



Hallux Abducto Valgus

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One of the foot's major abnormalities would be the "bunion", this deviation of bone structure causing much pain and distress to many people.

The Hallux Abducto Valgus is thought to have 5 main etiologic categories :

1. muscle imbalance (*Abductor Hallucis / Adductor Hallucis couple*)
2. general ligamentous laxity
3. predisposing structural factors
4. trauma
5. mechanical factors leading to stress on the joint

The 1st Metatarsopharangeal Joint (1st MPJt) is often simply considered a hinge joint but as there is also the sesamoids articulating inferiorly with the sesamoid grooves within a single synovial joint capsule makes this structure slightly more complex than first thought.

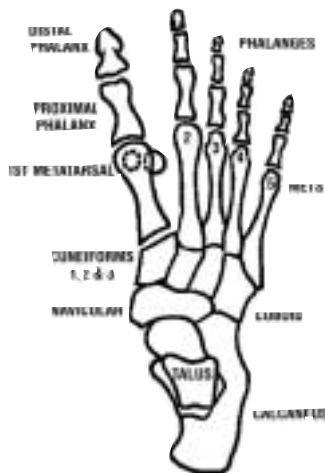


Figure 1: 1st MPJt anatomy

The 1st MPJt essentially consists of two main bones the proximal phalanx and the 1st metatarsal with the superior surfaces of the medial and lateral sesamoids articulating with this structure. The metatarsal head is medio-laterally broad and its dorsal surface is either a rounded or flattened contour. A flattened surface is believed to provide a more stable articular platform than the round-

ed surface for the proximal phalanx.

The mechanics of the 1st MPJt becomes complicated when we begin to look at all the factors that interfere with the proper function of the big toe in gait, thus for the purposes of this newsletter it will suffice to say that through gait, especially during propulsion, the 1st MPJt takes a lot of stress through it to facilitate a good powerful stride.

The 1st ray is meant to plantarflex against the ground for both stability and toe off, if any abnormality is present then the foot is forced to compensate by either pronating to its end of range of motion or simply collapsing the structure, this places abnormal stresses upon the the 1st Ray and leaves the 1st MPJt in an abnormal position.

It is a common occurrence to have women attending clinics complaining of foot pain around the 1st MPJt and a development of a bump over the top or on the side of the joint. This is both cosmetically unacceptable and painful for most women - the joint is painful when either the stresses placed upon it become too great or the pressure created by the shoe becomes a problem.

Pain can present itself after activity or in cases of severe irritation it can present during activity as well. Pain is usually situated on the exostosis itself or within the joint and is elicited by pushing on the joint or putting the joint through it's range of motion (usually a decrease in both dorsiflexion and plantarflexion is noted). If this joint range is decreased then shoes with high heels can also aggravate the condition.

In these cases, treatment must be directed at the cause, and any of these modalities may have to be used to regain the foot's integrity, they would include orthoses and supports, correction of shoe choice, and muscle reconditioning by exercises.

Treatment of Hallux Abducto Valgus (Bunions) is both simple and difficult, as the weaknesses that predispose for the deformity are, in my opinion, considered to be hereditary. The characteristics of the foot rarely corre-



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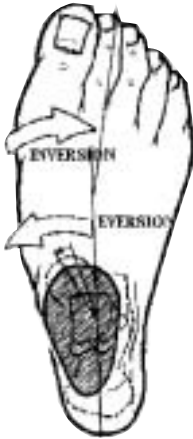


Figure 2: Bunion formation

spond to ideal structure and mechanics.

The following foot types are associated with Hallux Abducto Valgus:

1. Partially compensated forefoot varus
2. Compensated forefoot varus
3. Forefoot supinatus
4. Flexible forefoot valgus
5. Compensated congenital gastrocnemius equinus
6. Compensated transverse plane deformity

These particular foot types are more commonly seen and need to be treated to reduce symptoms.

Orthotic therapy can be very effective in treatment of this condition by restoring the normal foot function and reducing the abnormal pronatory forces that affect this problem.

The orthotics of choice vary with the degree of deformity and type of footwear the patient insists on wearing. In cases of severe pronatory compensations then the firmer orthotic control is necessary to stop further deformity and reduce pain. The rearfoot in almost all cases should be inverted with rearfoot posting to place the Subtalar Joint back into or close to its neutral position. The forefoot alignment should then be taken into account and balanced correctly whether it be varus or valgus posting.

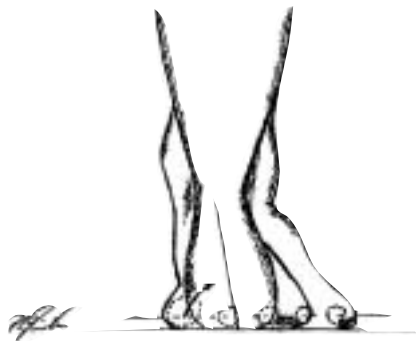


Figure 3: Abnormal pronatory forces

This is most important in the early stages of a hallux abducto valgus when the abnormal effect of the extrinsic and intrinsic foot muscles can be negated.

In the case of fashion footwear where space in the shoe is at a premium then a slimmer style of orthotic is necessary for fit but for maximum effect some firm arch fill or rearfoot posting is still necessary.

In severe cases of Hallux Abducto Valgus deformity in which the intermetatarsal angle has increased beyond 13 degrees, the ability of the orthoses to control the joint becomes less effective. In these cases

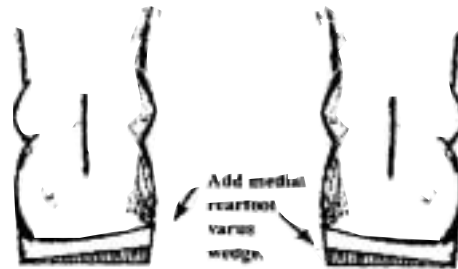


Figure 4: Orthotic wedging

some reduction of symptoms may occur but in general a more permanent solution becomes necessary. Surgical intervention is not necessarily advocated but in some cases it can be preferable than continuing to function with a severely painful joint that could possibly cause other compensations within the body. Surgery is designed to restore structural integrity but it sometimes does not address the functional integrity of the foot, this needs to be considered when prescribing a surgical procedure and post operative orthoses for restoring what ever functional element that is not addressed by the surgery is a good idea.

Intrinsic and extrinsic foot exercises are also important in the treatment of Hallux Abducto Valgus and these modalities mentioned in this discussion should be combined for best results.

References:

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