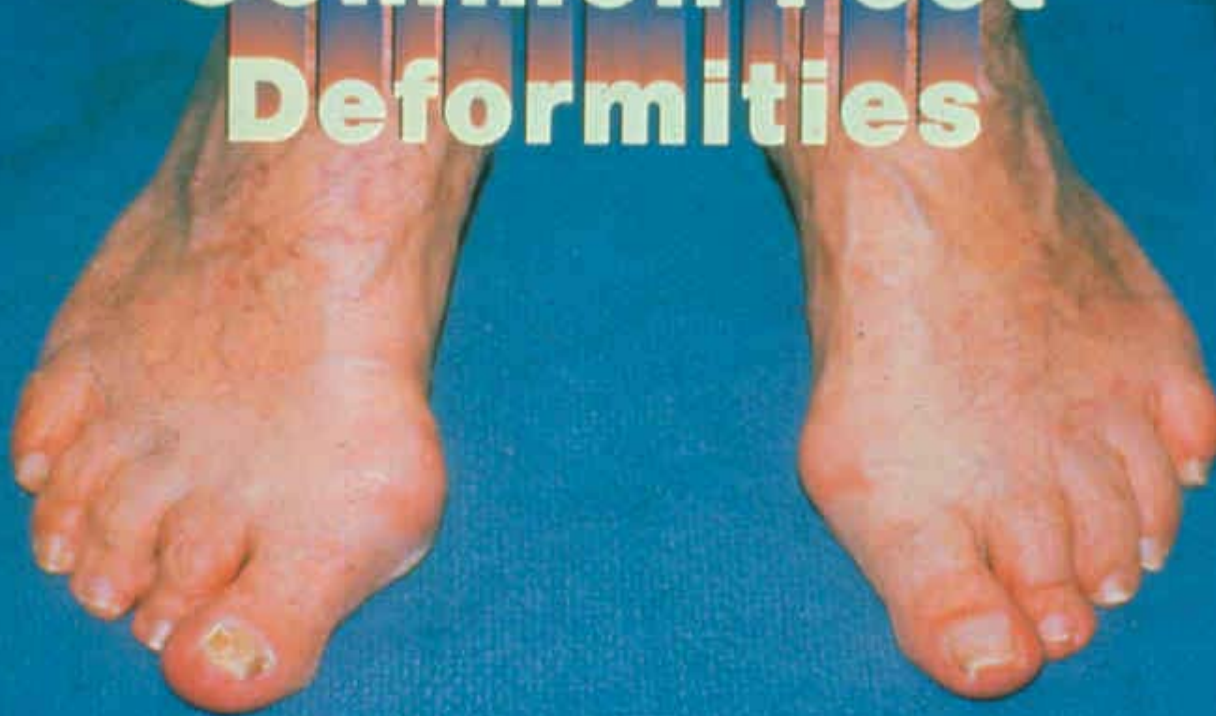


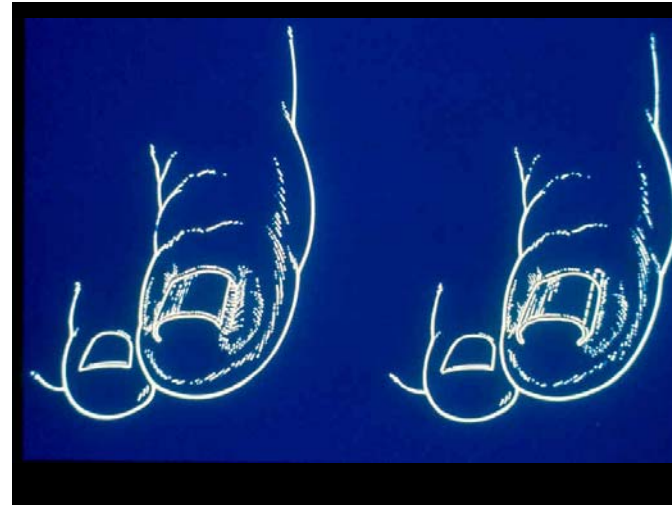
Common Foot Deformities



Dr. Frank Galbraith

Ingrown Toenails

- Paronychia (infected toenail)
- Onychomycosis (fungal nails)
- From improper trimming, leaving nail sharp corners
- Curved nails
- Thick (Hypertrophic) ingrown toenail



Treatment

- Oral antibiotics, if indicated
- Ingrown toenail portion needs to be removed/avulsed
- Nail avulsion or permanent removal with Phenol



Thick Toenails/ Hypertrophic Toenails

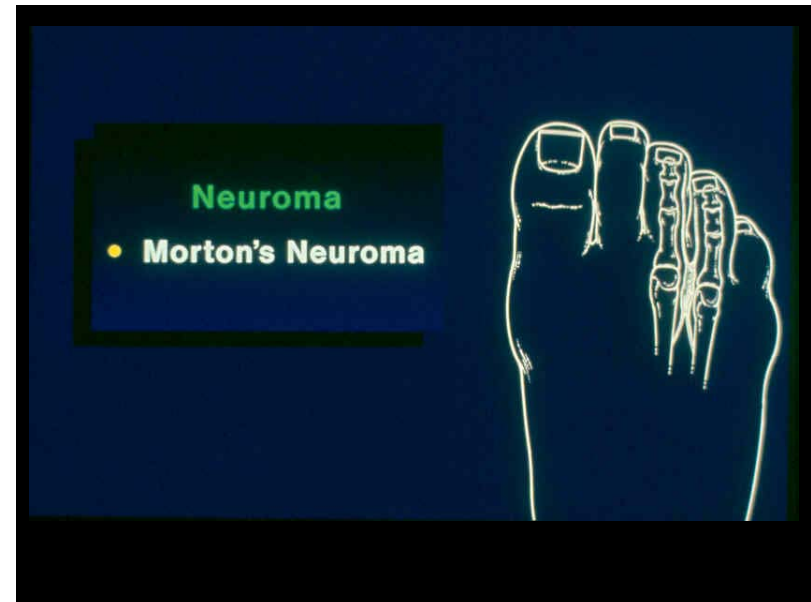
- From trauma
- Mycosis/Fungal Infection
- Thick Toenails need to be trimmed every 8-12 weeks or removed



Morton's Neuroma

Nerve Entrapment/Thick Nerve

- Not a true tumor
- Secondary to repetitive nerve irritation
- Usually third web space between toes
- Rarely first or fourth web space between toes
- Thickened nerve if pinched and painful with weight-bearing

