

Why am I interested in the way you run?

Our practice specialises in solving problems stemming from poor foot and leg posture.

The following are some common questions and answers to help our patients understand the field of biomechanics and custom foot orthotic devices

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What is lower limb biomechanics?


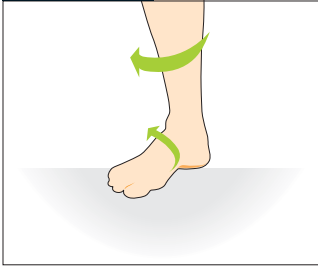
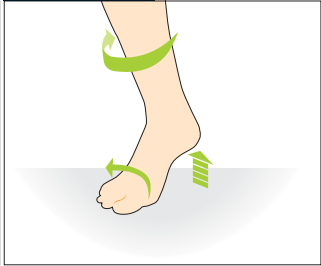
Biomechanics is the medical and scientific understanding of function and movement of your musculo-skeletal system. Lower limb biomechanics is the area concerning how your feet, ankles, knees, hips, pelvis and lower spine work together to carry your body through the daily activities of standing, walking and running.

What is going on inside my feet and legs when I walk?

For humans to be able to stand erect, walk and run on two feet is an amazing achievement within the animal kingdom. This ability is what separates us from all the other animals on the planet.

Over the millennia the human foot and leg has evolved into a highly specialised limb that not only supports our full body weight during standing, but will alter itself instantly to precisely balance the body and absorb the forces of walking and running, maintaining us in an upright position as we move along.

A great deal of this versatility stems from the complex arch structures and the three dimensional movements of bones, joints and soft tissues within the human foot and leg. In the science of biomechanics normal walking is viewed under the following headings:

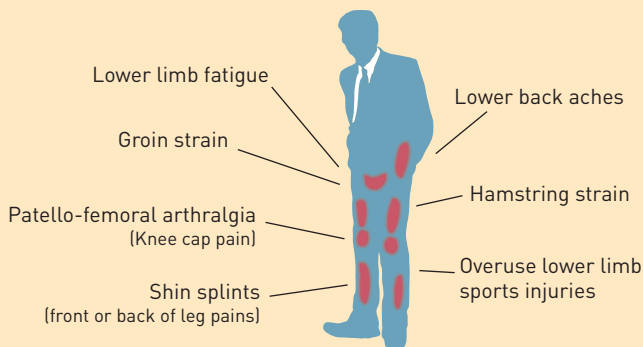
Contact	Mid-stance	Propulsion
		
When the heel meets the ground during normal walking, the foot will start to alter its shape by lowering the long arch primarily by using the joint between the heel and ankle bone (subtalar joint) and at the same time, the leg will rotate inwards - (these movements occurring together help absorb shock).	With the sole of the foot in full contact with the ground, the leg begins to rotate outward causing the long arch to partially rebuild itself into a neutral position - (this position fully supports your body weight without strain as you stand over the foot).	And finally, the leg continues with this outward rotation, the arch fully rebuilds itself, and your body weight travels along the foot to the big toe. As you move forward the heel rises off the ground and you push off with your toes - (this fully built long arch provides maximum strength and stability to your foot and leg allowing you to move your body weight in an efficient and controlled manner onto the opposite foot).

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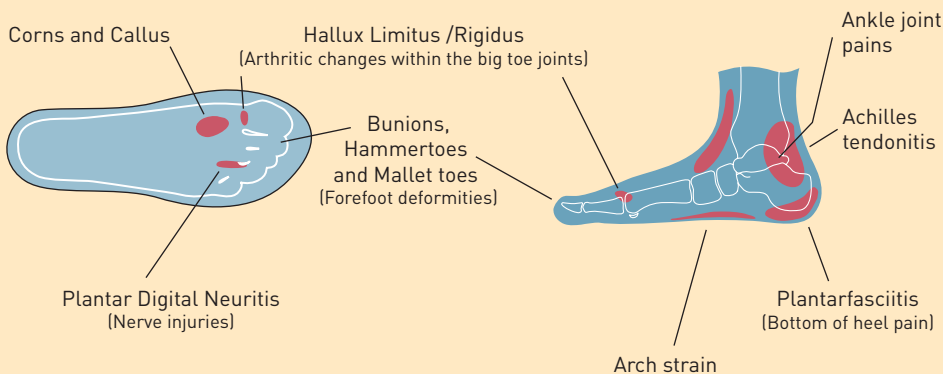
I now understand the normal movements of my feet and legs but what happens if this goes wrong?

