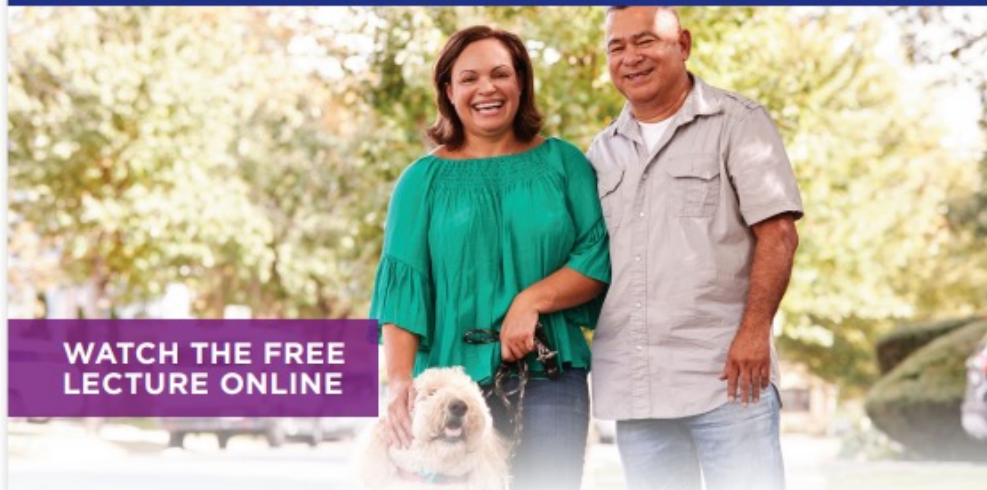


# Is That Pain in Your Leg Muscles Serious?

John McNeil, MD  
Boulder Heart  
720-673-8828

## MOVE ON FROM YOUR PAIN AND RISK



WATCH THE FREE  
LECTURE ONLINE

### Is that pain in your leg muscles serious?

**When** Thursday, Oct. 19, from 7 to 8 p.m. (Mountain Time)

**Where** Watch online. You'll get the link once you register.

**Speaker** John R. McNeil, MD, of Boulder Heart

#### ARTERY DISEASE RAISES RISK FOR HEART ATTACK, STROKE

It can strike while you're walking or climbing stairs—painful cramping in your hip, thigh or calf muscles. You stop for a few moments, and the pain goes away. You may have chalked up these incidents to "getting old," but you shouldn't dismiss those symptoms too quickly. It could be Peripheral Arterial Disease (PAD), a serious and progressive circulation problem that raises your risk of coronary artery disease, heart attack and stroke.

PAD develops when your leg arteries become clogged with fatty deposits called plaque. When left untreated, clogged arteries in the leg can be as deadly as plaque in your heart.

Hear John R. McNeil, MD, a board-certified cardiologist, describe the latest approaches for diagnosing and treating PAD, including lifestyle changes, medications and different techniques used to open clogged arteries.

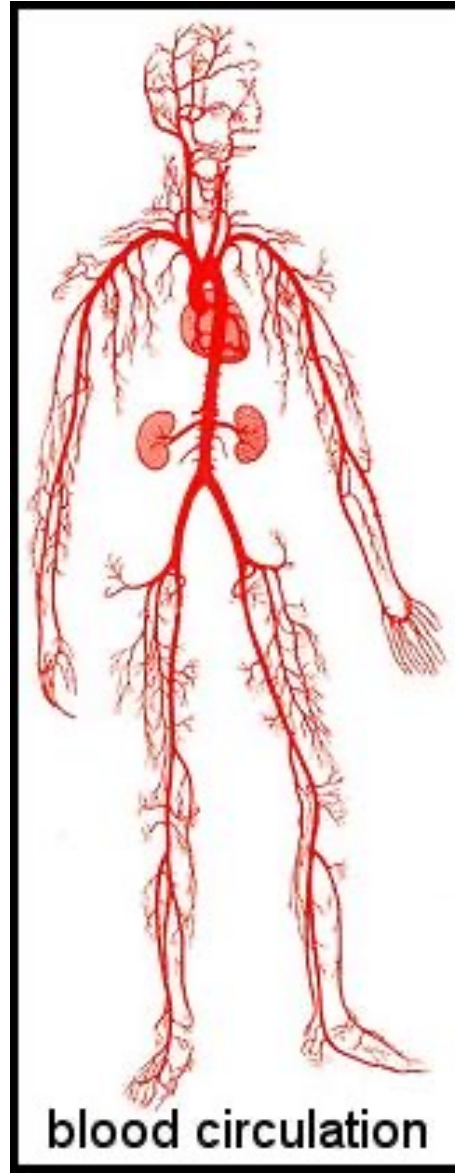
**RESERVATIONS REQUIRED:**  
[bch.org/PAD](https://bch.org/PAD)



Boulder Community Health does not discriminate on the basis of race, color, ethnicity, national origin, sex (including sexual orientation, gender identity and expression), age, or disability.

- Peripheral vascular system
- Diseases involving the peripheral vascular system
- Symptoms of peripheral vascular disease
- Diagnosis of peripheral vascular disease
- Treatment of peripheral vascular disease
- Association with stroke and heart attack

# Peripheral Vascular System



# Causes of Vascular Disease

## Major cause

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Atherosclerosis (arteriosclerosis obliterans)

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## Other causes

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Acute arterial disease (dissection, embolism, thrombosis, trauma)

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Adventitial cystic disease

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Aortic coarctation

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Arterial fibrodysplasia

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Arterial tumor

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Ergot toxicity

---

Iliac endofibrosis of athletes

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Occluded limb aneurysms

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Popliteal-artery entrapment

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Pseudoxanthoma elasticum

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Radiation fibrosis

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Retroperitoneal fibrosis

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Takayasu's arteritis

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Temporal arteritis

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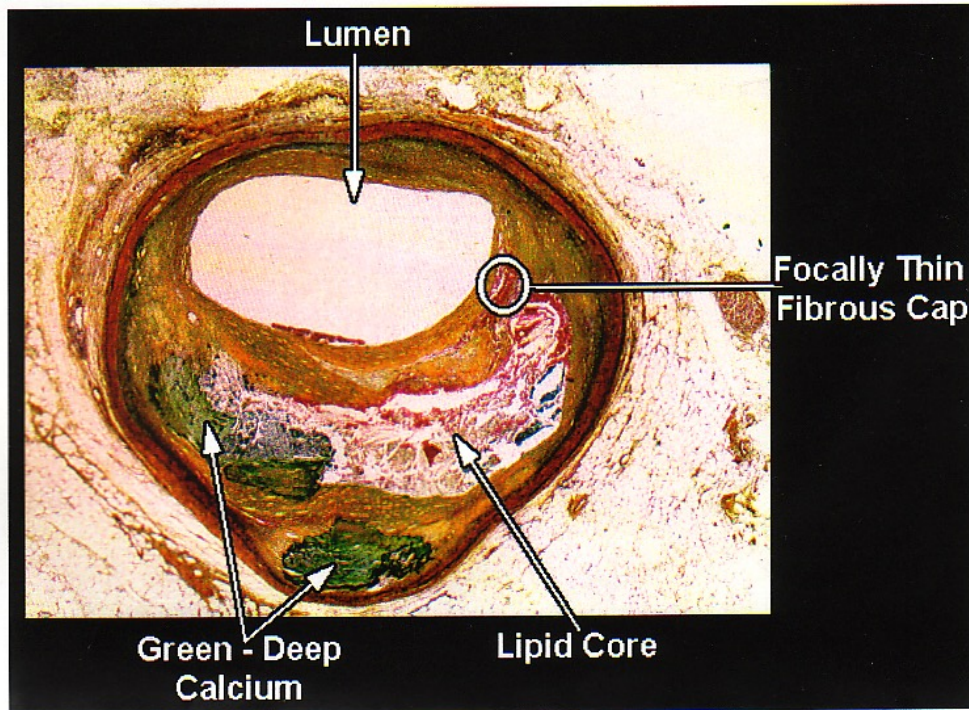
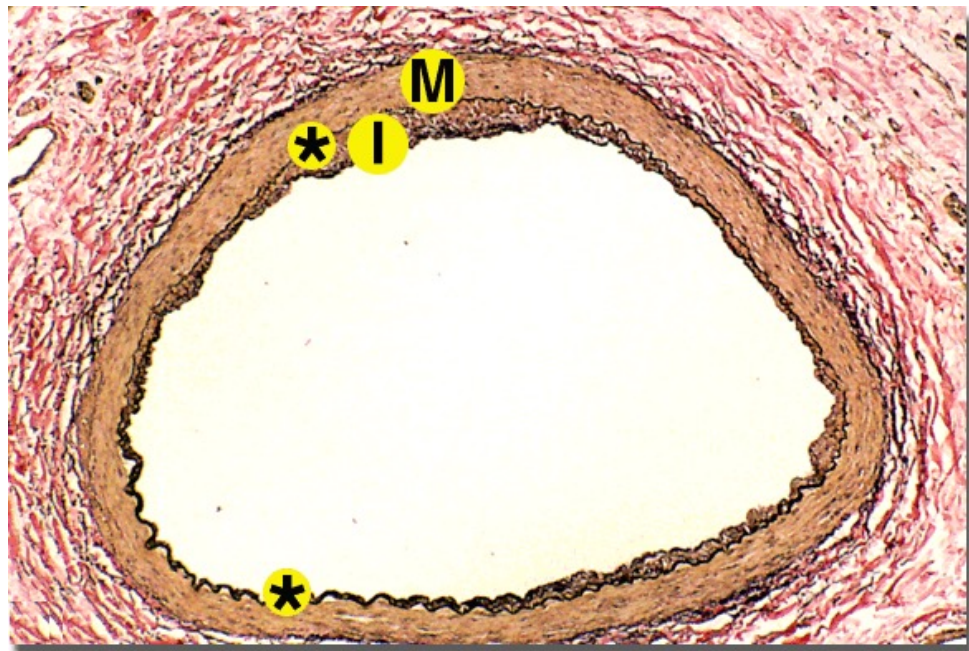
Thoracic outlet obstruction

