

# The 'Runner's Point': An Extra Point for the Treatment and Prevention of Lower Leg Injuries in Athletes

## Abstract

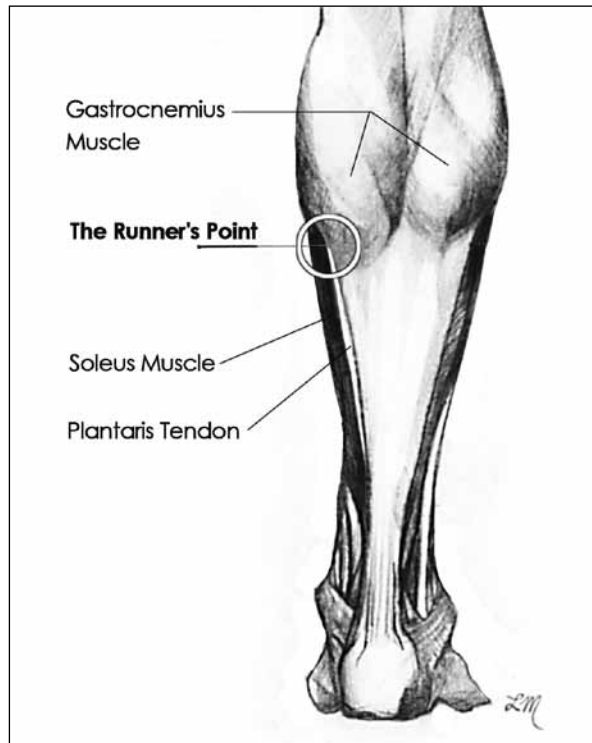
This article presents a previously unstudied acupuncture point that can be effective in the treatment and prevention of sports injuries amongst runners and other athletes. The author explores correlations with Western medical research and outlines the underlying anatomy of the point for the purposes of location, understanding the development of injury in this area and to assist in the treatment of various lower leg ailments including calf strain, inhibited dorsiflexion and plantar fasciitis.

In the clinical practice of sports acupuncture, a practitioner may witness patterns in the development of injuries amongst a common population. Through ongoing experimentation and patient feedback I have discovered a previously unstudied extra point that is useful in lower leg injury prevention and treatment - particularly in runners and other athletes, but also the general public. I commonly refer to this point as 'alternate KID-9', due to its location near to Zhubin KID-9, or as the 'runner's point', as runners are the group amongst whom I have seen the best and most consistent results with the use of this point. In runners there is often an easily-palpated tendino-muscular junction at this point that is consistently tender and tight (and thus 'active'), and that benefits from acupuncture treatment. The increased demand on calf muscles required by the recently popular 'forefoot' running may contribute to calf problems, especially when the runner attempts to transition from heel-strike running too quickly. This point may also be found to be active in other athletes, including 'weekend warrior' types who spend all week working and every weekend and evening exercising or competing, as well as individuals who jump straight from a sedentary lifestyle to the kind of high-intensity circuit training that has recently become so popular. The runner's point is an excellent adjunct point in the treatment of generalised calf pain and tightness, medial gastrocnemius strain, 'tennis leg', Achilles tendonitis, medial shin splints, inhibited dorsiflexion and plantar fasciitis.

## Point location

If active, the runner's point can be palpated at the medial junction of the three muscles of the lower leg - the gastrocnemius, soleus and plantaris - near the point Zhubin KID-9 where tightness, adhesion

and tenderness can usually be found. This tendinous junction varies according to a person's individual calf structure, both in terms of its superior-inferior and anterior-posterior position, and hence an exact cun measurement is not a reliable means of location. It can generally be found five to eight cun above Taixi KID-3 along - or one to two cun posterior to - the Kidney meridian, at a depth of 0.5 to one inch deep. It is an



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(Illustration by Lindsay Martin)

*ahshi* point in every sense of the word - that is, it must be located either by palpation or a combination of patient feedback and palpation.

## A note on anatomical variation

Because the location of this point varies from person to person, I was led to inquire of Peter Deadman,

Figure 1: The location of the 'runner's point'.