These finely tuned orchestrated movements during walking require specific things to happen at precise moments to allow pain free walking and running. When these movements are out of sequence or do not happen at all, then a variety of problems can develop.

You might suffer from general lower limb pains such as;



Or specific foot and ankle problems such as;



Abnormal Foot Function

Usually falls under the following three headings:

1. Excessive pronation

Is where the arch remains collapsed placing the foot, lower limb and back under undue strain.



2. Excessive supination

Is where the arch is rigidly held in a high position and does not allow natural shock absorption thus causing jarring up the leg and into the lower back.



3. Equinus condition

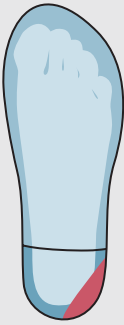
Is where the heel spends very little time on the floor during walking or in extreme case does not meet the floor at all. This instability can lead to fatigue from the lower spine down to the arches.



contrary to popular belief,
foot pain is not normal

How do I know if I am suffering from abnormal foot function?

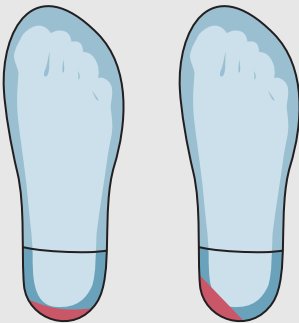
If you suffer with pains, aches and fatigue within your feet, ankles, legs, knees, hips or lower back then look at the bottom of your footwear and observe the wear marks. Certain wear marks in combination with your symptoms are a clear indication of faulty lower limb biomechanics.



Normal heel wear:

The outer border of the heel of your shoe should have some normal wearing.

normal wear



Abnormal heel wear:

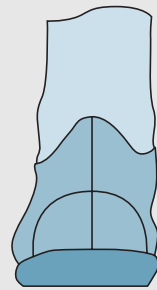
If however this area is wearing down fast or if the inside border of the heel is wearing then this can be a clear indication of faulty biomechanics.

abnormal wear

Normal heel cup position:

Place your shoes on a flat surface and observe the heel cup of the shoes from behind. The heel cup should be vertical.

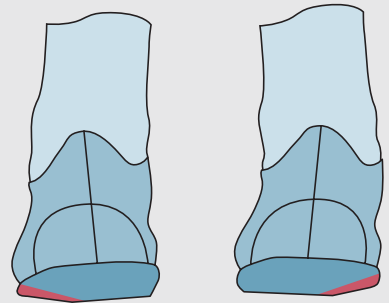
normal wear

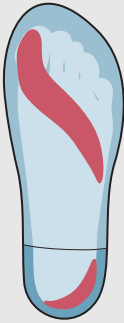


Abnormal heel cup position:

If they are rolled over excessively to the inside or outside then again this will indicate faulty biomechanics.

abnormal wear

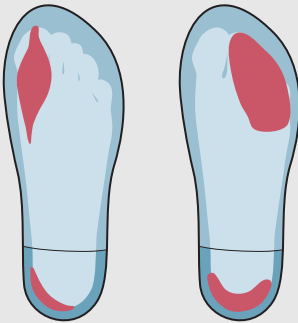




Normal sole wear:

Look also under the big toe area of your shoe. The main wear should be around the ball of the big toe joint. This particular wear is normal as the big toe joint is essential for pushing you off the ground.

normal wear



Abnormal sole wear:

However, if there is excessive wear in this area (the material being worn thin quite quickly) or sometimes no wear in this area at all but, excessive wear around the lesser toes of the shoes, then this will also indicate faulty biomechanics.

abnormal wear

shoe wear marks are vital clues to how you walk



take care of your feet...
they should last a lifetime



3 dimensional laser scanning in action

examining the quality and quantity of the movements of your joints

What can be done about my abnormal foot function?

Your practitioner is an expert in this specialised medical field. They have specific biomechanical knowledge either from their university training or postgraduate studies. They will spend time taking a detailed history of your lower limb injury and, should they suspect abnormal foot function, take you through a Biomechanical Examination. To assist in this you might be requested to wear a pair of sports shorts.

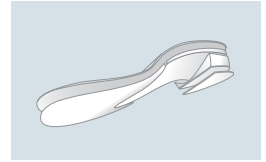
Your practitioner will observe how you are walking and standing and they will examine the quality and quantity of the movements of your joints from your lower back down to your big toes. Your footwear will also be examined.

From this investigation your practitioner will have a good idea of how you are supporting yourself and moving around on your feet and legs. They may prescribe custom foot orthotic devices to treat your abnormal foot function. Additional stretching and strengthening routines for muscle groups may also be recommended to help in your recovery.