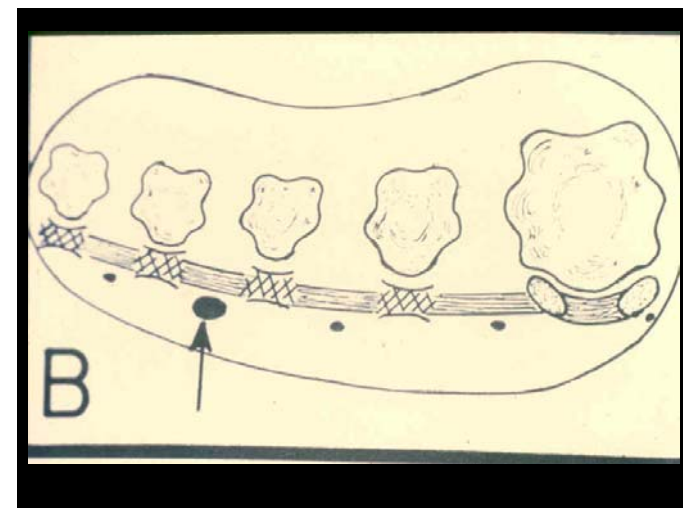
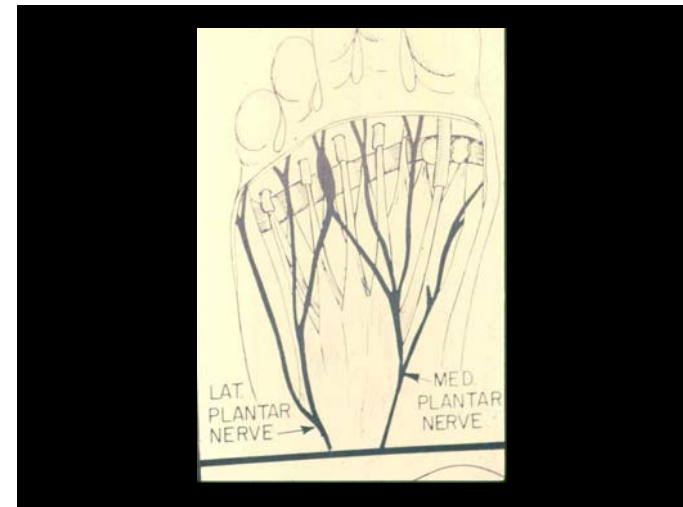


Symptoms

- Burning
- Pins and needles sensation
- Numbness of one or two toes
- Associated with weight bearing
- Relieved by rubbing foot

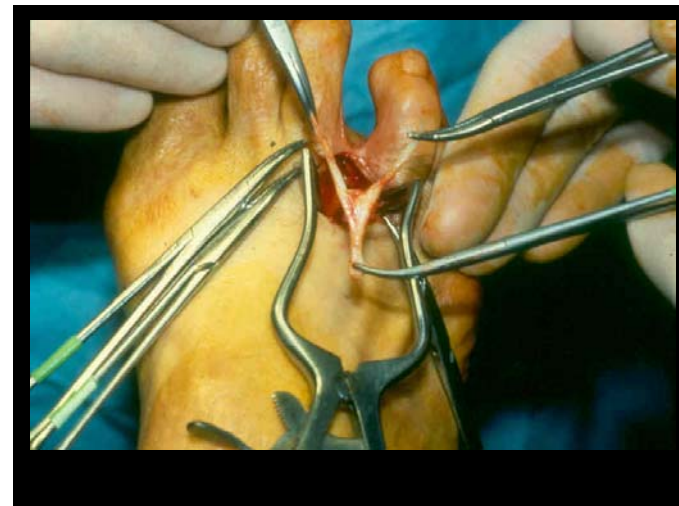
Exam for Morton's Neuroma

- Squeeze the forefoot/metatarsal heads together and up against nerve in the second and third space between toes
- Can get a popping sensation
- Rule out metatarsal heads or sore inflamed areas of the points in the ball area (referred to as capsulitis), by pressing against ball of foot area



Treatment of Morton's Neuroma

- Steroid injection into webspace
- Surgery



Plantar Verruca/Warts

- Papilloma virus
- Disrupt skin lines
- Warts are vascular, calluses are not vascular



Treatment of Verruca (Warts)

- More resistant in adults
- Trim lesion and 26% Sal Acid BID and be seen in 2 weeks
- Add Duct Tape
- Currettement can result in scarring and permanent pain

