The effect of foot posture on balance and gait

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Prezentacja egzaminacyjna z przedmiotu: Język angielski specjalistyczny

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Introduction

- The foot is the interface between body and ground, influencing **balance** and **movement,**
- The condition of the soles plays a critical role in the quality of daily activities such as **standing, walking, and running,**
- Any change in the structure of the sole, including **increasing or decreasing its arch**, is among the factors that expose the foot to overuse **injuries caused by physical activity**

Foot position

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Neutral position

- No **deviation** in any plane,
- The heel bone lump **supports** the body weight
- **Both longitudinal borders** are **parallel** to each other.
- **Even distribution of weight**: heads I and V of the metatarsus; medial and lateral edges of the foot

https://ponseti.pl/wp-content/uploads/2019/10/pi%C4%99ta-normalna-1.jpg

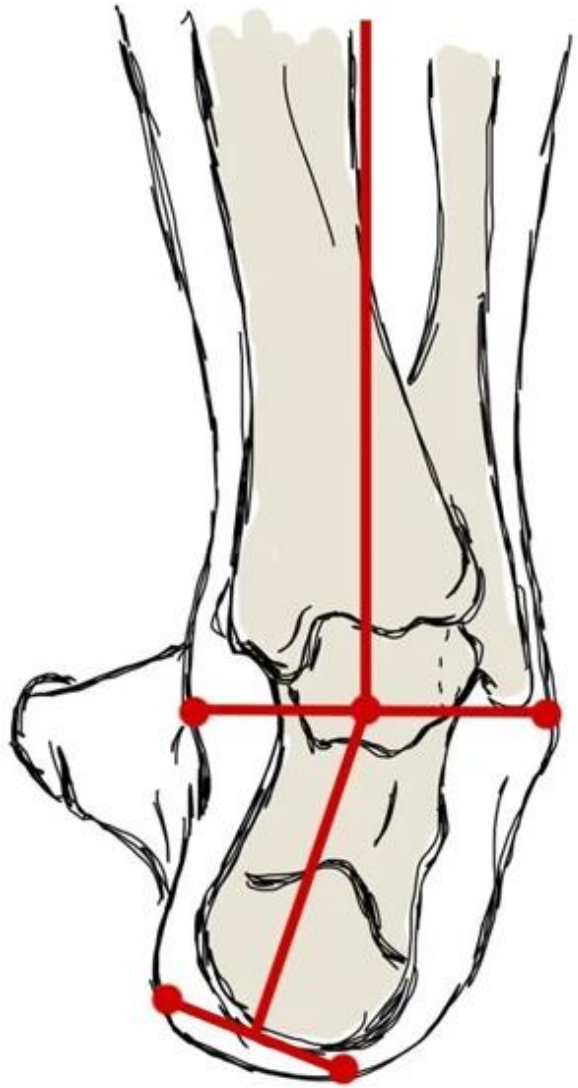
Supination movement

- A complex movement occurring during the gait cycle,
- It is a **natural** movement,
- It consists of **inversion**, **plantar flexion**, and **adduction,**
- **Provides the stability,**
- **In supination**, the heel bone always aligns in a **varus position**

https://ponseti.pl/wp-content/uploads/2019/10/supinacja.jpg

Excessive supination - varus deformity of the foot

- The heel bone rests on the **outer edge**,
- The heel bends **slightly downward**, causing **slight adduction** of the forefoot and an **excessive lift** of the medial arch.
- The foot is in **inversion.**



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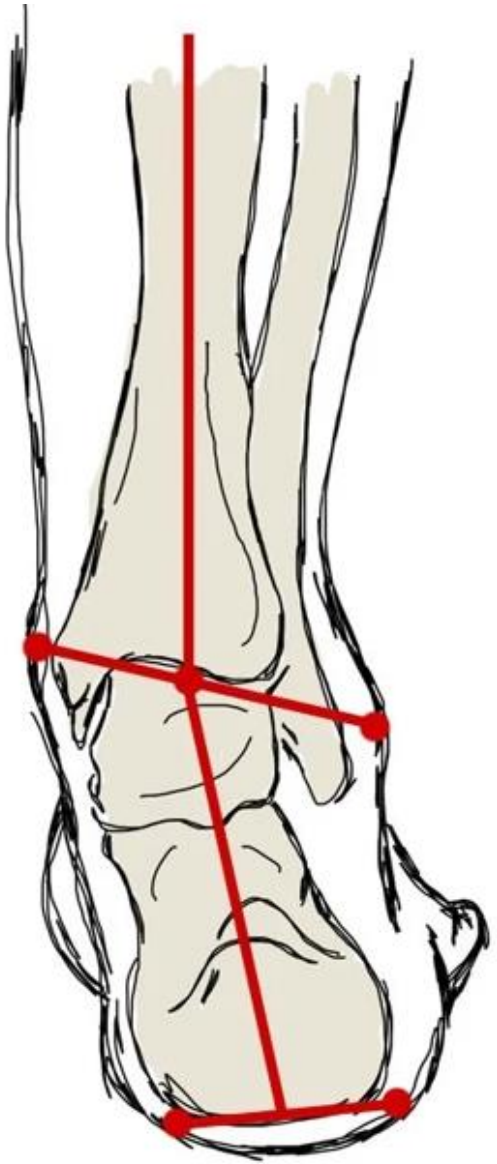
Pronation movement

