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Kindervoetensymposium

Maastricht UMC+



Maastricht University



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Pes planus

Maastricht UMC+

J.P.S. Hermus

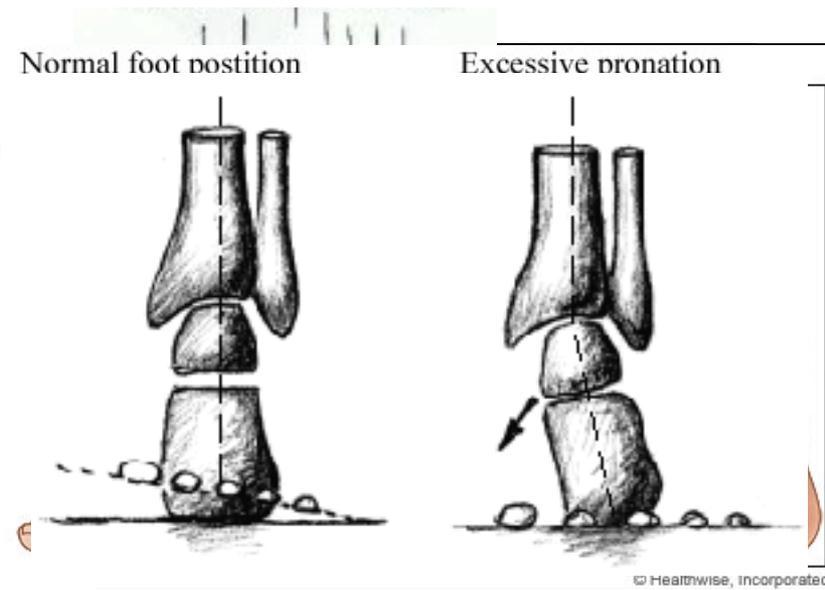


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Definitie

Pes planus = platvoet = verlies hoogte mediale boog

- Achtervoet valgus
- Middenvoet abductie
(talonaviculaire divergentie)
- Voorvoet supinatie tov
achtervoet



© Healthwise, incorporated

Fysiologische pes planus



- Normale boog: 7-10 jaar

54%



Prevalentie pathologische pes planus < 1%.

Pfeiffer M, Kotz R, Ledl T, Hauser G, Sluga M. Prevalence of flat foot in preschool-aged children. Pediatrics. 2006 Aug;118(2):634-9.

- overgewicht (51%), obese (62%) and normaal gewicht (42%)

Thomson P. Introduction to podopediatrics. London, UK: WB Saunders Co; 1993.

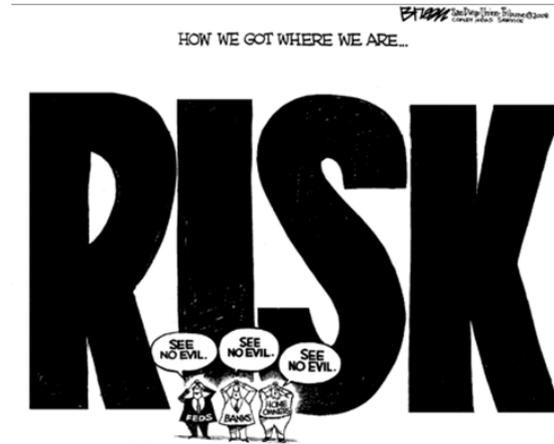
Oorzaken

Oorzaken:

- Gegeneraliseerde laxiteit
- Neurologische aandoening
- Spier aandoening (oa Becker or Duchenne musculaire dystrofie)
- Genetisch
- Collageenaandoeningen

Risicofactoren:

- Overgewicht
- Rotatie afwijkingen met in-toeing of out-toeing,
- Accessoire os naviculare
- Standsafwijkingen:
 - Spitsstand enkel
 - Varus & valgus afwijkingen van de tibia



Soorten pes planus

pes planus = lage of afwezige longitudinale boog

- **flexibele pes planus** = mediale boog is aanwezig in een open kinetische keten (onbelast) en afwezig in een gesloten keten (belast)
- **Rigide pes planus** = longitudinale boog hoogte is verminderd in open en gesloten kinetische keten.

Napolitano C, Walsh S, Mahoney L, McCrea J. Risk factors that adversely modify the natural history of the pediatric pronated foot. Clinics in Podiatric Medicine and Surgery 2000;17:397–417.

