Health

Pain in the shins

Josef Pace

With the run-up to the marathon, it is always common to encounter athletes complaining of pain in the shins.

This condition is generally referred to as shin splints, a most frustrating pain after all the hard training done to get fit for this annual event. The following will look into the most common factors which lead to the development of shin splints and how to tackle this condition.

The shin is that bony surface on the inner side of the leg between the knee and ankle. As running longer distances increases with improved fitness levels, stress on the bones, muscles and ligaments also increases. The body needs to adapt to this higher stress. During this adaptation period some athletes start to feel increased discomfort in the shins commonly referred to as shin splints.

"Persistent shin splints indicate the possibility that stress fractures may have developed"

Typically the muscles on the front of the legs are weaker than the power house and larger calf muscles found on the back of the legs. Increased running and activity loads the weaker front muscles and, coupled with characteristically short and tight calf muscles, a perfect environment is created for shin splints to develop.

Pain from shin splints normally occurs in diffused areas on the front in the lower third of the leg. The pain may start immediately on running or occur throughout the whole run, especially on hills.

It may also be felt on walking or climbing stairs. As with all injuries, it is important to address these pains early to avoid injuries such as stress fractures from developing. Initial treatment usually consists of rest and application of ice packs. It is also always advisable to seek professional help as soon possible.

Soft tissue massage around the area helps to decrease the pain and increase flexibility in the ankle area. Acupuncture is often used and provides successful outcome for pain relief. Neoprene shin supports, which keep the area warm, also aid in the recovery of this condition.

Hydrotherapy is an excellent method of maintaining cardiovascular fitness without straining the lower limbs while suffering from shin splints. Anti-inflammatory medication as prescribed by doctors help to decrease pain but they should never be taken in isolation without assessing the overall picture leading to shin splint development.

Shin splints may be avoided by adequate calf stretches, good frequently-replaced footwear and through ensuring correct foot and lower limb biomechanics. Over-pronation describes the rolling inwards of one's foot, leading towards the typical flat foot, a major factor contributing towards shin splints.

Corrective orthotics often help to support this over-pronation, support the foot better and relieve the increased impact passing through the lower limbs. Running or training on hard surfaces should also be avoided to reduce the stress transferred to one's legs. Adequate screening before starting any form of physical exercises is always advisable.

Persistent shin splints indicate the possibility that stress fractures may have developed. These take longer to heal than shin splints. Occasionally, this could indicate the presence of some other condition with a different underlying cause.

In such situations the need to seek professional advice is a must.

pacejosef@gmail.com

Josef Pace is a physiotherapist.

DNA editing

DNA snipping techniques are already well advanced and are actually being tested in several laboratories around the world.

Tinkering with our inheritance

Maurice Cauchi

Ask anyone whether it would be a good idea if we could rid humanity of all its genetic disorders and the answer will surely be a resounding yes.

To prevent a child from inheriting any of the disorders, which we as parents have been lumbered with, would surely be worth every effort that society can afford, and research which aims to do that would appear, at least *prima facie,* to be a useful development and should be encouraged.

And yet, most of us will shrink from taking steps that conflict with basic ethical and moral stances. We do not perform selection of sex to avoid sex-linked inherited conditions. We do not abort a child with a chromosomal defect like Down's Syndrome.

But ethical standards are very stretchable and while individuals, communities or countries consider some activities to be abhorrent, others are just as likely to accept them. Moreover, what is considered unacceptable at one period of time may become acceptable to a future generation.

The latest technique in modifying the human gene is referred to as DNA editing. This is a precision technique which allows scientists to detect and snip away an offending gene and replace it with a normal gene.

If you consider the DNA as a very long rosary beads, then DNA snipping can be likened to cutting the chain at a specific point, removing the offending bead and replacing it with a normal one.

Again, most people would agree that this appears to be a fantastic advance in our armamentarium of procedures that will eventually clear the genetic world of lifelong diseases within the community. These techniques are already well advanced and are actually being tested in several laboratories around the world. However, several scientists are sounding alarm bells and warn the general community that these techniques should be forbidden. In a recent paper published in the most widely read scientific journal, *Nature*, the long-term ethical issues associated with genetic engineering were highlighted.

Firstly, they point out that applying these techniques to the human embryo would be interfering with the right of an individual to the maintenance of one's own integrity, including the genes.

Unlike treating a child for a temporary condition (including giving blood transfusion or vaccination on the say-so of the parents), changing one's genetic make-up is a long-term change, and it is arguable whether these should be undertaken without the specific consent of the individual concerned.

Perhaps more significant is the role of genetic modifications within the general population. Once the genes of an embryo have been tampered with, such changes are passed on to the general population.

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In other words, the overall genetic inheritance of the human race would be permanently changed. While such a change would be beneficial to the individual, there is a whole world of unknowns resulting from such changes. In particular, modification of one gene may adversely affect the adjoining genes resulting in long-term consequences, including possibly cancer.

A final objection is the well-known one, often referred to as the 'slippery slope' conundrum. Once a technique is introduced to deal with the more severe conditions, it would be much easier to eventually use it to correct far less demanding conditions, including the search for relatively trivial improvement of body function or appearance.

As one of the involved scientists advised: "We need a halt on anything that approaches germ-line editing in human embryos."