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Thromboangiitis obliterans (Buerger's disease)

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Vasospasm

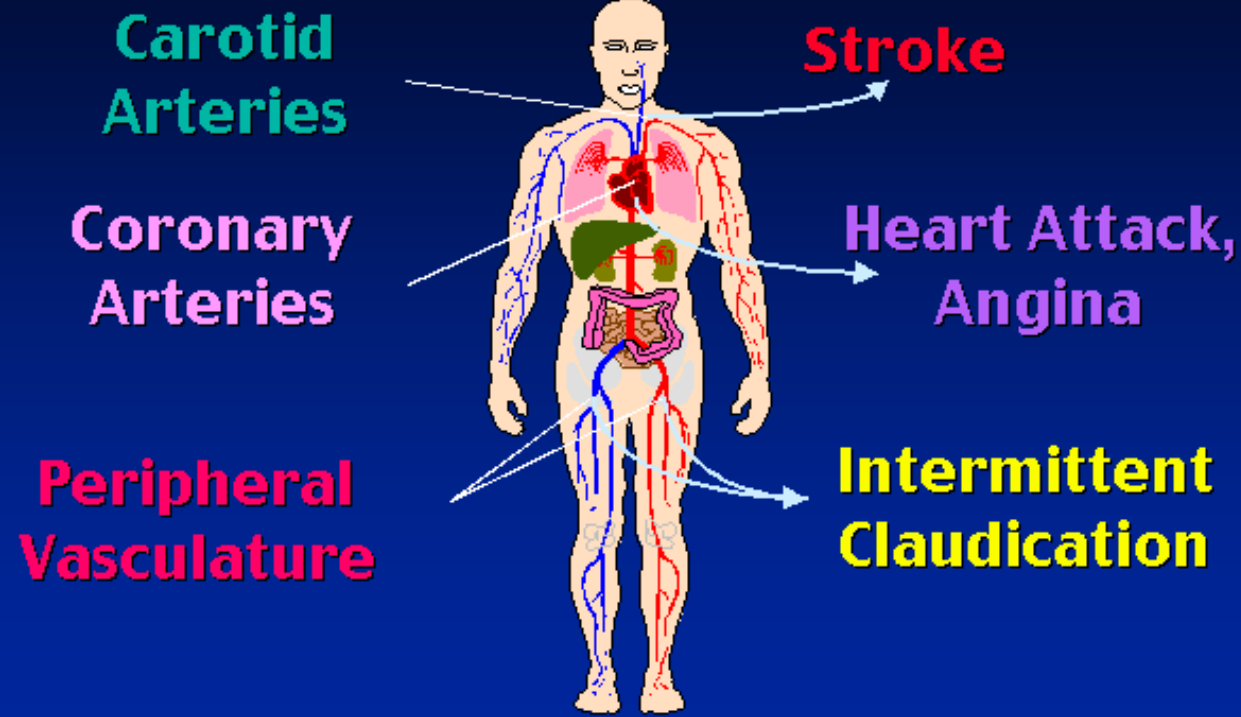


**“ like rust in a pipe”**

**The Traditional  
View of  
Atherosclerosis**



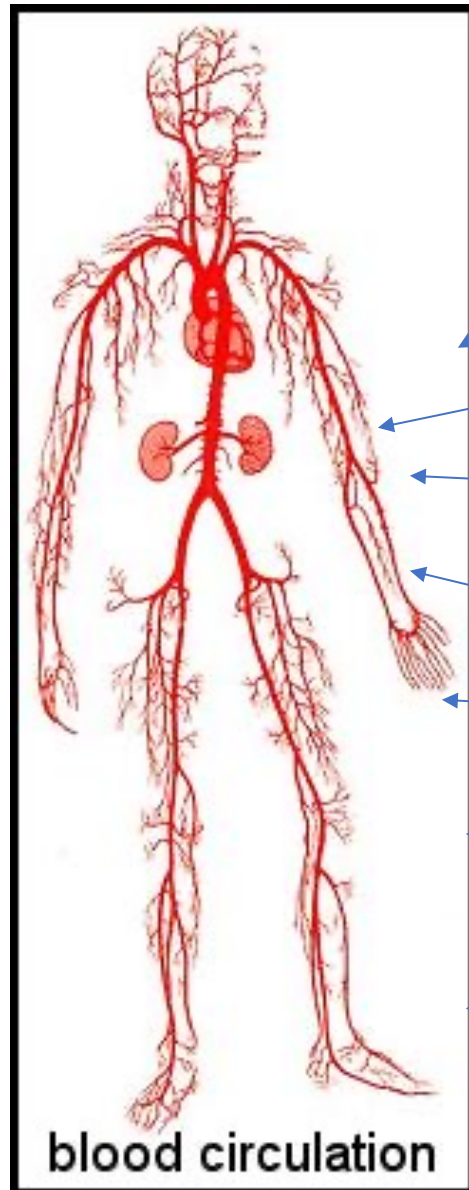
## Atherosclerosis





- **Classic Claudication** — Exertional pain that does not begin at rest, causes the patient to stop an activity, and resolves within 10 minutes of rest.