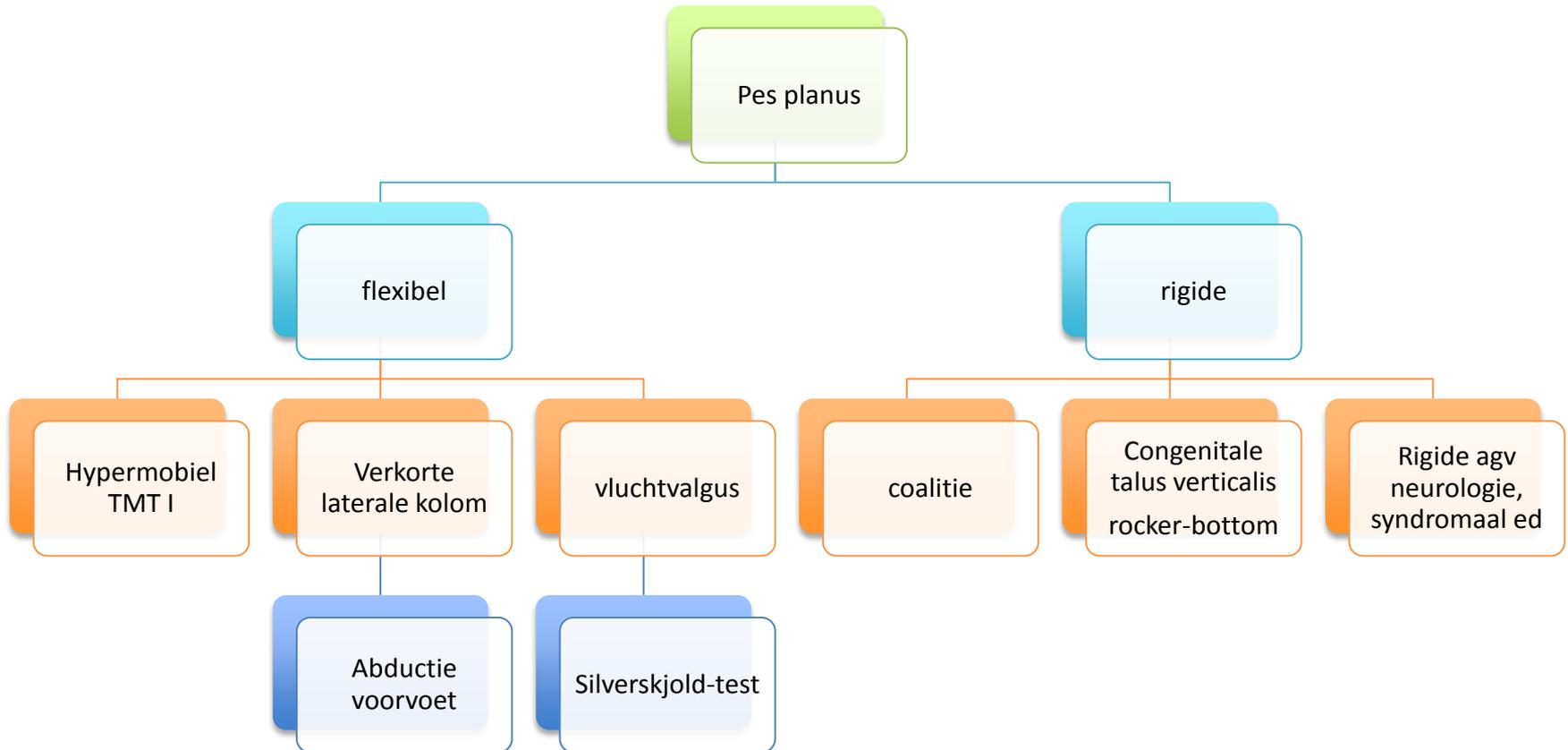


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Pes planus



Silverskjold test



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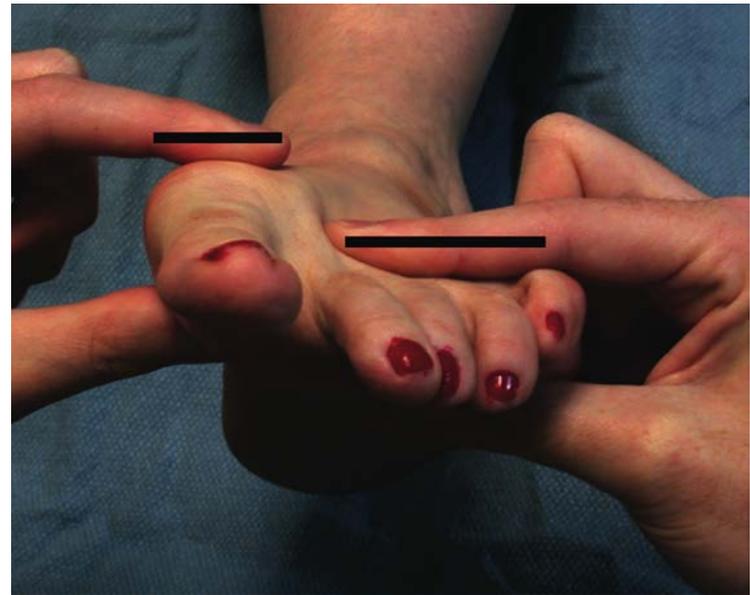


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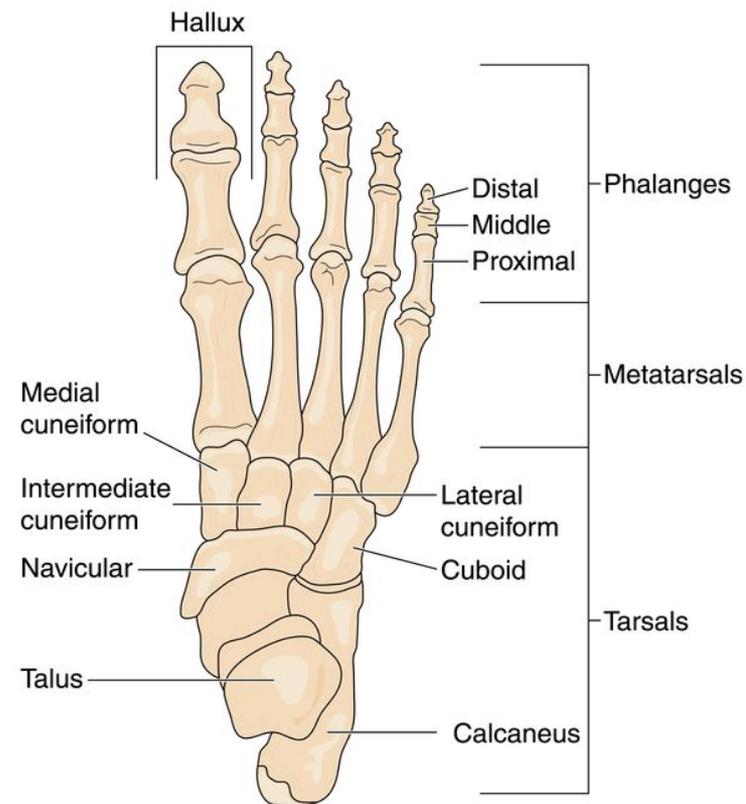
Flexibele pes planovalgus



Hypermobiel TMT I

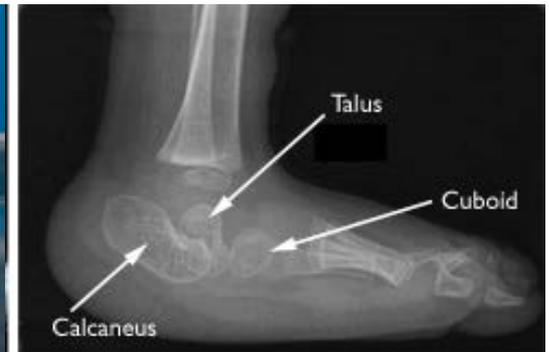


Laterale kolomverkorting



Talus verticalis

- “rocker bottom”
- Standsafwijking:
 - Achtervoet: talus verticaal met calcaneus in spits en valgus
 - Middenvoet: cuneiforme dorsale dislocatie
 - Voorvoet: abductie, eversie



