NLSSM
The School of Sports Massage

Sports Massage and Athletics

There is always something exciting going on during an athletic competition, it is a bit like being at a three ring circus and having to keep your eye on many performances at once. Over the course of the Olympics there will be a total of 47 athletic events, 24 for men and 23 for women. Skills include jumping, throwing and running. There are also combined events such as the Decathlon for men who have 10 events and the Heptathlon for women who have seven.

While a majority of the events will take place at the Olympic stadium there is also road running and race walking which will be held in London.

Within Athletics athletes use numerous physical skills especially during combined events. Since running is common to many of these events we will concentrate on the injuries and their rehabilitation relevant to this skill. In future A-Z Olympic articles we will examine additional injuries that will be applicable to many of the events in athletics.

Terminology Corner:

Boxed In – happens when a long distance runner gets surrounded by other runners and is unable to get out without having to change their rhythm.

Dip Finish – when a runner pushes their chest forward at the end of the race to try and get the best finishing time.

Fosbury Flop – a method of high jumping wherein the jumper will clear the bar by arching their back to get over it.

Pacemaker or Pace-setter – can either be a teammate or employed by the organizers to set a running pace for as long as he/she can. Their job can be to assist another athlete in achieving a world record or to help a teammate keep at a manageable pace and avoid excessive tactical racing. Pacemakers have been known to go onto finishing and winning events but this is not their primary remit.

Red Flag – unlike the meaning in massage which signals a contraindication in soft tissue work this is when a red flag is shown for a competitor in either long jumping or triple jump who has made an invalid jump. This is usually due to stepping over the take-off line.

Starting Blocks – are fixed to the track and are used to help an athlete begin a race by pushing off of them. They are allowed in races up to and including the 400m.

Steeplechase – a long distance event over 3000m that is run over 7.5 laps which includes four hurdles and one water jump on each lap.

Wind Assisted – in races of 200m and less as well as in jumping events, if the wind speed exceeds 2m/s in the direction of the race, any record time or distance achieved is invalid.

Road Events		Track		Field		Combined Events
Marathon	26 miles and 385 yards	Sprints	60-100-200-400m	Jumps	Long Jump Triple Jump High Jump Pole Vault	Heptathlon Decathlon
Racewalking	20-50 km 20,000m	Middle Distance	800-1500-3000m	Throws	Shot Put Discus Hammer Javelin	
		Long Distance	5000-10,000m			
		Hurdles	100-110-400-3000m Steeplechase			
		Relays	4x100m 4x400m			

Race Walking Versus Running – Race walking is not as well known as marathon running, sprinting or long distance running, but the physical demand is still great. The incidence of injury is lower than higher impact sports which is partially due to the stability of the gait cycle wherein one foot is in contact with the ground at all times.

"Race Walking is a progression of steps so taken that the walker makes contact with the ground, so that no visible (to the human eye) loss of contact occurs. The advancing leg shall be straightened (i.e. not bent at the knee) from the moment of first contact with the ground until the vertical upright position." (Rule 230 of the International Association of Athletics Federations)

Rather than looking at race walking preventing an athlete from running it should be seen as the extension of one method as far as possible without lapsing into another.

Race Walking is not to be confused with power walking and speed walking which are milder and non-competitive variants of race walking, just as jogging is a milder form

of running, the difference is mostly in degree of effort and concentration on technique.

Whether you are seeing a client who is a runner, sprinter, hurdler or a race walker the preparation work that is required in order to compete in the Olympics is demanding and the issues with the ankles, knees, hips and lumbar spine reflect similar repetitive strains on the body.

Interesting Facts

Road Running as we know it started in the 18th century. The aristocrats use to wager on the speed of their footmen and how fast they could deliver a message over long distances. Eventually these male servants were hired for the sole purpose of competing and eventually it became a sport. In 1896 it became an official event in the Olympics.

The Marathon commemorates a Greek soldier who ran 171 miles to deliver a message from the battlefield near the town of Marathon to Athens in 490BC. Legend has it that he died after running this distance in two days.

In 1908 the marathon distance was changed from 24 miles so that the race could finish in front of the Royal family's viewing box.

Common Injuries:

Most injuries originate due to the repetitiveness of the training and the demand on the lower extremities. Injuries common to running within athletics includes shin splints, plantar fascitiis, chondromalacia (Runner's Knee), patellar tendonitis (Jumper's Knee) and stress fractures.

Primary causes can be due to biomechanical imbalances, running on hard surfaces, not taking enough rest days or overtraining. There are also the usual culprits, not warming up properly or warming down, shoes past their sell by date, working through chronic niggles etc. From a soft tissue therapists point of view it is important to prevent injury as well as to resolve the current complaint, so it is important to give the right advice and appropriate treatment and get your athlete on board with regular massage treatments.

Shin Splints

Common sources of shin splints are tendinitis, periostitis, stress fractures and compartment syndrome. It is essential to get an accurate diagnosis by taking a thorough client history and a physical examination. It assessment might also need to include a radiology investigation and the measuring of pressures within muscle compartments for which you will need to work alongside the appropriate health care professionals.