# Symptoms of Vascular Disease



**Arm Pain**

**Intestinal Cramping With Eating**

**Hypertension**

**Buttock Pain**

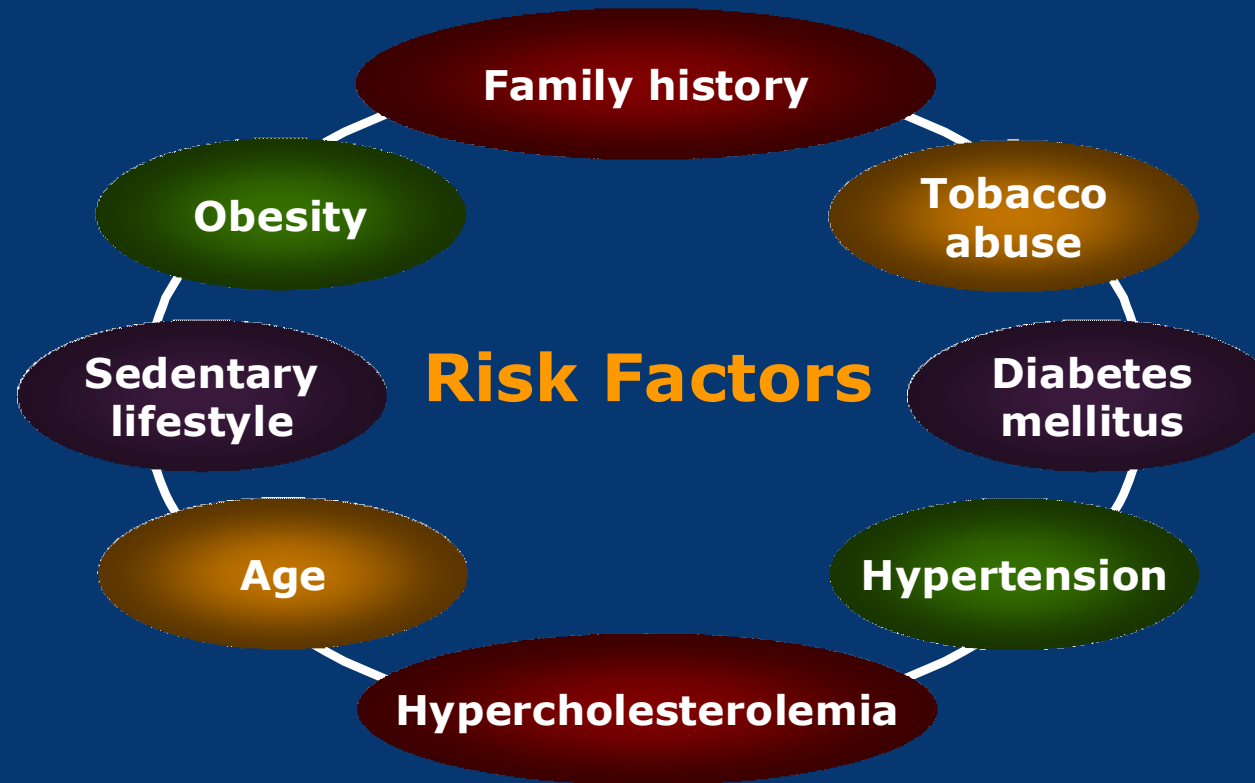
**Thigh Pain**

**Calf Pain**

**Foot Pain**

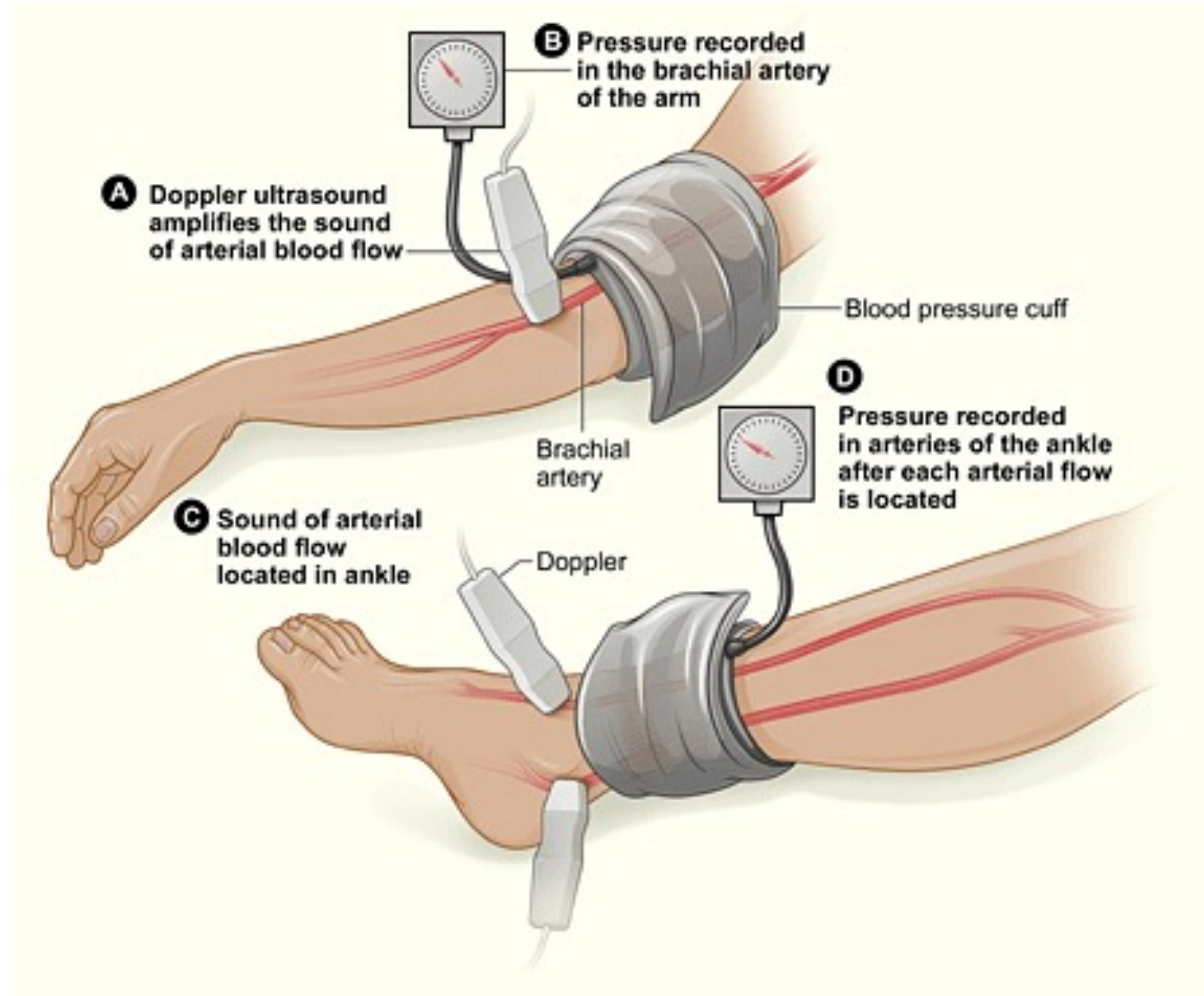
- **Pseudoclaudication** – Pseudoclaudication, describes a pain syndrome due to lumbar neurospinal canal compression. Unlike Classic claudication which occurs with walking and is relieved by stopping, pseudoclaudication causes pain with erect posture and is relieved by sitting or lying down.
- **Nocturnal Leg Cramps** – Nocturnal leg cramps occur among older and infirmed patients and is not associated with exercise. This complaint is thought to be neuromuscular rather than vascular in origin.
- **Calf Pressure and Tightness** – This symptom is primarily seen in athletes and is usually associated with chronic exercise. It is thought to be due to increased compartment pressure and may persist even after rest.
- **Arthritis** – Pain in the joints of the extremities.

## The Disease



- Ankle Brachial Index
- Carotid Dopplers
- CT/MRI Scans
- Angiography

# Ankle Brachial Index



## Diagnosis

- Ankle-Brachial Index (ABI)

$$\text{ABI} = \frac{\text{Ankle Systolic Pressure}}{\text{Brachial Systolic Pressure}}$$

