



# About Us

**Extremity Imaging Partners, Inc. – 2009**

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## Objective

The object of this workbook is to provide you with a broad overview of EIP and MRI.

## Legend



Information is tagged with the **Reminder** symbol whenever you are being reminded of a standard company policy and/or process.



Information is tagged with the **Did you know?** symbol whenever a fact is cited that applies to the principle being covered.



Information is tagged with the **Definition** symbol whenever the meaning of a term or group of terms is provided.



Sections tagged with the **Notes** symbol are areas in the workbook where you can record your personal notes and/or questions.

## **Table of Contents**

<b>Topic</b>	<b>Page(s)</b>
Who We Are	3
EIP Imaging Centers	4
From Referral to Report	5
Business Profit Centers	6-8
Corporate Departments	9-10
MRI Overview	11
Why MRI?	12
Artoscan-M	13
Images and Reports	14
Common Foot/Ankle Structures	15-16
Preparing for an MRI	17-18
EIP Prescription	19
EIP MRI Center Locations	20

Extremity Imaging Partners, Inc. (EIP) was created to satisfy a need for a specialized MRI provider that focused exclusively on the complex anatomy of the foot, ankle, knee, hand, wrist and elbow. The owners of EIP, A. J. DiGiacobbe and C. F. Zontine, responded to this need and in February 2001 opened an EIP center in Cleveland, Ohio where we scanned our first extremity MRI patient. EIP has experienced unbelievable growth and progress ever since.

Our corporate headquarters are located at EIP Plaza in Wexford, PA (North of Pittsburgh). EIP employs over 60 people nationwide. We are the only company in the United States that operates dedicated free standing extremity MRI centers. We have 17 centers in 5 states and own the first and only mobile extremity MRI system to service rural areas.

EIP started out by focusing on the development of imaging centers but we have grown and diversified throughout the years to include a number of additional business profit centers. We have and continue to encourage our employees to think of new and innovative ways to expand and build our business. Each of our additional profit centers relates to some aspect of diagnostic imaging and was developed through the identification of a need in the market or as a concept to contain internal costs and generate income for the company.



## **Who We Are**



Did you know  
that your foot  
contains 26  
bones, 33 joints,  
107 ligaments  
and 19 muscles?

## **EIP Imaging Centers**

EIP has spent years building a physician referral base and due to the nature of our MRI equipment, our core business has naturally developed around podiatry. The foot and ankle is arguably one of the most difficult parts of the anatomy for a radiologist to read and no other radiology group in the country reads as many foot and ankle studies as our physicians.

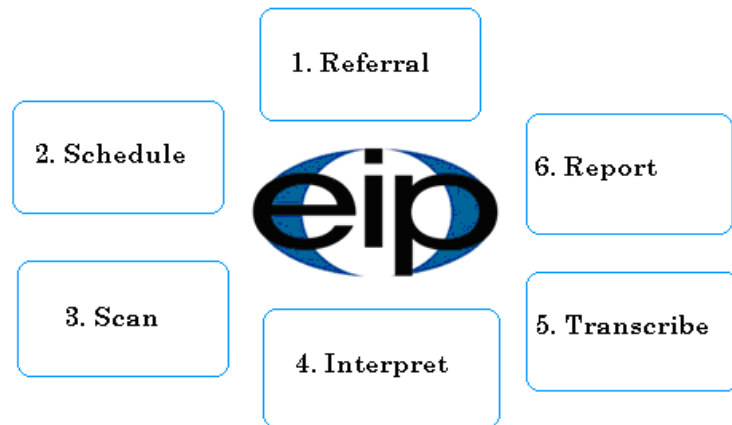
Since the majority of our imaging center business is related to the foot and ankle, EIP has become a strong supporter of the podiatric community. We participate in numerous podiatric conferences around the country each year. Our radiologists' are often sought after to serve as speakers at these events where they present specific information about interesting and useful cases they have interpreted. In addition to providing educational seminars to existing podiatrists, EIP is dedicated to educating new physicians who are completing their residencies in podiatric medicine.