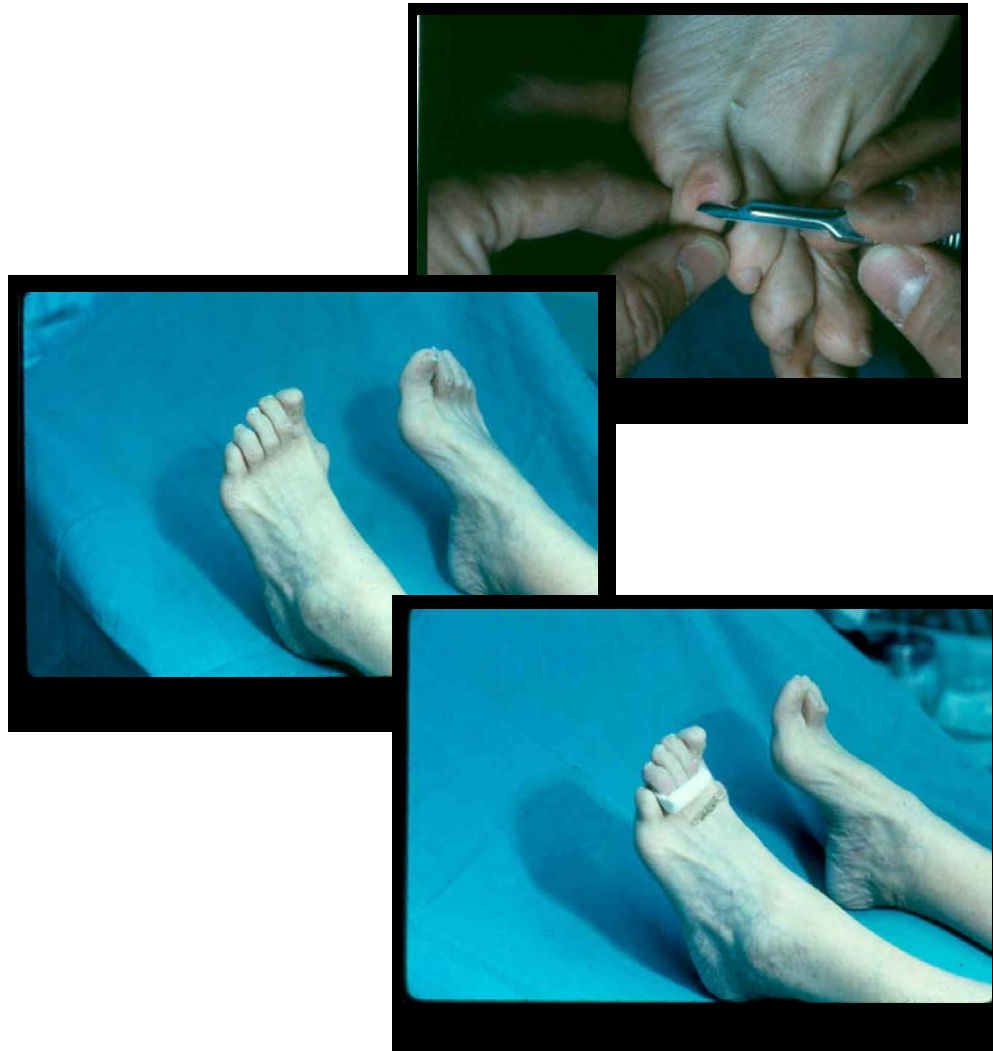
Corns and Calluses

- Very thick lesions usually over a bony prominence
- Corns on toes
- Calluses on ball area



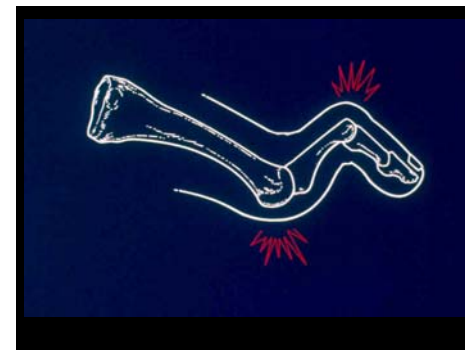
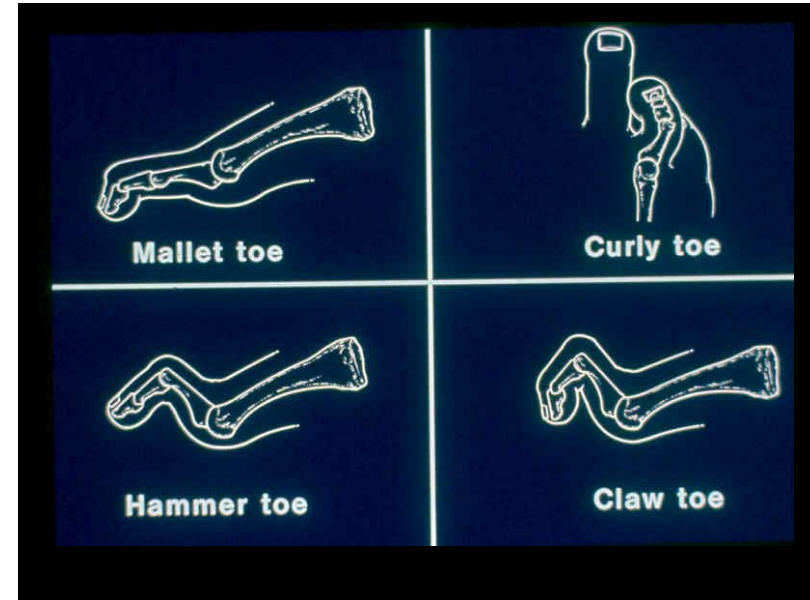
Treatment of Corns and Calluses

- Trim
- Pads
- Soft foot orthotics
- Proper shoes
- Depth shoes
- Surgery if conservative care fails



Toe Deformities

- Mallet toe – joint contracture at end of toe
- Hammertoe – joint contracture at mid toe
- Claw toe – contracture of multiple joints
- Curly toes – toes deviating left or right
- Toe contractures increase pressure on ball area

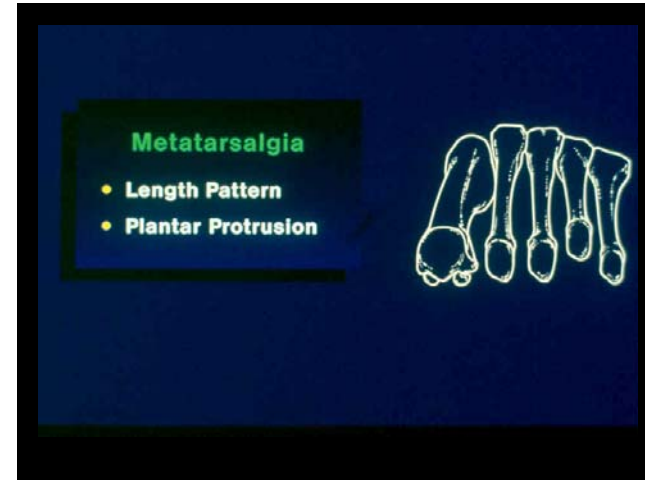


Treatment of toe deformities

- Shoes – large toe-box area
- Extra depth shoes
- Trim corns
- Pads
- Surgery if conservative care fails

Calluses

- Caused by pressure & friction
- Usually on the ball or heel area of the foot
- Long or prominent metatarsal bones in the ball area can cause calluses to form



Treatment

- Trim callous
- Pads, insoles
- Soft foot orthotics
- Running shoes
- Firm sole
- Surgery – shortening or removal of bone
- Patients need to have calluses trimmed every 4-16 weeks



Running Shoes



Shoe Insoles



Depth Shoes

Metatarsal Stress Fracture

- March fracture – men in the military standing for long hours
- Fatigue fracture
- Second metatarsal bone most common
- Sudden onset of pain
- May take over two weeks to demonstrate on x-rays. A bone scan will be positive within five days.