***In runners there is often an easily-palpated tendino-muscular conjunction at this point that is consistently tender and tight.***

the author of *A Manual of Acupuncture* (Deadman et al., 2007), about the location of Zhubin KID-9 itself. In *Chinese Acupuncture and Moxibustion* (Cheng, 1987) the point is described as being located '5 cun directly above Taixi KID-3 at the lower end of the belly of m. gastrocnemius, on the line drawn from Taixi KID-3 to Yingu KID-10'. Deadman et al. (2007) locate the point 'on the medial aspect of the lower leg, 5 cun superior to Taixi KID-3, on the line drawn between Taixi KID-3 and Yingu KID-10, about 1 cun posterior to the medial border of the tibia', and thus make no mention of the gastrocnemius at all. Peter Deadman confirmed via email that 'the belly of the gastrocnemius varies so much from person to person, and perhaps from race to race that for the purposes of a textbook we decided to favour the measured location'. The 'runner's point' might therefore be seen as an alternate location of Zhubin KID-9, although in some (but not all) individuals the point may actually coincide with the conventional location of Zhubin KID-9 as described above.

#### ***Location of surgical interventions in lower leg imbalances***

Upon further investigation into conventional Western medical research into tight calves and inhibited dorsiflexion, the runner's point - with its variable location - appears to coincide with a region targeted by a specific surgical procedure used to correct severe cases of such conditions. Gastrocnemius recession (as the procedure is called) is performed on individuals with calf tightness and inhibited dorsiflexion who have been unresponsive to non-surgical treatment with orthotic lifts, night splints, stretching techniques or manual therapy. The treatment involves the surgical release of the gastrocnemius tendon, and also sometimes separation of adhesions between the gastrocnemius and the belly of the deeper soleus muscle. According to a 2004 study (Pinney et al., 2004), 'The gastrocnemius release point was located an average of 18mm distal (range, 20mm proximal to 57mm distal) to the surface landmark created by the distal extent of the gastrocnemius muscle belly'. The region of incision thus appears to coincide closely with the location of the 'runner's point'. A 2007 study concluded that 'Understanding the variation of the gastrocnemius aponeurosis will aid the surgeon in choosing a recession technique, performing the procedure, and preventing iatrogenic complications'

(Blitz & Elliot, 2007). Acupuncturists similarly benefit from understanding such anatomical variations in relation to locating this - as well as other - traditional acupuncture points.

#### **Anatomy of the 'runner's point'**

What makes the runner's point so effective is that it affects a broader area than any single point in one of the individual muscles in the lower leg could. The posterior compartment of the lower leg is comprised of three muscles - gastrocnemius, soleus and plantaris - that interact with each other. The gastrocnemius muscle is the most superficial, and forms the bulk of the prominence of the calf. It is a two-joint muscle that acts upon the knee and ankle, with primarily vertical fibres that contract to produce movement (for instance during running and jumping). It overlays the broader, flatter soleus muscle and its two heads end in a common aponeurosis which unites with that of the soleus to form the calcaneal tendon (Achilles' tendon). It is worth noting that the aponeuroses of the soleus and gastrocnemius lie adjacent to each other, but on contraction move in opposite directions, which creates friction between them and the potential for subsequent inflammation and adhesion (Bojsen-Møller et al., 2004).

The third, lesser-discussed, muscle of the lower leg is the plantaris, a small, thin muscle with a long, thin tendon that originates from the lateral supracondylar line of the femur and the oblique popliteal ligament in the posterior aspect of the knee. This muscle courses distally in a medial direction across the popliteal fossa, between the popliteus muscle anteriorly and the lateral head of the gastrocnemius muscle posteriorly. In the midportion of the leg, the long thin tendon of plantaris passes between the gastrocnemius and soleus muscles in the region of the runner's point. The plantaris muscle is absent in seven to 10 per cent of the population (Strandberg, 2004), and while it appears to have little significant mechanical function, it is 'considered to be an organ of proprioceptive function for the larger, more powerful plantarflexors as it contains a high density of muscle spindles' (Andreo & Spina, 2004). Proprioception is the transmission of a sense of position for the whole or part of the body. Essentially, it is the neuromuscular foundation of physical coordination, balance and agility. Cultivating and maintaining proprioceptive skills is useful in both the prevention and treatment of injury. A recent German systematic review highlighted the value of neuromuscular training in preventing sports injuries, concluding that there was evidence for the effectiveness of proprioceptive/neuromuscular training in reducing the incidence of certain types of sports injuries (Hubscher et al.,

2010). In another study, the effects of a home-based proprioceptive training programme on patients with lateral ankle sprain was analysed. Both the test and control groups received standard therapy, with the test group also receiving proprioceptive exercises. Those in the test group had a 35 per cent reduction in recurrence (Hupperets et al, 2009). For these reasons, maintaining the health, functionality and sensitivity of the plantaris muscle is likely to be useful in the overall treatment and prevention of injury.

### Clinical applications

Each of the injuries described below has its own parameters for treatment, which may be effectively supplemented by the use of the runner's point in addition to the protocol selected by the individual practitioner.