EIP owns and operates an MRI centers inside the Foot and Ankle Clinic at Temple University. Residents at this podiatric institution are trained first hand on the benefits of using MRI to treat their patients and are offered the opportunity to utilize the equipment at our center. EIP has worked with the university to integrate our MRI images into their curriculum.

EIP's commitment to education is also demonstrated through the high standards set for our technologists. We pride ourselves in employing the most qualified ARRT certified technologists to run our centers and scan our patients. Our technologists are indisputably the best in the business at imaging the foot and ankle. In addition to fulfilling their clinical responsibilities, our technologists are uniquely trained to manage the electronic scheduling book in our Radiology Information System (RIS) system.

## From Referral to Report

The following is the “ideal” way that an MRI referral is processed through our system to become a report.



1. **Referral**– A referral is an order from a physician for an MRI. Referrals are received via fax or by telephone.
2. **Schedule**– Insurance information is gathered about the patient and an appointment is set.
3. **Scan**– The patient is scanned and the images are transmitted electronically to the radiologist.
4. **Interpret**– The radiologist interprets the images and sends an electronic dictation file to the transcriptionist.
5. **Transcribe**– The dictation file is transcribed into our system and the radiologist reviews it.
6. **Report**– \*The report is signed and automatically faxed to the referring physician.

*\*After the scan is performed, it typically takes less than 24 hours for the referring physician to have his/her report.*

## **Business Profit Centers**

Anyone who works in healthcare knows that the only constant in this field is the constant change. Diagnostic imaging services are no exception and since opening our doors in 2001, we have battled more changes than most due to bouts of new Medicare legislation created to target high tech diagnostic imaging providers. Through these whirlwinds of changes, EIP has strategically conquered all challenges and used the momentum to expand our business when other imaging providers have been forced to close their doors.

### **Service and Parts**

Through experience, EIP has learned that if you want something done the best way then find a way to do it yourself. This lesson holds true when it comes to our service division. Rather than hiring an outside vendor to manage the service needs of our imaging centers, EIP developed an in house service team. In addition to handling our own MRI units, we have expanded our service division by strategically placing service engineers around the country to market our services to third party customers.

Our service team performs routine preventative maintenance (PM) tests on our equipment at all of our locations. If our equipment is not functioning up to standard or our system experiences a complete failure then one of our service engineers promptly travels on site to assess the situation and make the necessary improvements to the unit.

In addition to servicing the MRI machines, our service team has acquired a large inventory of parts and equipment. We operate 2 service warehouses, one in the state of Washington and the other at our corporate headquarters in Pennsylvania. From these warehouses, uniquely trained EIP service engineers test, repair and develop MRI products. The parts are either used at our own centers or are sold to outside customers.

### **Advanced Digital Imaging (ADI)**

We have all seen the hard copy “x-ray” films at one time or another. You know, the big light box mounted to the wall with the physician who pops page after page in front of the light searching for the tiniest structure. Thankfully, due to advances in technology, gone are the days of producing bulky and expensive hardcopy films. EIP has jumped on the high tech bandwagon and developed our own in house digital imaging department.

MRI and other diagnostic images (e.g., CT, ultrasound, etc.), are sent by any imaging provider to EIP where we “digitize” them, burn them onto a CD and ship them back to the customer. The customer, or their client, can place the CD into their computer and zip through the images very quickly. Although most clinicians are progressing forward with this technology, there are some who still depend on the hardcopy films. For those few, we do continue to produce traditional films.

### **Accreditation Consulting**

Getting an insurance carrier to pay a clean claim can be a challenge; now throw the extra obstacle of accreditation into the mix. More and more insurance carriers are requiring accreditation for diagnostic imaging providers as a condition for reimbursement and Medicare recently announced that they are following suit in 2012.

There are two MRI accrediting bodies currently available, Intersocietal Commission for the Accreditation of Magnetic Resonance Laboratories (ICAMRL) and American College of Radiology (ACR). EIP has passed a battery of tests and received accreditation for all of our centers. Through this laborious process of system testing and paperwork, we gained a wealth of knowledge about the accrediting process and now offer a consulting service to assist other providers with their accreditation.