Exam Stress Fracture

- Sudden onset of pain & swelling in the forefoot
- Fracture could be unstable if located in neck or shaft

Treatment

- Removable cast for 4-6 weeks
- Improper treatment could result in an unstable fracture site and displaced metatarsal bone. This would result in increased stress load to the adjacent metatarsal bones

Bunionette – Tailor's Bunion

- Enlargement of bone on the outside of the foot behind the 5th toe
- Usually female
- Aggravated by tight shoes



Bunionette – Tailor's Bunion

Treatment

- Lots of room in the toe-box area of shoes
- Surgery – Bone removal of fifth metatarsal bone



Bunions / Hallux Valgus

- Swelling or enlarged area just behind the Great Toe
- Familial tendency
- Usually female
- Aggravated by enclosed shoes
- Irritation of nerve that crosses the bunion may cause pins and needles type sensation or numbness over parts of the Big Toe



Exam of Bunion / Hallux Valgus

- Is there pain when the Great Toe Joint is Moved?
- Size of Bunion



Treatment of bunion

- Lots of room in toe-box area of shoes
- Pads
- Larger Bunions are more difficult to treat with pads and shoes
- Surgery- removing bone prominence by cutting and repositioning the bone



Arthritic Bunion/Hallux Rigidus

- Limited motion in Great Toe Joint
- Increased pain when walking

Treatment

- Shoes – stiff sole and large toe-box area
- Surgery if conservative care fails



Rheumatoid Arthritis

- Usually involves foot
- Deviated toes
- Contracted toes
- Fat pad moves forward causing increased pressure on metatarsal bones
- Plantar calluses and corns



Treatment of Rheumatoid Arthritis

- Trim calluses
- Soft insoles
- Extra depth or custom made shoes as needed
- Soft foot orthotics
- Surgery if conservative care fails

Haglund's Deformity Calcaneus/Heel Bone

- Pump bump
- Bursa swelling on the back of the Heel Bone secondary to a firm Shoe heel counter rubbing against a prominent bone



Treatment

- Sandals
- Soft heel counter
- Corticosteroid injection (stay away from achilles tendon)
- Elastic socks
- Surgical excision of bone

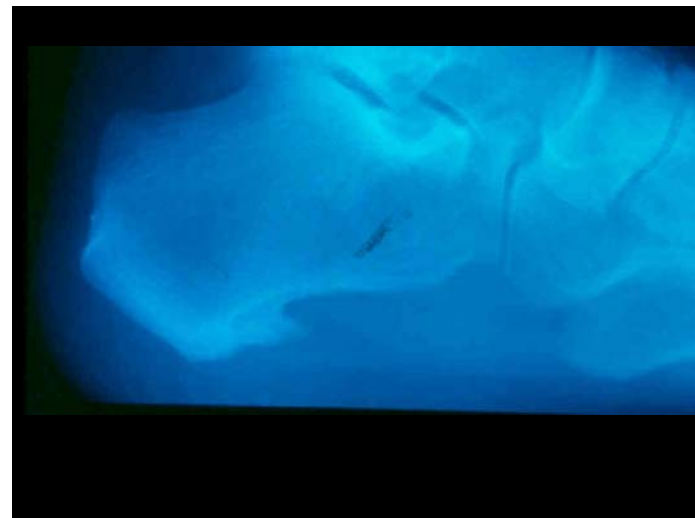
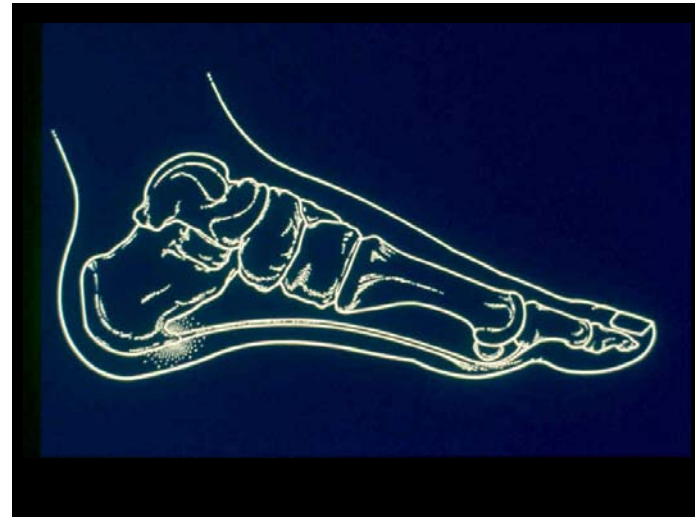
Heel Pain/Plantar Fasciitis

Symptoms (with or without heel spur)

- Pain in bottom of heel and/or arch
- Increased pain in morning
- Increased pain with activity

Exam

- Check for pain in Heel and Arch
- Check for calf tightness for flexibility
- Is patient Obese?



Heel Pain Treatment

Over the counter shoe inserts



Custom Orthotics

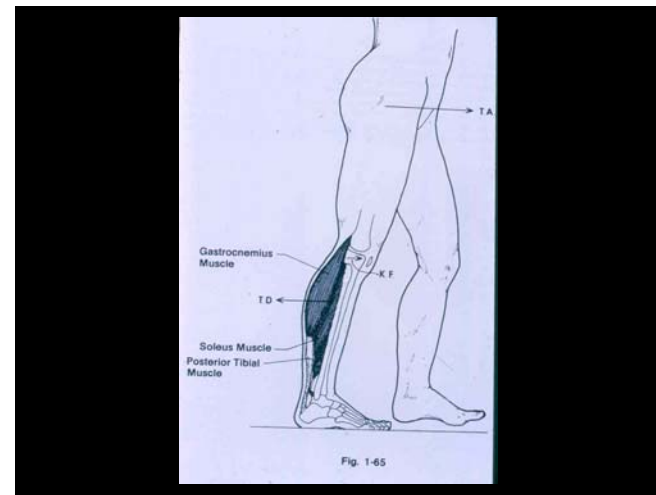
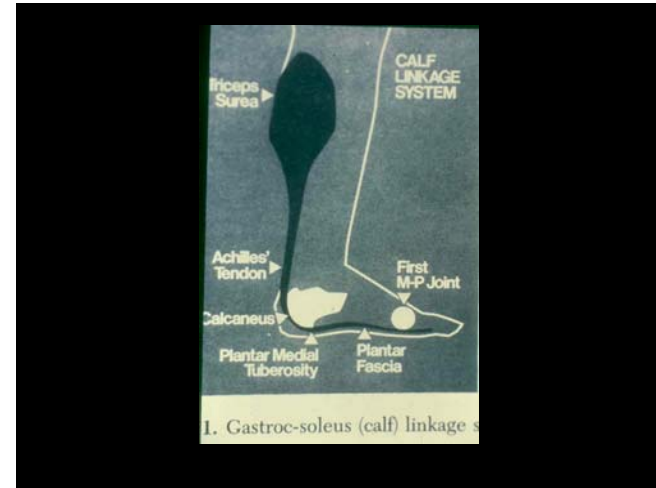


Removable Boot Cast
(2-6 weeks)



Heel Pain Treatment (cont.)

