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Palais des Congrès | **LYON / FRANCE**

FRENCH AFCP FORUM – HALLUX RIGIDUS

FUNCTIONAL HALLUX LIMITUS (FHL) & ARTHROSCOPY

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Definition

Inability for the MTP1 joint to extend when the ankle itself is placed in extended position

Etiology is not related to joint stiffness or arthritis

How to make the diagnosis ?



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Definition

Inability for the MTP1 joint to extend when the ankle itself is placed in extended position

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How to make the diagnosis ?

The Stretch Test of the Flexor Hallucis Longus (FlexHL)



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First step



Ankle in plantar flexion,
check the MTP1 ROM



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Second step



2. Push firmly the ankle in extended position



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Third step



3. Try to push the 1st toe in extension



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Third step



If not possible = Stretch Test is positive



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Positive Stretch Test





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The inability for the MTP1 joint to dorsiflex is due to an impingement of the tendon of the FlexHL in the retrotalar tunnel





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Stretch Test positive : Why ?

The inability for the MTP1 joint to dorsiflex is due to an impingement of the tendon of the FlexHL in the retrotalar tunnel





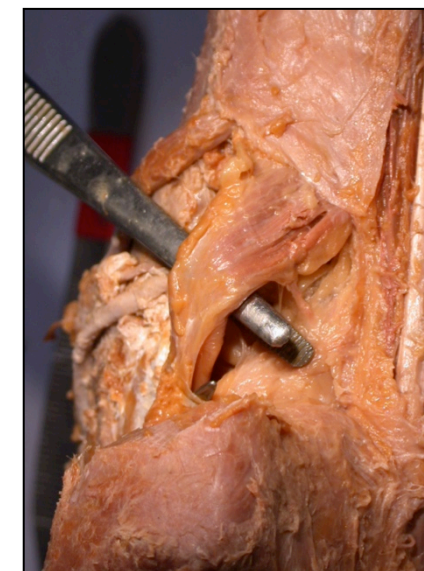
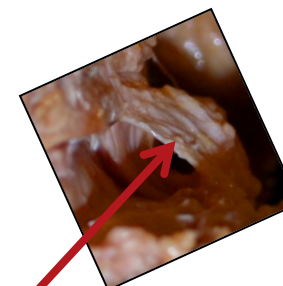
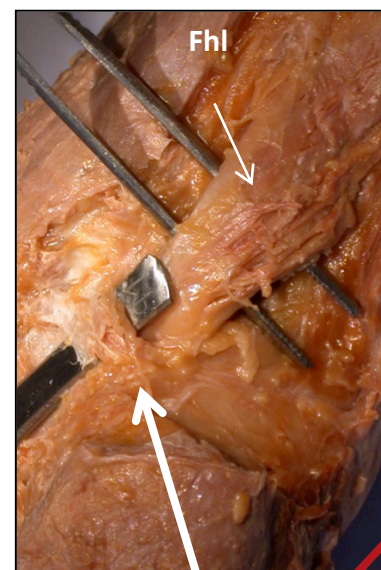
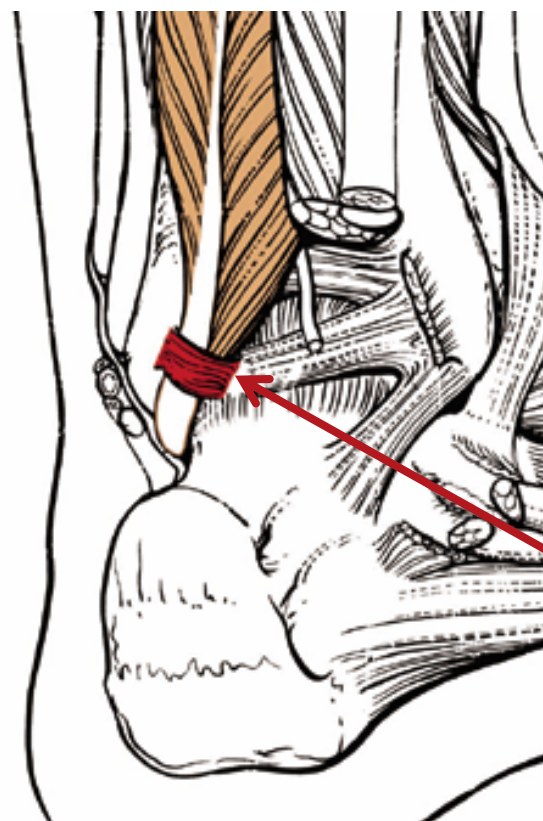
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Impingement in the retrotalar tunnel at the level of the musculo-tendinous junction of the FlexHL