### **American Radiologic Technologies (ART)**

For years, EIP contracted our MRI interpretations to outside radiology groups. In 2004, after working with several external practices, we made the decision to pursue the development of our own subspecialty radiology practice and American Radiologic Technologies (ART) was created. ART now interprets all of EIP's cases plus many outside read clients. They utilize teleradiology to read the images from their home offices in Florida and Massachusetts.

Teleradiology provides us the opportunity to utilize the most qualified musculoskeletal (MSK) radiologists. Consequently, we do not need to contract with individual MSK radiology groups at each of our centers. Just as a telescope enables someone to see images that are far away, a teleradiology system allows a radiologist to see digital images that are far away. The images are collected at any of our centers and then transmitted electronically, in real time, to our radiologists' workstation miles away.

### **Clinical Applications**

Learning how to use a new piece of MRI equipment can be a daunting task. There are software programs, positioning skills and protocols involved that require training and support. EIP employs MR certified technologists who serve as application trainers for both EIP centers and outside clients. The trainers spend time onsite at the location and work one on one with the clinical staff to help them acclimate to their MRI system.

Through years of experience and training, our applications trainers are qualified to facilitate educational courses. Since our technologists are ARRT certified, they are required to complete continuing education courses in order to maintain their accreditation. EIP's MR certified techs develop and administer programs that meet the ARRT requirements.

## **Corporate Departments**

EIP's success is due greatly to the seamless orchestration of tasks between our internal departments at our corporate location. EIP prides itself in employing individuals who sincerely do whatever it takes to make our company successful.

### **Accounting**

To many, the word accounting is intimidating and prompts flashbacks to days of struggling in mathematics class in school. Luckily for EIP, we have a strong accounting team comprised of people who love what they do and meticulously process through our payables, receivables and expenses to ensure that our company remains compliant and profitable. In addition, we staff a certified public account who manages tax, audit and regulatory accounting affairs.

### **Administration**

When it comes to knowing the ins and outs of the company, our administrative staff is nothing short of top notch. From coordinating the office supplies for the entire company to drafting and mail merging hundreds of letters as part of a business campaign, our admin group works with every department to keep things organized and productive.

### **Information Technology**

To the untrained eye, our computer server room looks like it could easily run NASA. There are only a few people in the company who really know what goes on in that "special" room. Our IT department is committed to keeping the technology side of our business running as smoothly and efficiently as possible. We staff a team of system administrators, programmers and networking gurus who work tirelessly to gather data, develop new systems and manage the operation of all networking equipment and connections for both our onsite and offsite locations. Through the brainpower and ingenuity of our IT department, EIP has remained cutting edge with all of our technology.

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### **Extremity Imaging Partners – 2009**

### Legal

With Stark laws and anti-kick back rules, it is next to impossible to work in the healthcare field without legal advice. We are very fortunate to operate an in house legal department at our corporate location. Our attorney is very involved with the day to day activities of the business and serves as an expert resource for all business divisions and departments.

### Marketing

As a result of our high clinical standards and attention to detail, EIP has successfully marketed ourselves and built a reputation in the extremity MRI industry that is unmatched by any other provider. For many physicians, EIP is an integral part of their patients' treatment plans. The members of our marketing team are spread out among our territories and spend countless hours at our referring physician offices educating them about MRI and discussing ways to improve our referral process. If one of our marketing team members is not at a physician's office then they are developing innovative concepts and campaigns to increase volume at our centers.

### Reimbursement

Health insurance is not the easiest nut to crack. There are thousands and thousands of different plans, each with their own unique twist and just when you think you understand an insurance carrier's requirements... *here comes a change*. EIP staffs a full service reimbursement team of expertly trained specialists. We handle everything from insurance contracting to payment posting. Gone are the days of searching through piles of paper and patient charts. Our robust RIS and billing systems are state of the art and have afforded us the opportunity to transition to a paperless environment.



It took almost five hours to produce the first MRI image.

## MRI Overview

On July 3, 1977, something occurred that would forever change the world of modern medicine... the first MRI exam was performed on a human being. The images were, by today's standards, quite *ugly* but they were MRI images nonetheless. The machine used to capture those first images is now in the Smithsonian Institute.