The following are some common questions and answers to help our patients understand the field of biomechanics and custom foot orthotic devices

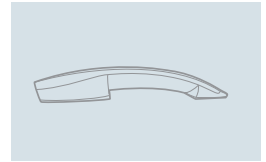
What are custom foot orthoses?

Custom foot orthoses are precision, prescription medical devices that are worn inside your shoes. Such orthotic devices are designed to alter the way your foot lands onto the ground and will provide specific support to your feet during the complex series of movements involved in walking, running or standing.

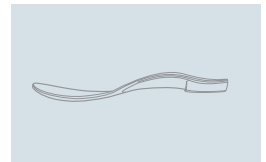


Are there different types of orthotic devices?

Yes. Assessing your weight, activity and requirements, your practitioner will determine the type of custom foot orthoses best suited to your feet. They will either mould Plaster of Paris slipper casts or take three-dimensional laser scans of your feet to send to the laboratory in placing the order for your individual made devices.



Within several days the laboratory will send your custom foot orthoses to your practitioner for dispensing. It is vitally important for you to follow all stretching and strengthening routines and to follow the breaking in instructions included on a leaflet supplied with your devices.



Is there a follow-up involved?

Yes. To get the best wear from your custom made foot orthoses follow the after care instructions and always return for any follow-up visits arranged by your practitioner. It is important that your practitioner reviews the outcome of the wearing of your devices and to check that the prescription is controlling your foot function correctly.



custom made,
the best fit...
always

How does my practitioner know the custom foot orthoses will fit into my shoes?

Your practitioner will always check that your shoes are both right for you and for the accommodation of your custom orthoses before they order your devices. Should your practitioner feel that your shoes are not correct please wait until you have your custom orthoses dispensed to you then go to the shoe shop, buy new shoes and have all fitted together.

Occasionally by removing the current insole of your shoe then the custom device will fit better. Some shoe insoles are deliberately removable and this is a design aid for the easy fitting of these prescription devices.

Our preferred manufacturer, Biomechanics Foot Laboratory Ltd, provide a custom fit to footwear service. When required, your practitioner will send by registered post a pair of your shoes to the laboratory. Their technical staff will evaluate your shoes and will design your custom foot orthoses both to your feet and your specific shoe. Be sure to ask your practitioner about this service.



The following are some common questions and answers to help our patients understand the field of biomechanics and custom foot orthotic devices

I have a pair of custom foot orthoses but they look a bit worn, what can I do?

Every once and a while your practitioner may have your custom orthoses returned to the laboratory for adjustments, refurbishments or repairs. Again speak to your practitioner about refurbishment services. Look after them well and they will last you a very long time.



Damaged devices

Repaired devices

Can I get second pairs for other shoes?

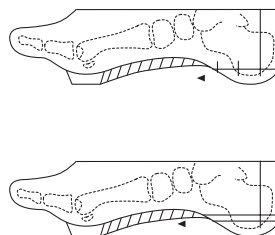
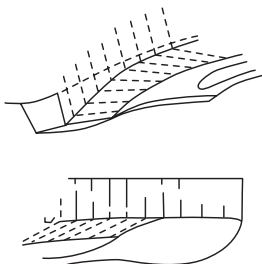
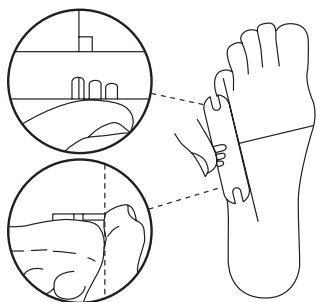
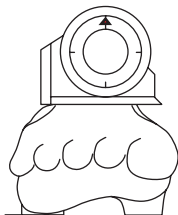
Yes. Second pair orders can quite easily be made for people who tire of transferring devices from shoe to shoe. The laboratory will retain an indefinite library of your exact feet that your practitioner can call upon instantly. If you are an athlete, why not have a pair made for your runners and a specific pair for your spikes? Women can have functional orthoses for their laced walking shoes as well as additional fashion pairs for slip-on shoes for those fun occasions. Be sure to discuss your full requirements with your practitioner when ordering your orthoses.

Why choose custom-made?

Always insist on having custom-made foot orthoses prescribed for your needs. Custom-made ensures that the devices are medical prescription so they will follow the natural contours of your feet only.



