

## HEEL SPUR SYNDROME

The largest of the tarsal bones is the calcaneus. It is the most posterior of the tarsal bones, forming the heel. It serves to transmit the weight of the body to the ground and provides a strong lever for the muscles of the calf. The “knob” of the heel is formed by the calcaneal tuberosity. The plantar surface of this tuberosity is depressed in the middle and prolonged on either side by the lateral and medial processes. The medial process serves as the origin of the abductor hallucis, the flexor digitorum brevis, and the plantar aponeurosis. The depression serves as the origin for the abductor digiti minimi, as well as continuing the origin of the flexor digitorum brevis muscle. Just distal to this medial process and the adjoining depression is where a heel spur is most likely to take form. This may generally be confirmed through a lateral x-ray of the calcaneus. It will commonly demonstrate an ossification (heel spur) at or near the originating attachment of the plantar fascia to the calcaneus.

The exact cause and pathological nature of the heel spur is unknown. It has been postulated that prolonged standing or excessive weight gain might be causative, but the systemic response to prolonged low-grade periostitis, fasciitis, or bursitis seems more likely. It most frequently occurs in middle-aged males.

The *Heel Spur Syndrome* includes tenderness beneath the heel when palpated and sharp pain on standing and walking. Slight to moderate swelling may be present over the site of the spur, but may extend to cover the entire plantar surface of the calcaneus. DSR zone finding will commonly demonstrate the inflammation pattern illustrated below. It should also be noted that in chronic cases plantar fasciitis may be present, as a secondary factor, so that the inflamed zone may extend from the site over the heel spur to just distal of the distal metatarsal heads, encompassing the longitudinal arch.

In the late acute phase of the *Heel Spur Syndrome*, adhesions will generally be found over in some density in and around the heel spur site, increasing as the condition becomes more chronic. Diffuse adhesions will be found throughout the plantar surface, distal to the distal metatarsal heads, if plantar fasciitis is also present in the chronic phase.

### Treatment

#### Application:

- Preset the ultrasound unit to deliver a 1 MHz pulsed waveform, at 1.8 W/cm<sup>2</sup>. Ultrasound the inflamed zone, utilizing an effective non-steroidal anti-inflammatory as a coupling agent, for six minutes.
- Manipulate the tissues in and around the inflamed zone to eliminate any adhesions that may be present.
- Preset an electrical stimulation unit to provoke a rhythmic visible contraction at 7 Hz. Place a positive electrode over the heel spur site and a negative electrode over the muscle bulk of the gastrocnemius muscle group. Stimulate for 10 minutes.
- Then, set the unit at 28 Hz, at a sub-contraction level and stimulate for 10 minutes.
- Mechanically vibrate the plantar surface of the foot, for two minutes (preferably with a foot vibrator), to further increase capillary circulation and to desensitize the involved tissues.
- Encourage the patient to mechanically vibrate the bottom of the feet, daily, for two minutes in the morning and two minutes in the early evening.

Success in relieving the *Heel Spur Syndrome* may require as much as a dozen treatment sessions, conducted two or three times a week. Success seems to depend on how fast and to what extent dissolution of the ossification takes place. It also depends on the patient protecting the heel from further trauma.



**The high skin resistance pattern commonly associated with the Heel Spur Syndrome**

Protective measures include:

- A soft rubber, gel, or fleece heel pad in the shoe
- A cupped metal plate to eliminate pressure in the heel area
- A special shoe heel that is shaped to bear all the weight at the posterior margin of the calcaneus
- A high longitudinal arch pad or support, in the shoe
- Forbearance from walking bare footed
- A curtailment of all unnecessary ambulation (going for long walks, for instance)
- A curtailment of all running

These measures should continue for the duration of the treatment course, and for two weeks after all the pain is gone. They should be re-instituted (as should the treatment course) if the symptoms reoccur.

**Post Treatment Suggestions:**

Immediately following the first treatment session, the patient should acquire a soft “heel cap” to cushion the plantar surface of the calcaneus, and use it **whenever** walking (i.e. it should be placed in the heel of which ever shoe is being worn on the involved side).

**Trigger Points**

The following trigger point formations may, singly or in combination, imitate or contribute to the pain accompanying the *Heel Spur Syndrome*: Gluteus minimus, Adductor longus, Gastrocnemius, and Soleus.