MRI stands for **M**agnetic **R**esonance **I**maging. Magnetic resonance imaging is a noninvasive, usually painless medical test that helps physicians diagnose and treat medical conditions. Some classifications of MRI are closed, open, extremity and recently the industry has introduced the breast MRI. Unlike other familiar imaging devices, such as x-ray and CT, MRI **does not** use radiation.

**Closed**



**Open**



**Extremity**



**Breast**



In 1884, a man by the name of Nikola **Tesla** stepped off a ship in New York with only 4 cents in his pocket. But inside his mind and heart he carried inventions that would transform the world.

The heart of an MRI system is the magnet. Magnet strength is measured in tesla and ranges from 0.2 to 7.0. EIP's extremity MRI machines use a low-field magnet (0.2 tesla). A low field extremity magnet is very quiet, extremely non-claustrophobic and does not require a shielding room/box (used to prevent interference such as external radio waves).

In addition to magnet strength, field of view is a key component in producing a quality MRI image. A smaller field of view produces a higher resolution image. Our small field of view (approx. 4.66 inches) enables our radiologists to see the tiniest structures. These tiny structures are sometimes too small to identify through the higher field of views used when scanning on a full body MRI.

## Why MRI?

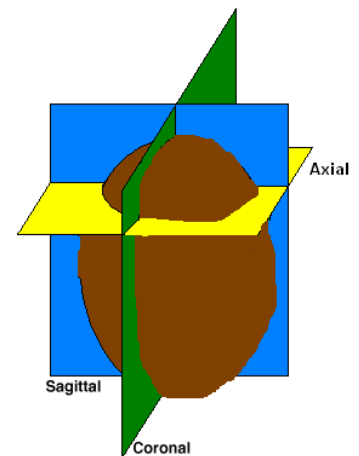
Thankfully, fewer people are being rolled into the operating room for exploratory surgery as a final effort to unveil what mystery diagnosis looms inside their body. The decline in risky surgical procedures is due largely to the advent of modern day diagnostic imaging tools such as MRI.

You may be asking yourself why a doctor would choose MRI versus another high tech imaging test. There are a range of differences in imaging procedures and each has a unique diagnostic role. An MRI is very useful in determining the possibility of injuries to joints, ligaments and tendons and enables the detection of abnormalities that might be obscured by bone with other imaging methods.

A great advantage to MRI is that it has hardly any side effects because it uses magnetic signals to see through the body instead of radiation. An MRI produces hundreds of images, based on the treating physician's specifications, and is valuable because it images in any plane of your body.

The planes captured by MRI are referred to as axial, sagittal and coronal and are most easily compared to slicing a loaf of bread. An axial plane is a typical slice in a loaf of bread. A sagittal plane is comparable to slicing a loaf of bread lengthwise from side to side. Lastly, coronal images can be compared to slicing bread lengthwise from the top to the bottom.

In this example, imagine a loaf of bread standing on end. The yellow represents the axial slice, the blue represents the sagittal slice and the green represents the coronal slice.





### RF Room

A radio frequency (RF) room is an enclosure around an MRI machine for the purpose of reducing the transmission of electric or magnetic fields from one space to another.



**ARTOSCAN-M**



**COIL**

## ARTOSCAN-M

We use ARTOSCAN-M MRI machines at all of our EIP locations. Developed by Esaote; the ARTOSCAN-M is designed specifically for musculoskeletal imaging. ARTOSCAN-M'S compact, modular design simplifies the set up and disassembly of a center. ARTOSCAN-M requires no special RF room, magnetic shielding or special power supply. Patients remain outside the magnet at all times during the examinations, enabling constant interaction between the patient and the technologist.

Our patients recline back on a couch (often referred to as a chair due to the similarity to a dental chair) outside the MRI and only the extremity being scanned is put inside the machine. The body part is placed inside a specific coil designed for the extremity being scanned. The coil receives an emitted signal that makes an MRI possible. Due to the nature of our machine, there are times when a patient's size affects our ability to scan them. In order for EIP to successfully complete an exam, the patient's body part must fit comfortably inside the appropriate coil. Any patient over 350lbs can not be adequately scanned using our machine.