Coalitie



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Coalitie

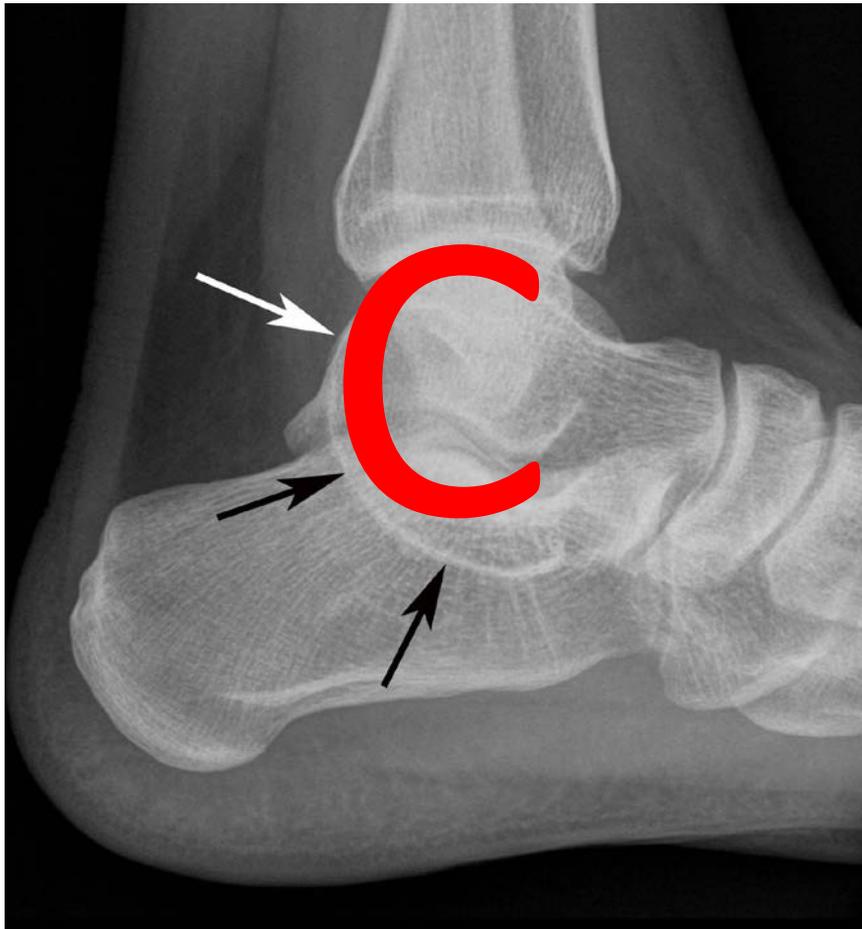


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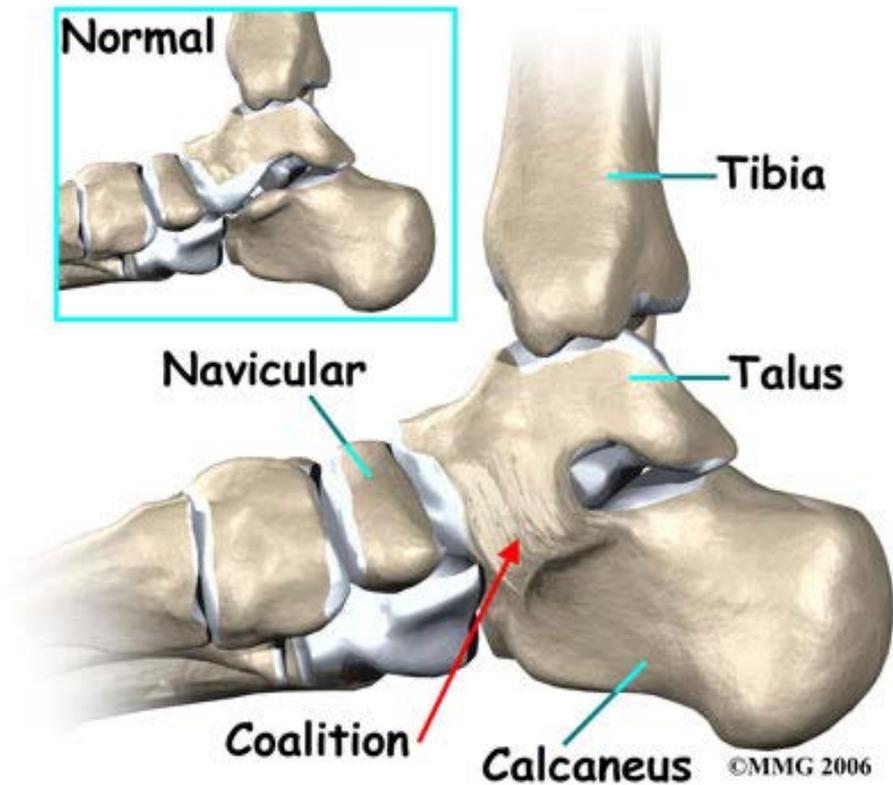


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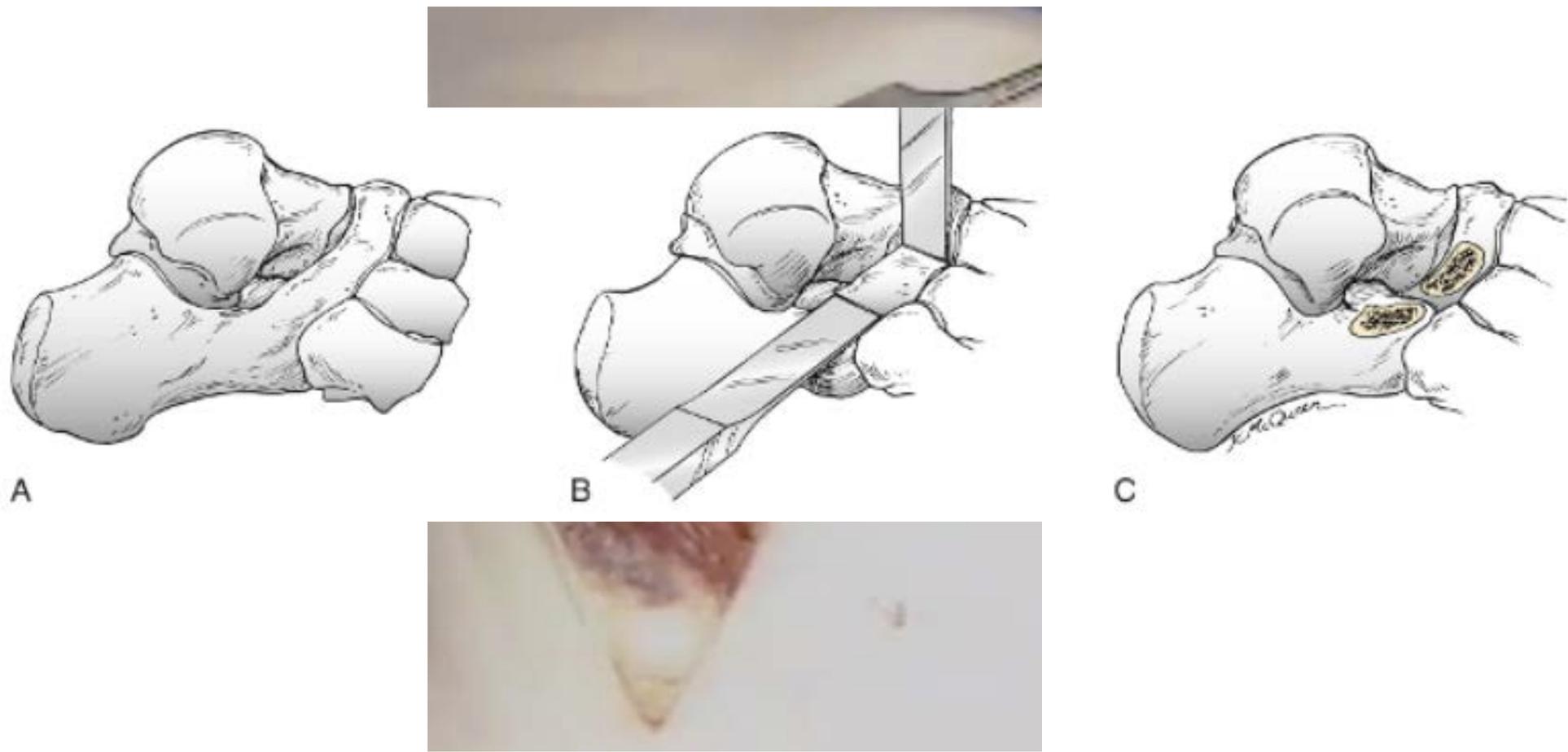
Coalitie



Talocalcaneal Coalition



Coalitie



Therapie consensus

- **Doel:**
 - Pijnvermindering
 - Voorkomen van fysieke belemmering
- **Twee behandelingswegen:**

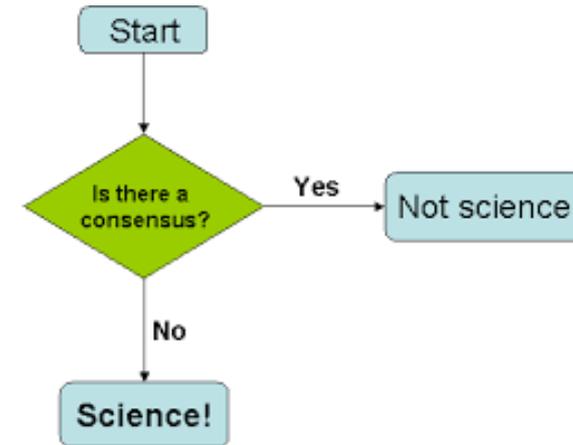
pes planus

Spontane regressie

- *Brooks MH. Flatfeet in children. BMJ 1991;302:237.*
- *Volpon JB. Footprint analysis during growth period. Journal of Pediatric Orthopaedics 1994;14:83–5.*

Voorkomen van rigiditeit

- *Aharonson Z, et al. Foot-ground pressure pattern of flexible flatfoot in children with and without correction of calcaneovalgus. Clinical Orthopaedics and Related Research 1992;181:177–82.*
- *Connors JF, et al.. Guidelines for evaluation and management of five common podopediatric conditions. Journal of the American Podiatric Medical Association 1998;88:206–22.*



Non-surgical interventions for paediatric pes planus

Rome K, Ashford RL, Evans A



- no evidence from randomised controlled trials on the efficacy of foot orthoses for asymptomatic paediatric pes planus.
- no evidence from randomised trials for any other non-surgical intervention.
- Intervention with foot orthoses has few side effects, but the optimal choice of orthoses remains unclear and long-term implications are lacking.



