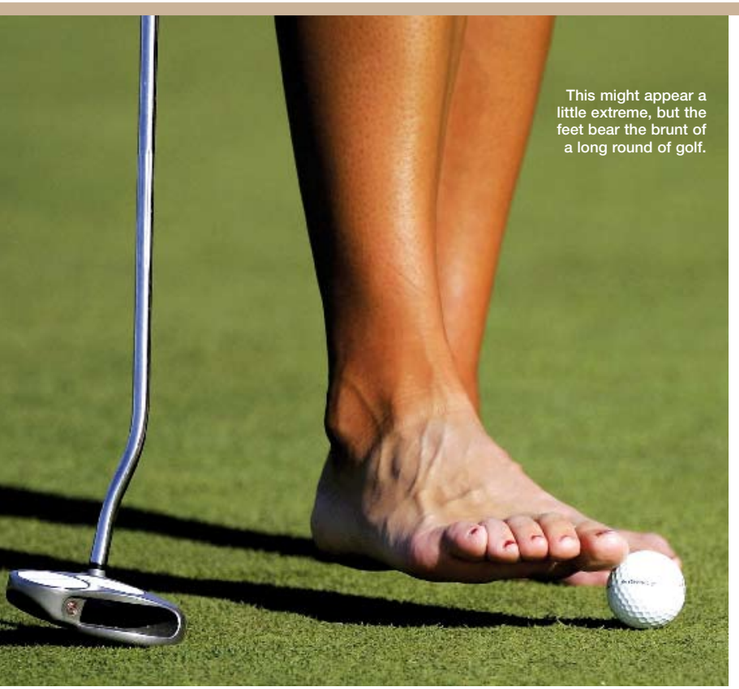

This might appear a little extreme, but the feet bear the brunt of a long round of golf.

Important facts about footwear and orthotics

In the second of a three-part series about weight transfer in the golf swing, Ramsay shares some key facts about footwear and orthotics.

BY RAMSAY McMASTER, WITH ROHAN CLARKE

The relationship and interplay of feet, footwear and spine is a major factor towards efficient pain-free functioning of the body. Last month I wrote about the correlation between distance and weight transfer in the golf swing from my discussions with Ben Langdown, head of sports science with the British PGA. However, proper weight transfer is dependent upon your body's ability to perform certain actions. Mark Jans, my colleague at the Melbourne Golf Injury Clinic, is a specialist in this area as a qualified physiotherapist and orthotist.

Since your feet are connected to the ground, it stands to reason your feet and foot-arches affect the golf swing. A normal arch gives you the benefits of shock absorption and propulsion during the gait cycle and is able to adapt to a variety of terrains and golf swings. Balance is optimal with a correct arch. High arches give you less shock absorption and feel with the ground. Low arches or flat feet give better feel to the ground but have a tendency to fatigue. Both extremes place greater strain on the muscles of the lower limb and spine due to the imbalances.

Jans explains that your gait or walking pattern is a reflection of both your emotional and physical state. For instance, tired, beaten golfers will tend to slouch and move more slowly. A fit golfer will be better able to keep an upright and strong gait pattern. At an elite level, your gait tells your opponent whether you might be tiring.

A golfer can walk up to nine kilometres in a round of golf. Therefore, small gait abnormities load areas of the body unevenly and force muscles to work harder than they need. This results in imbalances, particularly of the lumbar spine, knees and hips, which can lead to injuries, early arthritic changes and muscle soreness. It also leads to compensatory movements in the golf swing.

Of course, injuries to the body will manifest in the gait cycle and swing. An asymmetrical walking pattern or limp due to a particular injury will lead to muscle imbalances between the left and right side. This will reduce rotation during the swing and make it impossible to maintain a solid posture throughout, especially at impact.

"A slouched gait pattern with a chin poke will make it impossible to get full rotation at the top of the swing and can lead to headaches and various upper limb injuries," Jans says. "A longer leg, particularly the right leg in a right-handed golfer, will make it impossible to get the correct spine angle at address, causing the right hip to set higher and result in a reverse pivot. In an active individual it will always result in lower back pain and anterior hip tightness on the right side. It can also increase tightness in the left hip."

Injuries aside, the tempo of your walking speed (that is, step frequency and length which you can control) will be reflected in the tempo of the golf swing. Maintaining a comfortable walking speed rather than rushing or walking very slowly will make it easier to maintain a consistent tempo. This could be why you probably play better with a certain group of players and when the course has no traffic.

How top players suffer

Tight calf and intrinsic muscles are the No.1 problem for tour players, according to Jans, followed by stiffening and less accessory movement of the foot's small joints. Problems in these muscles and joints can manifest in a range of foot problems such as plantar fasciitis, heel spurs, corns, calluses, mortons neuroma, metatarsalgia and bunions.

