



Delayed Onset Muscle Soreness

Do you have muscle soreness after you exercise?

This is called DOMS – Delayed Onset Muscle Soreness. This is a completely normal response to exercise, usually felt 24 hrs after the workout and can last for up to 7 days after the workout. The typical symptoms are muscle tenderness, stiffness/tightness and soreness, and can occasionally reduce your normal freedom of movement.

The exact reasons for DOMS are not fully understood, but the most likely explanation uncovered by research points to breakdown or micro-damage of myofilaments (a fancy word for muscle fibres). When we exercise and/or train hard, especially if the total stress on the muscles is greater than its capacity, we can cause microscopic injury to the myofilaments. This generally happens during the eccentric phase of muscle contractions (ie. when muscles are lengthening under load). This micro-damage to the muscle is partly what stimulates (via chemical reactions) the process of muscle growth by sending a signal to our system to say these muscles aren't strong enough to cope with the brain is asking. So although a little uncomfortable, the feeling of DOMS helps to build a stronger system. Generally speaking, the next time the body is exposed to a similar workout, it feels easier and the soreness afterwards is not as bad.



So how do we manage DOMS?

Unfortunately, as far as we know, there isn't anything we can do to *prevent* DOMS. As long as we work hard, we will possibly have some level of soreness over the next few days. And this isn't anything to worry about. However there are different ways to manage the symptoms of DOMS. And just to make it complicated, the responses seem to vary from person to person!

Active low load exercises the day after are possibly the most effective. Things like cycling, swimming, and walking are good options. Any other exercise at a low load – even weights – can reduce the stiffness and improve the mobility of the muscles and joints.

Due to the chemical reactions and recovery processes that happen during sleep, most recovery experts say that sleep is the most important recovery tool for any athlete. Adequate



hydration supports tissue recovery at a cellular level – so stay hydrated or re-hydrate adequately after training/sport.

Ice baths are a common tool for recovery in elite sport. The reasons why it works are unclear, but one proposed theory is that it limits post-exercise swelling, similar to applying ice on a muscle tear / strain after an injury. Other theories point to it restoring normal body temperature quicker which allows us to begin recovering at a cellular level sooner and funnily enough sleep better. Humans fall asleep quicker when we are comfortable temperature wise – ice baths jolt the system back to normal faster (particularly when it is hot).

What doesn't work? Well recent research shows stretching, warm-ups, and cool-downs do not significantly change the level of DOMS the next day. So why do we do these routines before and after a game? Warm-ups and dynamic stretching can reduce your risk of injury and enhance performance whilst cool-downs and static stretching seem to be part of older traditions. There's no harm to do them if they feel good for you, so feel free to keep doing them, especially if they feel good but know they are no guarantee to avoid some next day DOMS!

Many athletes report that compression garments help their recovery from DOMS. Formal research has not confirmed physiologically if this is the case, so the effect maybe a psychological one. We do know that compression garments definitely have a warming effect on tissue and may just make things 'feel' better and certainly do not delay the process. Again, if it feels good and you think it helps, then go for it!!



For those of you who really hate DOMS, the only way to avoid soreness the next day is to work below 100% intensity or capacity. This can be hard to monitor and generally defeats the purpose of the exercise program right?? The good news is the more consistent and hard-working you are with training, the less likely you are to be troubled by DOMS in terms of how often it is experienced, and also how bad the symptoms are.

If you have muscle soreness and need further advice on managing it, contact us on (02) 4647 3373.

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