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Orthopaedische voorziening



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Fysiotherapie



“the use of medial arch support to effectively stretch the gastrocnemius in subjects with pes planus.”

Jung DYI, et al. Effect of medial arch support on displacement of the myotendinous junction of the gastrocnemius during standing wall stretching. J Orthop Sports Phys Ther. 2009 Dec;39(12):867-74. doi: 10.2519/jospt.2009.3158.

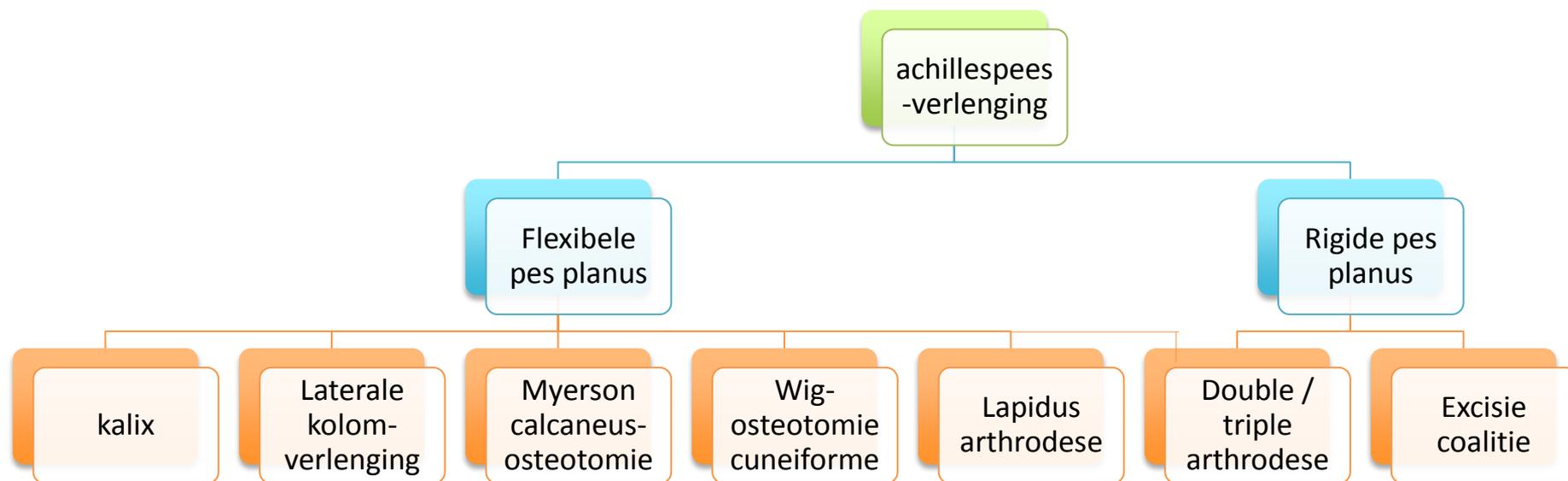


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Operatieve mogelijkheden



Gastroc slide



Kalix



Kalix



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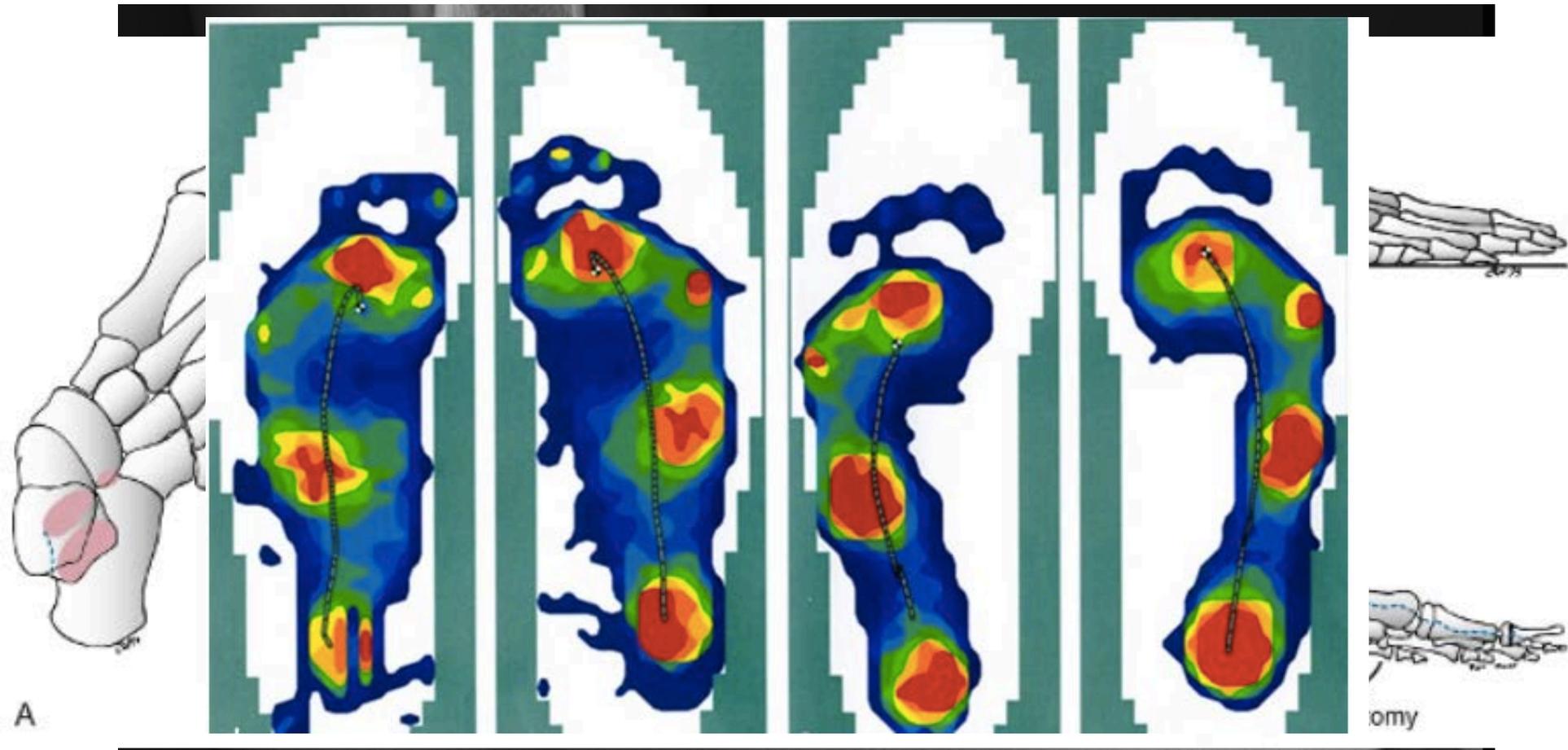


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Laterale kolomverlenging vgl's Evans



