PHYSIO WINDOW

PARKWAY PHYSIOTHERAPY + PERFORMANCE CENTRE

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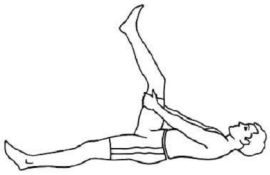
Stretching for tissue length: What style is most effective?

In the orthopaedic setting one of the things we routinely treat is pathology related to tissue shortening. Some suggested benefits of stretching include improved functional performance and decreased pain, however, there is a lack of research proving its effectiveness. Identification of truly short tissues affecting efficient movement of the kinetic chain is key to realizing the benefits of a stretching program. Factors that influence an individual's flexibility include age, race, gender, circadian rhythms, tissue temperature, strength training and warm up.

When commencing a stretching routine, decisions need to be made as to style of stretching, position, time under tension, intensity, frequency and what the end goal of the program is. Factors considered when assigning a stretch are irritability of the tissue, anatomical location, age or fitness of the client and ease of compliance with the stretching regime.

Proprioceptive neuromuscular facilitation: PNF stretching has been shown in most studies to be the most effective stretching model. It is an intense active form of stretching. Many different variations have been used and as a result definite conclusions are tough to make. The two most common procedures are coined contract relax(CR) and contract relax, antagonist contract(CRAC). Gains with CR have been attributed to "autogenic inhibition" where the muscle has reduced excitability post contraction allowing further stretch. CR stretching involves contraction of the target muscle for 3 seconds at 20% followed by relaxation and passively moving into further range. CRAC goes a step further. CRAC uses a contraction of the antagonist to the target muscle to move further into the stretch in hopes of using "reciprocal inhibition" to achieve greater range. It is held until the sensation of stretch reduces. Although the research is not unanimously supportive of the physiological reason for the gains seen with this type of stretch, there is no doubt about it's success. Gains are now attributed to increased stretch tolerance. Complete the stretches at least 2 times a week to increase range and once a week to maintain. This style of stretching is uncomfortable but has good client compliance as it is engaging to complete.



It is not the best technique for those with inhibited capacity for recovery or those with comprehension difficulty.

Static stretching: This style of stretch is completed by putting the target tissue under tension for an extended period of time. To minimize muscle activity position should be such that the client is able to relax and maintain the stretch. It is thought that this type of stretch may be superior to PNF style stretching in situations where there are increase amounts of fibrous connective tissue, such as the older adult. This style of stretch is thought to focus on the plastic change in tissue rather than the elastic change, perhaps resulting in more permanent changes. In a study on the effect of duration of stretch it was shown that longer stretches yield greater gains. They used 60 seconds as the longest duration. Some professionals are using low load prolonged stretch with much longer times, but, the evidence is not yet clear on whether further increases in duration will produce infinitely better gains. Caution is warranted with longer stretches as the potential for neuropraxia or axonotmesis exists with certain positions.

Heat: When using static stretching there is some evidence that superior gains can be achieved with the application of heat to the tissue during the stretch.

Neuromobilization: The addition of neuromobilization techniques to a stretching routine has been shown to be of some benefit to helping athletes make a quicker return to sport.

Conclusion: Although stretching has been shown effective at improving flexibility this does not directly corelate with improved function. Stretches become part of a rehabilitation program along with functional neuromuscular control exercises and manual therapy. "Active and passive stretches should be viewed as a means to the end, not the end" (Fasen 2009)

Reference:

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