#### Calf strain

Calf strain - often called 'tennis leg' because of its prevalence in that sport - is most commonly found in the medial head of the gastrocnemius, a muscle considered at high risk of strain because it crosses both the knee and ankle and has a high density of type-two fast-twitch muscle fibres (Brukner & Khan, 2002). Common causes of calf strain include sudden movements such as sprinting and jumping, as well as the repetitive stress of frequent uphill running, especially when there is a rapid increase in the intensity of training sessions.

#### Inhibited dorsiflexion

As mentioned above, friction and repetitive stress at the junction of the posterior lower leg muscles invites inflammation and adhesion. As a result the calf muscles may pathologically tighten, resulting in inhibited dorsiflexion, the motion by which proper deceleration occurs during walking or running through absorption of the impact of the foot on the ground. Lack of dorsiflexion decreases the ability of the foot and ankle to absorb shock, which in turn may cause ankle stiffness, knee and/or hip pain. In the experience of the author orthopaedic testing before and after treatment using the runner's point tends to show an increase in flexibility immediately after needling.

#### Plantar fasciitis

Because some fibres of the Achilles tendon continue beyond its insertion into the posterior calcaneus to where the plantar fascia inserts into the plantar surface of the calcaneus, increased tension in the Achilles tendon is frequently associated with strain in the plantar fascia (Cheung et al., 2006). Furthermore, a 2011 study concluded, 'Limited ankle dorsiflexion is commonly associated with plantar fasciitis and more

*Maintaining the health, functionality and sensitivity of the plantaris muscle is likely to be useful in the overall treatment and prevention of injury.*

than half of these patients had evidence of an isolated gastrocnemius contracture' (Patel & Digiovanni, 2011). Releasing the strain in the Achilles tendon via the runner's point can be beneficial in the treatment of plantar fasciitis - just like surgically lengthening the Achilles tendon and calf muscles via gastrocnemius recession - although acupuncture is obviously much less invasive.

#### Medial shin splints

There is considerable debate regarding the aetiology of medial tibialis stress syndrome (MTSS), the current medical label for medial shin splints. Detmer (1986) proposed that MTSS was caused by the application of traction stress on the periosteum by the medially arising fibres of the soleus muscle. According to a 2008 study on the prevention of MTSS, although experts do not agree on a specific cause of MTSS they 'appear to agree [that] the soleus muscle is involved in MTSS somehow' (Craig, 2008). Treatment of the runner's point can alleviate the strain placed on the posterior tibia at the region of the insertion of the soleus, specifically the fibres that connect soleus to the periosteum of the tibia (Kortebein et al., 2002).

#### Preventive needling

It has become customary in my clinical practice to check this point on athletes who run and jump as part of their sport. It is, of course, impossible to know how effective pre-emptive treatment is, as we cannot evaluate the outcome of not needling a point. I therefore only have anecdotal evidence of the effectiveness of needling this point via the subsequent decrease in pain reported by the patient, the reduction in tension and knottedness upon palpation, as well as the less frequent occurrence of pathology together with emphatic patient testimonials that the point is effective. For example, one patient - a former USA masters-level track and field 400 metres champion - had struggled with recurrent Achilles tendon problems and severe ongoing calf tightness that was inhibiting his training. Since regularly checking and treating the runner's point, his calf tightness no longer progresses beyond a minimal level and his training is no longer interrupted. While other points are always included in my treatments, patients have begun to refer to this point by name in my office.

### Needle technique

I have found that the most effective method for treating this point is to produce a fasciculation - a contraction and subsequent release of the shortened muscle fibres in the underlying muscle(s). This is achieved by using a lifting and thrusting technique similar to trigger point needling. The point is generally found at a depth of 0.5 to one inch so a 30 to 40 millimetre needle is typically of sufficient length, and even a 38 gauge needle should be able to produce the intended reaction if the location is correct. The patient should feel a sudden pressure and then a release in the muscle, and the point should subsequently feel less tight upon palpation. In cases where a fasciculation is not elicited, try inserting another needle into the point within a radius of half a cun and attempt to produce the fasciculation again. If this fails add electrical stimulation between the two points. The fasciculation can also be attempted once more at the end of the treatment after the other needles have been removed.

### Conclusion

We are fortunate to have centuries of experience behind us in the practice of Chinese medicine. However, modern activities involving ever-new tests of physical strength and endurance (competitions, races, 'Iron Man' triathlons etc.) may affect human physiology to such an extent that they lead us to discover extra points in addition to those found in existing textbooks. The consistent, reproducible effectiveness of the 'runner's point' in the treatment and prevention of lower leg injuries may prove to be one such example. ■

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