Since our business is specialized we are forced to staff with specialized clinicians. All of our radiologists are MSK MR Fellowship trained. Not only do our radiologists concentrate in MRI, they specialize in musculoskeletal MRI. In addition, our radiologists hold our technologists to a high standard when capturing our MRI images.

We are known in the industry for our comprehensive reports. EIP's reports are dependent on a specific protocol of images (required series of image sequences), established by our medical director. On average, our exams take 75 minutes to complete and the study yields hundreds of images. All of EIP's MRI scans are performed by ARRT ([www.rrt.org](http://www.rrt.org) The American Registry of Radiologic Technologists) certified technologists. EIP technologists are the country's MRI leaders in positioning and scanning the foot and ankle.





## Images and Reports

Most people are familiar with and have seen an x-ray image. MRI images *resemble* x-rays only they are much more comprehensive and capture important information about soft tissue structures such as tendons, ligaments and muscles whereas x-rays are most effectively used for bone related ailments.



EIP offers a web portal at [www.mypatientinfo.com](http://www.mypatientinfo.com) where all of our referring physicians can gain secured access to their specific patient images, reports and demographic information. The web portal is real time and is often the fastest way for a referring physician to obtain results related to their patients. The following is a sample of one of our MRI reports:

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**Patient Name:** \_\_\_\_\_ **Location:** EIP - Fallawn  
**MR Number:** \_\_\_\_\_ **Accession #:** \_\_\_\_\_  
**Referred By:** \_\_\_\_\_  
**Date of Birth:** \_\_\_\_\_  
**Exam Date:** \_\_\_\_\_  
**Exam Type:** \_\_\_\_\_

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**HISTORY:**  
 A 62-year-old female with pain along the dorsum of the foot, particularly over the second metatarsal. Evaluate for stress fracture.

**TECHNIQUES:**  
 Multisequence and multiplane examination of the right foot was performed on a 0.2 Tesla extremity magnet. The study was imaged from the Lisfranc joint to the proximal interphalangeal joints.

**FINDINGS:**  
 Marrow and cortical signal is normal without fracture, bone marrow contusion or reactive marrow edema. There are no significant arthritic changes at the Lisfranc joint, metatarsophalangeal or proximal interphalangeal joints. No cortical or periosteal reaction. There is a small effusion at the first metatarsophalangeal joint and minimal effusion throughout the remaining metatarsophalangeal joints without significant capsulitis.

Mild peroneal fibrosis/developing neuroma is noted in the second web space measuring approximately 2 mm transverse. There is a small amount of fluid in the first and third web spaces consistent with either physiologic fluid or mild intermetatarsal bursitis.

Marrow signal within the hallux sesamoid is preserved. No subluxation of the sesamoid or flexor hallucis longus tendon laterally.

There is callus formation in the 4th and 5th metatarsophalangeal joints.



On the edge of the film, there is at least mild distal peroneal longus tendinosis and surrounding peritendinitis as the tendon traverses the midfoot. No significant tear. The more proximal tendon was not included on these images (252141-252144, 252097-252100, 252200-252202).

No divergence of the Lisfranc joint. Lisfranc ligament is intact.

There is diffuse subcutaneous edema along the dorsum of the foot without a discrete soft tissue mass, cyst, foreign body or hemostoma. The flexor and extensor tendons are intact. The distal plantar fascia is intact.

**IMPRESSION:**  
 No evidence of acute fracture or bone marrow contusion.  
 On the edge of the film, there is evidence of at least mild peroneal longus tendinosis and peritendinitis without significant partial fluid-filled tearing. The more proximal peroneal longus tendon was not included on these images.  
 Nonspecific subcutaneous edema along the dorsum of the foot.  
 Mild peroneal fibrosis/developing neuroma in the second web space. There is a small amount of fluid in the first and third web spaces, which may reflect mild intermetatarsal bursitis versus physiologic fluid.

Thank you for your referral and the opportunity to provide your interpretation. If you have any questions about this report, please call 888.ART-MRI (278-4674).