- Calf stretching
- NSAIDS's
- Steroid injections



Heel Pain Treatment (cont.)

- Night splints for early A.M. pain
- Running shoes
- Rarely surgery – Incise the plantar fascia 30% of cases will develop pain on outside of foot



THE DIABETIC FOOT



Pathophysiology

- Neuropathy: Nerve Function
- Vasculopathy: Circulation/Blood Supply
- Infection
- Deformity: Bunion, Contracted Toe, Flat Feet

Neuropathy

- Sensory : Sensation to Skin
- Motor : Muscle control of foot and toes
- Autonomic : Dry Skin

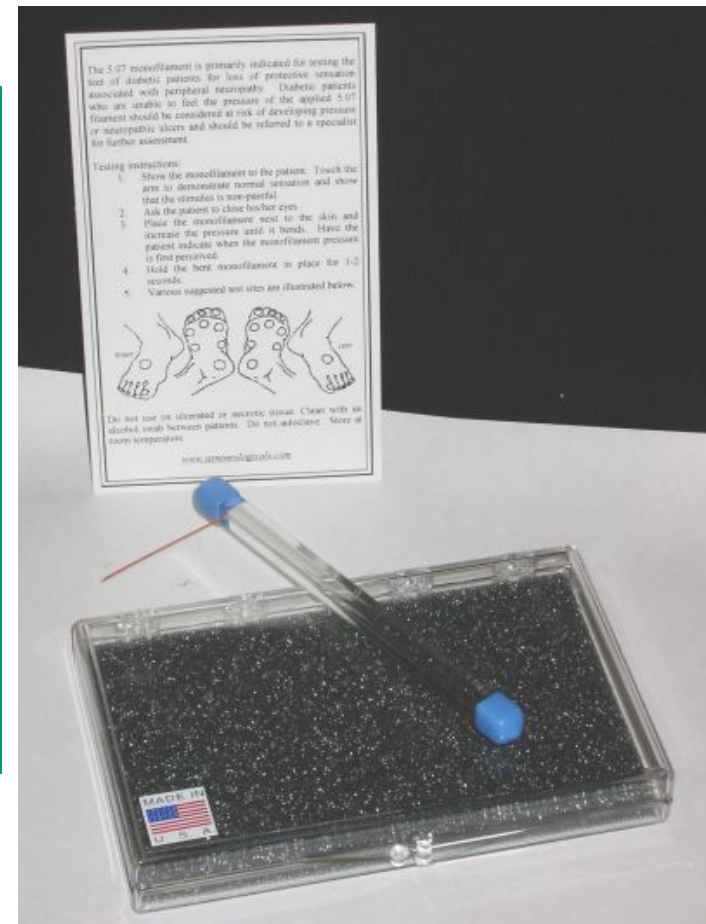
Sensory Neuropathy

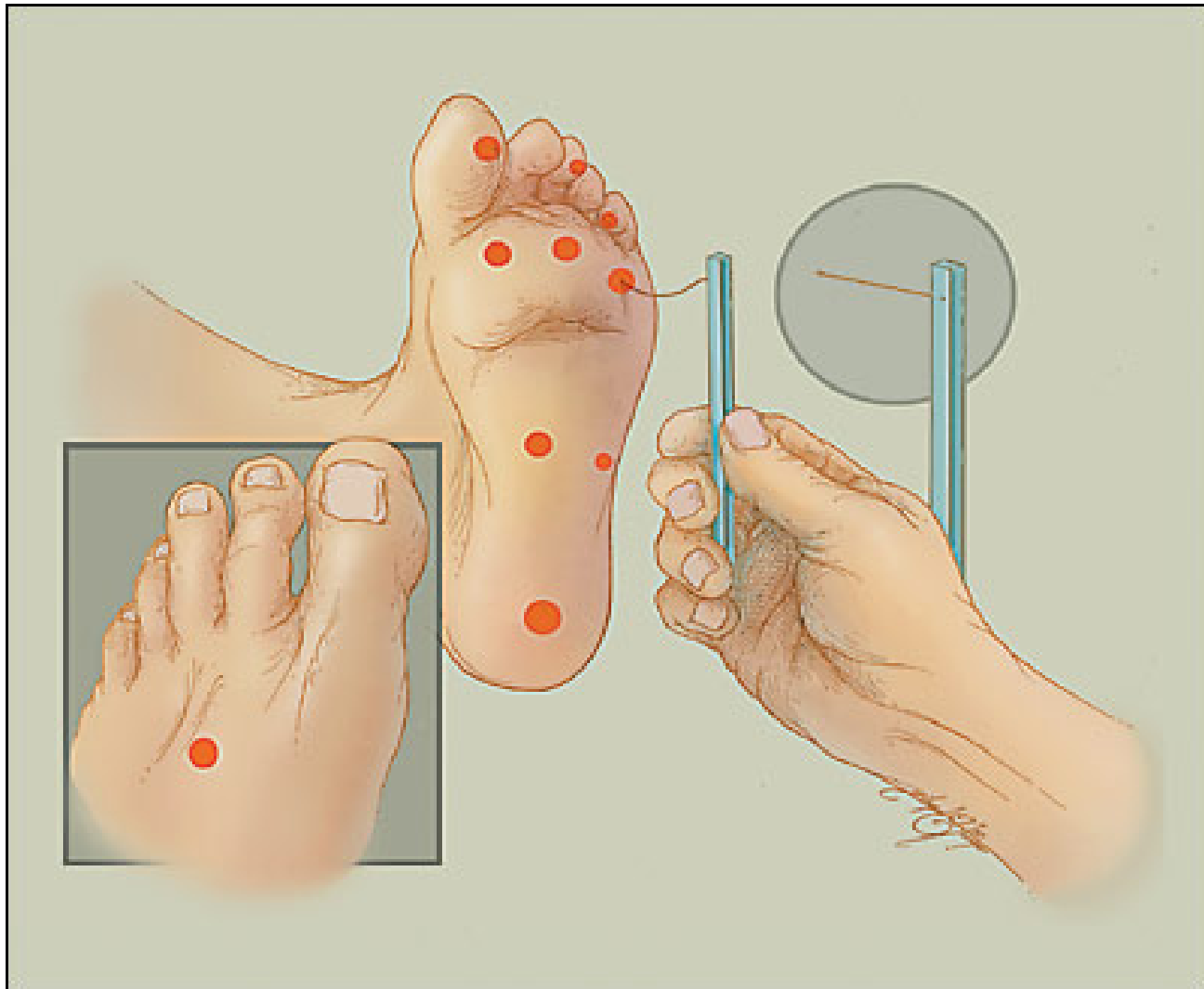
Nerve Changes

- Primary Cause of foot sores : Loss of sensation to the toes
- Stocking distribution : Usually the Toes, and gradually the whole feet become numb