Pulley





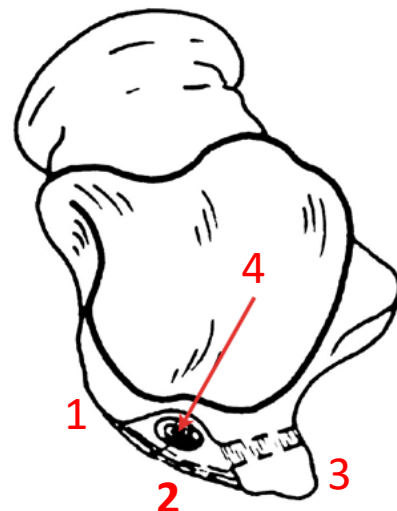
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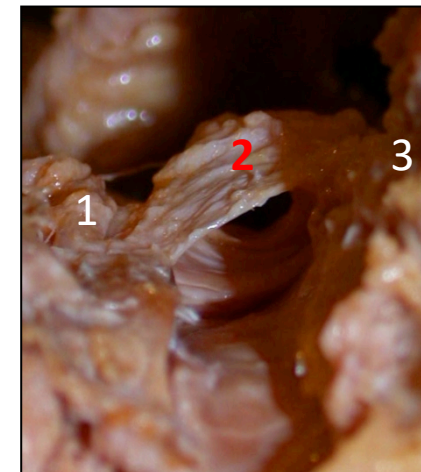
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The retrotalar tunnel and its pulley




Axial view of the talus

1. Posteromedial tubercle
2. **Retrotalar pulley**
3. Posterolateral tubercle
4. FlexHL tendon



Journal of **Anatomy**

Identification of the retrotalar pulley of the Flexor Hallucis Longus tendon

Chris Tzioupis¹  Anthony Oliveto,² Silke Grabherr,³ Jacques Vallotton¹ and Beat M. Riederer²

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³Centre Universitaire Romand de Médecine Légale, Lausanne, Switzerland



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In gait

Inability to bend the MTP1 joint



FHL



Normal



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On the podoscope





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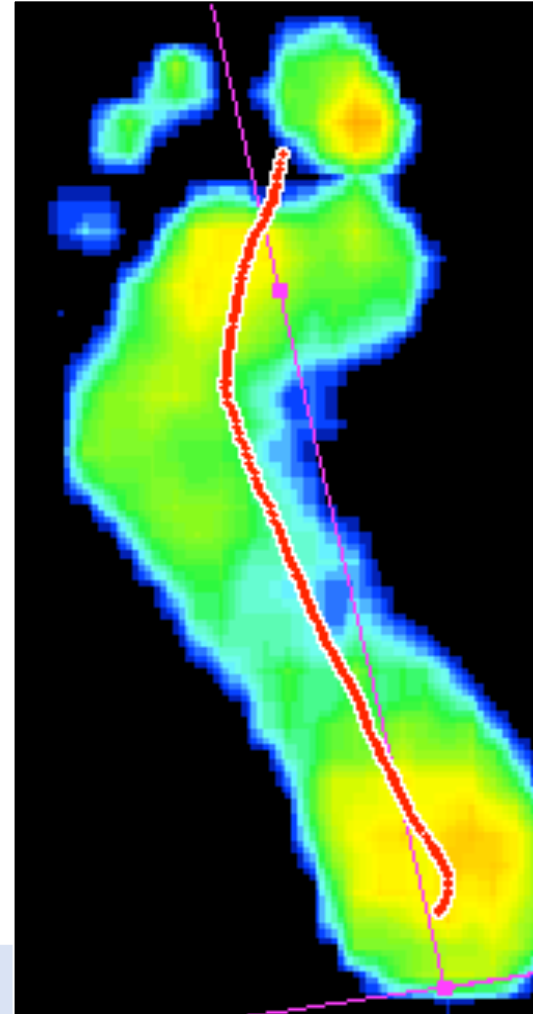
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On footscan platform





