some recommendations for bump on the back of the heel.

CLICK HERE TO PURCHASE

HALLUX LIMITUS

CLICK HERE TO PURCHASE

HAMMERTOES

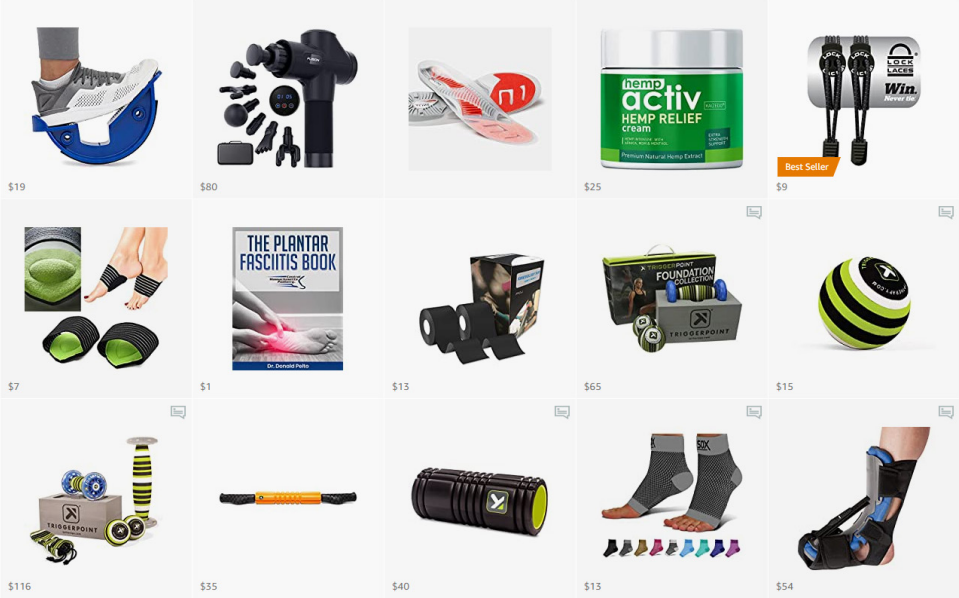


CLICK HERE TO PURCHASE

HYPERHYDROSIS (SWEATY FEET)

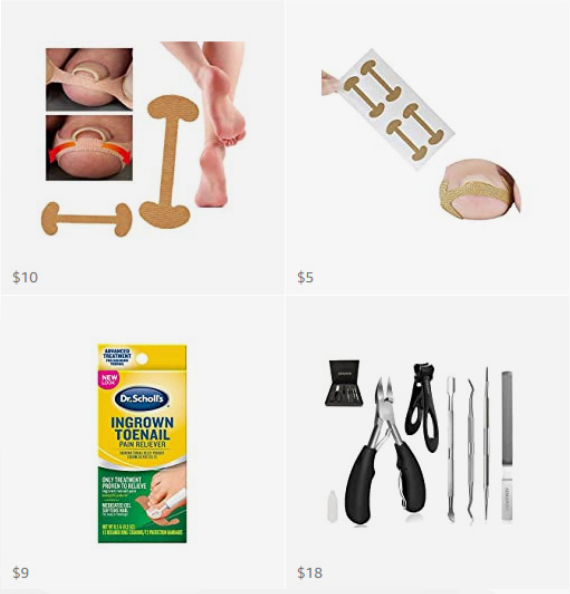
CLICK HERE TO PURCHASE

HEEL PAIN (PLANTAR FASCIITIS)



CLICK HERE TO PURCHASE

INGROWN TOENAILS

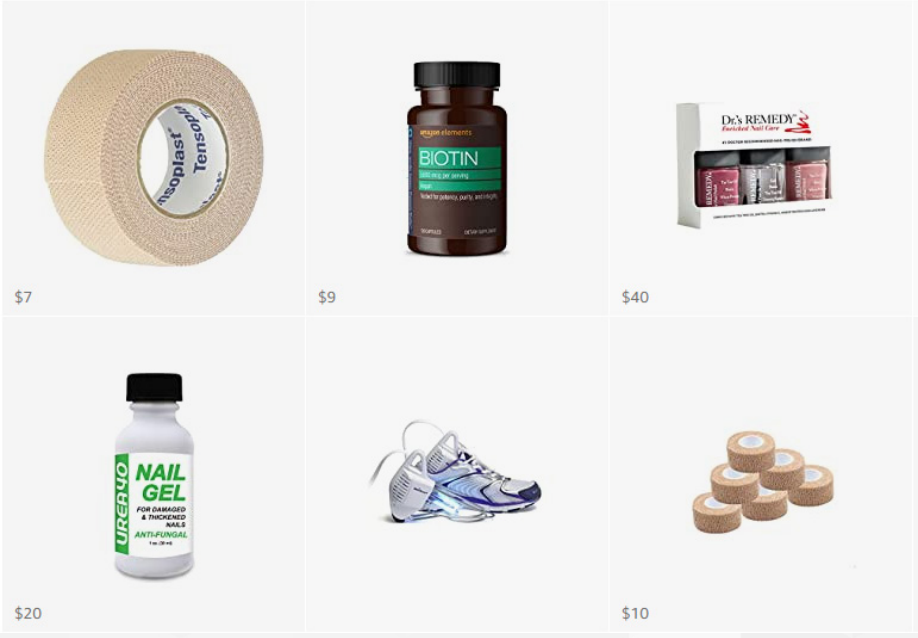


CLICK HERE TO PURCHASE

LIMB LENGTH DIFFERENCE

CLICK HERE TO PURCHASE

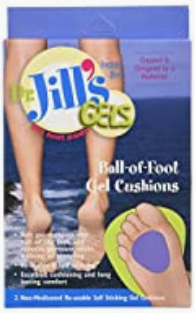
NAIL FUNGUS



CLICK HERE TO PURCHASE

NEUROMA

$8



$10

$27

CLICK HERE TO PURCHASE

NEUROPATHY

$28

$19

$23

$35

CLICK HERE TO PURCHASE

PLANTAR PLATE TEARS

$50

$29

$30

$40

CLICK HERE TO PURCHASE

SCAR TREATMENT (KELOID)

Best Seller

$15

$32

$12

CLICK HERE TO PURCHASE

SEVER'S DISEASE (CALCANEAL APOPHYSITIS)

$23

$25

CLICK HERE TO PURCHASE

TAILOR'S BUNION

$7

CLICK HERE TO PURCHASE

WARTS

$10

$8

$9

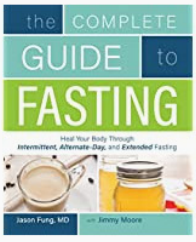
$32

CLICK HERE TO PURCHASE

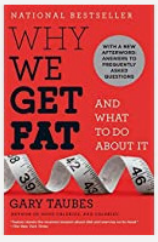
WEIGHT LOSS

Best Seller

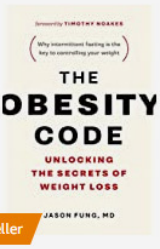
$8



$15



$9



Best Seller

$16

CLICK HERE TO PURCHASE


Central
Massachusetts
Podiatry PC