1.0 = Normal

>0.80-<0.90 = Mild, possibly  
asymptomatic disease

0.50-0.80 = Moderate disease

<0.50 = Usually indicates severe,  
multilevel occlusive disease

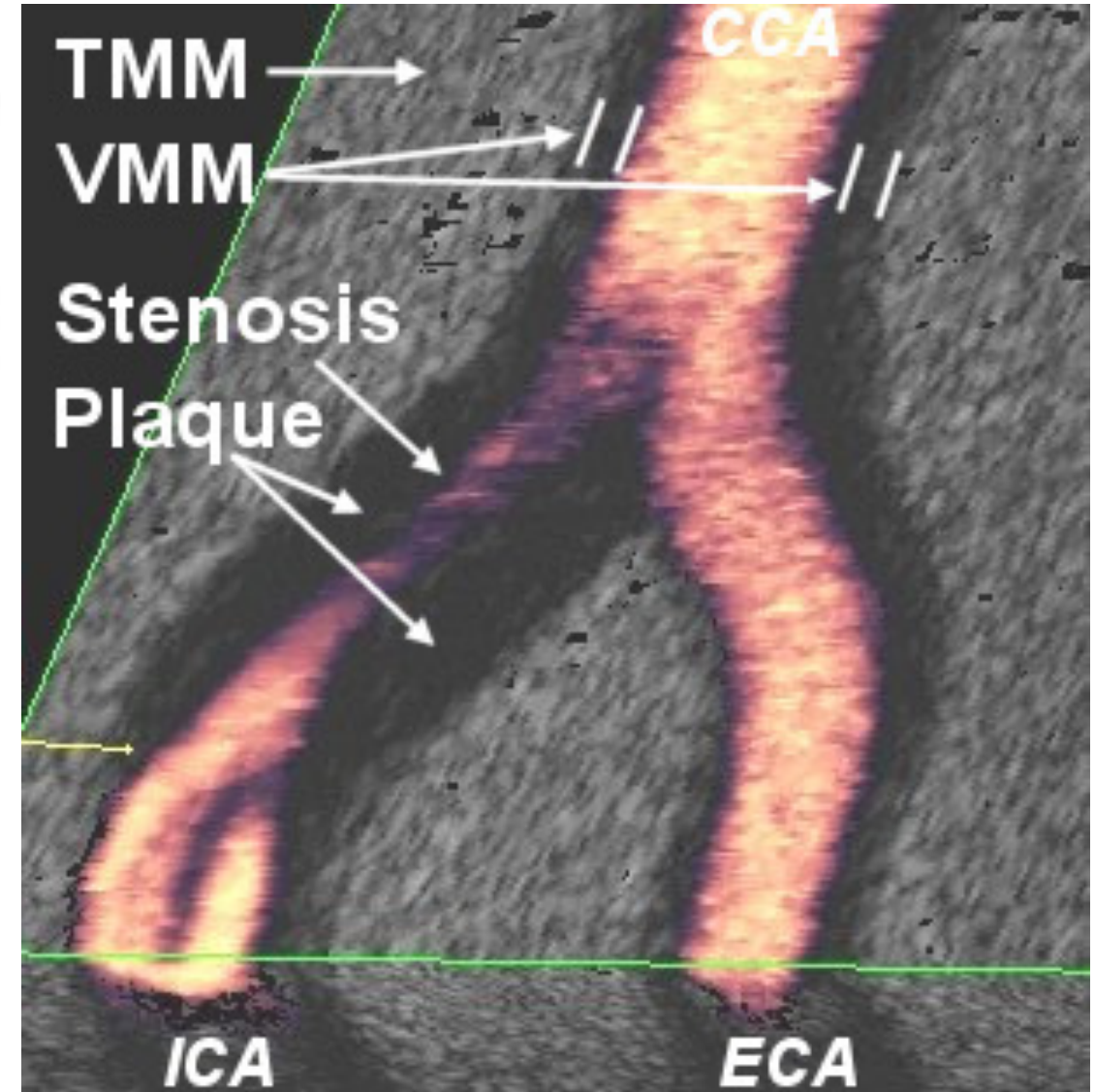
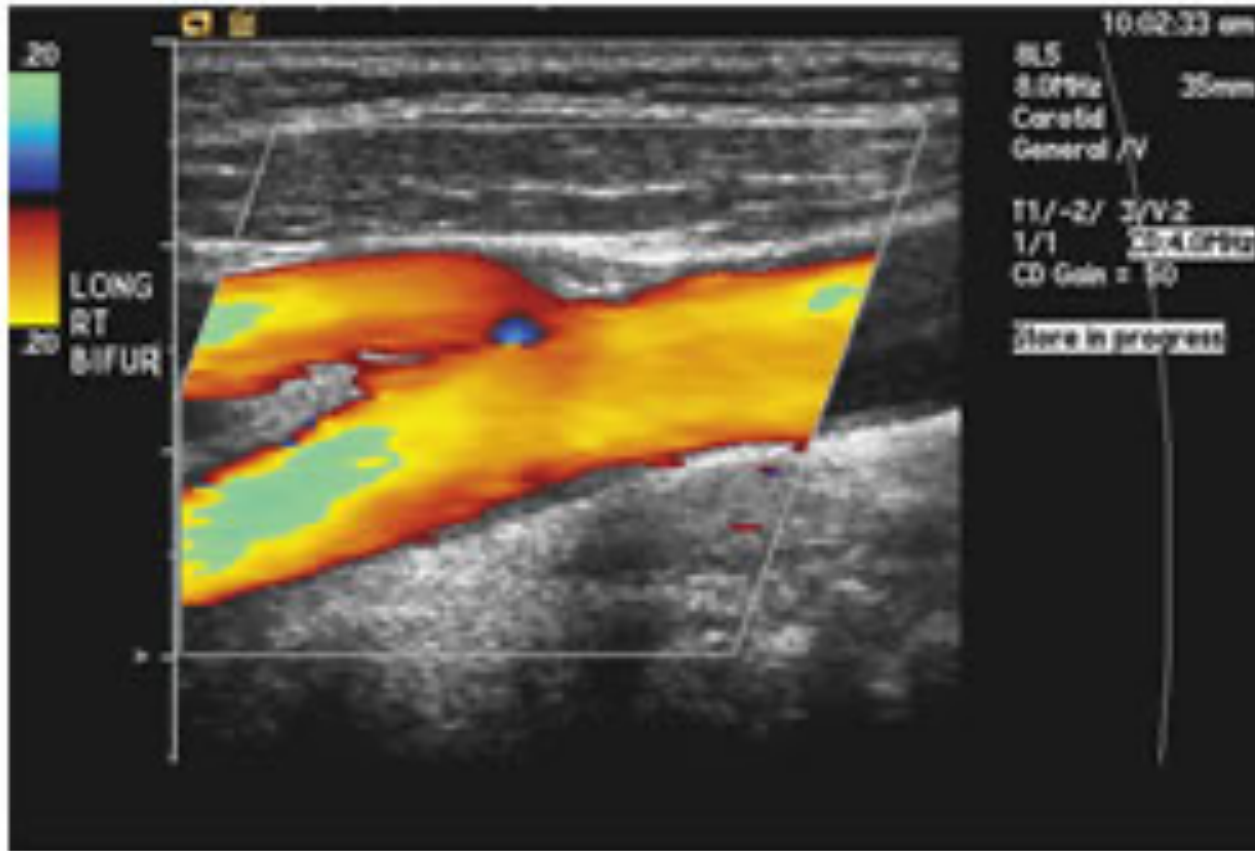
<0.25 = Usually indicates ischemic  
rest pain or tissue loss

# Carotid Dopplers





# Carotid Dopplers



# CT/MRI Imaging



# CT/MRI Imaging



# Angiography

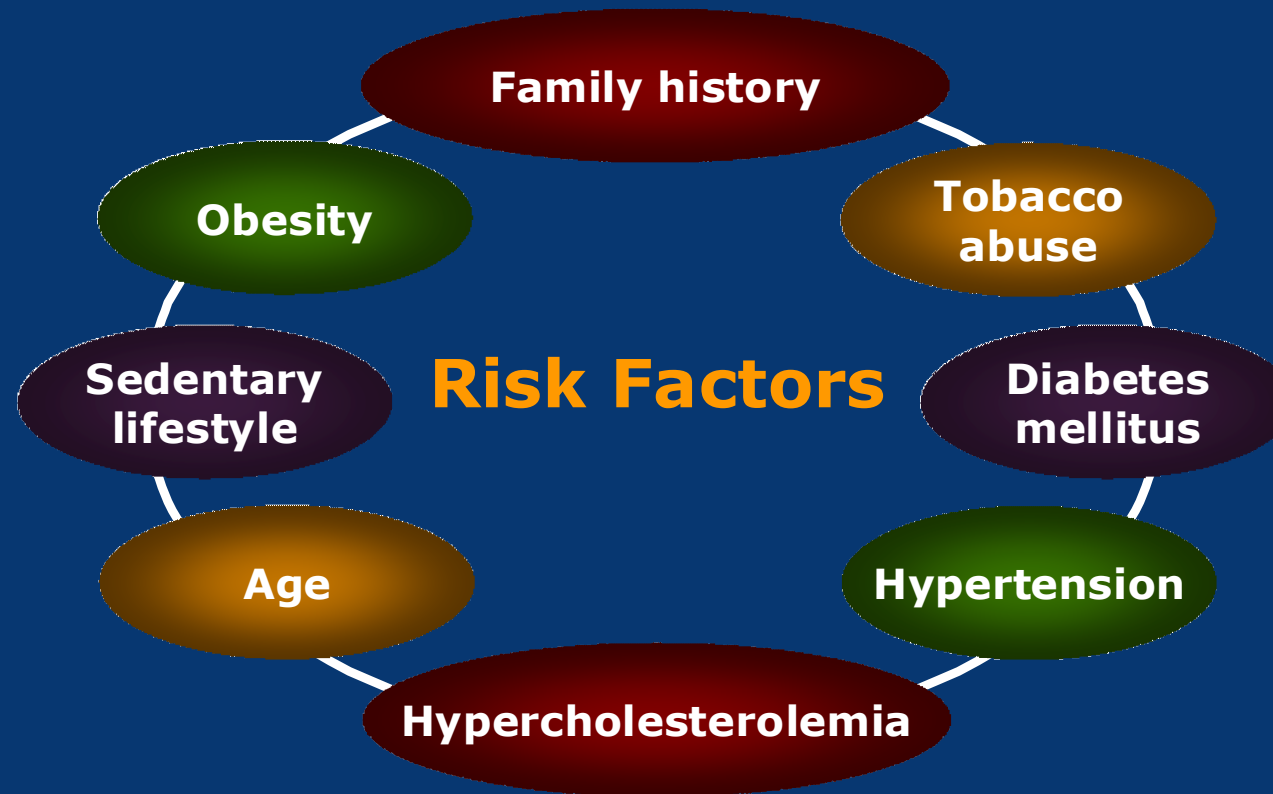


# Angiogram



- Risk Factor Reduction
- Medications
- Exercise
- Percutaneous Intervention
- Surgery

## The Disease



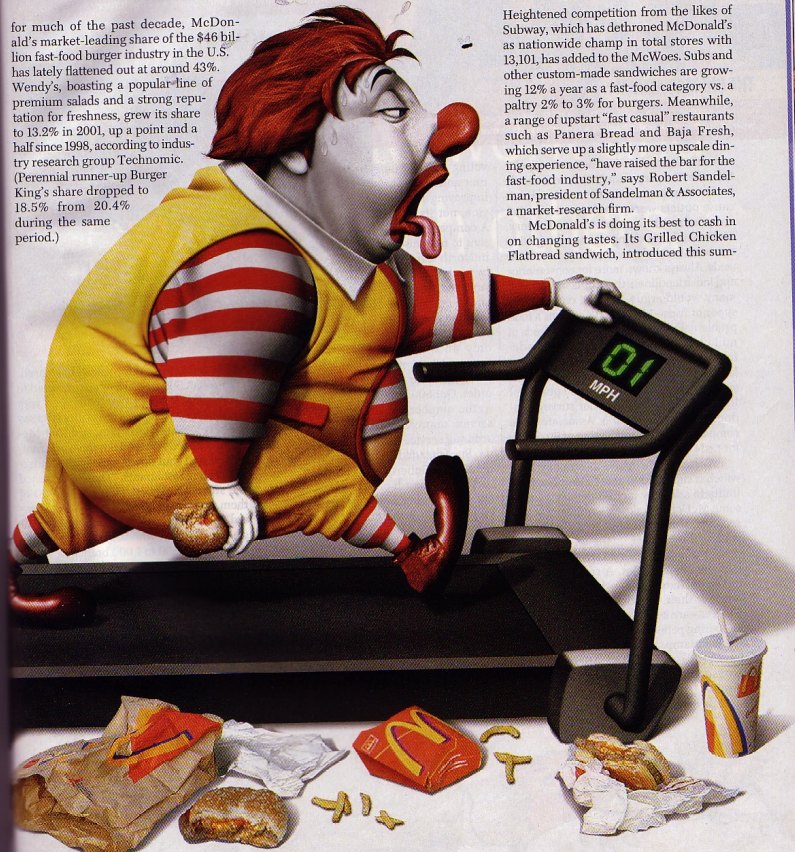
- Aspirin
- Plavix
- Cilostazol
- Pentoxifylline
- Ginkgo Biloba
- Chelation Therapy



## SHAPE UP?

The fast-food king thinks better service, nicer décor and bigger bargains will get business cooking again

for much of the past decade, McDonald's market-leading share of the \$46 billion fast-food burger industry in the U.S. has lately flattened out at around 43%. Wendy's, boasting a popular line of premium salads and a strong reputation for freshness, grew its share to 13.2% in 2001, up a point and a half since 1998, according to industry research group Technomic. (Perennial runner-up Burger King's share dropped to 18.5% from 20.4% during the same period.)