EIP Plaza, 4500 Brookstone Road, Suite 300, Westford, Pennsylvania 17090  
 www.eip-mri.com • 888-EIEXTREMY (888-388-7364) • Fax: 888-267-0144

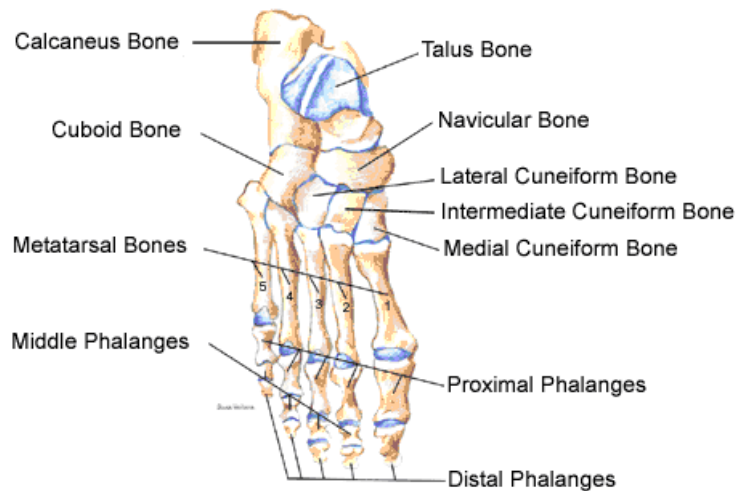
## Extremity Imaging Partners – 2009

## Common Foot/Ankle Structures

There are many different conditions related to bones, ligaments, tendons, joints, muscles and other structures that prompt a referring physician to send a patient to EIP for an MRI.

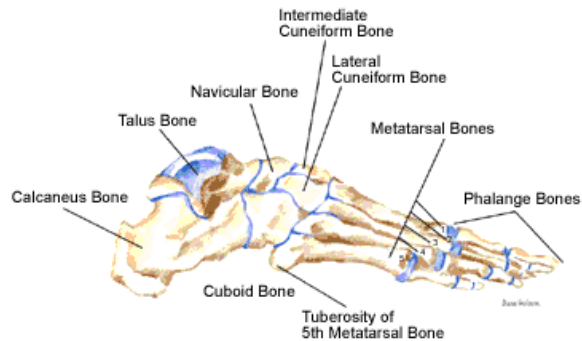
The following are diagrams of the bones of the foot/ankle:

### Top View of Foot Bones



The ancient Greek philosopher Socrates once claimed “When our feet hurt, we hurt all over”.

