

Key Points

1. Chronic neck pain is a problem for many people, but especially for some Chiari and syringomyelia patients
2. Not a lot of research on effective treatments for chronic neck pain
3. Randomized, controlled study examined the efficacy of a 6 week exercise program for chronic neck pain
4. After the exercise program, the exercise group had significantly lower disability, pain, and strength than the control group
5. However, after 6 months, only the subjective measure of pain was significantly different between the exercise and control group
6. Although neck rehabilitation can be expensive, it may be effective in helping with chronic neck pain

Definitions

atrophy - wasting away

chronic - occurring for a long period of time

controlled - type of experimental design which uses a group of people - known as the control group - who do not receive the treatment under study, as a means of comparison

efficacy - the effectiveness of something

extension - bending the neck backward

flexion - bending the neck forward, chin to the chest

infrared irradiation - using infrared light to heat and warm a part of the body

isometric - muscle contraction without joint movement; for example pushing against a wall

physiotherapy - another term for physical therapy; the use of heat,

Exercise Program Yields Mixed Results For Chronic Neck Pain

For many Chiari patients, lingering neck pain is a problem with no easy remedy; and if current estimates are correct, it's a problem shared by many others. Some researchers estimate that up to 2 out of every 3 people will experience neck pain at some point in their life, and at any given time, up to 20% of people are enduring some level of neck pain.

As reported by this publication, the impact of chronic neck pain can be severe and profound (see [How Neck & Arm Pain Affect Overall Health.](#)), going beyond the pain itself. Chronic neck pain often results in lost wages, extra medical expenses, and even increases the risk of incurring other medical conditions.

Given the prevalence and impact of neck pain, you would think that research into effective treatments would be abundant, but this is not necessarily the case. While many treatment options exist: massage, heat, drugs, etc., not many studies have rigorously examined and compared their effectiveness in treating different types of neck pain, and the underlying causes of chronic neck pain remain somewhat mysterious.

One treatment area which has received some attention is the use of exercise in treating neck pain. Given the important role that the neck muscles play in stabilizing the neck, some researchers believe that neck pain is associated with muscle atrophy. If this were true, then exercises designed to strengthen the neck should prove effective. However, to date, the results have been mixed from studies which examined the effects of exercise on muscle pain. Some studies have shown significant improvement, while others have showed little, or short-lived gains, and unfortunately, most of the research suffers from methodological flaws which limit their results.

In an attempt to examine the subject in a scientifically rigorous manner, Dr. Thomas Chiu, of the Department of Rehabilitative Sciences at Hong Kong Polytechnic University, and his colleagues at Hong Kong University, designed a randomized, controlled study to evaluate the effectiveness of an exercise program in treating chronic neck pain. They published their results in the January, 2005 issue of the journal *Spine* (in an electronic supplement).

For their study, the researchers recruited 145 people from two different physiotherapy programs in Hong Kong. Each person had suffered from neck pain for at least 3 months. People were excluded if they exhibited any neurological problems, were currently undergoing chiropractic, or had spinal abnormalities. A computer program randomly assigned each person to either an exercise group, or a control group.

The subjects in the exercise group underwent a six week, supervised program designed to stimulate and strengthen the muscles in the neck. The program included deep muscle activation, and extension and flexion exercises against resistance. The group also received treatment using infrared light, which provides heat and energy below the skin, and advice on neck care. In contrast, the control group did not undergo the exercise program, but did receive the infrared irradiation treatments and the neck care advice.

To measure the effectiveness of the exercise program, the researchers measured neck disability using a Chinese scale and pain using a simple number scale. Neck strength was evaluated by a professional in 6 different directions. Data was also collected on sick time taken due to neck pain, medications used for neck pain, and patient satisfaction. Data was collected at the start of the experiment, after the six week exercise program, and at a 6 month follow-up.

The team found that after 6 weeks both the exercise and control groups had significantly improved disability scores, with the exercise group improving more than the control group (see Table 1). However, at the 6 month mark, while both groups still had improved scores, there was no significant difference between the exercise and control groups.

Neck strength revealed a similar result, with the exercise group showing significant improvement in every direction at the 6 week mark and significant improvement over the control group. However, after 6 months, there was no significant difference between the exercise and control groups.

The one measure in which the exercise group demonstrated sustained improvement was the subjective measure of pain. After the 6 week program, the exercise group's pain score was reduced by 35%, compared to only 11% for the control group. Unlike the disability and strength scores, this improvement was maintained at the 6 month follow-up, with the exercise group reporting significantly lower pain.

Overall, the results indicate that the exercise program yielded strong short-term results, with improvement in disability, pain, and strength, but that only pain was significantly improved in the long-term. While the researchers don't address it directly, it would be interesting to repeat the study with a longer exercise program to

light, exercise, and massage to treat injuries and disease

randomized - type of experimental design where subjects are randomly assigned to either the treatment group or a control group

see if the results changed. It may be that 6 weeks is not long enough to effect long-term change in people who have been in pain for so long. One topic the authors do address is the cost of the exercise program, pointing out that neck rehabilitation is an expensive process.

However, given the high costs of neck pain, both in hard economic terms and in human suffering, any treatment program which can help with chronic neck pain is likely to end up paying for itself in the long run.

Table 1

Average Disability, Pain & Strength Scores For Exercise and Control Groups

		Base	6wk's	6mo's
Exer- cise	Disability	1.4	1.0	1.0
	Pain	4.6	3.0	3.1
	Strength	7.5 - 11.5	9.2 - 14.6	9.0 - 13.9
Control	Disability	1.4	1.1	1.2
	Pain	4.3	3.8	3.9
	Strength	7.2 - 11.5	8.5 - 12.2	8.2 - 12.1

Note: Strength measured in 6 directions

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