If your client is coming to you with a diagnosis after a thorough investigation and both a stress fracture and compartment syndrome have been ruled out you can proceed with treatment. If it is a self-diagnosis, err on the side of caution be alert for red flags (symptoms that will indicate you should not proceed).

Symptoms

Symptoms for shin splints, also known as medial tibial stress syndrome, are commonly described as a dull ache in the distal anterior portion of the lower leg that is either aggravated with exercise or felt post exercise. There is a fine line between discomfort, soreness and pain. Athletes as they train are use to discomfort as their body adapts to new levels of conditioning. But if the pain persists they need to communicate this to their coach or the appropriate person.

Be cautious if the pain is only on one side, and/or there is the presence of inflammation, this could indicate a stress fracture. If the skin has a shiny appearance and/or looks as if it is being pulled tight you should suspect compartment syndrome. Pain that is associated with compartment syndrome usually increases during exercise (or massage) as the muscles warm up and pressure is increased within the fascial compartment. Massage in these two circumstances is contraindicated.

To test whether it is suitable to massage use the 10 second rule by applying pressure to the tissue, if the pain increases within 10 seconds it is not suitable to continue, if the pain remains a constant, apply conservative massage treatment, if it eases you can work as you would with a sub acute injury.

Factors affecting the incidence of Shin Splints	**Prevention Advice**
Sudden increase in training i.e. distance or intensity	Increase training sensibly and only change one thing at a time (FITT- frequency, intensity, time and type)
	Increase training volume gradually i.e. 5% and maintain over several weeks
	Encourage cross training - i.e. yoga

	classes for flexibility and dynamic stretching
Not enough rest days	Encourage rest days for muscle recovery
Running on hard surfaces	Change location of running to a softer surface or have an extra cushioning shoe
Lack of warming up	Warm up and cooling down – make it sport specific
Tight or short achilles tendon	Regular stretching and massage to address muscle tension
Gait or biomechanical imbalances i.e. excessive pronation of the foot, supinated foot, stiff midfoot joints	Get an assessment to determine if orthotics are required (in most cases it is more appropriate to try corrective soft tissue work first)
Incorrect technique – excessive forefoot landing	Get appropriate professional advice about technique
Shoes that either lack support or are inappropriate for the foot type	Adopt rotating a few shoes at different stages of wear to diminish the effects of sudden changes brought about from new footwear
Previous injury affecting a change in running pattern	Have regular sport and remedial massages to maintain tissue health
	It is important to drink an appropriate amount of fluid to replace what has been lost during a training session, maintain hydration

Treatment

Overuse injuries in sport are common and shin splints are one of these. The discomfort can be associated with muscles being overworked either due to an increase in the intensity of the workout schedule or an improper biomechanical motion of the foot causing an imbalance in the workload of the lower leg. (As well as the previous reasons already mentioned in the chart). If it is due to a biomechanical fault such as excessive pronation of the foot causing a stiff and weak ankle, treatment is slightly different than an overuse problem. Other considerations might include wearing an appropriate shoe that will help to stabilize and support the foot. A correctly fitted shoe might be all that is needed (aside from sports massage) and can be obtained from a reputable running shop that understands the importance of a good running style.

Depending on the underlying reason for the shin splints your soft tissue approaches to massage will vary. For instance, if the condition is due to running on hard surfaces placing stress on the muscles as a whole, then a general allover approach is warranted. But if there is a biomechanical issue present a more considered

approach is necessary. For example overpronation requires an understanding about the specific muscles that need to be loosened, lengthened and strengthened. Loosening everything that is tight can have a negative effect and lead to other injuries.

For shin splints that are from overuse due to overtraining will find Muscle Energy Techniques, Soft Tissue Release and Connective Tissue Manipulation are useful corrective techniques. (Friction in this case can have a negative result and is not as effective as some of the previously mentioned techniques). Well applied effleurage and petrissage will also get the job done. Muscles that are affected might include tibialis anterior and posterior, the group of muscles that make up the achilles tendon as well as those that support the foot. Be sure to massage any areas of tension above the sight of pain as well as address any compensatory patterns that might have developed.

Rest is the best antidote for any overuse injuries but try telling that to an athlete that is on a schedule and it might not be well received. Hence during the recovery stage of healing they can maintain their cardiovascular fitness by taking up non-impact sports such as cycling or swimming.

The application of ice can minimize inflammation.

They should only return to running when the symptoms have resolved which can take anywhere from 2 to 4 weeks depending on the severity of their condition, longer if there is poor compliance.

When they return to running they need to gradually take up the pace and not start back where they left off, gradually increasing the distance over a three to six week period.

It is advisable for them to choose soft terrain and have a moderate intensity over a shorter distance.

At anytime if the pain returns advise them to return back to the point in their training where it did not hurt and apply ice as appropriate.

Throughout their recovery they should have regular massages to address the areas of tension and increase rate of recovery. In the beginning these might be every week or more depending on their training level. As they recover the sessions will decrease and the distance between treatments will get longer. It is important to always educate your athlete about the importance of prevention and the need for regular sessions.

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