Myerson sliding calcaneusosteotomy



Myerson sliding calcaneus osteotomy



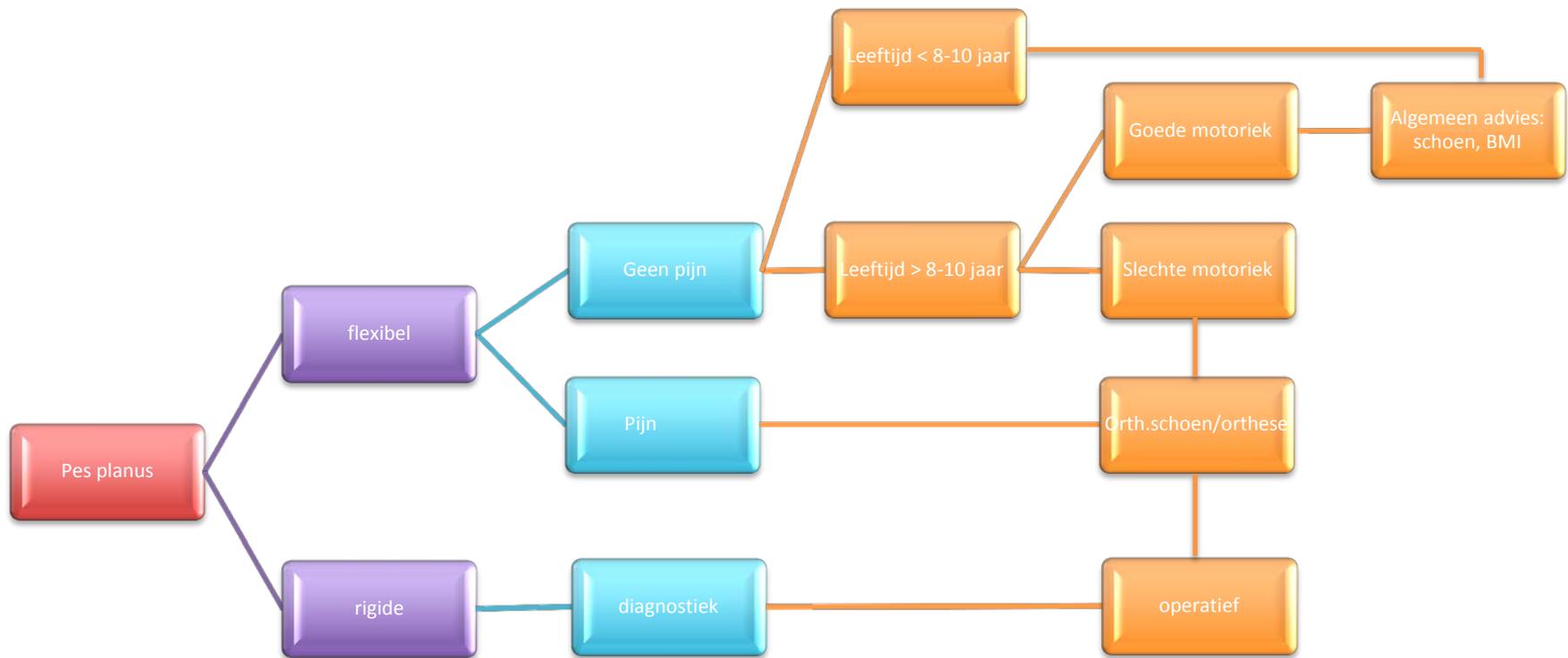
Double arthrodesis



Double arthrodesis



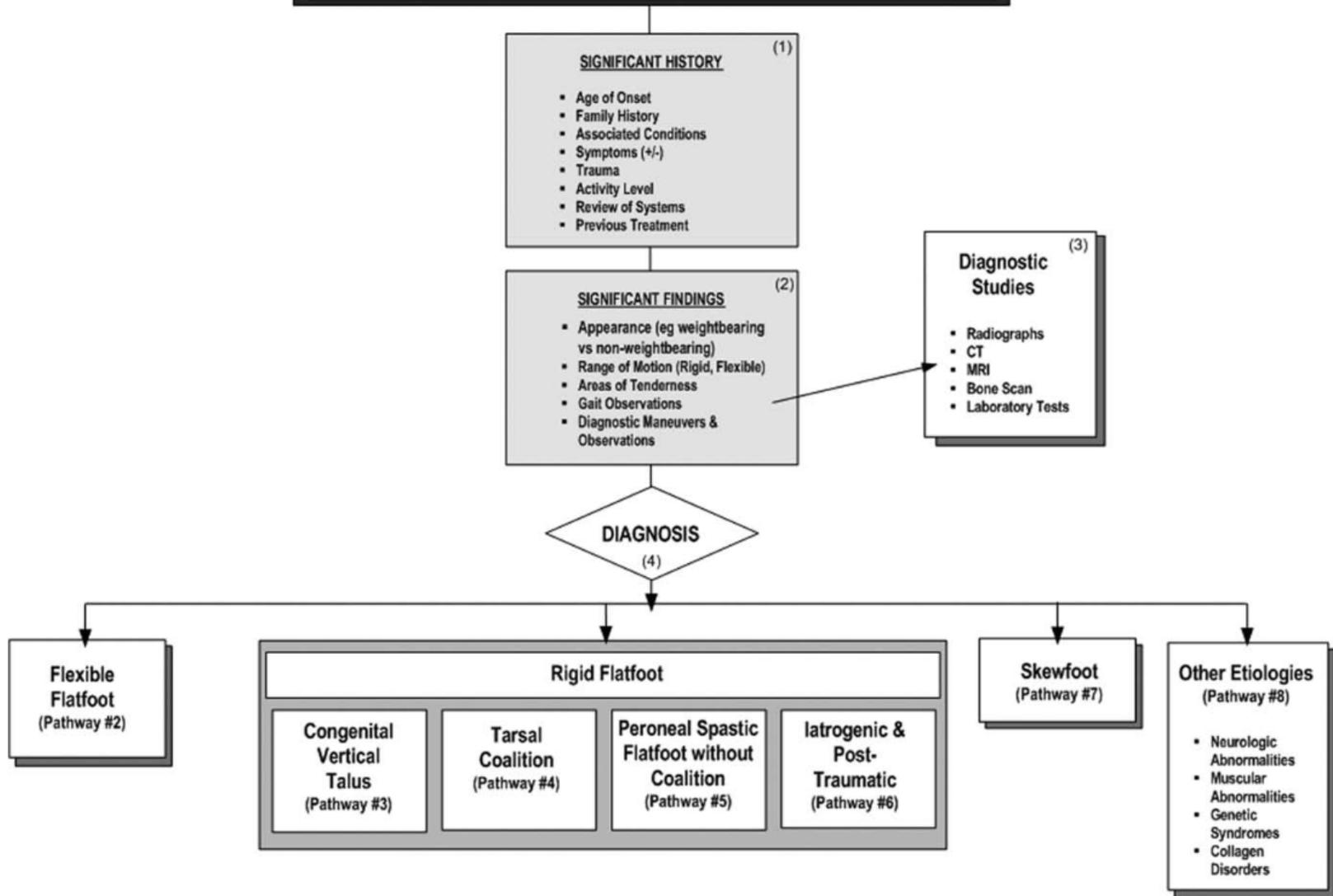
Behandelingsalgoritme

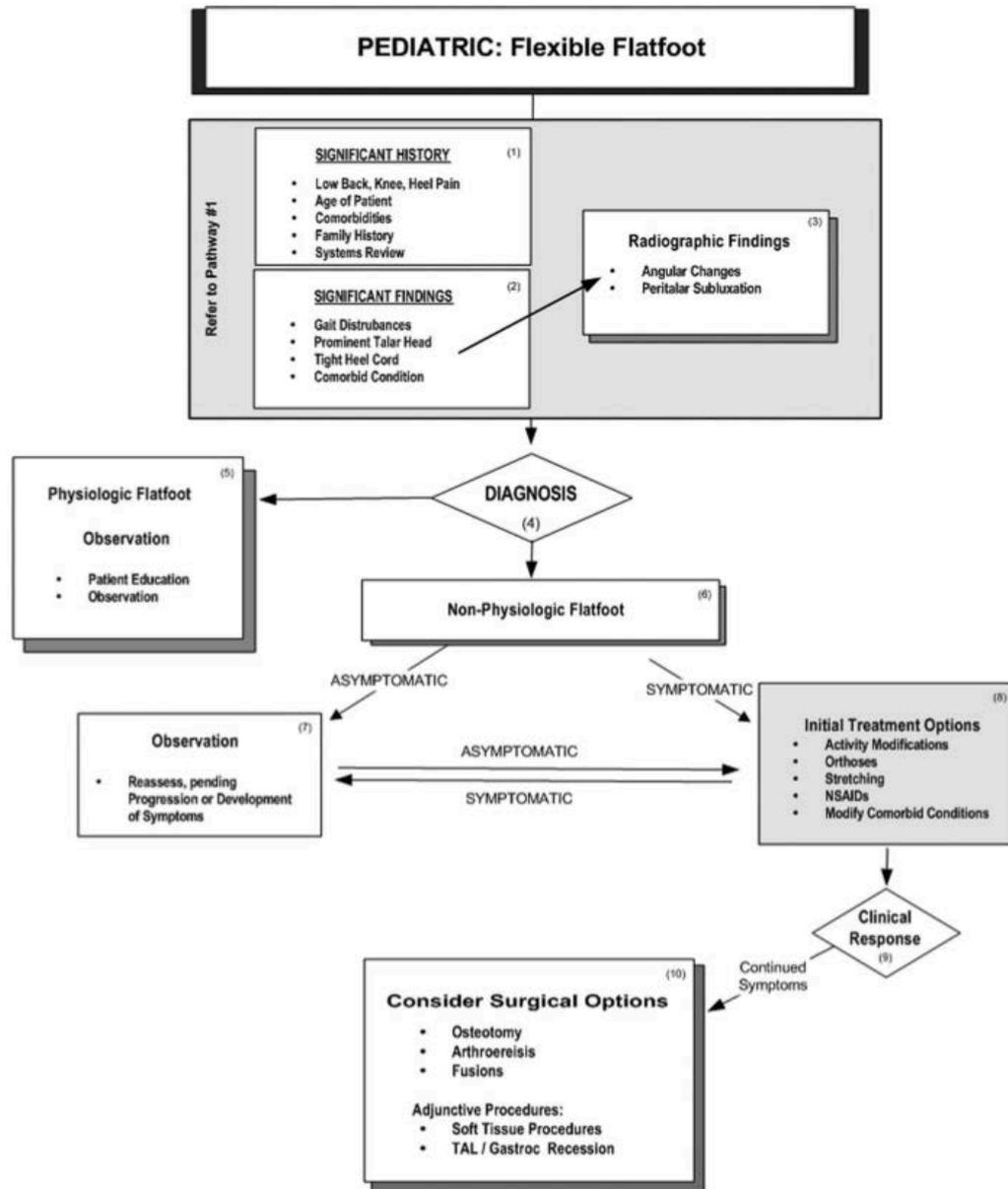


A.M. EVANS, K. ROME. A review of the evidence for non-surgical interventions for flexible pediatric flat feet. EUR J PHYS REHABIL MED 2011;47:1-2

- Geen consensus in therapie
- Bewijs voor conservatieve therapie is niet wetenschappelijk bewezen middels randomized clinical trial
- Operatieve opties mogelijk wel effect, maar drastisch.

PEDIATRIC Flatfoot





PATHWAY 2

CONGENITAL VERTICAL TALUS

Refer to Pathway #1

SIGNIFICANT HISTORY ⁽¹⁾

- Apparent at Birth
- Symptoms at Walking Age