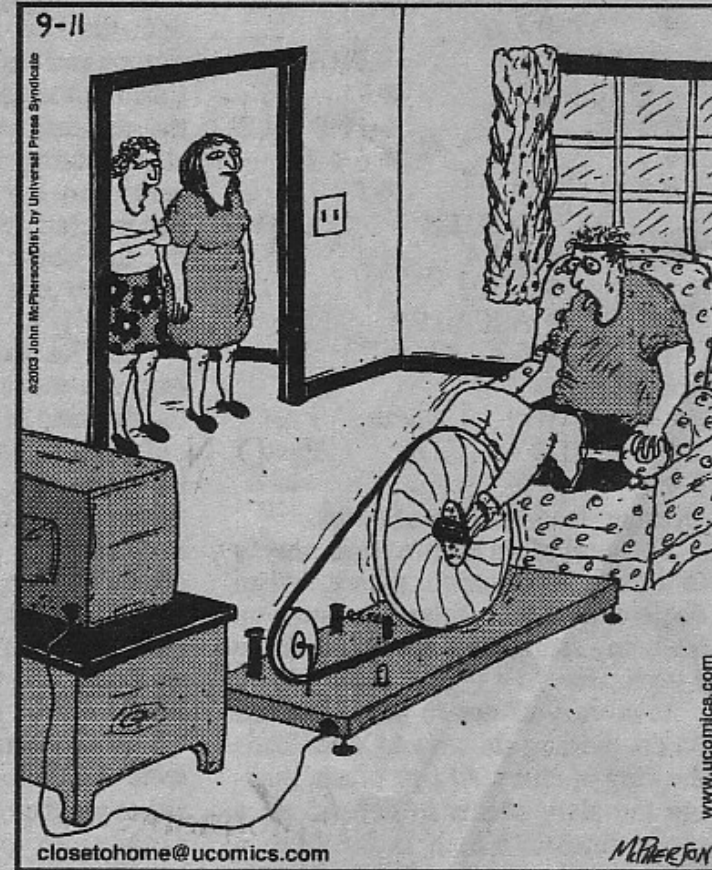


Heightened competition from the likes of Subway, which has dethroned McDonald's as nationwide champ in total stores with 13,101, has added to the McWoes. Subs and other custom-made sandwiches are growing 12% a year as a fast-food category vs. a paltry 2% to 3% for burgers. Meanwhile, a range of upstart "fast casual" restaurants such as Panera Bread and Baja Fresh, which serve up a slightly more upscale dining experience, "have raised the bar for the fast-food industry," says Robert Sandelman, president of Sandelman & Associates, a market-research firm.

McDonald's is doing its best to cash in on changing tastes. Its Grilled Chicken Flatbread sandwich, introduced this sum-

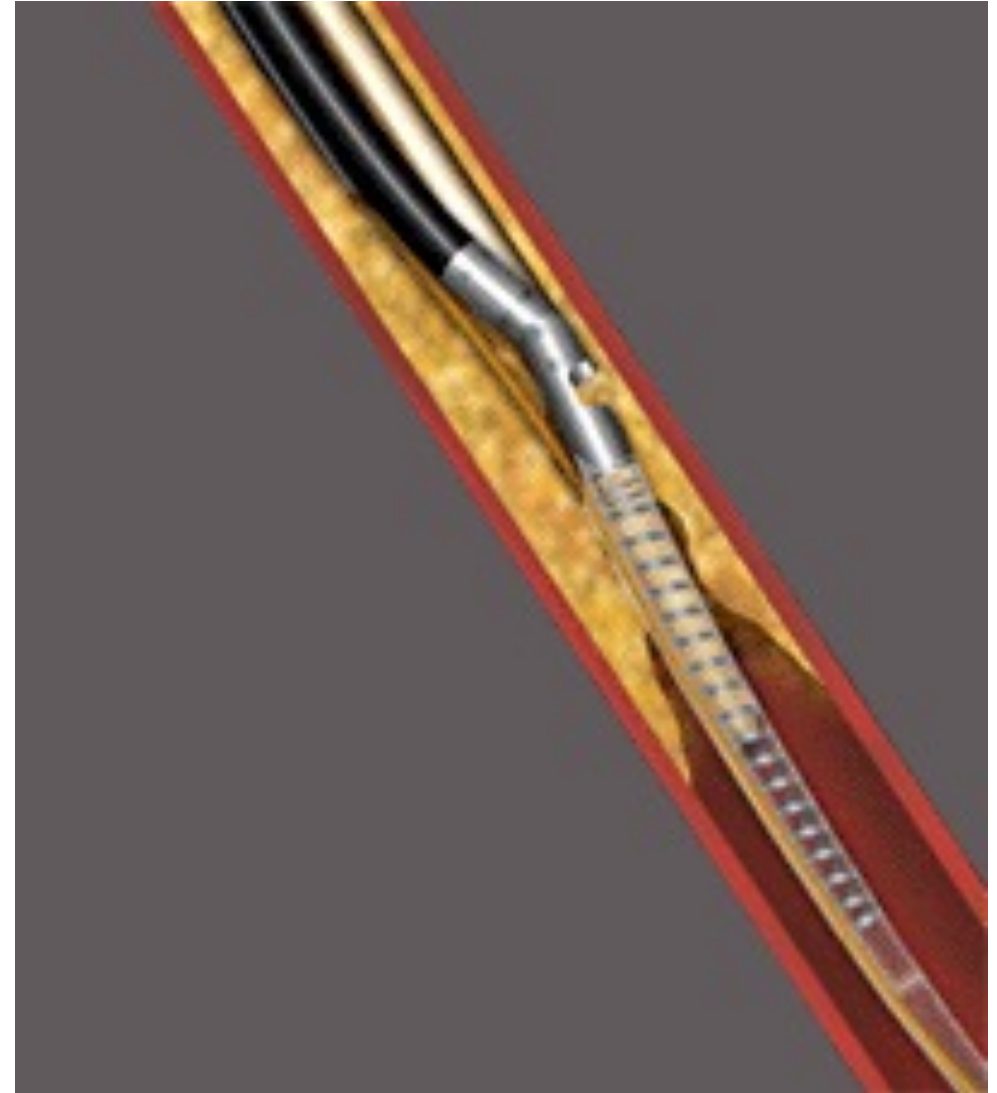
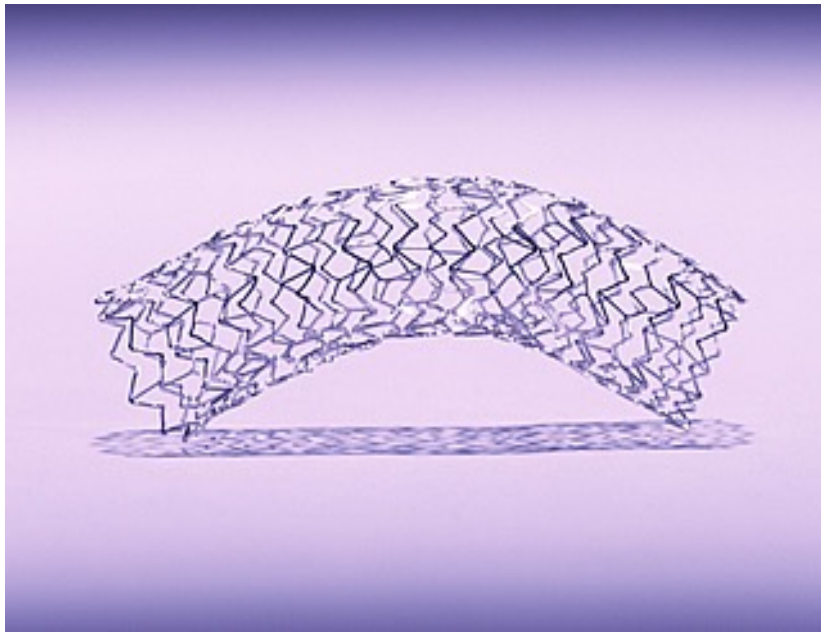
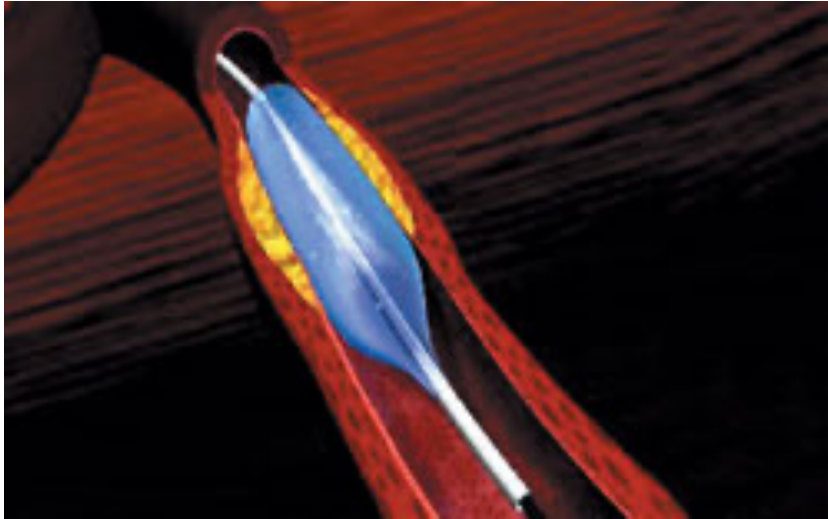
## CLOSE TO HOME

