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## Neck arthritis pain is reduced and range of motion is increased by massage therapy



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### A B S T R A C T

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Neck arthritis  
Pain  
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**Background:** The literature on the effects of massage therapy on neck arthritis pain is mixed depending on the dose level, and it is also based on self-report. In the present study an attempt was made to enhance the effects of weekly massage therapy by having the participants massage themselves daily. And in addition to self-reports on pain, range of motion (ROM) and the associated ROM pain were assessed before and after the first massage session and pre-post the last session one month later.

**Methods:** Staff and faculty members at a medical school who were eligible for the study if they had neck arthritis pain were randomly assigned to a massage or a waitlist control group ( $N = 24$  per group). The massage group received moderate pressure massages weekly by a massage therapist plus daily self-massages. The waitlist control group received the same schedule massages one month after being control subjects.

**Results:** The massage group showed significant short-term reductions after the first and last day massages in self-reported pain and in ROM-associated pain as well as an increase in ROM. Comparisons between the massage group ( $N = 23$ ) and the control group ( $N = 14$ ) on the last versus the first day data suggested significantly different changes including increased ROM and reduced ROM-associated pain for the massage group and reduced ROM and increased ROM-associated pain for the control group. These changes occurred specifically for flexion and right and left lateral flexion motions.

**Discussion:** These data highlight the importance of designing massage therapy protocols that target the most affected neck muscle groups and then assessing range of motion and related pain before and after the massage therapy. Comparisons with other studies also suggest that moderate pressure may contribute to the massage effects, and the use of daily self-massages between sessions may sustain the effects and serve as a cost-effective therapy for individuals with neck arthritis pain.

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The literature on neck arthritis is limited, although several recent studies have been conducted on neck pain. Thirty to 50% of adults reportedly complain about neck pain [1]. In one study, individuals suffering from chronic neck pain were likely to visit primary care providers (72%), chiropractors (40%), physical therapists (35%), orthopedic surgeons (32%) and massage therapists (28%) [2]. Another study cited neck pain as one of the most frequent pain conditions (second to back pain) that led to visits to complementary/alternative therapists, most often chiropractors and massage therapists [3] with almost 1 in 5 visits to massage therapists being for neck pain [4].

Despite the frequency of massage therapy visits for neck pain, the research literature is not conclusive. The two reviews of multiple studies basically concluded that more research was needed on the effectiveness of massage therapy for neck pain [5,6]. In the older review, only 6 of the studies focused on massage therapy alone, and these studies had methodological problems including not offering more than one treatment session and featuring atypical massage therapy protocols [5]. In the more recent review on studies comparing massage with control groups and other therapies for neck pain, massage therapy was said to be effective for neck pain immediately after treatment, but no data were given on longer term outcomes [6].

One study attempted to correct these methodological problems [7]. In this study, improvement was noted in those who received massage for neck pain following 60-min massages once per week

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for 4 weeks. However, this study also had several methodological problems including: 1) the massage protocol was not standardized; 2) no objective measures were used for the massage therapy effects, only self-reports by mail; 3) the therapists made other self-care suggestions such as stretching which could confound the massage therapy effects; 4) significant differences were noted on one self-report measure, i.e. Neck Disability Index, but not on the other, i.e. the Copenhagen Neck Functional Disability scale; and 5) dichotomized values were used rather than mean values for comparisons between groups. Nonetheless, this research group more recently conducted a larger trial to correct these problems [8]. In this randomized control study 60 min massages 2 or 3 times a week led to decreased neck dysfunction based on the Neck Disability Index and pain intensity measured on a 10-point pain scale as compared to a group who received 30 min massages 2 or 3 times a week and a waitlist control group. They also made some interesting suggestions about the need to extend the time frame for the massage benefits, for example, by having booster sessions and using self-massaging devices.

Turning to a different literature on specific types of massage, recent studies at our research institute have compared the effects of moderate versus light pressure massage [9,10]. The moderate pressure massage resulted in slower heart rate and blood pressure and in EEG (theta) waves suggestive of relaxation [9] and in less pain and greater range of motion for individuals with rheumatoid arthritis in their upper limbs [10].

