

HAVE YOU HAD THE DREADED D.O.M.S.?

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It's 8am, the alarm has just gone and you try to raise your head. Big mistake! – It will not move, you roll over and sit up very carefully. Somehow a 20-tonne truck has run you over in the middle of the night and now the prospect of bending down to put your socks on seems an impossible task! Or was it perhaps something to do with your enthusiastic first session at the gym after a 5-year rest period? Perhaps two hours was a bit much, but you felt ok at the time. I think we can all relate to this "Oops, I may have overdone it!" feeling, whether it is in the gym, skiing, running or even gardening which may have been the cause. But why do we feel so bad? This feeling has a label. It is called D.O.M.S. or Delayed Onset Muscle Soreness.

D.O.M.S. – WHAT IS IT?

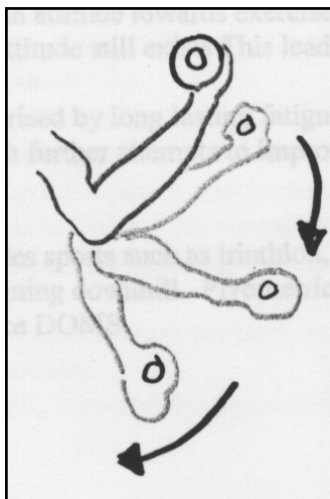
"Muscle soreness that correlates with microscopic muscle damage, oedema, a loss of strength. Causes actual rupture/micro-trauma of connective tissue, muscle fibres, spasm in a fatigued muscles, extensive pulling which traumatises the muscle, an accumulation of metabolic by products and fluid caused by membrane damage." *Sports Therapy pg.72.*

Sounds horrific but the good news is that it does wear off!

Muscle damage can occur predominantly in two ways. Firstly, damage can occur during the exercise itself, i.e. a specific injury, sprain or tear of the muscle. The second type of damage isn't permanent and usually subsides within a few days, although it can cause great discomfort. This is D.O.M.S.. Exercise induced muscle damage is a common complaint. It occurs after unaccustomed activity and results in stiffness and soreness and movement limitation, which may be noticeable as soon as eight hours after exercise and peaks around 24-72 hours post exercise. Unfortunately this not only affects training, but also puts the less enthusiastic exerciser off!

SO WHAT ACTUALLY HAPPENS

D.O.M.S. is not unique to one particular type of exercise, but often exaggerated after a bout of 'eccentric' exercise. (Contractions that place the muscle under tension while lengthening. See diagram below.) *Ref A.*



We do tend to have a caveman attitude towards exercise, especially amongst athletes. The 'no pain, no gain' attitude still exists. This leads to:

"Excessive training characterised by long lasting fatigue and worsening of competitive performance with further attempts to improve physical condition" *Michael Gleeson, 1997.*

Eccentric training also includes sports such as triathlon, marathon/fell running etc. that have large periods of running downhill. Plyometrics also have a large stretch reflex action which can induce D.O.M.S..

Muscle Changes: During the initial bout of exercise several things occur and alter the muscle structure; Z band streaming is the process that occurs as a result of repeated eccentric exercise. Actin and myosin x-bridge formation provide a tension which, when the muscle lengthens, disappears. This causes the passive structure (Z-lines) to take the brunt of the loading and they are pulled apart. This

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