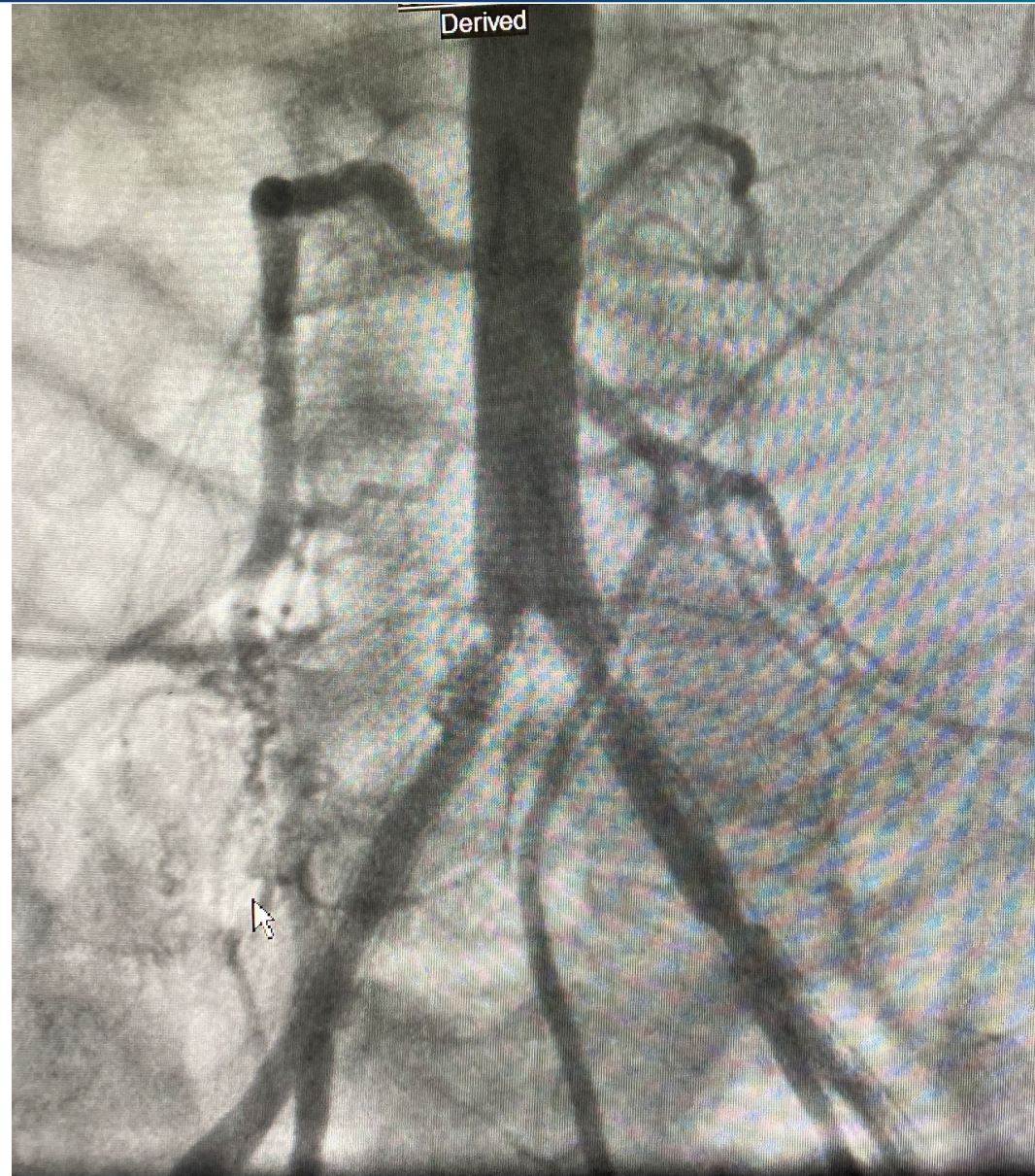
John McPherson



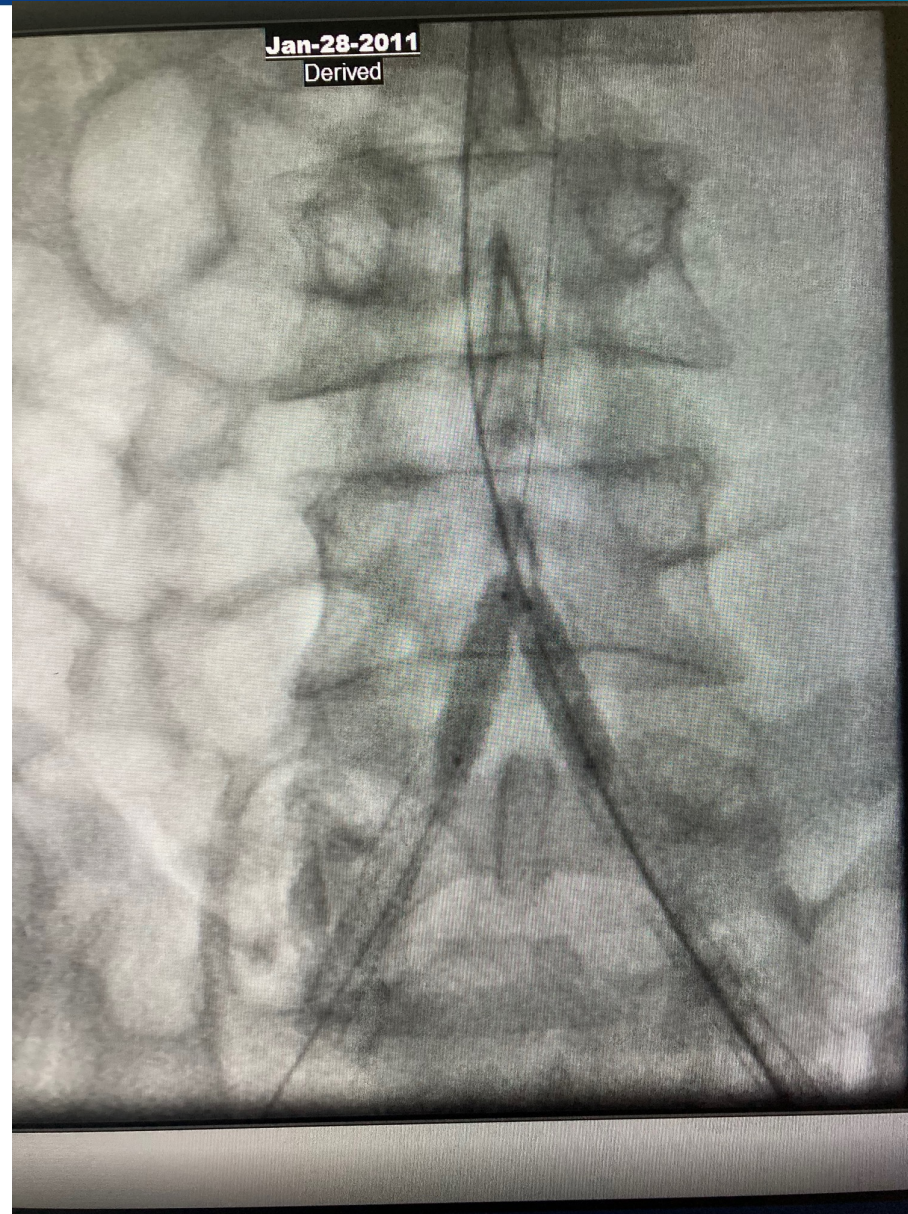
"It powers the TV. I'm hoping he'll lose 10 pounds during the World Series alone."

