## Massage Decreases Intensity of Delayed Soreness

Massage significantly lowered the intensity of soreness experienced in delayed onset muscle soreness, according to recent research.

“The effects of massage on delayed onset muscle soreness” was conducted by J.E. Hilbert, G.A. Sforzo and T. Swensen of the Center for Health Sciences Department of Exercise and Sport Sciences in Ithaca, New York.

Eighteen volunteers with an average age of 20 were randomly assigned to either massage or a control group.

The Profile of Mood States was used to establish baseline levels of tension-anxiety, depression-dejection, anger-hostility, vigor-activity, fatigue-inertia and confusion-bewilderment.

Baseline range-of-motion measurements were recorded as an average of three straight-leg raises. Subjects then completed eight sub maximal and two maximal eccentric contractions with the right hamstrings at a slow velocity as a warm-up, rested two minutes, and completed five maximal eccentric contractions with the right hamstrings. The highest value recorded during these lifts served as baseline value for peak torque.

Participants also completed the Differential Descriptor Scale, an assessment of pain that measures both the sensory and emotional aspects of pain, and gave a blood sample to record the baseline percentage of neutrophils, an indication of muscle damage, in their blood.

On a different day, the treatment for each subject began at 8 a.m. with the previously described warm-up, followed by 10 maximal eccentric contractions with the right hamstring to cause muscle damage. After one minute of rest, subjects performed five more maximal eccentric contractions, from which peak torque was recorded and labeled as zero hours post exercise.

Participants returned two hours later and repeated the previous exercise. Afterward, they received either 20 minutes of massage or control treatment, which consisted of 20 minutes of rest.

The massage included five minutes of effleurage, one minute of tapotement, 12 minutes of petrissage and two more minutes of effleurage.

After the massage or control session, subjects completed a Profile of Mood States questionnaire. At six and 24 hours post exercise, they returned to the lab for evaluation of mood state, range of motion, peak torque, soreness, and neutrophil levels. Again at 48 hours they returned to the lab for assessment of the above factors, except neutrophil levels.

Both the massage and control groups had significantly higher intensities of soreness at six, 24 and 48 hours post exercise. However, the massage group’s intensity of soreness was significantly lower than the control group’s at 48 hours post exercise.

There were no significant differences between the massage and control group for the other factors.

“Although massage rendered after muscle injury did not alter any physiological variables, it did lower the intensity of soreness after 48 hours,” state the study’s authors.

“There is a growing body of evidence showing that massage lowers intensity of soreness during [delayed onset muscle soreness],” they concluded.

**- Source:** *Center for Health Sciences. Authors: J.E. Hilbert, G.A. Sforzo and T. Swensen. Originally published in the British Journal of Sports Medicine, 2003, Issue 37, pp. 72-75.*