

Muscular Training

Muscular training exercises utilise resistance to induce muscular contractions which aid in developing muscle size, strength and endurance. In this document we will go through the body's response to the different types of muscular training. Your trainer or physiotherapist may want you to work on these things. If you have any further questions, concerns or need any further advice, please speak to a member of the therapy team.

Muscle Size

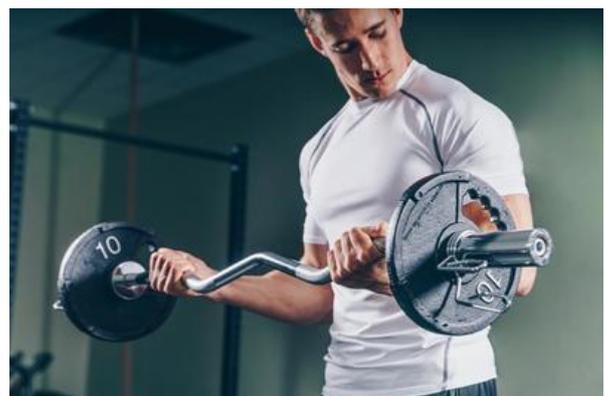


Training with the goal of increasing muscle size is known as hypertrophy training. In order to see an increase in muscle size, exercises would need to be at an intensity that you would be able to maintain for **3 sets of 10 repetitions (reps)**, but find it difficult to complete the of the second set of ten. In order to complete this, a short break of **45 seconds to 2 minutes between each set**. For example, in doing the leg press, pictured alongside, the first set should require some effort but be manageable.

The second set should be manageable to start with but by the end of the set there should be a concerted effort. By the third set it should be a challenge from the start and difficult to complete. This should be done **3 to 4 times per week** per muscle group.

Muscular Strength

Increases in strength occur when maximal effort is exerted over a smaller rep range, but this could be done over more sets. A good rep and set range would be **5 reps over 5 sets**. This can be very difficult, so a long **break of 3 to 5 minutes** would be needed between sets in order to allow the muscles to recover. As an example, doing a bicep curl after the first three sets you may feel strong enough but on the fourth and fifth set you may need help in order to complete the sets as there may not be enough strength in your arm. This should be done **2 to 3 times per week** with at least 2 days of rest in between for the muscles exercised. A benefit of strength based exercise is, if maintained throughout, life it can increase your independence as you get older.



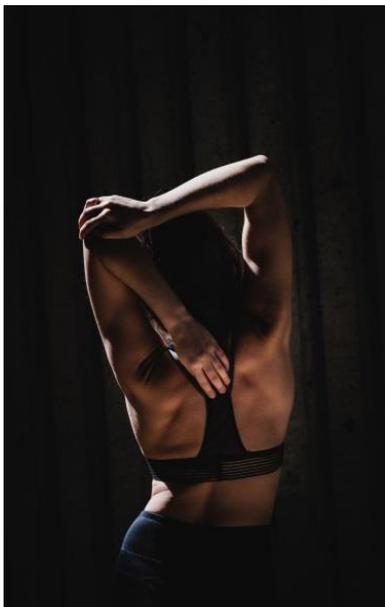
Muscular Endurance

Muscular endurance is a muscle's ability to continue work contracting against resistance for an extended period of time. Having muscular endurance would allow an individual to do things like running or swimming. This muscular endurance can be developed by completing multiple repetitions at a lower weight or intensity.

As an example, completing **3 sets of 20 reps** with a weight in the first set with the muscles feeling a slight burn. The second set should feel comfortable at the start and by halfway you should feel the burn in the muscles. In the third set the weight should feel light but the muscles incapable of finishing the repetition. The break between sets should be short, ideally a **20 to 30 second break**. This kind of exercise and training can be done **up to 5 times a week**. The main benefit of this kind of training is that it will improve your ability to do activities for extended periods of time without fatigue and it will also aid in maintaining a healthy body weight.



Delayed on-set muscle soreness



Delayed onset muscle soreness (DOMS) is the body's natural response to muscular contractions as a result of resistance exercise. Due to exercise the muscle goes through micro-trauma that causes it to feel stiff and painful as the healing process continues, which leads to extended soreness. The intensity of the micro-trauma will vary depending on the intensity of the last workout and gap between workout sessions but usually DOMS will last anywhere from **24 to 72 hours**, and often reduce before totally disappearing. DOMS often becomes minimal once your body becomes accustomed to demands placed on it during exercise. One way to reduce the effects of DOMS is to have a good cool down as part of your workout. This should include a light aerobic activity and stretches paying special focus to those that were used the most during the workout. These stretches should be held for **10 to 30 seconds**

Contact us

If you have any questions or concerns about principles of training, please contact the physiotherapy outpatient team on 020 8725 1357 (Monday to Friday, 8.30am to 4.30pm).

For more information leaflets on conditions, procedures, treatments and services offered at our hospitals, please visit www.stgeorges.nhs.uk

Additional services

Patient Advice and Liaison Service (PALS)

PALS can offer you on-the-spot advice and information when you have comments or concerns about our services or the care you have received. You can visit the PALS office between 9.30am and 4.30pm, Monday to Friday in the main corridor between Grosvenor and Lanesborough wings (near the lift foyer).

Tel: 020 8725 2453 **Email:** pals@stgeorges.nhs.uk

NHS Choices

NHS Choices provides online information and guidance on all aspects of health and healthcare, to help you make decisions about your health.

Web: www.nhs.uk

NHS 111

You can call 111 when you need medical help fast but it's not a 999 emergency. NHS 111 is available 24 hours a day, 365 days a year. Calls are free from landlines and mobile phones.

Tel: 111

AccessAble

You can download accessibility guides for all of our services by searching 'St George's Hospital' on the AccessAble website (www.accessable.co.uk). The guides are designed to ensure everyone – including those with accessibility needs – can access our hospital and community sites with confidence.



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