Diagnosis of sensory Neuropathy (loss of sensitivity)

- Light touch to the feet
- Pin prick
- Semmes-Weinstein
Monofilaments





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Inability to feel the filament means increased risk for sores forming on the feet



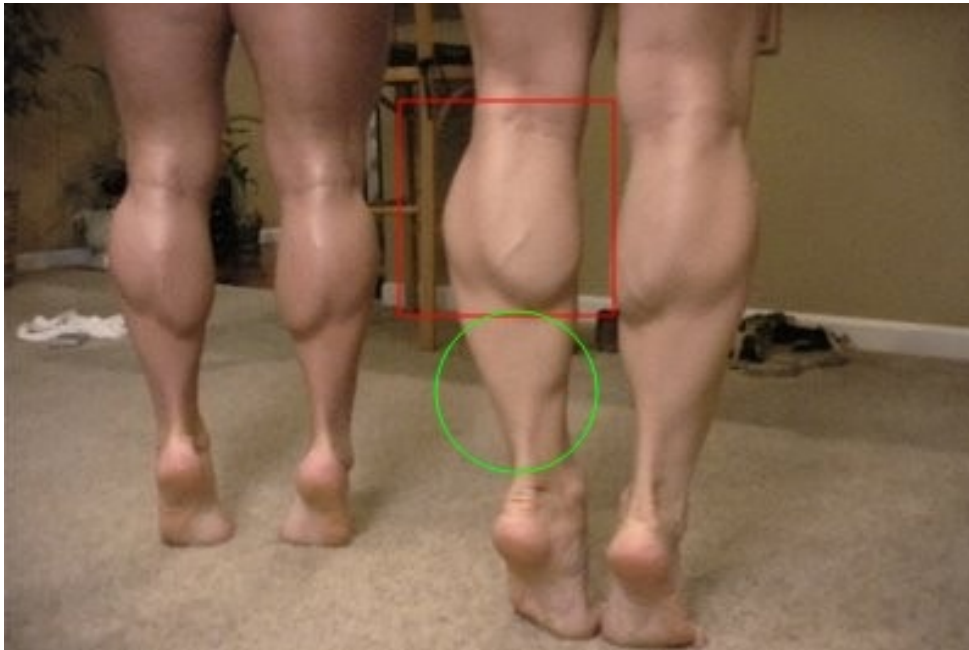
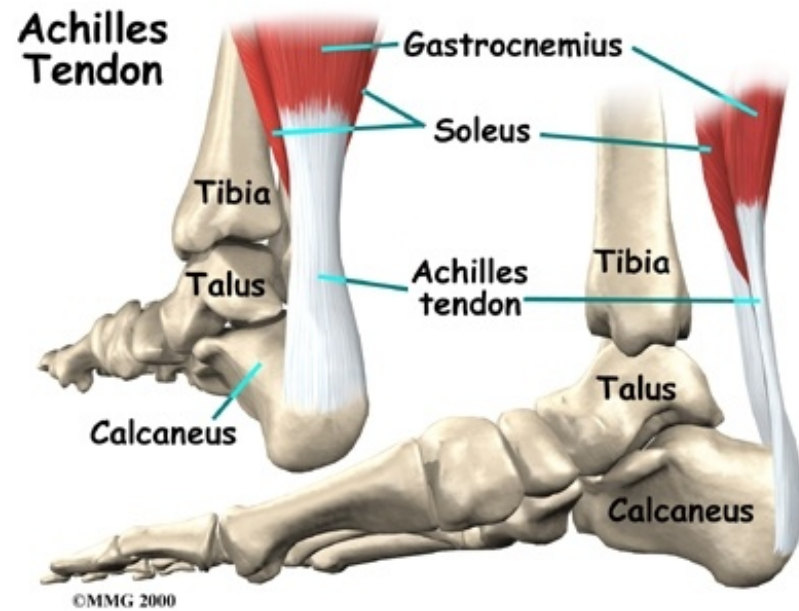
Motor Neuropathy

(nerve changes that control Muscles in the feet)

- Small Muscles in foot become weak and toes contract
- Shortening of Gastroc-Soleus – Heel Cord



Gastroc-soleus (heel cord)





Tight heel cords lead to increased pressure on the Ball of the feet. This can result in an open sore (foot Ulcer)

Autonomic Neuropathy

(nerves changes that control sweating, skin temp, etc.)

- Loss of normal sweating and skin temperature regulation
- Dry skin
- Skin fissures (cracks) lead to infection



Vasculopathy

(blood supply)

- Atherosclerotic occlusive disease
- Blood vessels can become occluded (narrowing or clogged), resulting in decreased blood flow to the foot
- Small vessel disease



Diabetic Foot Sores (Ulcers) May Not Be Painful (Diabetic Neuropathy)

- Diabetes can cause a loss of sensation to the skin
- Open sores (Ulcers) can develop
- If there is pain with the open sore it is most likely due to poor circulation (ischemia)



Infection With Diabetes

- Diabetics can handle infection poorly
- More than one type of bacteria can invade tissue (polymicrobial)
- Wide spectrum antibiotics given for infection
- Infected dead tissue needs to be removed (debridement)

Types of Infection

- Cellulitis: Infections of the skin
- Abscess: Drainage with inflamed tissue
- Osteomyelitis: Bone infection

Septic Foot



Foot Deformities

Diabetic Foot

- Open sores (ulcers) caused by insensitivity and pressure
- Pressure caused by bone deformities
- Hammertoes
- Bunions
- Metatarsal deformities

Prominent deformities
cause increased
pressure that can result
in a foot ulcer



Clinical Problems

- Open sore formation (Ulceration)
- Infection
- Charcot Joints : Total collapse of the arch