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Shoes wear



Hyperpronation
at push-off

Excessive loading on
the fifth metatarsal head

Heel strike in supination



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Insoles





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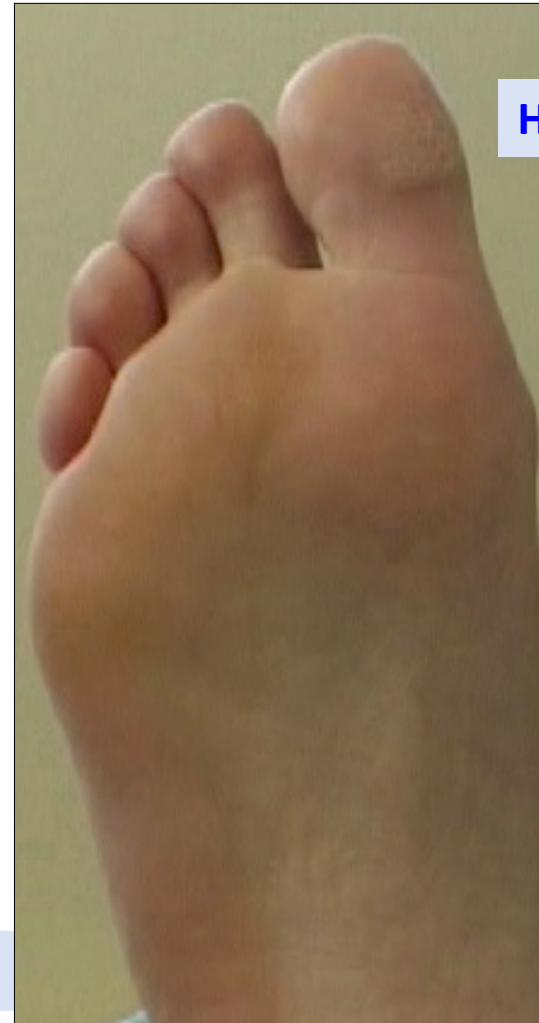
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Clinical exam of the foot



Hyperkeratosis on P2

« Baby » skin under the 1st metatarsal head

Hyperkeratosis on M5



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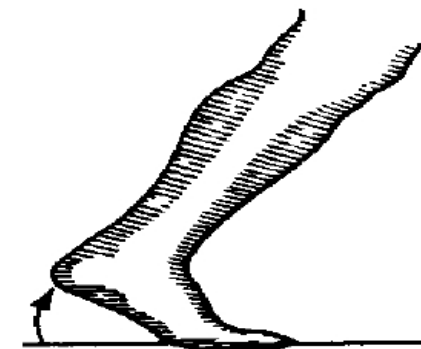
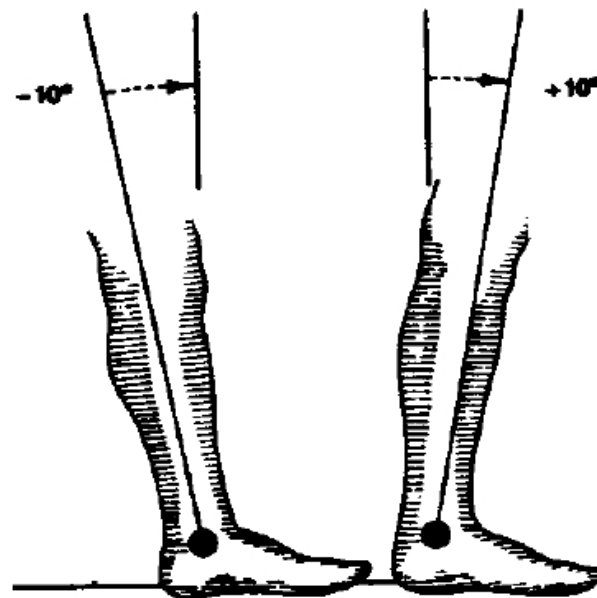
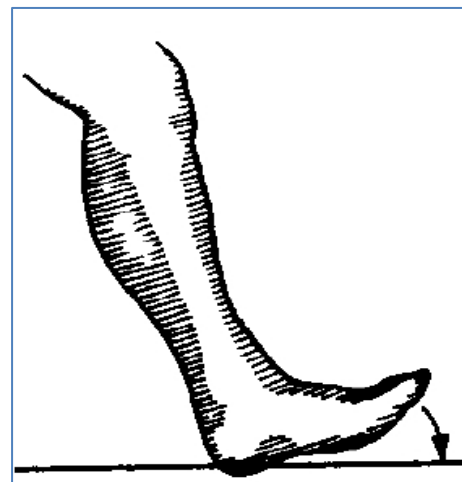


