

## ENTITLEMENT ELIGIBILITY GUIDELINES

### PES PLANUS

**MPC** 01328  
**ICD-9** 734, 754.6

#### DEFINITION

Pes Planus is a deformed foot in which the position of the bones relative to each other has been altered, with lowering of the longitudinal arch.

For the purposes of this guideline, acquired and congenital Pes Planus will be addressed. This guideline **does not include** anterior flat foot.

**Acquired Pes Planus** means a deformed foot in which the position of the bones relative to each other has been altered with the lowering of the longitudinal arch *but does not include congenital Pes Planus*.

**Congenital Pes Planus** means a deformed foot present at or soon after birth in which the position of the bones relative to each other has been altered with the lowering of the longitudinal arch, i.e. *hypermobile (flexible) flatfoot, and rigid flatfoot with tarsal anomalies*.

#### DIAGNOSTIC STANDARD

Diagnosis by a qualified medical practitioner is required. X-ray evidence is often helpful, but not required. There are no medical guidelines as to what is to be considered a “normal arch”. Orthopaedists agree that the recorded height of the arch is dependant on both the observer and his/her concept of what is a “normal arch”, and on the stance of the person when examined.

#### ANATOMY AND PHYSIOLOGY

The tarsal bones correspond to the carpal bones of the wrist, and consist of the seven bones constituting the articulation between the foot and the leg. They comprise the talus, calcaneus, and navicular in the proximal row; and the cuboid and the lateral,

intermediate, and medial cuneiform bones in the distal row. These, in their turn, articulate with the metatarsal bones of the foot.

The longitudinal arch of the foot lies between the calcaneus (os calcis, heel bone) and the heads of the metatarsals (the long bones of the foot which connect with the toes). The arch is highest medially, having as its apex the navicular bone, and shallowest at the lateral border of the foot where it comes in contact with the floor. Its integrity is maintained by the structure of its component bones, especially the talus and calcaneus, together with ligamentous supports and the general tone of the foot muscles.

The foot at birth is normally flat, the arch developing when the infant begins to stand. The longitudinal arch is reduced so that on standing the medial border is close to or in contact with the ground. It is usually associated with some degree of pronation or twisting outward of the foot (valgus deformity or eversion).

Normally at the tarsal joints the play between the various bones is free, with stability largely being maintained by muscle power. The ligaments of the foot become taut and help to restrain further movement at the extremes of the particular movement. If the foot is supple and the ligaments are lax the tarsals may be displaced to an extreme degree before the ligaments are strained. Acute strain is less likely to develop in such a foot as it is in a rigid foot, especially when affected by arthritis.

*ACQUIRED PES PLANUS* can be unilateral or bilateral and includes osseous, ligamentous, muscle imbalance, postural or static, and arthritic flat foot.

*CONGENITAL PES PLANUS* consists of hypermobile flat foot, and rigid flat foot with tarsal anomalies. The foot at birth, which is normally flat, does not develop an arch. *Hypermobile flat foot* is an hereditary condition in which the mid tarsal and subtalar joints exhibit a greater than normal range of movement, and the deformity disappears when the feet are freed from weight-bearing. In the congenital form of Pes Planus known as *Rigid Flat Foot with Tarsal Anomalies* there is a bony, cartilaginous or fibrous tissue bridge between the talus and the os calcis, or between the navicular and the os calcis. This anatomical abnormality leads to a faulty pattern of movement between the various tarsal bones. The shape of the foot in this condition has given rise to the name "congenital rocker bottom flat foot".

## CLINICAL FEATURES

The presence of Pes Planus is usually evident upon inspection of the foot. Pes Planus, in the majority of cases, is asymptomatic. There may, however, be symptoms of pain in

the long arch or behind the bony protuberance of the inside of the ankle joint. Pain and fatigue may occur on walking and standing. When walking, in order to prevent strain upon the plantar ligaments, the affected individual may avoid raising the heel before the

ball of the foot, thereby raising the whole foot at one time.

In a hypermobile (flexible) flat foot, there is a short Achilles tendon, which prevents

dorsiflexion (raising of the foot) at the ankle joint. The deformity usually becomes manifest in childhood, often in adolescence. Canadian and Israeli army studies refer to flexible flatfoot as common, benign, and a variant of normal.

Aggravation is indicated by a permanent acceleration of the disease process, or permanent increase in severity or frequency of signs or symptoms, or the development of secondary changes in the surrounding bones and soft tissues. Increasing complaints which have existed on a continuous or recurrent basis for a period of approximately 6 months may indicate a degree of aggravation (permanent worsening). These include, but are not limited to, the development of callosities, plantar fasciitis, calcaneal spurs, and foot strain.