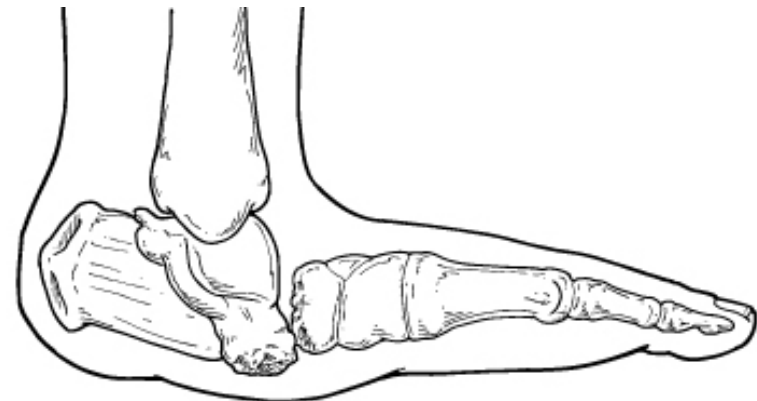
Diabetic Foot Sore (Ulceration)

Most Common Problems

- Pressure causes sores (Ulcers) to form
- Poor circulation (ischemia) causes gangrene
- Ball of foot most common area for ‘ulcers’ to form
- ‘ulcers’ mid foot caused by collapsed arch (Charcot foot)
- Toe ‘ulcers’ form on top and ‘tips’ of toes

Charcot Joints

- Collapse of the foot causing joint destruction due to 'neuropathic' disease: Syphilis 1868
- Today leading cause of Charcot joint changes is Diabetes



Charcot Foot

Signs and Symptoms Charcot Foot

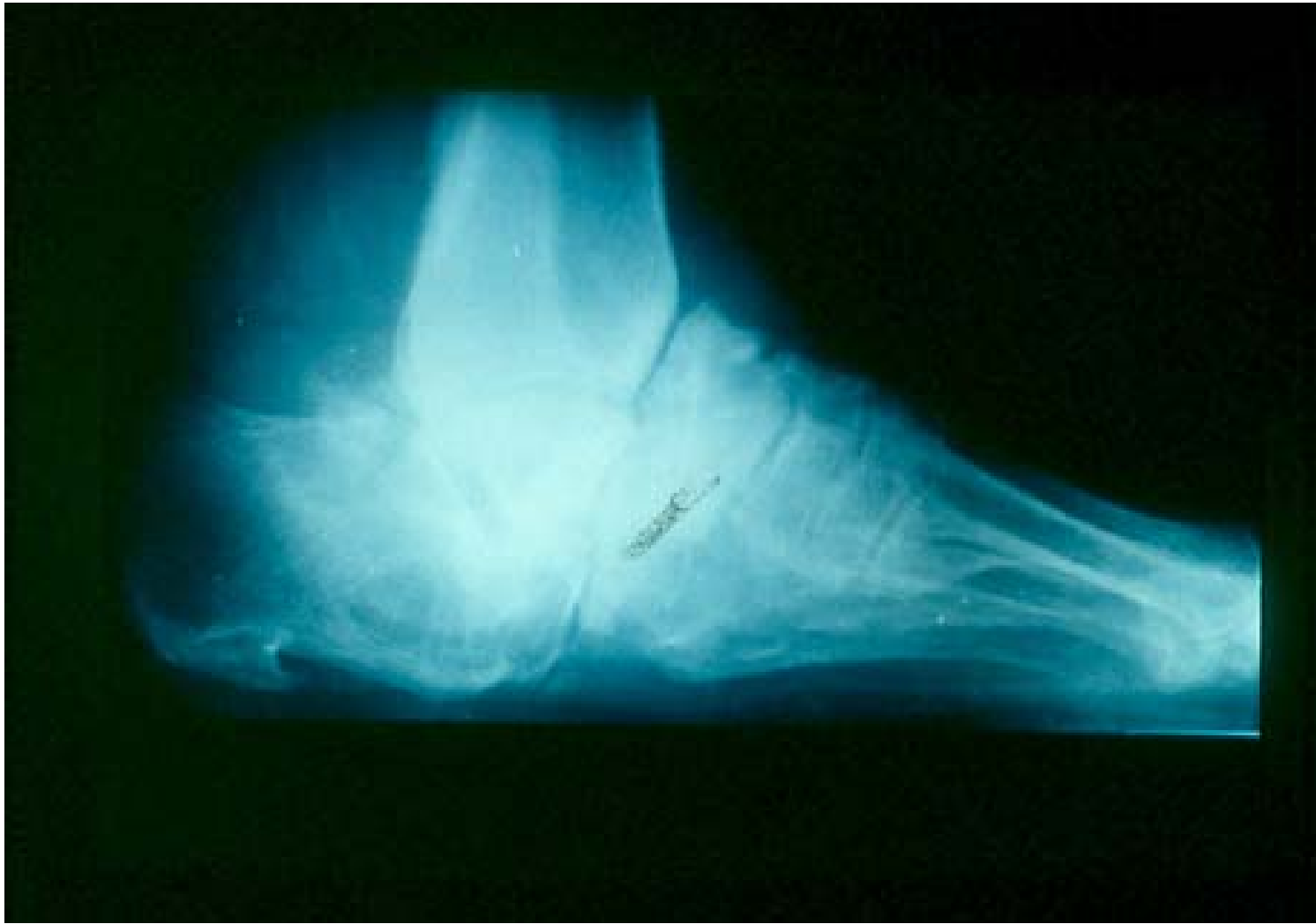
- Unexplained Swelling
- Inflammation
- Hot, red foot easily mistaken for infection



Charcot Foot

Clinical Problems

- Massive disruption of Skeletal structure
- Collapse of arch
- Rocker bottom foot
- Bone infection
- Amputation





Patient Education

- Do's
- Don'ts
- When to see the Doctor



INSPECT DAILY



Avoid Bare Feet

Wear appropriate shoes



Wear appropriate socks

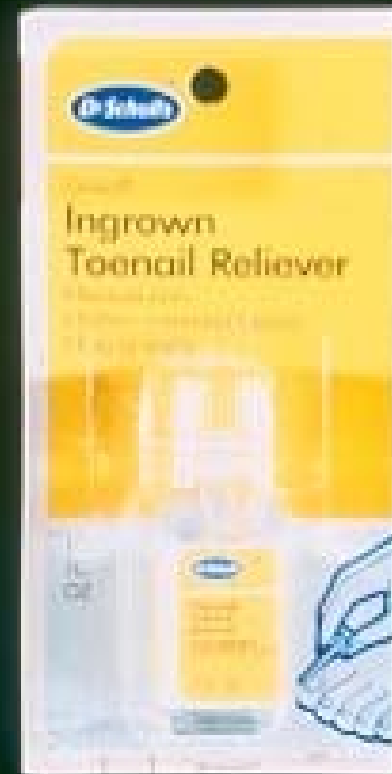
**DIABETIC
SOCKS**





Avoid Heat





towels. Warts can be contagious.

