

Effects of home-based neck care treatment and eccentric resistance combined with massage programs on pain and function in office workers

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Objective: Office workers frequently experience non-specific neck and upper shoulder pain due to the many hours spent every day in a forward head posture while completing paperwork and using computers. The purpose of this study was to determine: 1) the effects of Active Muscle Therapy (AMT)-eccentric resistance combined with stripping massage treatments, 2) the effects of a home-based neck care treatment program, and 3) the effects of both interventions combined, on neck/shoulder pain, neck disability index scores, headache frequency and severity, neck range of motion, and forward head posture of office workers. **Method:** Sixty office workers (20 per group) with chronic non-specific neck/shoulder pain and stiffness were recruited from the Silicon Valley region of California. Participants with recent injuries, degenerative joint disease, nerve impingements and disc problems were not allowed to participate. Participants were randomly assigned to one of three groups. At baseline, neck flexion and extension, lateral flexion and rotation, and forward head posture, neck disability index and visual analog pain scale (VAS) were measured. VAS scores were also measured before and after each massage treatment. Data for participation compliance with the home neck care treatment program were also recorded. For the first six weeks of the study: Group 1 received the AMT massage intervention (30 min, 1 d/wk.); Group 2 performed the home-based neck care program (20 min, 3 d/wk.); and Group 3 served as a control group and did not receive any intervention. After the 6-wk period all participants were measured again. At that time, Groups 1 and 2 were finished with their participation and Group 3 (control) became Group 4 and received the massage (30 min, 1 d/wk.) and home-based neck care program (20 min, 3 d/wk.) interventions for 6 wk. After the second 6-wk period

Group 4 was tested again. **Results:** 40 participants completed the study (Group 1 = 16, Group 2 = 13, Group 3/4 = 11). VAS pain scores for all intervention groups decreased after their six-week programs ($p < 0.05$) compared to the control group. Both group 1 and 4 reported lower ($p < 0.05$) VAS scores after each AMT massage treatment. All interventions resulted in improved Neck Disability Index scores ($p < 0.05$) after 6 weeks compared to control. All interventions resulted in decreased headache frequency and severity ($p < 0.05$). Compliance for participation in the home treatment-program was 59% for group 2 and 76% for group 4. All intervention groups improved their forward head posture scores ($p < 0.05$) after 6 weeks compared to control. All groups increased their neck flexibility in all directions ($p < 0.05$) after 6 weeks compared to control. **Conclusions:** The results indicate that a proactive approach to reducing non-specific neck/shoulder pain is the best course of action for office workers. Inaction results in the status quo for neck pain, neck disability, flexibility and posture. Active Muscle Therapy and a home neck care treatment program both produced positive results. Combining both programs was no more effective than one intervention alone. Home neck care programs are effective but compliance/participation is an issue for busy workers in Silicon Valley. Just one AMT treatment reduced pain whereas one treatment a week for six weeks produced even greater results. Combining eccentric resistance with stripping massage shows great potential for helping office workers reduce their pain, headache frequency and severity, increasing neck range of motion and reducing forward head posture. Manual therapists seeking effective modalities to treat individuals with non-specific neck/shoulder pain should consider adding this modality to their treatments. A 20-minute home neck care treatment program consisting of a brief warm-up, Thera-Band resistance exercises, stretching and BIOFREEZE (a topical analgesic), application to tender points produced similar results to the massage therapy treatment. The results indicate that these interventions can be used as interchangeable parts in a comprehensive neck care treatment program.