Within Ireland and Britain this is done to monitored high standard manufacturing conditions. There are a number of inferior, off the shelf, cheap imitation insoles out there. These are not medical prescription devices and are not made to fit your feet precisely. They are primarily made to fit certain shoe sizes only and are usually mass manufactured to a generic foot shape. Such non-prescription devices may cause your feet and legs more harm than good.



Illustrations from the Biomechanics Foot Laboratory hand-manufacturing manual

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A special word for Sports Enthusiasts

Ask your practitioner about custom made orthoses for your sports activity. It is now well established within the field of sports medicine that custom foot orthoses are vital in the treatment of most lower limb sports overuse injuries and are recognised by a number of sports medicine practitioners to be a positive preventative measure in keeping you on top condition for your sport.

From direct use of custom foot orthoses a number of Olympic and world class athletes have noticed improvement in their performance, faster speeds, much less fatigue and greater comfort at the end of their activity.

Can I order directly from the laboratory?

No, our preferred orthoses manufacturer is a reputable laboratory that deals only with the prescribing practitioner. This safeguard ensures the continuity of your healthcare. Should you have a medical concern about your foot, your contact needs to be with your practitioner who has made your diagnosis in the first instance.

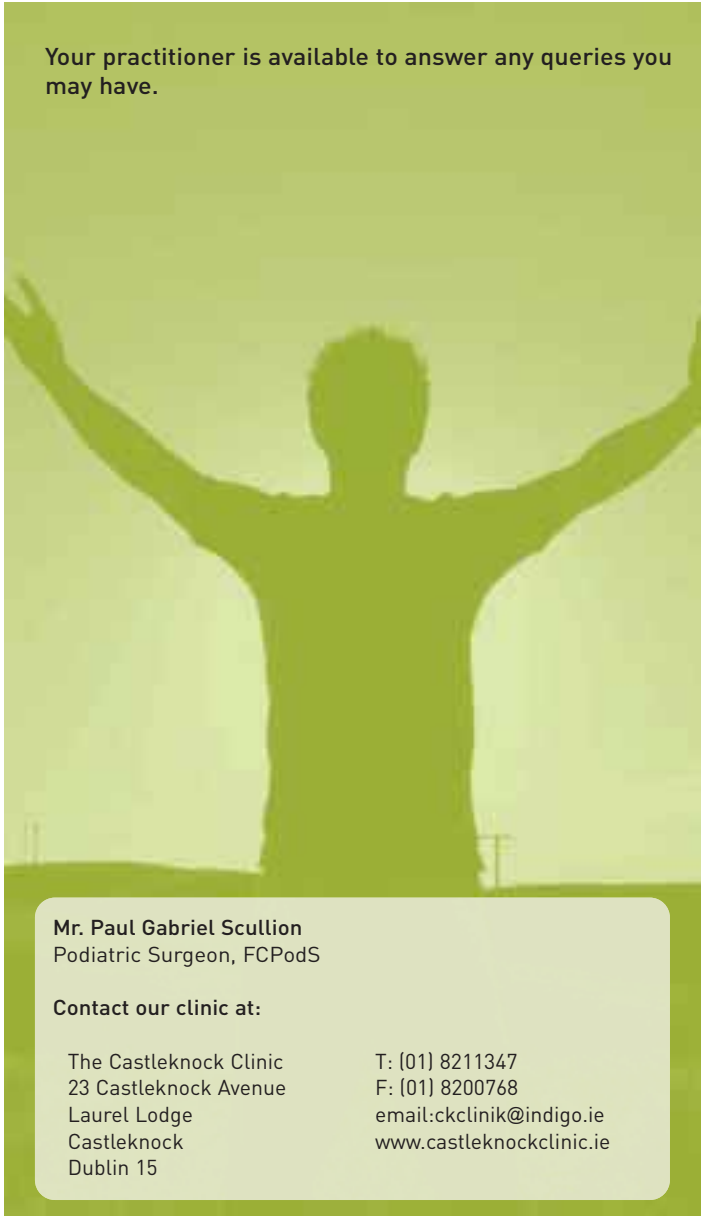
Even with what appears to be a simple refurbishment of your orthoses it is best to have your practitioner deal with this. They will evaluate the wear and tear of your orthotic devices and may determine the need to provide you with additional prescription control or instructions for further improvements to your lower limb function. They may also initiate other treatments such as strapping, manipulation or the removal of corn and calluses to supplement your foot health.



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How to make an appointment:

Your practitioner is available to answer any queries you may have.



Mr. Paul Gabriel Scullion
Podiatric Surgeon, FCPodS

Contact our clinic at:

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