## PENSION CONSIDERATIONS FOR CONGENITAL AND ACQUIRED PES PLANUS

### A. CAUSES AND/OR AGGRAVATION

**THE TIMELINES CITED BELOW ARE NOT BINDING. EACH CASE SHOULD BE ADJUDICATED ON THE EVIDENCE PROVIDED AND ITS OWN MERITS.**

1. Severe specific trauma which impairs the ligamentous or the bony structure of the affected foot or feet prior to clinical onset or aggravation

Severe specific trauma can aggravate congenital Pes Planus, and cause or aggravate acquired Pes Planus.

*For severe specific trauma to cause or aggravate Pes Planus, the following should be evident:*

Within 24 hours of the injury, development of tenderness, pain, swelling, discoloration, or altered mobility, or any other pertinent sign or symptom, should occur in the affected area, *and*

Signs/symptoms should recur, either continuously or intermittently, from the time of the specific trauma to the time of diagnosis.

Severe specific trauma includes a fracture or dislocation of foot bones and/or tearing of the ligaments, cartilages, and fibrous tissues of the foot.

2. Physical activity prior to aggravation

*For physical activity to aggravate Pes Planus, the following should be evident:*

Increased signs/symptoms of Pes Planus should commence during the activity or within 2 to 3 days after ceasing the activity; *and*

Increased signs/symptoms of Pes Planus should continue, on a

continuous or recurrent basis, for at least 6 months.

Physical activity, including sports, may permanently increase the discomfort from Pes Planus, thereby aggravating the disability. Secondary changes may occur in surrounding bones and soft tissues where the condition has existed for some time. Where the structure is already impaired, chronic or recurrent strain often arises from the ordinary amount of standing demanded in everyday life.

3. Peripheral neuropathy of the affected foot prior to clinical onset or aggravation

Peripheral neuropathy can aggravate congenital Pes Planus, and cause or aggravate acquired Pes Planus.

Peripheral neuropathy is a functional disturbance or pathological change in the nervous system supplying the foot, including peripheral neuropathy due to diabetes mellitus or leprosy.

4. Degenerative or inflammatory condition of the tarsal joints of the affected foot where that condition affects the integrity of the joint prior to clinical onset or aggravation

A degenerative or inflammatory condition of the nature described above can aggravate congenital Pes Planus, and cause or aggravate acquired Pes Planus.

Examples of a degenerative or inflammatory condition include:

- (1) rheumatoid arthritis
- (2) osteoarthritis
- (3) tuberculosis

5. Inability to obtain appropriate clinical management

**B. MEDICAL CONDITIONS WHICH ARE TO BE INCLUDED IN ENTITLEMENT/ASSESSMENT**

- Calcaneal spurs
- Callosities
- Corns
- Valgus deformity
- Osteoarthritis tarsal-metatarsal joints
- Metatarsalgia
- Plantar fasciitis
- Morton's neuroma
  
- Foot Strain
- Anterior Flat Foot

**C. COMMON MEDICAL CONDITIONS WHICH MAY RESULT IN WHOLE OR IN PART FROM PES PLANUS AND/OR ITS TREATMENT**

- Chronic 1<sup>st</sup> metatarsal-phalangeal joint bursitis
- Exostosis of the 1<sup>st</sup> metatarsal-phalangeal joint
- Osteoarthritis of the 1<sup>st</sup> metatarsal-phalangeal joint
- Hallux rigidus
- Hallux valgus ("bunion")

## REFERENCES FOR PES PLANUS

1. Australia. Department of Veterans Affairs: medical research in relation to the Statement of Principles concerning Pes Planus, which cites the following as references:
  - 1) Harrison's Principles of Internal Medicine. 13<sup>th</sup> ed.
  - 2) Turek, S.L. Orthopaedics Principles and Their Application. 3<sup>rd</sup> ed.
  - 3) Schwartz, et al, Principles of Surgery. 4<sup>th</sup> ed.
2. Berkow, Robert and Andrew J. Fletcher, eds. *The Merck Manual of Diagnosis and Therapy*. 16<sup>th</sup> ed. New Jersey: Merck, 1992.
3. Canada. Department of Veterans Affairs. Medical Guidelines on *Foot Conditions*.
4. Dee, Roger, et al. *Principles of Orthopaedic Practice*. 2<sup>nd</sup> ed. Montreal: McGraw-Hill, 1997.
5. Harries, Mark, et al, eds. *Oxford Textbook of Sports Medicine*. 2<sup>nd</sup> ed. An Introduction to chronic overuse injuries. Toronto: Oxford University Press, 2000.
6. Weinstein, Stuart L. and Joseph A. Buckwalter, eds. *Turek's Orthopaedics Principles and Their Application*. 5<sup>th</sup> ed. Philadelphia: J.P. Lippincott, 1994.