

5 exercises can reduce neck, shoulder pain of women office workers

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Strength training exercises using dumbbells can reduce pain and improve function in the trapezius muscle, the large muscle which extends from the back of the head, down the neck and into the upper back. The exercises also improve the muscle's ability to respond quickly and forcefully among women suffering trapezius myalgia, a tenderness and tightness in the upper trapezius muscle. The results are the latest findings from an ongoing Danish study aimed at reducing repetitive strain injury caused by office work.

Repetitive strain injury has become increasingly common. The authors cited two recent Danish surveys, one of which found that more than half of female office workers reported frequent [neck pain](#). The other found that more than two-thirds of female office workers who reported neck pain suffered from trapezius myalgia.

Five Exercises Confirm Benefit for Office-Related Strains in Women

The team's latest finding confirms that that five strength exercises — the one-arm row, shoulder abduction, shoulder elevation, reverse fly and upright row — can substantially reduce perceived pain. By finding out more about how the muscle function has been impaired and how it improves with exercise, the team has developed a way to assess the muscle in the rehabilitation setting. In particular, the Danish team found that the [women](#) who had diminished ability to activate the muscle

quickly and forcefully could benefit from the strength training.

The study is "Effect of contrasting physical exercise interventions on rapid force capacity of chronically painful muscles." Lars L. Andersen, Jesper L. Andersen, Charlotte Suetta, Michael Kjaer, Karen Sogaard and Gisela Sjogaard conducted the study. Lars Andersen is with the National Research Centre for the Working Environment in Copenhagen; Jesper Andersen, Charlotte Suetta and Michael Kjaer are with the Institute of Sports Medicine, Bispebjerg Hospital, Copenhagen; and Karen Sogaard and Gisela Sjogaard are with the University of Southern Denmark, Odense, Denmark. The study appears in the *Journal of Applied Physiology*. The American Physiological Society publishes the journal.

Five exercises

Forty-two women who worked in offices on repetitive tasks and did computer work participated in the 10-week study. They all had reported chronic or frequent pain in the neck area, and tightness and tenderness of the upper trapezius muscle. The researchers randomly divided the women into three groups:

- Specific strength training. This group of 18 women did five exercises with dumbbells — one-arm row, shoulder abduction, shoulder elevation, reverse fly and upright row. Photos showing these exercises are found by clicking here or by going to: bit.ly/F86Mw. These exercises strengthen the shoulder and the neck muscles, including the trapezius. The women in this group did three sets of three of these exercises three times per week. The amount of weight lifted depended upon each woman's strength level and was progressively increased throughout the 10 weeks.

- **General fitness training.** This group of 16 women cycled upright on a stationary exercise bicycle. Other studies have shown that general fitness training can help alleviate a variety of ailments. In addition, the researchers earlier established that all round physical exercise including cycling can help reduce pain. The researchers wanted to see whether the general fitness exercise would help improve rapid force capacity (the ability to activate the muscle quickly and forcefully) among those suffering trapezius myalgia. The women in this group bicycled three sessions per week for 20 minutes per session.
- **Reference (Control).** This group of eight women received individual and group counseling on ergonomics, diet, health, relaxation and stress management for a total of one hour per week. They did not receive any physical training.

The participants from all three groups performed shoulder abductions before the 10-week intervention began and after it ended. During this pre- and post-test, the participants were required to contract the muscles as fast and hard as they could. The researchers measured the force and speed of the lift. In particular, they wanted to measure rapid force capacity, that is, how quickly the women could activate their muscles to generate force.

They also obtained muscle biopsy samples to analyze how the training affected the muscle fibers and pain levels at each of the sessions. The pain data was compared to performance.

Results

In this study, bicycling did not significantly affect rapid force capacity. The significant changes on this variable occurred only in the strength-training group. Strength training reduced pain levels by more than 50%,

and also:

- improved rapid force capacity
- increased number of type II muscle fibers, the fibers important in generating power

The authors speculate that strength training reduced the pain, which then enhanced the body's ability to rapidly activate the muscle. Activating the [muscle](#) depends upon rapid coordination of nerve signals and it was the nerve signaling that seemed to have improved. The researchers also said that the strength training may have encouraged the women to set aside the fear of pain and thus helped improve performance.

In addition to providing further evidence that these five exercises can help women who suffer trapezius myalgia, the study also showed that reduced rapid force capacity can be a good screening tool to determine who would benefit from this type of rehabilitation, the authors said.

More information: jap.physiology.org/cgi/content/abstract/107/5/1413

Source: American Physiological Society ([news](#) : [web](#))

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