The 3 Rockers in the sagittal plane

The Heel first

The Ankle second

1st MTP joint third :



Corner stone in gait



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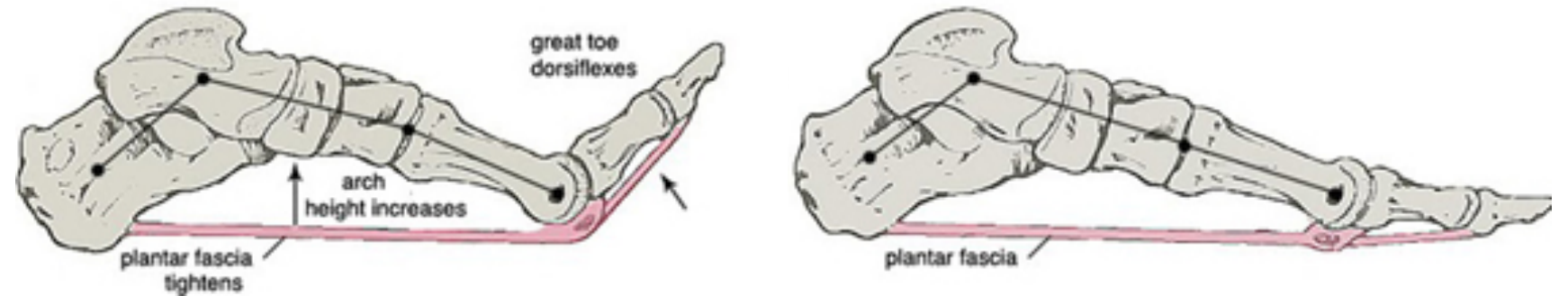
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Windlass mechanism JH Hicks, 1954

Physiologically, the dorsiflexion of the big toe at the moment of propulsion tenses up the plantar fascia which hollows the arch of the foot and moves it from pronation to supination





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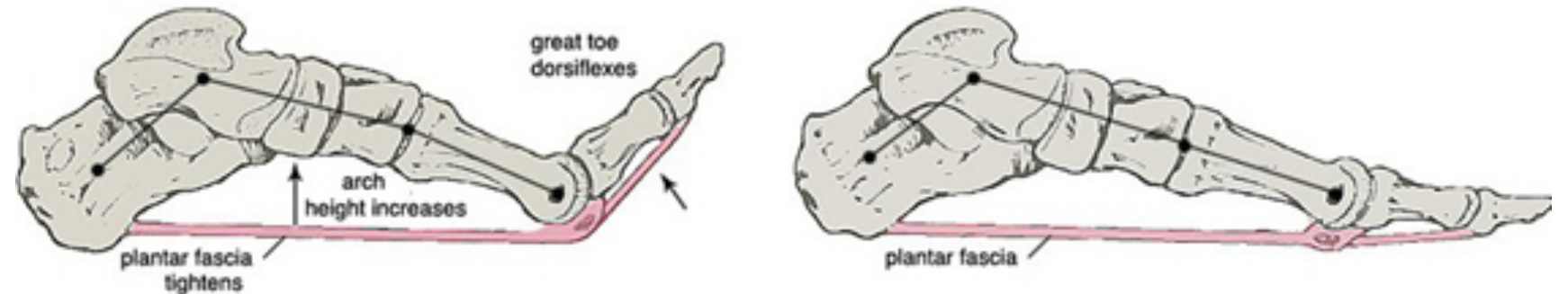
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Windlass mechanism

JH Hicks, 1954

Physiologically, the dorsiflexion of the big toe at the moment of propulsion tenses up the plantar fascia which hollows the arch of the foot and moves it from pronation to supination



FlexHL tendon blocking defeats this physiological mechanism





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Consequences

(www.fhl.science)

Increased constraints on the MTP1 joint

Time lag in transition from pronation to supination and vice-versa

Sagittal plane blokade and global disorder in synchronism





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Functional treatment

Restore a normal glide to the FlexHL tendon
Restore balance, foot stability and mobility and
synchronism in gait
Core strengthening and global stretching and
proprioceptive exercises