This literature highlights the need for a moderate pressure massage therapy study for neck pain that involves multiple sessions, objective measures, and a method such as self-massage

that can sustain the effects in between sessions. We have used this paradigm with upper limb arthritis pain [10] and it has been effective. In this study we recruited 42 adults with rheumatoid arthritis in the upper limbs and randomly assigned them to a moderate pressure or a light pressure massage therapy group [10]. A therapist massaged the affected arm and shoulder once a week for a 4-week period and also taught the participants self-massage to be done once daily. The moderate versus the light pressure massage therapy group had less pain and greater perceived grip strength following the first and last massage sessions. By the end of the one month period the moderate pressure massage group had less pain, greater grip strength and greater range of motion (greater wrist and elbow flexion and greater shoulder abduction).

In the present study we assessed the effects of moderate pressure massage versus being in a waitlist control group on adults who have neck arthritis pain and limited range of motion. The massage group members were given weekly massages for a one month period plus directions on applying the same massages to themselves daily in between the massage therapist sessions. The participants were assessed before and after the first and last massages and were expected to show a reduction in neck arthritis pain and increased range of motion. Thus, the unique features of this neck pain study were: 1) assessing the effects of massage therapy on neck arthritis pain; 2) assessing its effects on neck range of motion; 3) complementing the neck massage therapy with self-massages on the days between massage therapy sessions; and 4) using a direct observation of ROM-related pain versus relying strictly on self-report measures.

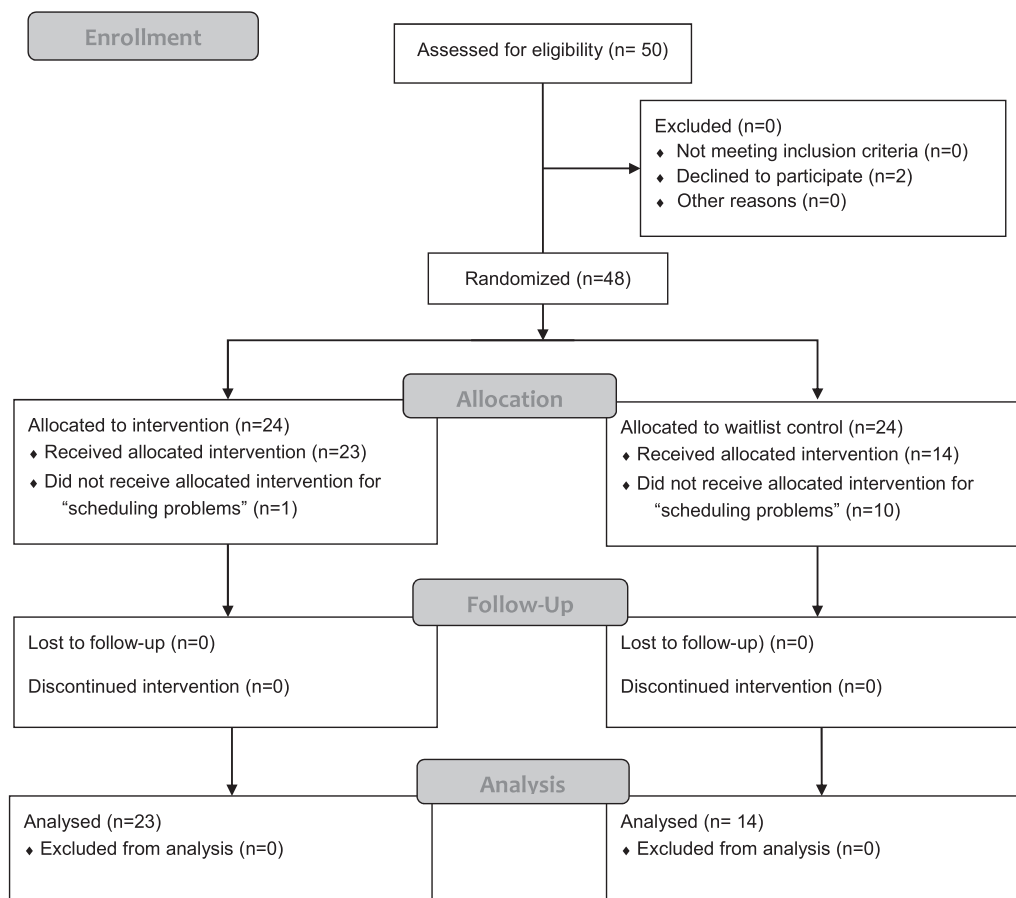


Fig. 1. Consort flow diagram.

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