- It is a **natural** part of walking,
- It consists of **eversion**, **dorsiflexion**, and **abduction**,
- The foot becomes **very flexible** and **has strong shock-absorbing** and **adaptive properties,**
- **In pronation**, the heel bone always aligns in a **valgus position**

https://ponseti.pl/wp-content/uploads/2019/10/pronacja.jpg

Excessive pronation - foot valgus

- The heel bone rests on the **inner edge,**
- The heel bone bends **slightly upward**, causing **slight abduction** of the forefoot and **lowering of** the medial arch.
- The foot is in **eversion.**



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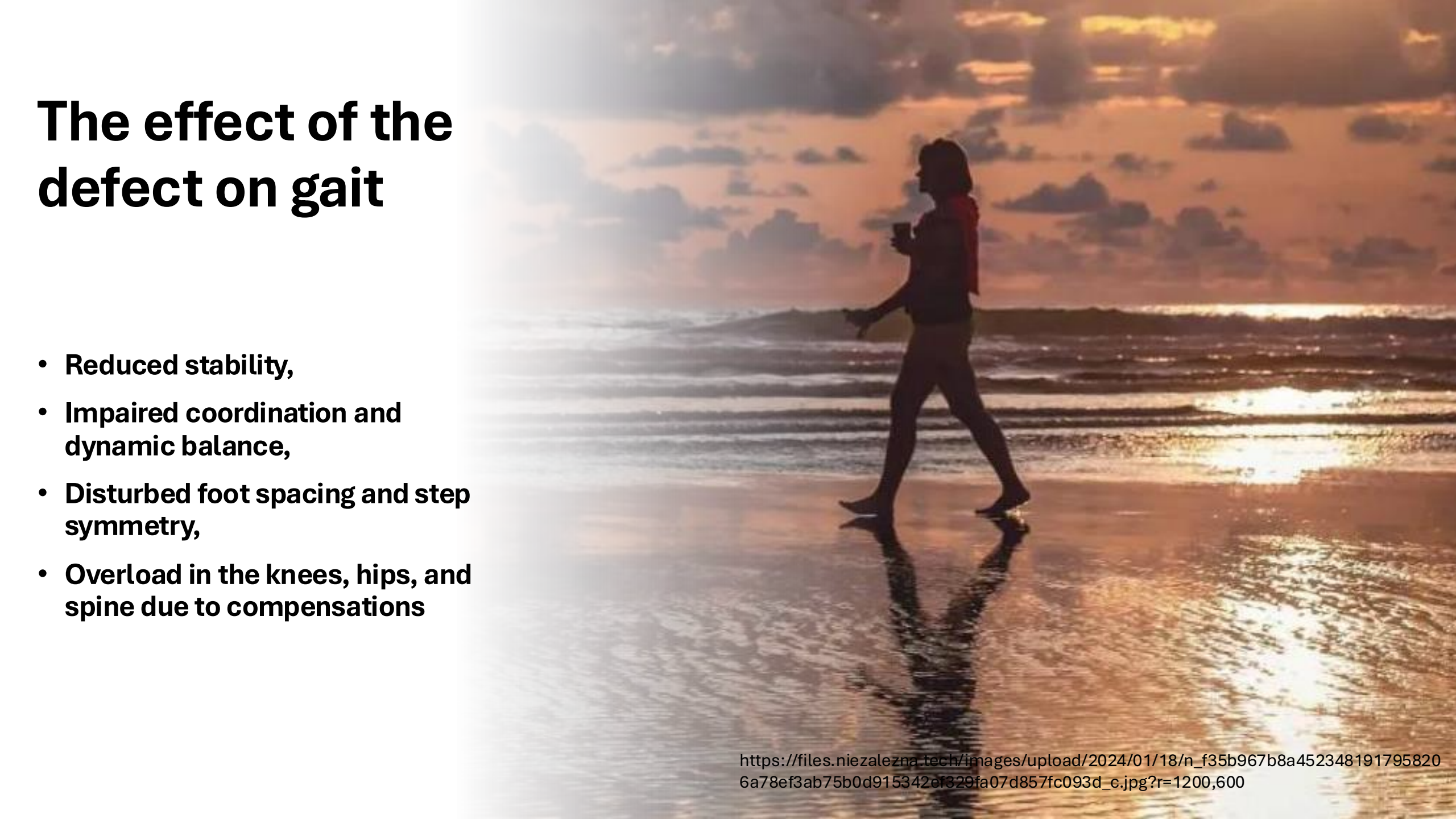
The effect of the defect on balance

- Shift of the center of gravity,
- Smaller support surface,
- Greater muscle work and postural control,
- Proprioception disorders

https://cdn.idealms.net/4892/cwiczenia-rownowagi-ikona-w7mp11b.jpg

The effect of the defect on gait

- Reduced stability,
- Impaired coordination and dynamic balance,
- Disturbed foot spacing and step symmetry,
- Overload in the knees, hips, and spine due to compensations



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6a78ef3ab75b0d915342ef329fa07d857fc093d_c.jpg?r=1200,600

Procedure and correction

- **Proprioceptive, stretching, strengthening, and balance exercises**
- **Orthopedic insoles,**
- **Manual physiotherapy,**
- **Corrective footwear**

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Glossary

- Arch- łuk
- Deviation- odchylenie
- Plane- płaszczyzna
- Heel bone- kość piętowa
- Lump- guz
- Inversion- inwersja
- Plantar flexion- zgięcie podeszwowe
- Adduction- przywodzenie
- Eversion- ewersja
- Dorsiflexion- zgięcie grzbietowe
- Abduction- odwodzenie
- Outer/inner edge- zewnętrzna/ wewnętrzna krawędź
- Medial/ lateral edge- przyśrodkowy/boczny brzeg
- Varus- szpotawość
- Valgus- koślawość
- Foot spacing- rozstawienie stóp
- Step symmetry- symetria kroku

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