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Liberating manoeuver

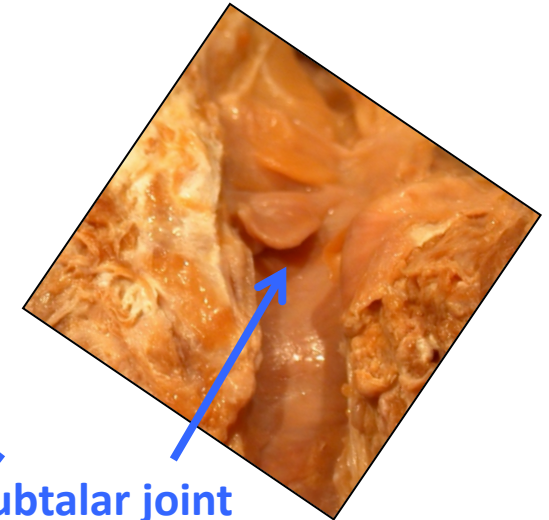
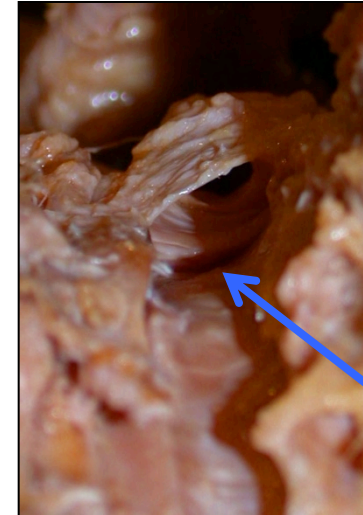




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Explanation



Subtalar joint

Subtalar joint unlocked opens the joint space and suppress the suction effect of the synovium



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Clinical diagnosis and functional treatment

Journal of the American Podiatric Medical Association
May 2010, Vol. 100, No. 3, pp. 220-229

Functional Hallux Limitus or Rigidus Caused by a Tenodesis Effect at the Retrotalar Pulley

Jacques Vallotton, Santiago Echeverri, and Vinciane Dobbelaere-Nicolas

<https://doi.org/10.7547/1000220>

Description of the functional stretch test and the liberating manoeuver to free the FlexHL tendon glide



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Surgical treatment





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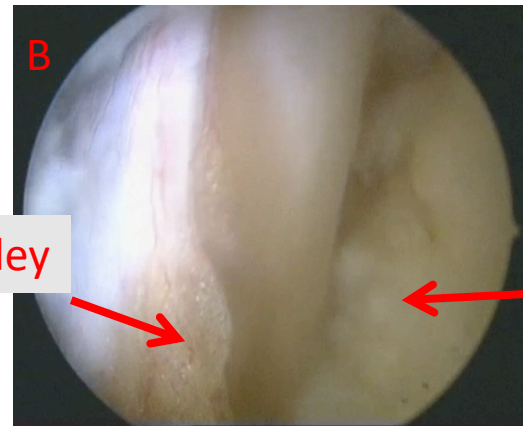
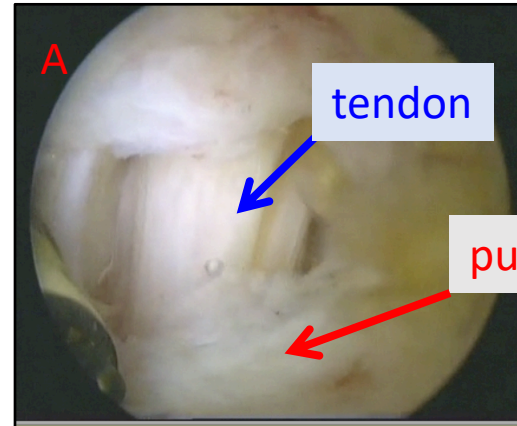
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Surgical treatment



Endoscopic Tenolysis of Flexor Hallucis Longus Tendon: Surgical Technique. Theresa Rebecca Olden, Dr., Jacques Vallotton, M.D. *Arthroscopy Techniques*; Volume 9 Issue. Pages e1269-e1273 (September 2020)



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Take home message

- FHL is a predisposing factor for Hallux Rigidus
- The Stretch Test of the FlexHL is diagnostic and has to be performed in the states of the art
- Functional treatment has to be proposed first and the liberating manoeuver is a key point
- FlexHL endoscopic tenolysis is mini-invasive and gives good results
- Could it prevent further Hallux Rigidus ?
- More information on www.fhl.science



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Thank you for your attention

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