Practical demonstration of how you can simply diagnose foot deformities and pressure abnormalities

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DIABETES MELLITUS

- Limited joint mobility
- Neuropathy
  - motor
  - sensory
  - autonomic
- Angiopathy

- foot deformities
- loss of protection
- increased vulnerability

- hypertension
- lipids
- smoking
DIABETES MELLITUS

Limited joint mobility

Neuropathy
  - motor
  - sensory
  - autonomic

Angiopathy

foot deformities

loss of protection
increased vulnerability

hypertension
lipids
smoking
Foot deformities

• Diabetes-related deformities

• Deformities independent of diabetes
  – Malposition of toes (Hallux valgus, Hallux rigidus)
  – Malposition of the foot
  – Deformities following trauma or surgery
DIABETES MELLITUS

- Limited joint mobility
- Hypertension
- Lipids
- Smoking
- Neuropathy
  - Motor
  - Sensory
  - Autonomic
- Angiopathy
- Foot deformities
- Increased plantar pressures
- Loss of protection
- Increased vulnerability
Biomechanics of Diabetic Foot Ulcers

- Foot deformities

Sumpio, 2000
Biomechanics of Diabetic Foot Ulcers

- Altered properties of soft tissues

Sumpio, 2000
Biomechanics of Diabetic Foot Ulcers

- Abnormalities in gait pattern

Sumpio, 2000
Excessive and (or repetitive) pressures as causative reasons for skin breakdown

- Increased magnitude
- Increased numbers
- Increased duration

Kosiak, 1959
Excessive and (or repetitive) pressures as causative reasons for skin breakdown

• **Increased magnitude**
  - step on a nail or a piece of glass

• **Increased number of pressures**
  - insensitive skin and subcutaneous tissue of the neuropathic foot (failure of a structure or biological tissue at a submaximal level to maintain integrity)

• **Increased duration**
  - ill-fitting footwear, prolonged resting of a heel on a bed
The Diabetic Foot Examination
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1. Gross Inspection
The Diabetic Foot Examination

1. Gross Inspection
   • Corns
The Diabetic Foot Examination

1. Gross Inspection
   - Corns
   - Calluses
The Diabetic Foot Examination

1. Gross Inspection
   - Corns
   - Calluses
   - Common foot deformities
     - bunions
     - prominent metatarsal heads
     - hammertoes
The Diabetic Foot Examination

1. Gross Inspection
   - Corns
   - Calluses
   - Common foot deformities
     - bunions
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     - claw toes
The Diabetic Foot Examination

1. Gross Inspection
   • Corns
   • Calluses
   • Common foot deformities
     – bunions
     – prominent metatarsal heads
     – Hammertoes
     – claw toes
   • Neuroosteoarthropathy
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The Measurement of Pressure

- Foot print techniques
- Computerized pressure measurement techniques
The Measurement of Pressure

- **Barefoot measurement**
  - Demonstrates detailed effects of any foot deformity
- **In-shoe measurement**
  - Permits the actual assessment of the „unloading“ effect of different types of insoles, footwear or orthoses
The Visualization of Pressure

- Simple ink-based visualization of elevated pressures at MTHs 1 and 3 left and toe tips