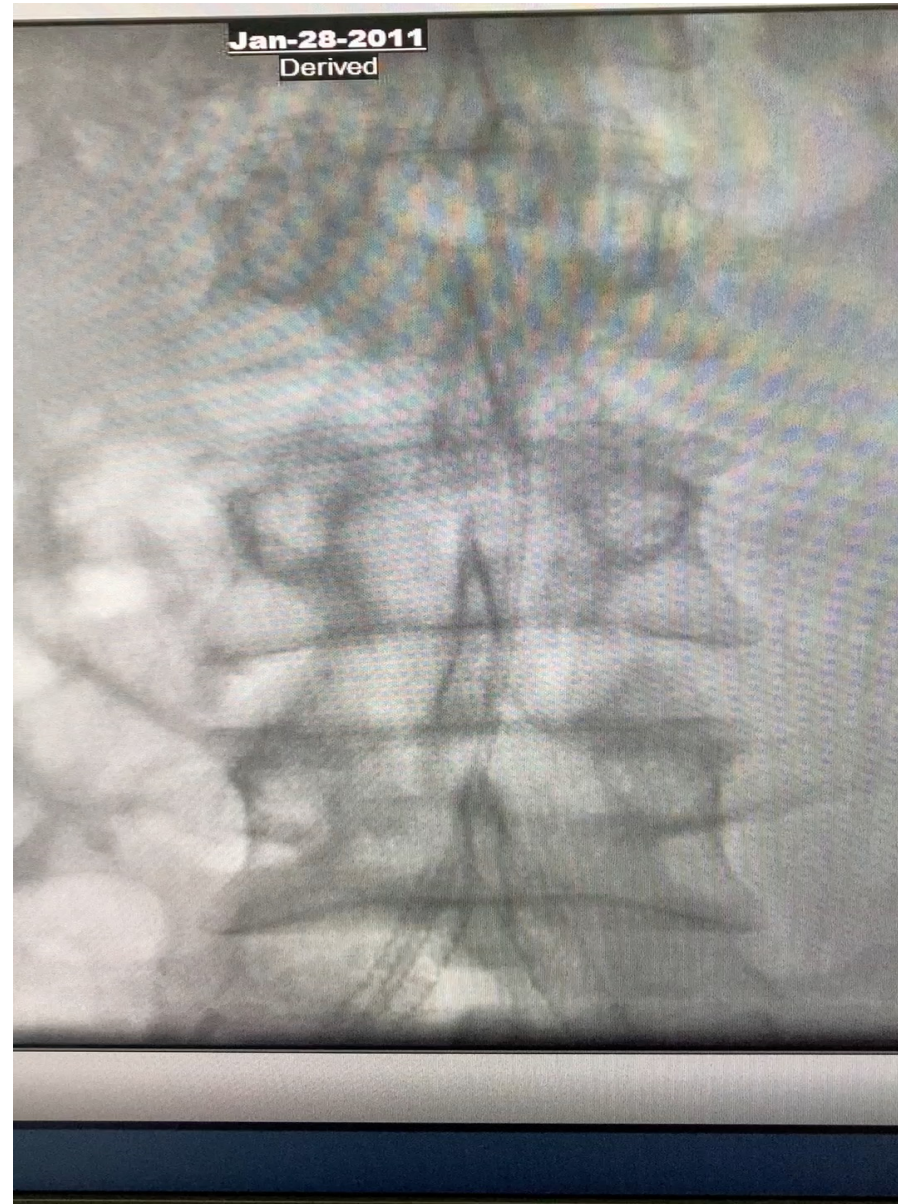
# Percutaneous Intervention

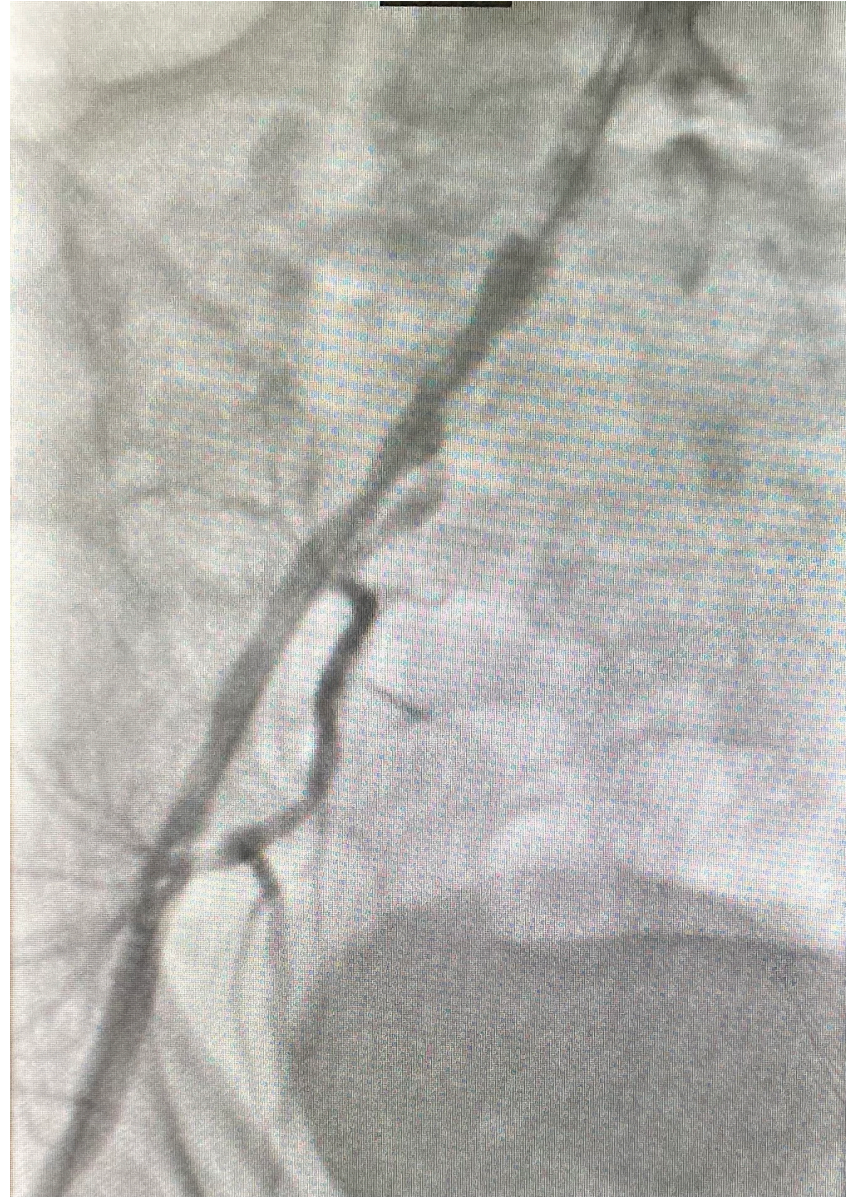




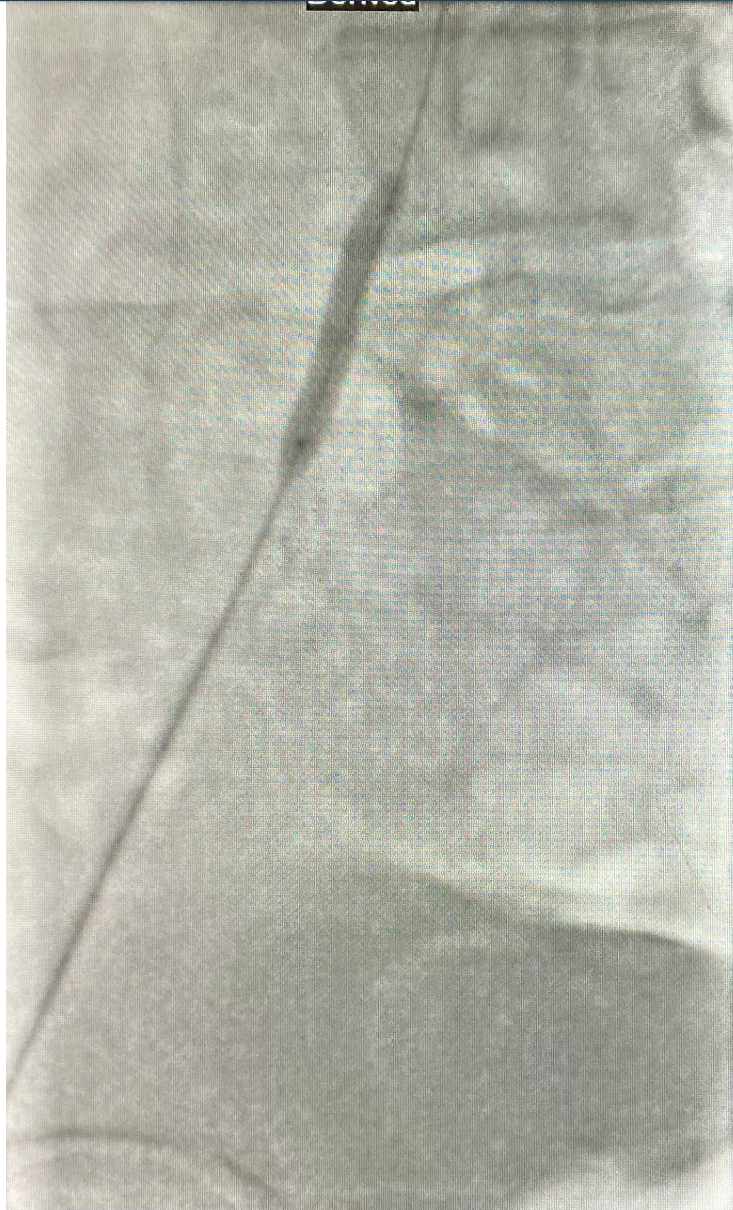
# Iliac Stenting

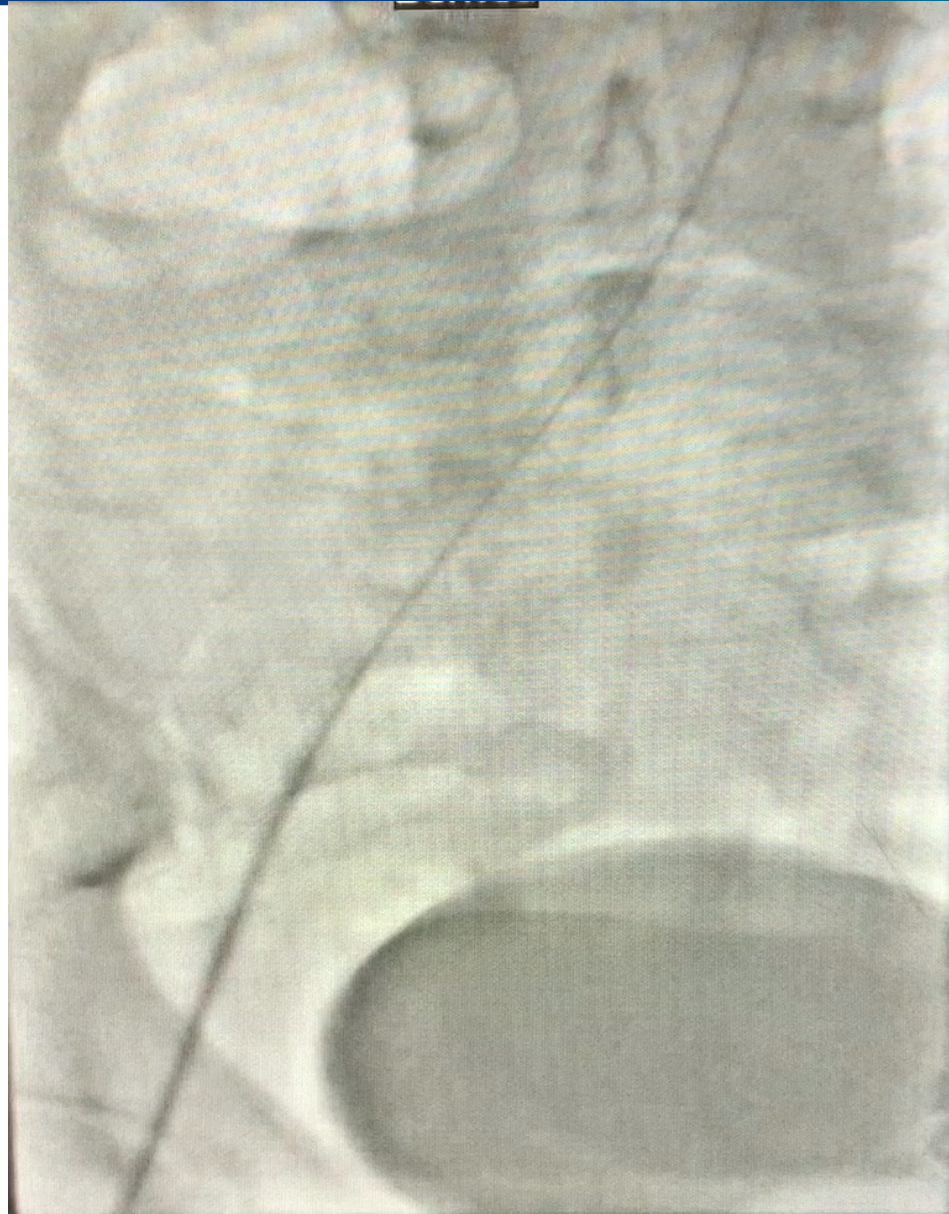




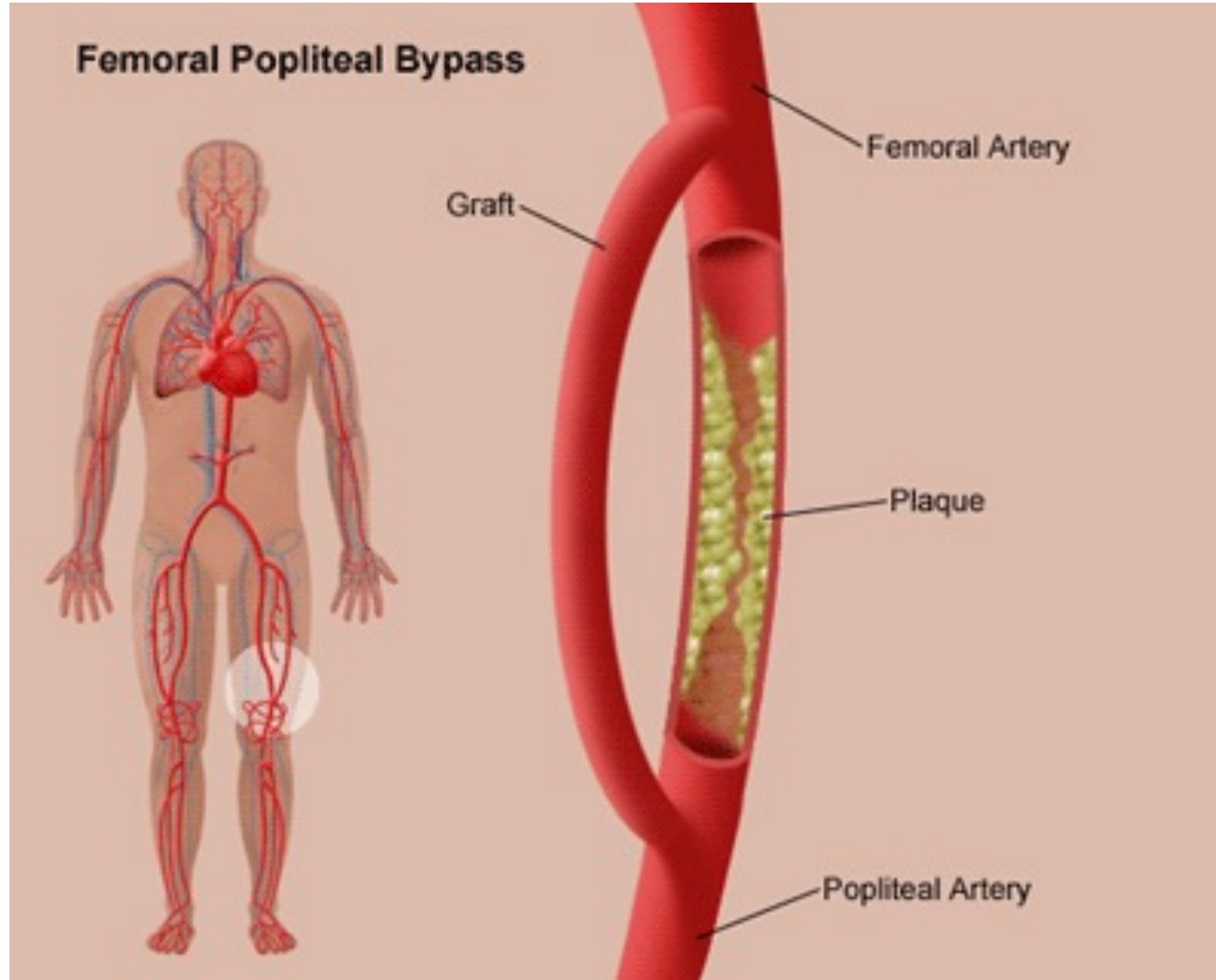


# SFA Stenting









# Bypass Pre



# Bypass Post



# Why Treat Peripheral Vascular Disease?

- **Cardiovascular Morbidity and Mortality** — Nonfatal myocardial infarction or stroke in 20 percent, and death in 15 to 30 percent (three-quarters due to cardiovascular causes); an association between cardiovascular disease and PAD has been noted in multiple studies [[43,44,46](#)]. The importance of PAD as a marker for coexistent coronary artery disease cannot be understated.

# Questions?

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