- History of Prior Unsuccessful Management

Diagnostic Imaging ⁽³⁾

- Standard Radiographs
- Talonavicular Joint Non-Reducible on Lateral Stress Radiographs
- MRI, CT and Ultrasound

SIGNIFICANT FINDINGS ⁽²⁾

- Rigid Non-Reducible Rocker Bottom Deformity
- Ankle Equinus

DIAGNOSIS ⁽⁴⁾

Manipulation & Serial Casting ⁽⁵⁾

REDUCIBLE

⁽⁶⁾

- Percutaneous Stabilization Talonavicular Joint
- Cast Equinus

Non-Reducible

Surgical Intervention ⁽⁸⁾

Initial:

- Soft Tissue Release
- Posteromedial Release
- Tendon Transfers

Late:

- Naviculectomy
- Talectomy
- Osteotomies
- Arthrodesis

Observation & Orthoses ⁽⁷⁾

RECURRENCE

PATHWAY 3



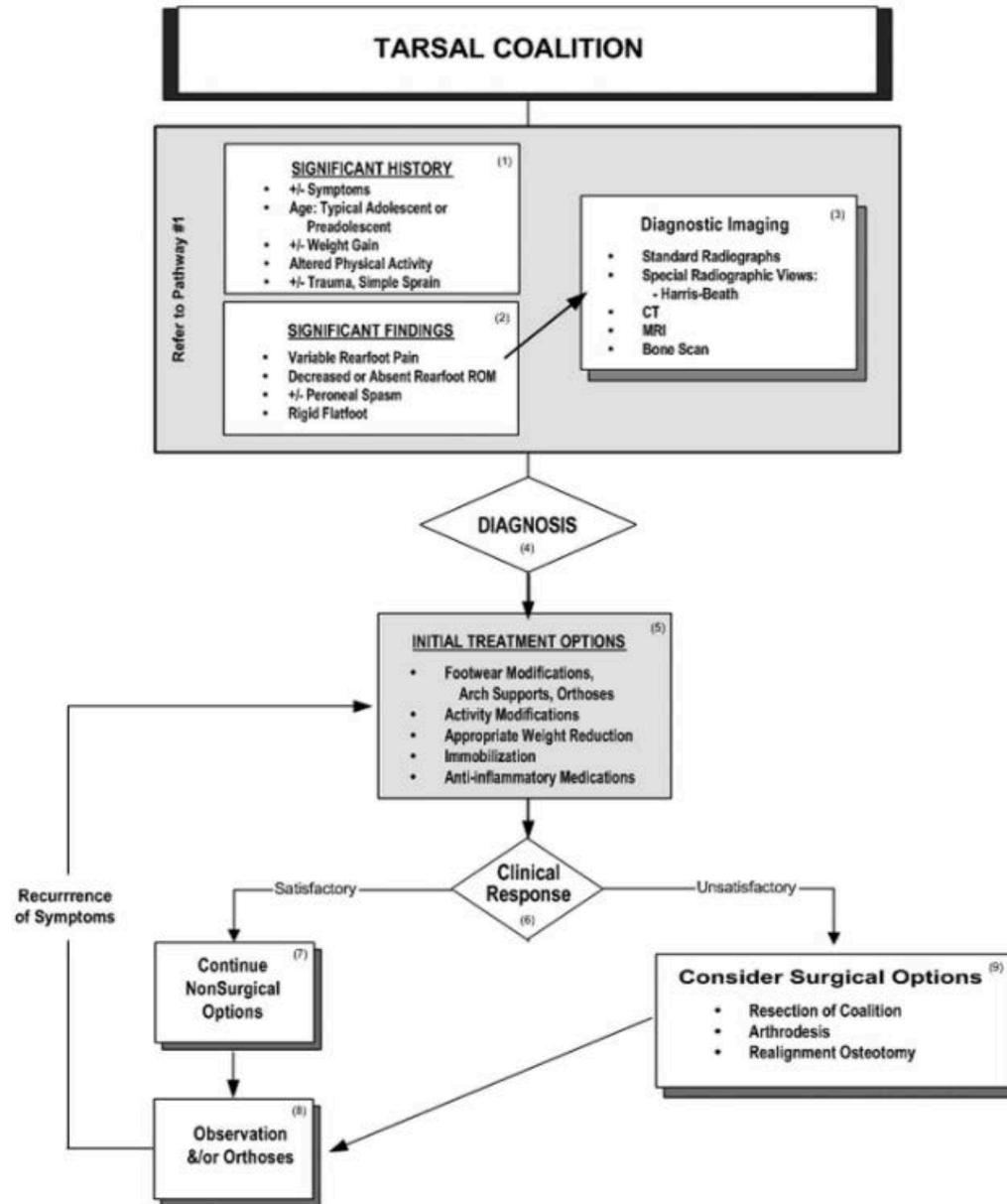
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DIAGNOSIS ⁽⁴⁾

