

## Booking a consultation

The clinic aims to be as flexible as possible offering appointments to suit individuals. Daytime and evening consultations are available depending on the day.

Children under the age of 16 must be accompanied by a parent/guardian to consent for treatment.

## Map



## Contact Details

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## Measures to reduce DOMS

- ✓ Perform a 5 minute general warm-up (e.g. cycling, jogging, etc.)
- ✓ Perform specific dynamic mobility exercises for 15-20 minutes.
- ✓ When starting an exercise programme, avoid movements that entail strenuous eccentric muscle action (down hill running, plyometrics, etc.)
- ✓ Gradually increase the intensity and duration of exercise.
- ✓ Complete additional bouts of the exercise that originally caused DOMS – i.e. if DOMS was sustained during downhill running, additional downhill running within 1-6 weeks will help the problem.

There is no, little or conflicting research to support the use of:-

- ✗ Anti-inflammatory drugs (Ibuprofen, etc.)
- ✗ Antioxidant supplements
- ✗ Ointments or creams
- ✗ Post-exercise massage or stretching
- ✗ Cold application

### References:

Szymanski, D.J. (2001) Recommendations for the avoidance of delayed-onset muscle soreness. *J. Strength Cond. Res.* 23(4): 7-13.

Connolly, D.A.J. et al. (2003) Treatment and prevention of delayed onset muscle soreness. *J. Strength Cond. Res.* 17(1):197-298.

# DELAYED ONSET MUSCLE SORENESS



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## Introduction

Delayed Onset muscle soreness (DOMS) is a phenomenon that has long been associated with increased physical exertion. It can typically be experienced by all individuals regardless of fitness level, and is a normal physiological response to increased exertion, and the introduction of unfamiliar physical activities.

Due to the sensation of pain and discomfort, physical training and performance can be impaired, therefore the prevention and treatment of DOMS has been of great importance to athletes, coaches and therapists.

Although science has not established a sound and consistent treatment for DOMS, previous interventions have included medication, pre-exercise warm-up, stretching, massage, and nutritional supplements.

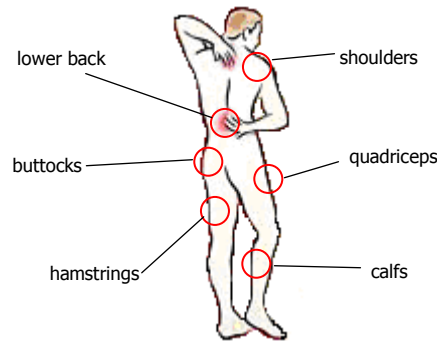
## Causes

Previously DOMS has been attributed to the build-up of lactate acid in the muscles after an intense workout. However, this assumption has now been shown to be unrelated to the incidence of DOMS.

DOMS is often precipitated predominantly by eccentric exercise (exercise where muscle have to lengthening whilst contracting), such as downhill running, plyometrics, and resistance training. This causes damage to muscle cell membranes, setting off an inflammatory response, leading to the formation of metabolic waste products, which act as a chemical stimulus to the nerve endings that directly cause a sensation of pain.

## Differential Diagnosis

It is important to differentiate DOMS from other injuries such as a muscle strain, joint or nerve dysfunction or vascular problem. This difference is important to appreciate as when a muscle strain is sustained from vigorous exercise it can severely worsen the injury. In contrast, with DOMS continued exercise is still possible without further muscle damage.



## Symptoms

Typical symptoms associated with DOMS include:-

### **Loss of strength**

Usually peaks within the 1<sup>st</sup> 48 hours of an exercise bout and takes up to 5 days to fully recover.

### **Pain and tenderness**

Usually peaks within 1-3 days after an exercise bout and takes up to 7 days to fully subside.

### **Stiffness and swelling**

Can peak 3-4 days after an exercise bout and takes up to 10 days to resolve.

Symptoms are not dependant on one another and do not always present at the same time.

## Evidence Based Management

Research has attempted to identify ways of minimising the effects of DOMS, and the most effective methods are:-

### **1. Warm-up benefits**

Warm-up prior to an exercise session prepares the body for exercise, improves athletic performance, and reduces DOMS and associated muscle damage.

Warm-up to increase muscle temperature results in a reduction in muscle and connective tissue viscosity, a higher resistance of muscle tissue to tearing and increased muscle elasticity. Research has proposed undertaking concentric warm-up before eccentric exercise to prepare the body for the extra stresses caused by overloading muscles with eccentric activity. Pre-exercise warm-up can be placed into two categories:-

- ✓ **General warm-up** increases core body temperature by performing movements that require the use of large muscle groups, such as callisthenics and running.
- ✓ **Specific warm-up** mimics the movement patterns of the actual exercises, aiming to increase temperature in the muscles used in the specific sport or physical activity.

### **2. Repeated bouts of exercise**

Repeated bouts of eccentric exercise performed within 1-6 weeks after the initial bout of exercise have shown to reduce DOMS and muscle damage, allowing for faster recovery of strength and range of movement.