

COPING WITH DOMS

DOMS IS THE STIFFNESS AND DISCOMFORT EXPERIENCED AFTER UNUSUAL PHYSICAL EXERCISE

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EVEN THOUGH the benefits of regular exercise are well-known, many of us don't do it. One reason may be the pain or discomfort that goes along with fitness activities sometimes. But starting or continuing an exercise programme may be easier if you understand what muscle soreness is and what to do about it.

Just about all of us at one time or another have felt sore the day or so after a workout. If you are like most individuals, you probably blew it off, took a few days off from your training and chalked it up to an overly aggressive workout, or the buildup of lactic acid in the muscles. Because so many misconceptions exist about this phenomenon, I thought you might like to hear the real story—at least as much as is known so far.

The feeling of pain, stiffness or discomfort in muscles that occurs a day or so after a workout is scientifically known as Delayed Onset Muscle Soreness or "DOMS". Even though DOMS has been under scientific scrutiny since the turn of the century, its actual biological process is still a mystery. What is known is that DOMS is a complex process.

Sorting Out Soreness: Aside from muscle injuries such as strains, there are two common kinds of exercise-related muscle soreness. One is acute soreness, which occurs during or immediately after exercise; the other kind is DOMS, which develops after 12 hours or more after the exercise.

Acute soreness: It usually reflects simple fatigue, caused by a buildup of chemical waste products of exercise. If so, the discom-

fort will often subside after a minute or two of rest. Once the soreness goes away, you can usually continue exercising without any residual effects. If discomfort persists despite a rest period, you should stop your activity and rest the part of the body that is involved. You should not proceed with your workout until you're able to exercise that area without pain.

Defining DOMS: DOMS is perception of pain and discomfort following exercise that involves increased intensity, longer duration, unfamiliar movements, or eccentric muscular work such as downhill running. This discomfort is a normal response and most people experience it to some extent.

Causes and Symptoms: Symptoms of DOMS can include pain, muscle soreness, stiffness, swelling and loss of strength. Pain and tenderness usually hit the high point 1 to 3 days after exercise and subside within 7 days. Stiffness & swelling can peak 3 to 4 days after exercise and generally resolve within 10 days. Strength loss typically peaks within 48 hours after exercise. Full recovery can take as long as 5 days. These symptoms are not dependent on each other and do not always occur together.

Several theories have been put forward to explain the underlying cause. Probably one of the most popular explanations is the accumulation of lactic acid in the muscles which becomes normal after 30-60 minutes of recovery. Eccentric exercise produces the most severe muscle soreness but requires relatively low energy expenditure (even less than needed for concentric exercise). Therefore if lactic acid were to cause delayed onset muscle soreness, then muscle soreness would be expected to be greater after exer-

cise with a higher metabolic cost (concentric activity). In addition, we know from bitter experience that the pain associated with DOMS peaks after 24-72 hours. When we consider that lactate concentrations return to pre-exercise levels within 60 minutes it seems ludicrous to suggest that the two are somehow related. Subsequent research has suggested that damage to the muscle ultra structure and connective tissue may be responsible for it. It is suggested that a sequence of events starting with exercise causes muscle damage and then muscle protein breakdown, resulting in cell inflammation and increased local muscle temperature. As a result, pain receptors are activated, causing the sensation of DOMS. Further research suggests that along with muscle damage, inflammation and swelling should also be considered as the cause as they also activate and sensitize pain sensors around the muscle fibres.

No theory can explain the entire process of DOMS. The following is a quick run-down of what we do know about DOMS.

□ The pain of DOMS is said to occur within the first 24 to 48 hours following exercise. Peak intensity of discomfort occurs somewhere between 24 and 72 hours following exercise. The soreness usually subsides within 7 to 10 days after the initial damage has occurred.

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□ Of the three types of muscle in our bodies, cardiac (heart muscle), smooth (which lines our blood vessels) and skeletal (which is attached to our skeletons, like biceps muscle), DOMS affects only skeletal muscle.

□ DOMS is not caused by lactic acid in the muscle.

□ DOMS does not result in any long-term damage to muscle.

□ Studies have shown that the vast majority of damage associated with DOMS is attributed to eccentric muscle contractions, in which the muscle fibres are lengthened as force is applied to them.

Physical ways to decrease soreness: While DOMS is common and annoying, it is not a necessary part of getting into shape. Here are some tips to prevent, avoid and shorten DOMS.

• Try a 5-minute general warm-up using an activity.

• A specific warm-up will increase local muscle temperature to improve mechanical efficiency in the muscles to be used in a given activity.

• When trying new activities avoid those

that involve intense eccentric contractions.

• Gradually increase your fitness level by increasing the exercise intensity and duration over 1 to 6 weeks.

• Initially avoid any vigorous activity that increases pain.

• Other measures include applying ice and gently stretching the affected muscles.

While for the moment there is no magic bullet which can soak out and stop the pain associated with DOMS, there are certain things you can keep in mind to deal with DOMS.

• Avoid anti-inflammatory drugs (aspirin, ibuprofen), antioxidant supplements, vitamins or creams as they are not helpful.

• Take 250 mg or less of vitamin C.

That's about it. Now that you know more about DOMS than you probably ever wanted to know, go out and have a pain-free workout, and remember, it's not the quantity of exercise you do, it's the quality.

Remember: This information is not intended as a substitute for medical treatment. Before starting an exercise programme, consult a physician. ■