Static Stretching for Hamstring Lengthening... Does it really work? Luke Khoury M.Chiro, B.Sc (Ex.Sc)

Hamstring stretching is a common practice in physical therapy, hoping to influence potential improvements in performance, injury prevention, postural alignment and to reduce episodes of hamstring injuries and chronic low back pain.

In a recent study by Marshall et al it was found, a passive stretching program including 4 stretches (as illustrated to the right) performed 5 times per week for 4-weeks is effective for increasing hamstring ROM.

The study found hamstring extensibility increased by 20.9%, which demonstrated a greater increase reported in several other studies, which demonstrated increases between 4.1% and 9.5%. However these studies typically applied a single hamstring stretch, whereas the Marshall et al study incorporated 2 hamstring stretches and 2 supplemental hip stretches.

A study similar in nature to that mentioned above, incorporating the use of multiple hamstring stretches produced results of only an 8.5% increase in hamstring extensibility. However, this study by Roberts sustained stretches for 15 seconds, whereas Marshall et al sustained stretches for 30 seconds and repeated 3 times for each stretch, demonstrating the clinical importance of stretch duration and repetitions.

A further study by Reid and McNair titled; Passive Force, Angle and Stiffness Changes after Stretching of the Hamstring Muscles also reviewed hamstring muscle extensibility following passive stretching. The findings were consistent with the literature displaying a significant change in hamstring extensibility following a 6-week stretching program.

Furthermore, this study investigated the relevance of stretch tolerance (defined as the ability of a subject to tolerate an increase in the discomfort of the stretching procedure at the terminal ROM) as compared with a change in structural components of the muscle. Consistent with Marshall et al, it was determined hamstring ROM following stretching are suggestive of structural changes in the muscle function rather than improved pain tolerance.

From the current literature regarding static stretching programs for hamstring extensibility, the following should be considered to achieve a strong clinical effect.

- Greater volume (total number of repetitions performed per week)
- Longer stretch durations (~30 seconds)
- Multiple stretches for the target muscle group

In review of the literature, the treatment of clinical conditions with reduced hamstring extensibility (LBP or athletes with a high incidence of hamstring strain injury), may consider implementing this information within their current training/rehabilitation program.