INITIAL TREATMENT OPTIONS ⁽⁵⁾

- Footwear Modifications, Arch Supports, Orthoses
- Activity Modifications
- Appropriate Weight Reduction
- Immobilization
- Anti-inflammatory Medications

Clinical Response ⁽⁶⁾

Recurrence of Symptoms

Unsatisfactory

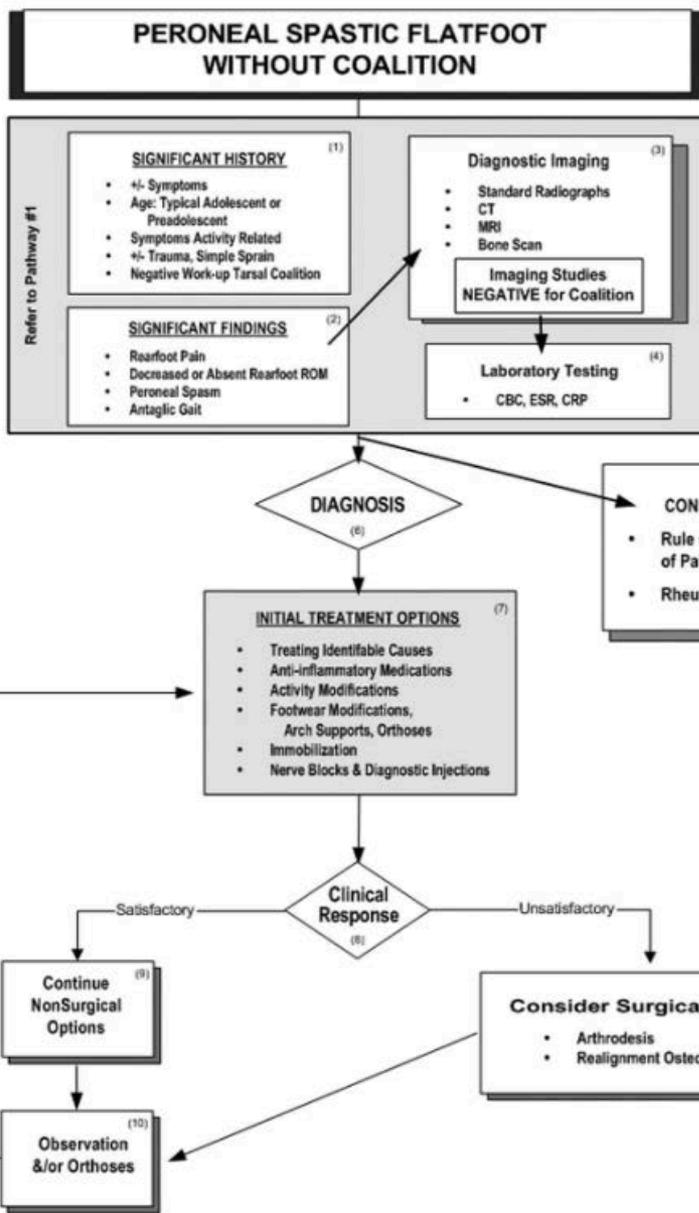
Continue NonSurgical Options ⁽⁷⁾

Consider Surgical Options ⁽⁹⁾

- Resection of Coalition
- Arthrodesis
- Realignment Osteotomy

Observation &/or Orthoses ⁽⁸⁾

PATHWAY 4



PATHWAY 5



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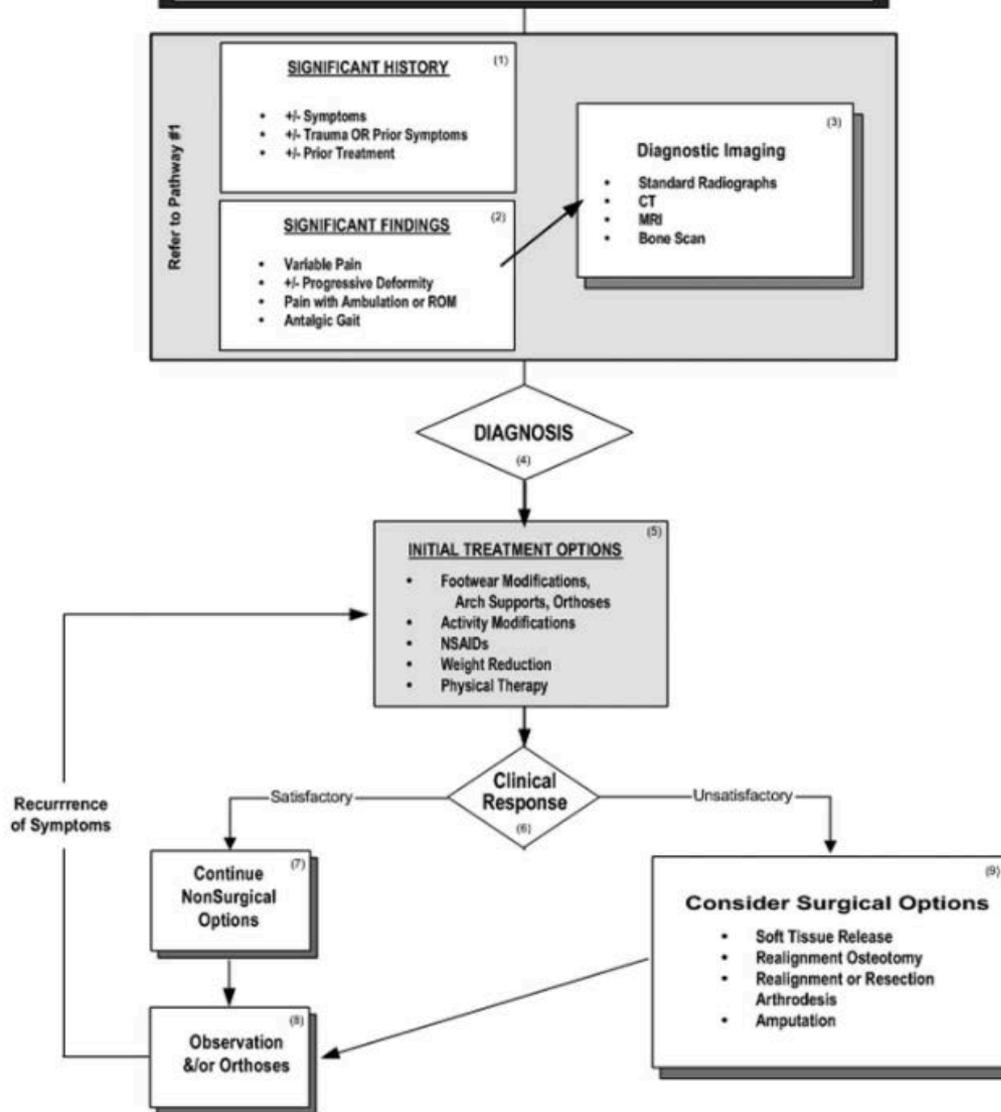