Properly functioning feet combined with a correctly functioning lower kinetic chain and spine result in the foot being able to 'hug' the ground during the golf swing as the inertial forces are absorbed by the body. This keeps the body's weight transference more stable and consistent resulting in better shot-making. Conversely, a golfer with insufficient joint and muscle range of motion is likely to have additional twisting, rolling, slipping and sliding at the shoe ground interface, which increases the likelihood of erratic weight transference and inconsistent ball contact.

You don't need to have pain to have imbalances in the body. The body has an amazing ability to compensate and thus give you a false sense of security. So get a regular golf-specific screening, focusing on your feet, legs and spine to ensure that there are no problems which are forcing your body to work harder while playing golf and which will manifest as injuries later down the track. Depending on the problem identified, there is a range of exercises that can specifically target the area. In addition, advising on the correct shoe for your foot type is critical.

Female golfers generally have more problems than male golfers due to years of wearing fashionable footwear. With women, Jans generally sees larger bunions, big toes that point inwards and toes that are clawed. There will normally be more callus formation than men. Junior golfers can suffer from growing pains, that is, the bones grow faster than the muscles can keep up. This can result in Sever's and Osgood-Schlatter syndromes.

Common feet-related injuries for golfers

Flat or high-arched feet need good footwear to provide the correct support and compensate for an individual's inadequate foot function. Poor footwear will accelerate problems and lead to injuries not only in the feet but knee, hip and spine. Common injuries include plantar fasciitis, heel spurs, metatarsalgia, Achilles tendonitis, patello-femoral joint pain syndrome, bursitis of the hip and disc and facet joint degeneration of the spine.

You might get away with your old golf shoes from the back of the closet. But to protect your longevity, you'll want to invest in good golf shoes. It is common to buy a pair of golf shoes and think they are fine in the store, only to be disappointed with the fit when you get home or after the first few rounds of golf.

Good-quality shoes are essential to maintaining healthy feet for golf.

THIS PAGE: WARREN LITTLE/GETTY IMAGES • OPPOSITE: RICHARD HEATHCOTE/GETTY IMAGES

To avoid this, ensure your foot is measured and shoes fitted for the larger foot. Buy shoes later in the day to account for any swelling. Try on as many pairs as you can. Each brand and model of shoe has a different shape and depth that may be more suitable for your foot type. Take your orthotics and socks that you normally wear to get the fit right. Ensure that the laces have room to tighten, as the shoe will stretch.

Shortlist a few shoes and take them for a good walk around the shop. Make sure the shoe feels resilient when you land on your heel, so that it doesn't wobble, and it has a good 'heel counter', which is a visible or built-in supportive cup around the sides of the heel to stabilise it. Have a feel of the toe box. Make sure you can pinch a little bit of the leather but not too much at the top of the shoe below the laces. Ensure that your toes can move freely and there is a thumb space at the end of the shoe when standing. Also make sure the shoe bends at the forefoot and not in the middle. Try bending the shoe before you put it on as a preliminary test. If it bends in the middle before bending at the forefoot then it will put more strain on the arch of your foot.

"The biggest mistake I see is shoes that are too big and the foot flops around inside and provide no support," Jans says. "There should be enough adjustment in the laces so that the shoe can be tightened more or less. You should not be able to remove your shoe if the laces are done up correctly, preferably graduated pressure tighter at the bottom. Be prepared to wear shoes in slowly, keep your old pair and gradually wear in the new pair over a month so that they stretch and conform to your feet. This will provide optimal support to you."

Foot orthotics are custom-made shoe inserts that are designed to control and support the foot. They improve foot function by treating imbalances and modifying areas of weight bearing. Orthotics can provide relief for painful foot problems (such as arthritis) or an injury. Golfers benefit from orthotics, as they need to walk and stand for long periods. Orthotics will often increase endurance, performance and strength. For overweight individuals, orthotics can help to counteract the extra stress on the feet.

By eliminating the need for your muscles to compensate for imperceptible imbalances, orthotics can reduce fatigue and promote efficient muscle function to enhance performance. With enough functional correction, the foot structure can be aligned to give more propulsion, making walking, and striking golf balls more mechanically efficient.

For advice on a golf-specific training program, contact Ramsay McMaster on 0407 432 282 or e-mail golfphysio@ozemail.com.au. To purchase a golfer's 'Fitness Survival Kit', call the Melbourne Golf Injury Clinic on (03) 9569 9448.

NEXT MONTH: Ramsay details golf-specific drills that will enhance weight transfer in the golf swing.