Using the control-flow plastic applicator, apply one drop at a time until wart is covered. Do not apply to surrounding skin. Replace cap tightly.

Lightly cover the wart with the special adhesive pad. This cushions plantar warts, and when applied to warts on the hand helps to prevent infection. Continue treatment for 6 days. Repeat for an additional 6 days, if necessary.

WARNINGS: Do not use if you are a diabetic or have poor circulation or if there is any inflammation or irritation of the affected area. Do not use on moles, birthmarks, unusual warts with hair growing from them, genital warts or warts on the face or mucous membranes. Discontinue use if excessive irritation occurs. Do not use near eyes. If spilled on eyes, flush with water to remove film and flush with water an additional 15 minutes. Avoid inhaling vapors. Highly flammable. Do not use near fire or flame. Store at room temperature. For external use only.

Keep out of reach of children. In case of accidental ingestion seek professional help or contact a Poison Control Center immediately.





No Smoking



Preservation of Blood Supply

Break in shoes



"They're a bit tight!" says the new-shoe buyer. So a breaker-inner goes to work. Boy, it's a tough job!

Novel Service Breaks In New Shoes

BREAKING in stiff new shoes for persons with tender feet or for women who want to squeeze a size-eight foot into a size-six shoe, is one of the unique services performed by the operators of a New York City firm. A corps of girls takes on this unenviable task,

while the proprietors busy themselves with other unusual requests of clients, such as filling a midnight call for a violinist to play a sick child to sleep, and first scouting around for and then purchasing two penguins as a present for a pet lover.



No bathroom
surgery for
Diabetic
Patients





Diabetic Routine Foot Care

- Corns
- Calluses
- Ingrown Toenails

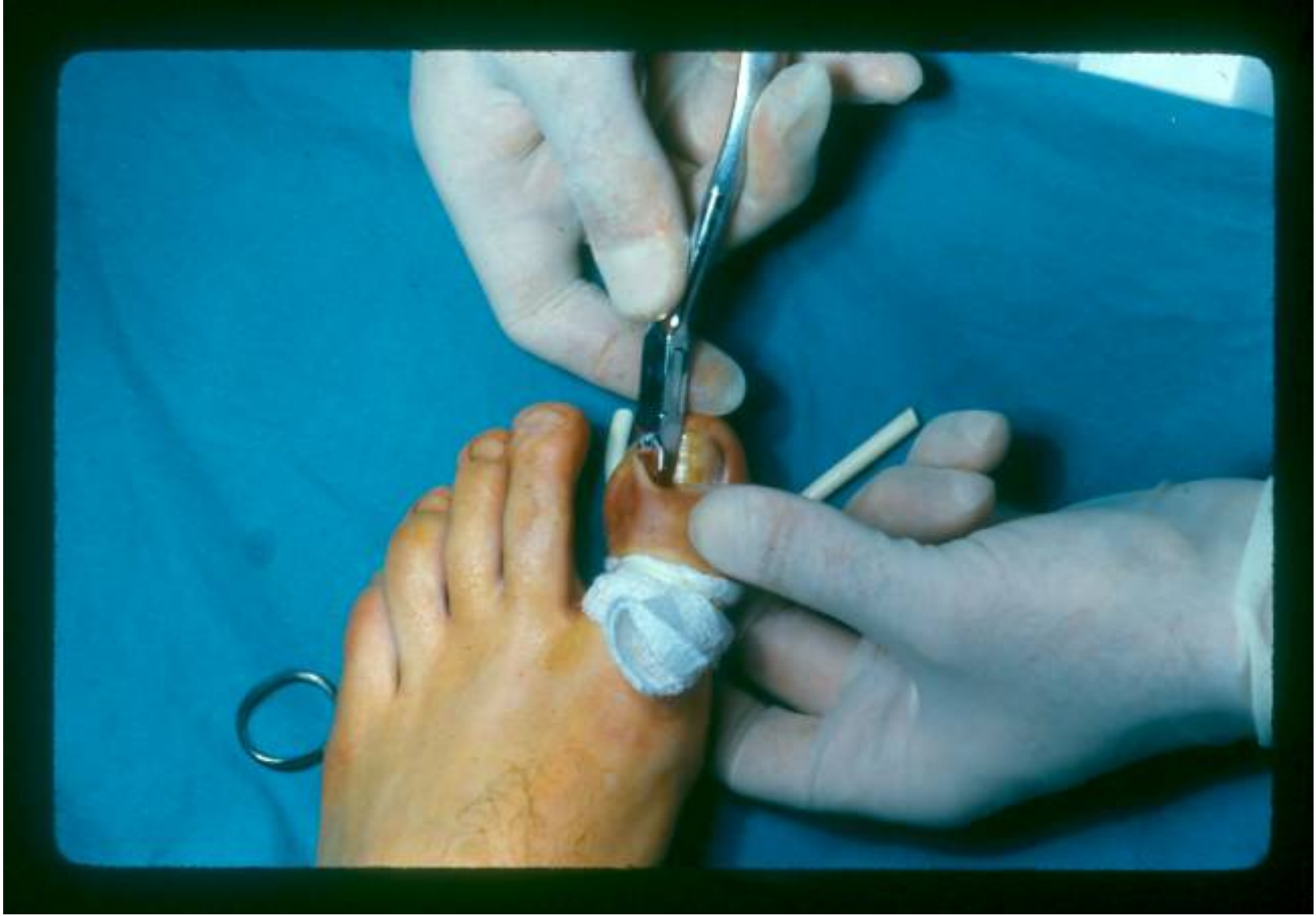














Proper Shoes

- Over the counter shoes
- Diabetic shoes
- Extra Depth Shoes
- Custom Shoes



Depth shoes



SUPER DEPTH SHOES











Casting for custom shoes





Ulcer Classification

- Grade 0 – No ulcer, high risk
- Grade 1 – Superficial ulcer
- Grade 2 – Deep ulcer, no bony involvement
- Grade 3 – Bony involvement
- Grade 4 – Localized gangrene
- Grade 5 – Gangrene, whole foot

GRADE



Superficial ulcer,
especially first
metatarsal head

GRADE



Deep ulcer,
no bony
involvement

GRADE



Localized
gangrene,
toes or forefoot

GRADE



Gangrene,
whole foot

nt

1/2 1/2

Management of Grade 1 and some Grade 2 Ulcers































The goal of Diabetic Foot care:

Prevent this!



Thank You

Dr. Frank K. Galbraith DPM