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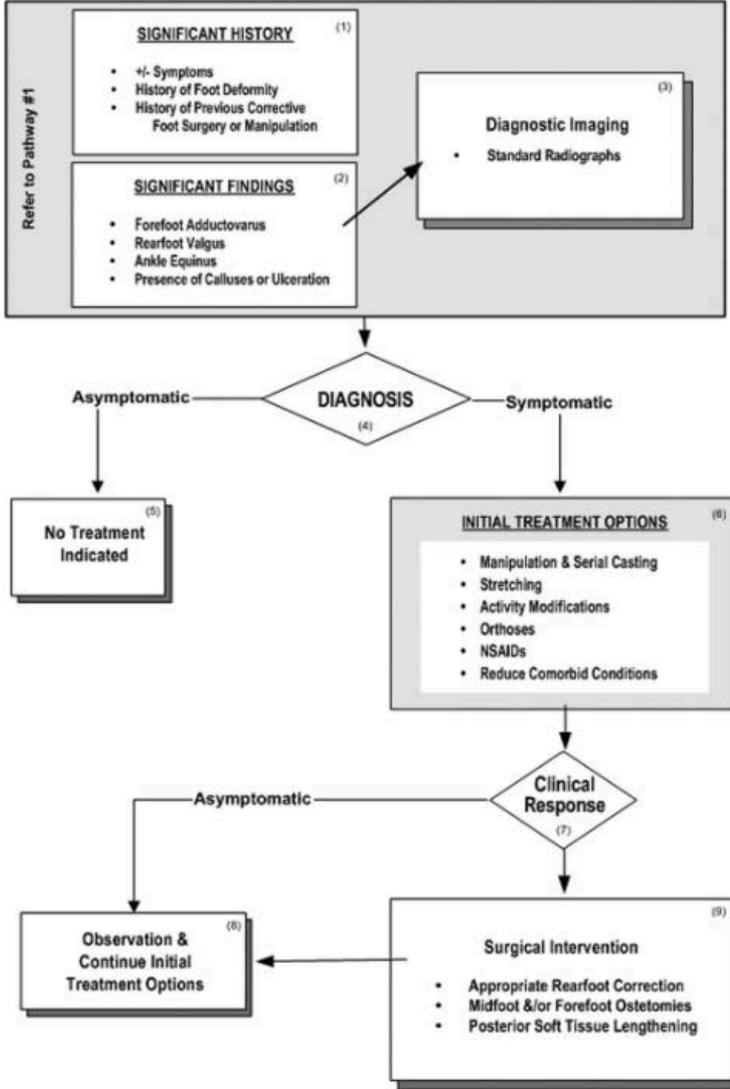
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IATROGENIC and POST-TRAUMATIC DEFORMITY



PATHWAY 6

SKEWFOOT



PATHWAY 7



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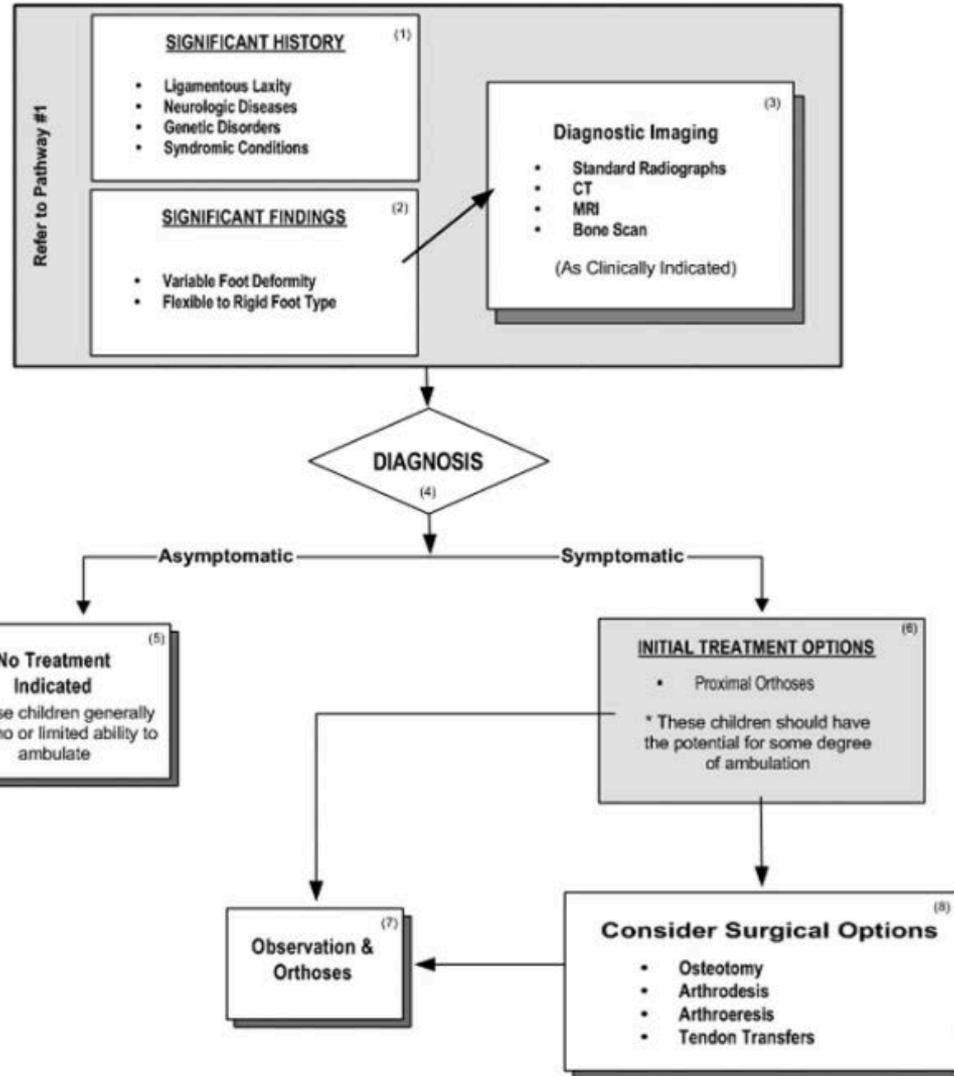


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Other Etiologies of Pediatric Flatfoot



PATHWAY 8

Conclusie

- Pes planus:
- Therapie:
 - Weinig bewijs
 - Doel:
 - Mobiliteit
 - Pijnreductie
 - Vrijwel altijd eerst conservatief
 - Eenmaal therapie toegepast:



Bedankt voor uw
bijdrage



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