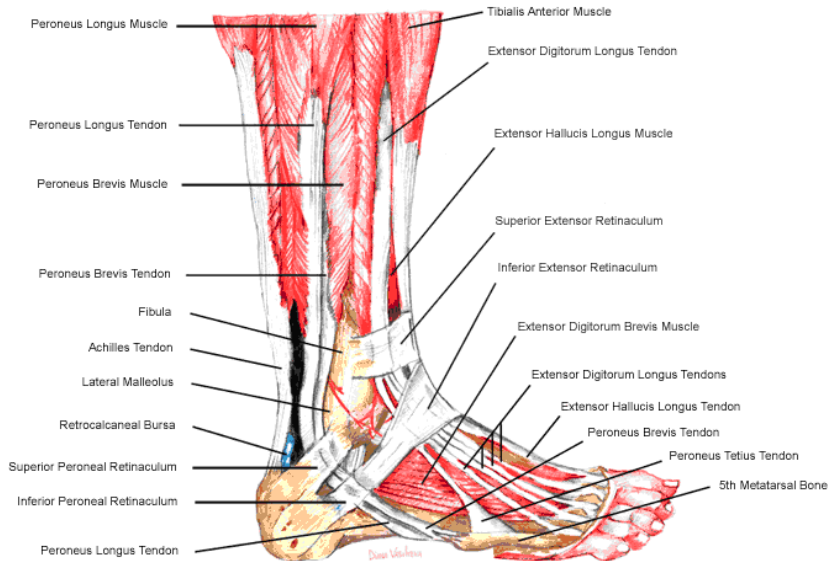
### Side View of Foot Bones





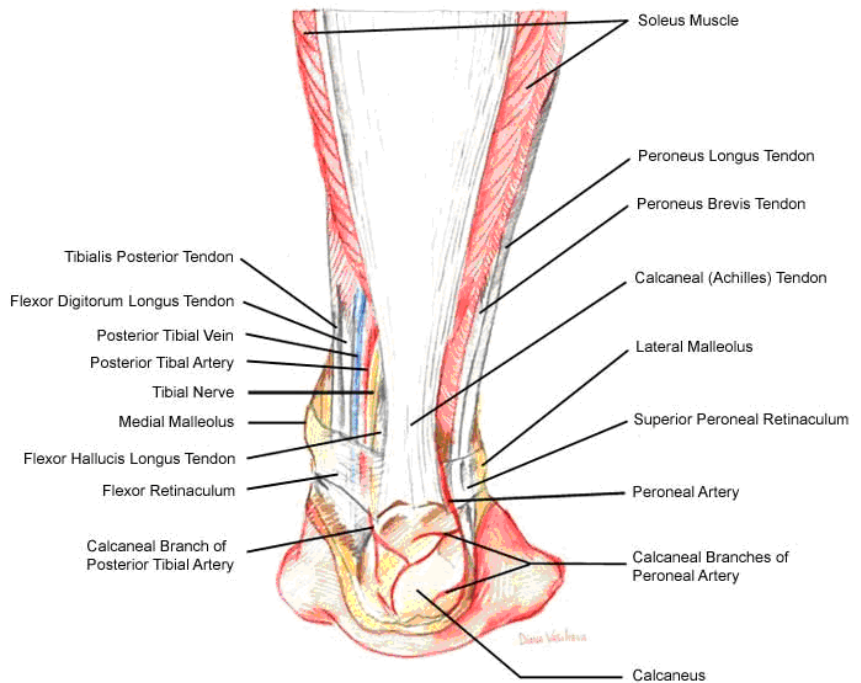
The following are diagrams of the muscles, tendons, ligaments and other soft tissue structures of the foot/ankle:

Side View of Foot Muscles & Tendons



The average person walks about 10,000 steps a day. During a lifetime, that is about 115,000 miles or 4+ times around the planet.

Back View of Foot Muscles





**Contraindication:**

A condition or factor that increases the risks involved with carrying out a medical procedure.

## Preparing for an MRI

To ensure the safety of our patients and to avoid adverse affects to any of their implanted devices, all patients need to be screened for contraindications to MRI.

The following are examples of contraindications that would **prohibit** a patient from safely having an extremity MRI at EIP. We can NOT scan any patients with these conditions.

- Pacemaker
- Implanted nerve stimulators
- Retinal tacks
- Implanted cardioverter defibrillators
- Anything implanted within the previous 6 weeks
- Cochlear implants
- Pregnancy

Next is a list of contraindications that would require further investigation or documentation:

- Bullets and pellets (need to check on location and safety)
- Implanted bone stimulator (some newer devices are safe)
- Implanted drug infusion pumps (possibility, if detachable)
- Brain aneurysm clip (requires documentation)
- Heart stents (require documentation)



Additional safety information can be obtained from [www.mrisafety.com](http://www.mrisafety.com)

Patients with the following conditions **can be safely scanned**:

- Lens implants or cornea replacements
- Pins and screws in place more than 6 weeks
- Wires and clips from previous open heart surgery
- Heart valves
- Clips from vascular surgery
- Greenfield filters
- AV shunts for renal disease
- Penile implants

EIP patients are asked to wear a very loose fitting article of clothing (shirt and/or pants). If a patient is having their foot/ankle scanned then we need them to wear a pant leg that can be pushed comfortably 3 to 4 inches above their knee. If a patient is having their knee scanned then they will need to wear, or bring along, a pair of loose fitting shorts. If the patient's clothing is not loose enough then they will be asked to change into a paper hospital gown.

The patient can go about their normal routine. There are no restrictions related to eating, drinking or the taking of prescribed medications. Some MRI examinations require a patient to swallow contrast material or receive an injection of contrast into their bloodstream. EIP **does not** use contrast material.





### EIP MRI Center Locations

EIP owns and operates 18 free standing MRI centers in 6 states and operates a mobile extremity MRI machine currently being used to service rural areas in Pennsylvania. The maps below identify our EIP locations:

