POSITION STATEMENT PROPOSAL ON MASSAGE FOR HEALTH AND WELLNESS

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BACKGROUND INFORMATION:

According to the World Health Organization (WHO), "Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity."[1] With this in mind, it would be appropriate to state that anything that positively impacts the physical, mental and social well-being of an individual as well as possibly decreasing incidence of disease would improve health.

ñQuality of life has become a pre-eminent goal of rehabilitation and a key outcome measure in ascertaining the effectiveness of interventions and rehabilitation programmes. Indeed, maintaining or enhancing quality of life is the ultimate goals [*sic*] of all health-care professional interventions.ò [2] Quality of life is regarded as a key determinant of overall health. [3]

We are now starting to understand how greatly stress negatively impacts our lives, health, well-being and quality of life. [4,5,6,7] Research has shown that massage therapy can have a positive influence with the issue of stress [6,8,9,10,11,12,13,14,15,16,17,18,19,20,21] and improving quality of life. [2,8,10,12,13,18,19,20,22,23,24,25,26,27,28,29,30,31]

Research is showing us that massage therapy can help in varying populations with:

- Anxiety [6,8,9,10,11,17,18,19,20,22,23,24,32,33,34,35,36,37]
- Depression [6,9,18,19,20,33,36,37,38]
- Boosting immune function [16,17,28,33]
- Lowering blood pressure [7,8,9,14,21,33,39,40,41]
- Heart rate [6,8]
- Decreasing pain [8,9,10,11,15,18,20,22,23,24,27,28,29,33,34,35,36,37,42,43,44,45,46]
- Range of motion, [45,47,48,49,50]
- Quality of sleep [23,26,27]

There are some smaller studies indicating massage therapy can help those with dementia, [51,52] and may improve body image.[40]

Massage therapy helps with various health conditions including but not limited to: headaches, [20,29] carpal tunnel, [30,31,44] post-surgical recovery,[11,27,34,35,46] burn recovery, [24,47,48,49,50] fibromyalgia[37] and minimizing side effects of anti-cancer treatments. [8,12,17,33,41]

It is clear that massage is good for health and wellness. Massage addresses the issues in the WHO's definition of health; it can aid in physical, mental, and social well-being; and it may help prevent disease by improving immune function and reducing stress.

Rationale:

Acknowledging that health and wellness are broad topics, massage clearly shows benefits to each area of the WHOôs definition of Health. Massage has shown to be beneficial to physical, mental, and social well-being. Over the past few decades massage therapy research has encompassed studies from birth to death. All health care goals intend to enhance quality of life regardless of where one currently falls on the health continuum.

ñThe model proposed by Wilson and Cleary (1995), for example, posits five dimensions by which to measure treatment outcomes: biological and physiological variables, symptom status, functional status, general health perceptions, and overall quality of life. These factors are not independent but may be reciprocally connected.ò [53]

ñPhysical well-being assumes the ability to function normally in activities such as bathing, dressing, eating, and moving around.ò [53] Massage enhances physical health by boosting the immune system[16,17,28,33], lowering blood pressure [7,8,9,14,21,33,39,40,41] and heart rate [6,8], reducing pain[8,9,10,11,15,18,20,22,23,24,27,28,29,33,34,35,36,37,42,43,44,45,46] and increasing range of motion [45,47,48,49,50].

ñMental well-being implies that cognitive faculties are intact and that there is no burden of fear, anxiety, stress, depression or other negative emotions.ò [53] Massage has been shown to assist in improving symptoms of mental health such as anxiety, [6,8,9,10,11,17,18,19,20,22,23,24,32,33,34,35,36,37] depression, [6,9,18,19,20,33,36,37,38] stress [6,8,9,10,11,12,13,14,15,16,17,18,19,20,21] and dementia[51,52] .

ñSocial well-being relates to oneôs ability to participate in society, fulfilling roles as family member, friend, worker, or citizen or in other ways engaging in interactions with others.ò [53] One of the measurements of social well-being is quality of life which is affected by physical and mental aspects of health. Massage has been shown to improve quality of life [2,8,10,12,13,18,19,20,22,23,24,25,26,27,28,29,30,31] and body image. [40]

Thus an individualsôhealth and wellness could benefit from utilizing and incorporating massage therapy given by professional massage therapists working within their scope of practice and educational training.

This statement fully supports AMTAôs mission statement:

- To serve AMTA members while advancing the art, science and practice of massage therapy.

This statement fully supports all of AMTAôs core values:

- We are a diverse and nurturing community working with integrity, respect and dignity.
- We are a nonprofit member-driven organization of ethical professionals.
- We endorse professional standards.
- We affirm and promote the benefits of massage therapy as validated by research.

The position statement supports the portions of Vision Statements of the AMTA, as follows:

- AMTA members are devoted to professionalism and excellence in massage therapy practice.
- Quality research is the foundation for evidence-informed massage therapy education and practice.

- AMTA promotes its members as the highest quality professionals in massage therapy.
- Massage therapy is easily accessible.
- Massage therapy is a vital component of health care and wellness.

The position statement supports the portions of Goals and Objectives of the AMTA, as follows:

ADVOCACY AND INFLUENCE
Goal: The health care and wellness industry accepts the value of massage therapy.
Objective: Increase understanding of the benefits of massage therapy through education of the health care and wellness industry.

INDUSTRY RELATIONSHIPS
Goal: AMTA is a respected leader within the health care and wellness industry.
Objective: Increase collaboration between AMTA, its members and other health care and wellness industry leaders.

RESEARCH
Goal: AMTA members are aware of the importance of scientific research to the massage therapy industry.
Objective: Increase the opportunities for members to access massage therapy scientific research through AMTA sources.

Position Statement

It is the position of the American Massage Therapy Association (AMTA) that massage therapy can improve health and wellness through its effects on the physical, mental and social well-being of an individual.

References:

1. Definition of Health. (n.d.). retrieved March 8, 2014, from the World Health Organization website: http://www.who.int/about/definition/en/print.html

2. Atwal, A., Spiliotopoulou, G., Coleman, C., Harding, K., Quirke, C., Smith, N., é Wilson, L. (2014). Polio survivorsôperceptions of the meaning of quality of life and strategies used to promote participation in everyday activities. Health expectations: an international journal of public participation in health care and health policy. doi:10.1111/hex.12152 PMID: 24438097

3. Scottish Government, S. A. H. (2006, January 20). Quality of Life and Well-being: Measuring the Benefits of Culture and Sport: Literature Review and Thinkpiece. Research Publications. Retrieved March 15, 2014, from http://www.scotland.gov.uk/Publications/2006/01/13110743/0

4. Stress in America: *Key findings*. (2010). Retrieved January 3, 2012 from the American Psychological Association website: http://www.apa.org/news/press/releases/stress/2010/national-report.pdf

5. *Health and Stress*. (n.d.). Retrieved January 3, 2012 from American Psychological Association website: http://www.apa.org/news/press/releases/stress/2010/health-stress.aspx

6. Garner, B., Phillips, L.J., Schmidt, H.M., Markulev, C., O'Connor, J., Wood, S.J., Berger, G.E., Burnett, P., McGorry, P.D. (2008). Pilot study evaluating the effect of massage therapy on stress, anxiety and aggression in a young adult psychiatric inpatient unit. Aust N Z J Psychiatry, 42(5):414-22. PMID: 18478478

OBJECTIVE: The aim of the present pilot study was to examine the effectiveness of a relaxation massage therapy programme in reducing stress, anxiety and aggression on a young adult psychiatric inpatient unit.
METHOD: This was a prospective, non-randomized intervention study comparing treatment as usual (TAU) with TAU plus massage therapy intervention (MT) over consecutive 7 week blocks (May-August 2006). MT consisted of a 20 min massage therapy session offered daily to patients during their period of hospitalization. The Kennedy Nurses' Observational Scale for Inpatient Evaluation (NOSIE), the Symptom Checklist-90-Revised (SCL-90-R), the State-Trait Anxiety Inventory (STAI) and stress hormone (saliva cortisol) levels were used to measure patient outcomes at admission and discharge from the unit. The Staff Observation Aggression Scale-Revised (SOAS-R) was used to monitor the frequency and severity of aggressive incidents on the unit.
RESULTS: There was a significant reduction in self-reported anxiety ($p < 0.001$), resting heart rate ($p < 0.05$) and cortisol levels ($p < 0.05$) immediately following the initial and final massage therapy sessions. Significant improvements in hostility ($p = 0.007$) and depression scores ($p < 0.001$) on the SCL-90-R were observed in both treatment groups. There was no group x time interaction on any of the measures. Poor reliability of staff-reported incidents on the SOAS-R limited the validity of results in this domain.
CONCLUSIONS: Massage therapy had immediate beneficial effects on anxiety-related measures and may be a useful de-escalating tool for reducing stress and anxiety in acutely hospitalized psychiatric patients. Study limitations preclude any definite conclusions on the effect of massage therapy on aggressive incidents in an acute psychiatric setting. Randomized controlled trials are warranted.

7. Franklin, N. C., Ali, M. M., Robinson, A. T., Norkeviciute, E., & Phillips, S. A. (2014). Massage Therapy Restores Peripheral Vascular Function After Exertion. Archives of physical medicine and rehabilitation. doi:10.1016/j.apmr.2014.02.007 PMID: 24583315

OBJECTIVE: To determine if lower extremity exercise-induced muscle injury reduces vascular endothelial function of the upper extremity and if massage therapy (MT) improves peripheral vascular function after exertion-induced muscle injury. DESIGN: Randomized, blinded trial with evaluations at 90 minutes, 24 hours, 48 hours, and 72 hours. SETTING: Clinical research center. PARTICIPANTS: Sedentary young adults (N=36) were randomly assigned to 1 of 3 groups: (1) exertion-induced muscle injury and MT (n=15; mean age ± SE, 26.6±0.3); (2) exertion-induced muscle injury only (n=10; mean age ± SE, 23.6±0.4), and (3) MT only (n=11; mean age ± SE, 25.5±0.4). INTERVENTION: Participants were assigned to exertion-induced muscle injury only (a single bout of bilateral, eccentric leg press exercise), MT only (30-min lower extremity massage using Swedish technique), or exertion-induced muscle injury and MT. MAIN OUTCOME MEASURES: Brachial artery flow-mediated dilation (FMD) was determined by ultrasound at each time point. Nitroglycerin (NTG)-induced dilation was also assessed (0.4mg). RESULTS: Brachial FMD increased from baseline in the exertion-induced muscle injury and MT group and the MT only group (7.38%±.18% to 9.02%±.28%, P<.05 and 7.77%±.25% to 10.2%±.22%, P<.05, respectively) at 90 minutes and remained elevated until 72 hours. In the exertion-induced muscle injury only group, FMD was reduced from baseline at 24 and 48 hours (7.78%±.14% to 6.75%±.11%, P<.05 and 6.53%±.11%, P<.05, respectively) and returned to baseline after 72 hours. Dilations of NTG were similar over time. CONCLUSIONS: Our results suggest that MT attenuates impairment of upper extremity endothelial function resulting from lower extremity exertion-induced muscle injury in sedentary young adults.

8. Jane, S.W., Wilkie, D.J., Gallucci, B.B., Beaton, R.D., Huang, H.Y. (2008). Effects of a Full-Body Massage on Pain Intensity, Anxiety, and Physiological Relaxation in Taiwanese Patients with Metastatic Bone Pain: A Pilot Study. J Pain Symptom Manage. PMID: 19070458

Bone involvement, a hallmark of advanced cancer, results in intolerable pain, substantial morbidity, and impaired quality of life in 34%-45% of cancer patients. Despite the publication of 15 studies on massage therapy (MT) in cancer patients, little is known about the longitudinal effects of MT and safety in cancer patients with bone metastasis. The purpose of this study was to describe the feasibility of MT and to examine the effects of MT on present pain intensity (PPI), anxiety, and physiological relaxation over a 16- to 18-hour period in 30 Taiwanese cancer patients with bone metastases. A quasi-experimental, one-group, pretest-posttest design with repeated measures was used to examine the time effects of MT using single-item scales for pain (PPI-visual analog scale

[VAS]) and anxiety (anxiety-VAS), the modified Short-Form McGill Pain Questionnaire (MSF-MPQ), heart rate (HR), and mean arterial pressure (MAP). MT was shown to have effective immediate [t(29)=16.5, P=0.000; t(29)=8.9, P=0.000], short-term (20-30 minutes) [t(29)=9.3, P=0.000; t(29)=10.1, P=0.000], intermediate (1-2.5 hours) [t(29)=7.9, P=0.000; t(29)=8.9, P=0.000], and long-term benefits (16-18 hours) [t(29)=4.0, P=0.000; t(29)=5.7, P=0.000] on PPI and anxiety. The most significant impact occurred 15 [F=11.5(1, 29), P<0.002] or 20 [F=20.4(1, 29), P<0.000] minutes after the intervention. There were no significant time effects in decreasing or increasing HR and MAP. No patient reported any adverse effects as a result of MT. Clinically, the time effects of MT can assist health care providers in implementing MT along with pharmacological treatment, thereby enhancing cancer pain management. Randomized clinical trials are needed to validate the effectiveness of MT in this cancer population.

9. Moyer, C.A., Rounds, J., Hannum, J.W. (2004). A Meta-Analysis of Massage Therapy Research. APA Psychological Bulletin. 130(1): 3ï 18. PMID: 14717648

Massage therapy (MT) is an ancient form of treatment that is now gaining popularity as part of the complementary and alternative medical therapy movement. A meta-analysis was conducted of studies that used random assignment to test the effectiveness of MT. Mean effect sizes were calculated from 37 studies for 9 dependent variables. Single applications of MT reduced state anxiety, blood pressure, and heart rate but not negative mood, immediate assessment of pain, and cortisol level. Multiple applications reduced delayed assessment of pain. Reductions of trait anxiety and depression were MTôs largest effects, with a course of treatment providing benefits similar in magnitude to those of psychotherapy. No moderators were statistically significant, though continued testing is needed. The limitations of a medical model of MT are discussed, and it is proposed that new MT theories and research use a psychotherapy perspective.

10. Buttagat, V., Eungpinichpong, W., Chatchawan, U., Kharmwan, S. (2011). The immediate effects of traditional Thai massage on heart rate variability and stress-related parameters in patients with back pain associated with myofascial trigger points. J Bodyw Mov Ther. 15(1):15-23. PMID: 21147414

The purpose of this study was to investigate the immediate effects of traditional Thai massage (TTM) on stress-related parameters including heart rate variability (HRV), anxiety, muscle tension, pain intensity, pressure pain threshold, and body flexibility in patients with back pain associated with myofascial trigger points. Thirty-six patients were randomly allocated to receive a 30-min session of either TTM or control (rest on bed) for one session. Results indicated that TTM was associated with significant increases in HRV (increased total power frequency (TPF) and high frequency (HF)), pressure pain

threshold (PPT) and body flexibility ($p<0.05$) and significant decreases in self-reported pain intensity, anxiety and muscle tension ($p<0.001$). For all outcomes, similar changes were not observed in the control group. The adjusted post-test mean values for TPF, HF, PPT and body flexibility were significantly higher in the TTM group when compared with the control group ($p<0.01$) and the values for pain intensity, anxiety and muscle tension were significantly lower. We conclude that TTM can increase HRV and improve stress-related parameters in this patient population.

11. Bauer, B.A., Cutshall, S.M., Wentworth, L.J., Engen, D., Messner, P.K., Wood, C.M., Brekke, K.M., Kelly, R.F., Sundt, T.M. 3rd. (2010). Effect of massage therapy on pain, anxiety, and tension after cardiac surgery: a randomized study. Complement Ther Clin Pract. May;16(2):70-5. PMID: 20347836

Integrative therapies such as massage have gained support as interventions that improve the overall patient experience during hospitalization. Cardiac surgery patients undergo long procedures and commonly have postoperative back and shoulder pain, anxiety, and tension. Given the promising effects of massage therapy for alleviation of pain, tension, and anxiety, we studied the efficacy and feasibility of massage therapy delivered in the postoperative cardiovascular surgery setting. Patients were randomized to receive a massage or to have quiet relaxation time (control). In total, 113 patients completed the study (massage, n=62; control, n=51). Patients receiving massage therapy had significantly decreased pain, anxiety, and tension. Patients were highly satisfied with the intervention, and no major barriers to implementing massage therapy were identified. Massage therapy may be an important component of the healing experience for patients after cardiovascular surgery.

12. Keir, S.T. (2011). Effect of massage therapy on stress levels and quality of life in brain tumor patients--observations from a pilot study. Support Care Cancer. 19(5):711-5 PMID: 21046417

BACKGROUND: Patients with brain tumors report experiencing elevated levels of stress across the disease continuum. Massage therapy is a commonly used complementary therapy and is employed in cancer care to reduce psychological stress and to improve quality of life (QoL). The purpose of this pilot study was to obtain a preliminary assessment of the efficacy of massage therapy on patient reported psychological outcomes and QoL.
MATERIALS AND METHODS: The design of the study was a prospective, single-arm intervention. Participants were newly diagnosed primary brain tumor patients who reported experiencing stress and who received a total of eight massages over a period of 4

weeks. Participants completed the Perceived Stress Scale (PSS-10) and the Functional Assessment of Cancer Therapy-Brain to assess their stress level and QoL.
RESULTS: As a group, levels of stress dropped significantly between weeks 2 and 3 (M = 12.3, SD = 3.09, P Ò0.010). A trend for the reduction in stress continued through week 4 (P Ò0.063). At the end of week 4, PSS-10 scores of all participants were below the threshold for being considered stressed. By the end of the intervention, participants reported significant improvements in three test domains, emotional well-being, additional brain tumor concerns, and social/family well-being.
CONCLUSION: This study indicates that participation in a massage therapy program is both feasible and acceptable to newly diagnosed brain tumor patients experiencing stress. Furthermore, participants in this study reported improvements in stress and their QoL while receiving massage therapy.

13. Munk, N., Zanjani, F. (2011). Relationship between massage therapy usage and health outcomes in older adults. J Bodyw Mov Ther, 15(2):177-85. PMID: 21419358

Physical and emotional decline in older adults is a serious issue affecting not only quality of life but also susceptibility to injury. Non-pharmacological interventions addressing the needs of older adults are important for reducing medication burden and possible drug interactions. This study (N=144) examines the potential of massage therapy as such an intervention for older adults by comparing self-reported health outcome scores among adults 60 and older who have and have not utilized massage therapy in the past year. When controlling for age and cumulative morbidities, older adults who reported massage therapy usage in the past year had significantly better health outcome scores in the following domains: 1) emotional well-being, 2) limitations due to physical issues, and 3) limitations due to emotional issues. Because previous massage therapy research has not included or focused on older adults, studies examining massage therapy and emotional health, specifically among this population, are warranted

14. Cady, S. H., Jones, G. E. (1997). Massage therapy as a workplace intervention for reduction of stress. Perceptual & Motor Skills, 84, 157-158. PMID: 9132704

METHODS: The effectiveness of a 15-min. on-site massage while seated in a chair was evaluated for reducing stress as indicated by blood pressure. 52 employed participants' blood pressures were measured before and after a 15-min. massage at work.
RESULTS: Analyses showed a significant reduction in participants' systolic and diastolic blood pressure after receiving the massage.

15. Katz, J., Wowk, A., Culp, D., & Wakeling, H. (1999). Pain and tension are reduced among hospital nurses after on-site massage treatments: a pilot study. Journal of Perianesthesia Nursing, 14, 128-133. PMID: 10603815

METHODS: The aims of this pilot study were (1) to evaluate the feasibility of carrying out a series of eight 15-minute workplace-based massage treatments, and (2) to determine whether massage therapy reduced pain and stress experienced by nursing staff at a large teaching hospital. Twelve hospital staff (10 registered nurses and 2 nonmedical ward staff) working in a large tertiary care center volunteered to participate. Participants received up to eight, workplace-based, 15-minute Swedish massage treatments provided by registered massage therapists. Pain, tension, relaxation, and the Profile of Mood States were measured before and after each massage session.
RESULTS: Pain intensity and tension levels were significantly lower after massage. In addition, relaxation levels and overall mood state improved significantly after treatments.

16. Rapaport M.H., Schettler, P., Bresee, C. (2010). A Preliminary Study of the Effects of a Single Session of Swedish Massage on Hypothalamic-Pituitary-Adrenal and Immune Function in Normal Individuals. Journal of Alternative and Complementary Medicine,16(10), 1079-1088. PMID: 20809811

OBJECTIVES: Massage therapy is a multi-billion dollar industry in the United States with 8.7% of adults receiving at least one massage within the last year; yet, little is known about the physiologic effects of a single session of massage in healthy individuals. The purpose of this study was to determine effects of a single session of Swedish massage on neuroendocrine and immune function. It was hypothesized that Swedish Massage Therapy would increase oxytocin (OT) levels, which would lead to a decrease in hypothalamic- pituitary-adrenal (HPA) activity and enhanced immune function.
DESIGN: The study design was a head-to-head, single-session comparison of Swedish Massage Therapy with a light touch control condition. Serial measurements were performed to determine OT, arginine-vasopressin (AVP), adrenal corticotropin hormone (ACTH), cortisol (CORT), circulating phenotypic lymphocytes markers, and mitogen-stimulated cytokine production. Setting: This research was conducted in an outpatient research unit in an academic medical center.
SUBJECTS: Medically and psychiatrically healthy adults, 18-45 years old, participated in this study. Intervention: The intervention tested was 45 minutes of Swedish Massage Therapy versus a light touch control condition, using highly specified and identical protocols.
OUTCOME MEASURES: The standardized mean difference was calculated between Swedish Massage Therapy versus light touch on pre- to post intervention change in levels of OT, AVP, ACTH, CORT, lymphocyte markers, and cytokine levels. Results:

Compared to light touch, Swedish Massage Therapy caused a large effect size decrease in AVP, and a small effect size decrease in CORT, but these findings were not mediated by OT. Massage increased the number of circulating lymphocytes, CD 25+ lymphocytes, CD 56+ lymphocytes, CD4 + lymphocytes, and CD8+ lymphocytes (effect sizes from 0.14 to 0.43). Mitogen-stimulated levels of interleukin (IL)-1ss, IL-2, IL-4, IL-5, IL-6, IL-10, IL-13, and IFN-gamma decreased for subjects receiving Swedish Massage Therapy versus light touch (effect sizes from -0.22 to -0.63). Swedish Massage Therapy decreased IL-4, IL-5, IL-10, and IL-13 levels relative to baseline measures. CONCULSION: Preliminary data suggest that a single session of Swedish Massage Therapy produces measurable biologic effects. If replicated, these findings may have implications for managing inflammatory and autoimmune conditions.

17. Noto, Y., Kitajima, M., Kudo, M., Okudera, K., Hirota, K. (2010). Leg massage therapy promotes psychological relaxation and reinforces the first-line host defense in cancer patients. J Anesth. 24(6):827-31. PMID: 20976508

PURPOSE: Patients with cancer suffer a wide range of physical symptoms coupled with psychological stress. Moreover, cancer chemotherapy induces immunosuppression and consequently causes respiratory infections. Massage therapy has been reported to reduce symptoms in cancer patients via an increase in psychosocial relaxation and to enhance and/or improve immune function. METHODS: In the present study, we determined whether leg massage could induce psychosocial relaxation and activate the first line of the host defense system. To assess effects of rest and leg massage, 15 healthy volunteers rested on a bed for 20 min on the first day, and 3 days later the subjects received a standardized massage of the legs for 20 min with nonaromatic oil. Twenty-nine cancer patients also received the same standardized massage of the legs. Anxiety/stress was assessed before and just after the rest or the massage using the State-Trait Anxiety Inventory (STAI-s) and visual analogue scale (VAS). To evaluate oral immune function, salivary chromogranin A (CgA) and secretory immunoglobulin A (sIgA) levels were measured. RESULTS: In healthy volunteers, rest significantly reduced VAS by 34% and increased sIgA by 61%. In contrast, leg massage significantly reduced both STAI-s and VAS by 24% and 63%, and increased both sIgA and CgA by 104% and 90%, respectively. In cancer patients, leg massage significantly decreased both STAI-s and VAS by 16% and 38%, and increased both salivary CgA and sIgA by 33% and 35%, respectively. CONCLUSION: Leg massage may promote psychosocial relaxation and reinforce a first-line host defense with an increase in secretion of antimicrobial peptides.

18. Walach, H., Güthlin, C., König, M. (2003). Efficacy of massage therapy in chronic pain: a pragmatic randomized trial. J Altern Complement Med, 9(6):837-46. PMID: 14736355

BACKGROUND: Although classic massage is used widely in Germany and elsewhere for treating chronic pain conditions, there are no randomized controlled trials (RCT). DESIGN: Pragmatic RCT of classic massage compared to standard medical care (SMC) in chronic pain conditions of back, neck, shoulders, head and limbs. OUTCOME MEASURE: Pain rating (nine-point Likert-scale; predefined main outcome criterion) at pretreatment, post-treatment, and 3 month follow-up, as well as pain adjective list, depression, anxiety, mood, and body concept. RESULTS: Because of political and organizational problems, only 29 patients were randomized, 19 to receive massage, 10 to SMC. Pain improved significantly in both groups, but only in the massage group was it still significantly improved at follow-up. Depression and anxiety were improved significantly by both treatments, yet only in the massage group maintained at follow-up. CONCLUSION: Despite its limitation resulting from problems with numbers and randomization this study shows that massage can be at least as effective as SMC in chronic pain syndromes. Relative changes are equal, but tend to last longer and to generalize more into psychologic domains. Because this is a pilot study, the results need replication, but our experiences might be useful for other researchers.

19. . Hernandez-Reif, M., Shor-Posner, G., Baez, J., Soto, S., Mendoza, R., Castillo, R., Quintero, N., Perez, E., Zhang, G. (2008). Dominican Children with HIV not Receiving Antiretrovirals: Massage Therapy Influences their Behavior and Development. Evid Based Complement Alternat Med, 5(3):345-354 PMID: 18830444

Forty-eight children (M age = 4.8 years) infected with HIV/AIDS and living in the Dominican Republic were randomly assigned to a massage therapy or a play session control group. The children in the massage therapy group received two weekly 20-min massages for 12 weeks; the children in the control group participated in a play session (coloring, playing with blocks) for the same duration and length as the massage therapy group. Overall, the children in the massage therapy group improved in self-help abilities and communication, suggesting that massage therapy may enhance daily functioning for children with HIV/AIDS. Moreover, the HIV infected children who were six or older also showed a decrease in internalizing behaviors; specifically depressive/anxious behaviors and negative thoughts were reduced. Additionally, baseline assessments revealed IQ equivalence below normal functioning for 70% of the HIV infected children and very high incidences of mood problems (depression, withdrawn) for 40% of the children and anxiety problems for 20% of the children, suggesting the need for better monitoring and alternative interventions in countries with limited resources to improve cognition and the mental health status of children infected with HIV/AIDS.

20. Moraska, A., Chandler, C. (2009). Changes in Psychological Parameters in Patients with Tension- type Headache Following Massage Therapy: A Pilot Study. J Man Manip Ther. 17(2):86-94. PMID: 20046550

Investigations into complementary and alternative medicine (CAM) approaches to address stress, depression, and anxiety of those experiencing chronic pain are rare. The objective of this pilot study was to assess the value of a structured massage therapy program, with a focus on myofascial trigger points, on psychological measures associated with tension-type headache. Participants were enrolled in an open-label trial using a baseline control with four 3-week phases: baseline, massage (two 3-week periods) and a follow-up phase. Eighteen subjects with episodic or chronic tension-type headache were enrolled and evaluated at 3-week intervals using the State-Trait Anxiety Inventory, Beck Depression Inventory, and the Perceived Stress Scale. The Daily Stress Inventory was administered over 7-day periods during baseline and the final week of massage. Twice weekly, 45-minute massage therapy sessions commenced following the baseline phase and continued for 6 weeks. A significant improvement in all psychological measures was detected over the timeframe of the study. Post hoc evaluation indicated improvement over baseline for depression and trait anxiety following 6 weeks of massage, but not 3 weeks. A reduction in the number of events deemed stressful as well as their respective impact was detected. This pilot study provides evidence for reduction of affective distress in a chronic pain population, suggesting the need for more rigorously controlled studies using massage therapy to address psychological measures associated with TTH.

21. Day, A.L., Gillan, L., Francis, L., Kelloway, E.K., Natarajan, M. (2009). Massage therapy in the workplace: reducing employee strain and blood pressure. G Ital Med Lav Ergon. 31(3 Suppl B):B25-30 PMID: 20518225

AIM: Assess the effects of workplace-based massage therapy on physiological and psychological outcomes.
METHODS: We used afield experiment in which 28 participants were randomly assigned into either an experimental (n = 14) or control (n = 14) group. The experimental group received weekly massage treatments at work for a four week period while the control group did not.
RESULTS: Both strain and blood pressure were significantly reduced during treatment for the experimental group but not for the control group.
CONCLUSIONS: This study provides initial support for the effectiveness of workplace-based massage therapy as part of a comprehensive workplace health strategy.

22. Brady, L.H., Henry, K., Luth, J.F. 2nd, Casper-Bruett, K.K. (2001). The effects of shiatsu on lower back pain. J Holist Nurs, 19(1):57-70. PMID: 11847714

Shiatsu, a specific type of massage, was used as an intervention in this study of 66 individuals complaining of lower back pain. Each individual was measured on state/trait anxiety and pain level before and after four shiatsu treatments. Each subject was then called 2 days following each treatment and asked to quantify the level of pain. Both pain and anxiety decreased significantly over time. Extraneous variables such as gender, age, gender of therapist, length of history with lower back pain, and medications taken for lower back pain did not alter the significant results. These subjects would recommend shiatsu massage for others suffering from lower back pain and indicated the treatments decreased the major inconveniences they experienced with their lower back pain.

23. Castro-Sánchez, A.M., Matarán-Peñarrocha, G.A., Granero-Molina, J., Aguilera-Manrique, G., Quesada-Rubio, J.M., Moreno-Lorenzo, C. (2011). Benefits of massage-myofascial release therapy on pain, anxiety, quality of sleep, depression, and quality of life in patients with fibromyalgia. Evid Based Complement Alternat Med. 2011:561753 PMID: 21234327

Fibromyalgia is a chronic syndrome characterized by generalized pain, joint rigidity, intense fatigue, sleep alterations, headache, spastic colon, craniomandibular dysfunction, anxiety, and depression. The purpose of the present study was to determine whether massage-myofascial release therapy can improve pain, anxiety, quality of sleep, depression, and quality of life in patients with fibromyalgia. A randomized controlled clinical trial was performed. Seventy-four fibromyalgia patients were randomly assigned to experimental (massage-myofascial release therapy) and placebo (sham treatment with disconnected magnotherapy device) groups. The intervention period was 20 weeks. Pain, anxiety, quality of sleep, depression, and quality of life were determined at baseline, after the last treatment session, and at 1 month and 6 months. Immediately after treatment and at 1 month, anxiety levels, quality of sleep, pain, and quality of life were improved in the experimental group over the placebo group. However, at 6 months post intervention, there were only significant differences in the quality of sleep index. Myofascial release techniques improved pain and quality of life in patients with fibromyalgia.

24. Parlak Gürol, A., Polat, S., Akçay, M.N. (2010). Itching, pain, and anxiety levels are reduced with massage therapy in burned adolescents. J Burn Care Res. May-Jun;31(3):429-32. PMID: 20453734

Burn can be among the most severe physical and psychologic traumas a person may face. Patients with burns commonly have severe itching and pain. Severe itching has also been associated with anxiety, sleep disturbance, and disruption of daily living activities. The addition of complementary treatments to standard care may lead to improved pain management and may offer a safer approach for reducing pain and procedural anxiety for

patients with burns. The authors conducted an experimental study to examine whether the effects of massage therapy reduced burned adolescents' pain, itching, and anxiety levels. Sixty-three adolescents were enrolled in this study shortly after admission (mean days = 3+/- 0.48) at a burn unit in a large university hospital from February 2008 to June 2009. The measures including the pain, itching, and state anxiety were collected on the first and last days of the 5-week study period. The participants had an average age of 14.07 +/- 1.78 years and came usually from the lower socioeconomic strata. The authors observed that massage therapy reduced all these measures from the first to the last day of this study ($P < .001$). In most cultures, massage treatments are used to alleviate a wide range of symptoms. Although health professionals agree on the use of nonpharmacologic method for patients with burns, these applications are not yet common.

25. Lämås, K., Lindholm, L., Engström, B., Jacobsson, C. (2010). Abdominal massage for people with constipation: a cost utility analysis. J Adv Nurs. 66(8):1719-29. PMID: 20557387

AIM: This paper is a report of a study conducted to evaluate change in health-related quality of life for people with constipation receiving abdominal massage and to estimate the cost-effectiveness of two alternative scenarios developed from the original trial.
BACKGROUND: Constipation is a common problem and is associated with decrease in quality of life. Abdominal massage appears to decrease the severity of gastrointestinal symptoms, but its impact on health-related quality of life has not been assessed.
METHODS: A randomized controlled trial including 60 participants was conducted in Sweden between 2005 and 2007. The control group continued using laxatives as before and the intervention group received additional abdominal massage. Health-related quality of life was assessed using the EQ-5D and analyzed with linear regression. Two scenarios were outlined to conduct a cost utility analysis. In the self-massage scenario patients learned to give self-massage, and in the professional massage scenario patients in hospital received abdominal massage from an Enrolled Nurse.
RESULTS: Linear regression analysis showed that health-related quality of life was statistically significantly increased after 8 weeks of abdominal massage. About 40% were estimated to receive good effect. For 'self-massage', the cost per quality adjusted life year was euro75,000 for the first 16 weeks. For every additional week of abdominal massage, the average dropped and eventually approached euro8300. For 'professional massage', the cost per quality adjusted life year was euro60,000 and eventually dropped to euro28,000.
CONCLUSION: Abdominal massage may be cost-effective in the long-term and it is relevant to consider it when managing constipation. A crucial aspect will be to identify those who will benefit.

26. Glew, G.M., Fan, M.Y., Hagland, S., Bjornson, K., Beider, S., McLaughlin, J.F. (2010). Survey of the use of massage for children with cerebral palsy. Int J Ther Massage Bodywork.3(4):10-5. PMID: 21589684

BACKGROUND: Conventional medicine and complementary and alternative medicine (CAM) are merging into the broader field of "integrative medicine." Massage is no longer considered complementary or alternative in some conventional medical circles today.
PURPOSE: We aimed to determine the prevalence of massage use among children with cerebral palsy (CP) in the Pacific Northwest in the United States, the reasons that massage is being used, and the limits of recruitment for a future randomized controlled trial.
METHODS: This study, the first step in a three-stage research plan, was conducted at the Neurodevelopmental and Neurology clinics at Seattle Children's Hospital, a tertiary pediatric hospital that provides service to patients primarily from Washington, Alaska, Montana, and Idaho. As a feasibility study (stage one), it precedes a planned pilot study (stage two), and subsequently, a full-scale randomized controlled trial (stage three) of whether massage can improve the health of children with CP. The study subjects-104 families with a child with CP ranging in age from 17 months to 21 years-were surveyed by the principal investigator and a research assistant in exam rooms at the hospital.
RESULTS: In the families surveyed, 80% of the children had received massage at some point. Massage was currently being used in 51%, and trained professionals were providing the massage in 23%. Most families use massage for musculoskeletal relaxation, to improve quality of life, and to help their children sleep. Lower maternal income was associated with relatives as compared with professional massage therapists providing the massage. Massage therapy use by the mother and more severe CP were significantly associated with current use of massage for the child.
CONCLUSIONS: Most children with CP in the Pacific Northwest have used massage. Most parents surveyed believe that massage is helpful to their child. Additional research is needed to determine whether massage should be routinely recommended for children with CP.

27. Nerbass, F.B., Feltrim, M I. Z., Souza, S.A., Ykeda, D.S., Lorenzi-Filho, F. (2010). Effects of massage therapy on sleep quality after coronary artery bypass graft surgery. Clinics 65(11), 1105-1110. PMID: 21243280

INTRODUCTION: Having poor sleep quality is common among patients following cardiopulmonary artery bypass graft surgery. Pain, stress, anxiety and poor sleep quality may be improved by massage therapy.

OBJECTIVE: This study evaluated whether massage therapy is an effective technique for improving sleep quality in patients following cardiopulmonary artery bypass graft surgery.
METHOD: Participants included cardiopulmonary artery bypass graft surgery patients who were randomized into a control group and a massage therapy group following discharge from the intensive care unit (Day 0), during the postoperative period. The control group and the massage therapy group comprised participants who were subjected to three nights without massage and three nights with massage therapy, respectively. The patients were evaluated on the following mornings (i.e., Day 1 to Day 3) using a visual analogue scale for pain in the chest, back and shoulders, in addition to fatigue and sleep. Participants kept a sleep diary during the study period.
RESULTS: Fifty-seven cardiopulmonary artery bypass graft surgery patients were enrolled in the study during the preoperative period, 17 of whom were excluded due to postoperative complications. The remaining 40 participants (male: 67.5%, age: 61.9 years ± 8.9 years, body mass index: 27.2 kg/m² ± 3.7 kg/m²) were randomized into control (n = 20) and massage therapy (n = 20) groups. Pain in the chest, shoulders, and back decreased significantly in both groups from Day 1 to Day 3. The participants in the massage therapy group had fewer complaints of fatigue on Day 1 (p=0.006) and Day 2 (p=0.028) in addition, they reported a more effective sleep during all three days (p=0.019) when compared with the participants in the control group.
CONCLUSION: Massage therapy is an effective technique for improving patient recovery from cardiopulmonary artery bypass graft surgery because it reduces fatigue and improves sleep.

28. Hamre, H.J., Witt, C.M., Glockmann, A., Ziegler, R., Willich, S.N., Kiene, H. (2007). Rhythmical massage therapy in chronic disease: a 4-year prospective cohort study. J Altern Complement Med. 13(6):635-42. PMID: 17718646

OBJECTIVE: Rhythmical massage therapy is used in 24 countries but has not yet been studied in outpatient settings. The objective was to study clinical outcomes in patients receiving rhythmical massage therapy for chronic diseases.
DESIGN: Prospective 4-year cohort study.
SETTING: Thirty-six (36) medical practices in Germany.
PARTICIPANTS: Eighty-five (85) outpatients referred to rhythmical massage therapy.
OUTCOME MEASURES: Disease and Symptom Scores (physicians' and patients' assessment, respectively, 0-10) and SF-36. Disease Score was measured after 6 and 12 months, and other outcomes after 3, 6, 12, 18, 24, and 48 months.
RESULTS: Most common indications were musculoskeletal diseases (45% of patients; primarily back and neck pain) and mental disorders (18%, primarily depression and fatigue). Median disease duration at baseline was 2.0 years (interquartile range 0.5-6.0).

Median number of rhythmical massage therapy sessions was 12 (interquartile range 9-12), and median therapy duration was 84 (49-119) days. All outcomes improved significantly between baseline and all subsequent follow-ups. From baseline to 12 months, Disease Score improved from (mean +/- standard deviation) 6.30 +/- 2.01 to 2.77 +/- 1.97 ($p < 0.001$), Symptom Score improved from 5.76 +/- 1.81 to 3.13 +/- 2.20 ($p < 0.001$), SF-36 Physical Component score improved from 39.55 +/- 9.91 to 45.17 +/- 9.88 ($p < 0.001$), and SF-36 Mental Component score improved from 39.27 +/- 13.61 to 43.78 +/- 12.32 ($p = 0.028$). All these improvements were maintained until the last follow-up. Adverse reactions to rhythmical massage therapy occurred in 4 (5%) patients; 2 patients stopped therapy because of adverse reactions.
CONCLUSIONS: Patients receiving rhythmical massage therapy had long-term reduction of chronic disease symptoms and improvement of quality of life.

29. Quinn, C., Chandler, C., Moraska, A. (2002). Massage therapy and frequency of chronic tension headaches. Am J Public Health, 92(10):1657-61. PMID: 12356617

OBJECTIVES: The effect of massage therapy on chronic nonmigraine headache was investigated.
METHODS: Chronic tension headache sufferers received structured massage therapy treatment directed toward neck and shoulder muscles. Headache frequency, duration, and intensity were recorded and compared with baseline measures.
RESULTS: Compared with baseline values, headache frequency was significantly reduced within the first week of the massage protocol. The reduction of headache frequency continued for the remainder of the study (P =.009). The duration of headaches tended to decrease during the massage treatment period (P =.058). Headache intensity was unaffected by massage (P =.19).
CONCLUSIONS: The muscle-specific massage therapy technique used in this study has the potential to be a functional, nonpharmacological intervention for reducing the incidence of chronic tension headache.

30. . Moraska, A., Chandler, C., Edmiston-Schaetzel, A., Franklin, G., Calenda, E. L., & Enebo, B. (2008). Comparison of a targeted and general massage protocol on strength, function, and symptoms associated with carpal tunnel syndrome: a randomized pilot study. Journal of alternative and complementary medicine (New York, N.Y.), 14(3), 259ï 267. doi:10.1089/acm.2007.0647 PMID: 18370581

OBJECTIVE: Carpal tunnel syndrome (CTS) is a major, costly public health issue that could be dramatically affected by the identification of additional conservative care treatment options. Our study aimed to evaluate the effectiveness of two distinct massage therapy protocols on strength, function, and symptoms associated with CTS.

DESIGN: This was a randomized pilot study design with double pre-tests and subjects blinded to treatment group assignment.
SETTING/LOCATION: The setting for this study was a wellness clinic at a teaching institution in the United States.
SUBJECTS: Twenty-seven (27) subjects with a clinical diagnosis of CTS were included in the study. INTERVENTIONS: Subjects were randomly assigned to receive 6 weeks of twice-weekly massage consisting of either a general (GM) or CTS-targeted (TM) massage treatment program.
OUTCOME MEASURES: Dependent variables included hand grip and key pinch dynamometers, Levine Symptom and Function evaluations, and the Grooved Pegboard test. Evaluations were conducted twice during baseline, 2 days after the 7th and 11th massages, and at a follow-up visit 4 weeks after the 12th massage treatment.
RESULTS: A main effect of time was noted on all outcome measures across the study time frame ($p < 0.001$); improvements persist at least 4 weeks post-treatment. Comparatively, TM resulted in greater gains in grip strength than GM ($p = 0.04$), with a 17.3% increase over baseline ($p < 0.001$), but only a 4.8% gain for the GM group ($p = 0.21$). Significant improvement in grip strength was observed following the 7th massage. No other comparisons between treatment groups attained statistical significance.
CONCLUSIONS: Both GM and TM treatments resulted in an improvement of subjective measures associated with CTS, but improvement in grip strength was only detected with the TM protocol. Massage therapy may be a practical conservative intervention for compression neuropathies, such as CTS, although additional research is needed.

31. Elliott, R., & Burkett, B. (2013). Massage therapy as an effective treatment for carpal tunnel syndrome. Journal of bodywork and movement therapies, 17(3), 332ï 338. doi:10.1016/j.jbmt.2012.12.003 PMID: 23768278

Carpal tunnel syndrome is a common peripheral entrapment that causes neuralgia in the median nerve distribution of the hand. The primary aim of this study was to evaluate the efficacy of massage therapy as a treatment for carpal tunnel syndrome. Within this process, the locations of trigger-points that refer neuropathy to the hand were identified. The creation of massage pressure tables provides a means of treatment reproducibility. Twenty-one participants received 30 min of massage, twice a week, for six weeks. Carpal tunnel questionnaires, the Phalen, Tinel, and two-point discrimination tests provided outcome assessment. The results demonstrated significant ($p < 0.001$) change in symptom severity and functional status from two weeks. Based on this study, the combination of massage and trigger-point therapy is a viable treatment option for carpal tunnel syndrome and offers a new treatment approach.

32. Black, S., Jacques, K., Webber, A., Spurr, K., Carey, E., Hebb, A., Gilbert, R. (2010). Chair massage for treating anxiety in patients withdrawing from psychoactive drugs. J Altern Complement Med. Sep;16(9):979-87. PMID: 20799900

Therapeutic massage has been proven to be an effective, nonpharmacologic, alternative for managing state and trait anxiety in a variety of clinical situations. However, no controlled study has investigated this effect in an addiction treatment setting. AIM: The aim of this study was to investigate the effectiveness of chair massage for reducing anxiety in persons participating in an inpatient withdrawal management program for psychoactive drugs. DESIGN: The design was a randomized, controlled clinical trial conducted from June 2008 to January 2009.
SUBJECTS: Eighty-two (82) adult patients received inpatient treatment for psychoactive drug withdrawal (alcohol, cocaine, and opiates).
SETTING: This study was conducted at the Withdrawal Management Services at the Capital District Health Authority, Halifax, Nova Scotia.
INTERVENTIONS: Subjects were randomly assigned to receive chair massage (n = 40) or a relaxation control condition (n = 42). Treatments were offered for 3 consecutive days. Standard counseling and pharmacologic management were also offered concurrently to patients in all conditions.
MEASUREMENTS: The primary outcome measure was anxiety assessed using the Spielberger State-Trait Anxiety Inventory (STAI). State and trait anxiety scores were determined immediately prior to and following each treatment intervention.
RESULTS: Analysis of STAI scores showed a significant reduction in state and trait anxiety for both interventions ($p < 0.001$). The magnitude in the reduction in state ($p = 0.001$) and trait ($p = 0.045$) anxiety was significantly greater in the chair massage group where the effect on state anxiety was sustained, at least in part, for 24 hours.
CONCLUSIONS: Within the clinical context of this study, chair massage was more effective that relaxation control in reducing anxiety. Further investigation of chair massage as a potential nonpharmacologic adjunct in the management of withdrawal related anxiety is warranted.

33. Hughes, D., Ladas, E., Rooney, D., Kelly, K. (2008). Massage therapy as a supportive care intervention for children with cancer. Oncol Nurs Forum, 35(3):431-42. PMID: 18467292

PURPOSE/OBJECTIVES: To review relevant literature about massage therapy to assess the feasibility of integrating the body-based complementary and alternative medicine (CAM) practice as a supportive care intervention for children with cancer.
DATA SOURCES: PubMed, online references, published government reports, and the bibliographies of retrieved articles, reviews, and books on massage and massage and cancer. More than 70 citations were reviewed.

DATA SYNTHESIS: Massage therapy may help mitigate pain, anxiety, depression, constipation, and high blood pressure and may be beneficial during periods of profound immune suppression. Massage techniques light to medium in pressure are appropriate in the pediatric oncology setting.
CONCLUSIONS: Massage is an applicable, noninvasive, therapeutic modality that can be integrated safely as an adjunct intervention for managing side effects and psychological conditions associated with anticancer treatment in children. Massage may support immune function during periods of immunosuppression.
IMPLICATIONS FOR NURSING: Pediatric oncology nurses are vital in helping patients safely integrate CAM into conventional treatment. Pediatric oncology nurses can help maximize patient outcomes by assessing, advocating, and coordinating massage therapy services as a supportive care intervention.

34. Mitchinson, A.R., Kim, H.M., Rosenberg, J.M., Geisser, M., Kirsh, M., Cikrit, D., Hinshaw, D.B. (2007). Acute postoperative pain management using massage as an adjuvant therapy: a randomized trial. Arch Surg. 142(12):1158-67; discussion 1167. PMID: 18086982

HYPOTHESIS: Adjuvant massage therapy improves pain management and postoperative anxiety among many patients who experience unrelieved postoperative pain. Pharmacologic interventions alone may not address all of the factors involved in the experience of pain.
DESIGN: Randomized controlled trial.
SETTING: Department of Veterans Affairs hospitals in Ann Arbor, Michigan, and Indianapolis, Indiana.
PATIENTS: Six hundred five veterans (mean age, 64 years) undergoing major surgery from February 1, 2003, through January 31, 2005.
INTERVENTIONS: Patients were assigned to the following 3 groups: (1) control (routine care), (2) individualized attention from a massage therapist (20 minutes), or (3) back massage by a massage therapist each evening for up to 5 postoperative days. Main Outcome Measure Short- and long-term (> 4 days) pain intensity, pain unpleasantness, and anxiety measured by visual analog scales.
RESULTS: Compared with the control group, patients in the massage group experienced short-term (preintervention vs post intervention) decreases in pain intensity ($P = .001$), pain unpleasantness ($P < .001$), and anxiety ($P = .007$). In addition, patients in the massage group experienced a faster rate of decrease in pain intensity ($P = .02$) and unpleasantness ($P = .01$) during the first 4 postoperative days compared with the control group. There were no differences in the rates of decrease in long-term anxiety, length of stay, opiate use, or complications across the 3 groups.
CONCLUSION: Massage is an effective and safe adjuvant therapy for the relief of acute postoperative pain in patients undergoing major operations.

35. Chen, H.M., Chang, F.Y., Hsu, C.T. (2005). Effect of acupressure on nausea, vomiting, anxiety and pain among post-cesarean section women in Taiwan. Kaohsiung J Med Sci. 21(8):341-50. PMID: 16158876

The purpose of this study was to examine the effectiveness of acupressure for controlling post-cesarean section (CS) symptoms, such as nausea and vomiting, anxiety perception and pain perception. A total of 104 eligible participants were recruited by convenience sampling of operating schedules at two hospitals. Participants assigned to the experimental group received acupressure, and those assigned to the control group received only postoperative nursing instruction. The experimental group received three acupressure treatments before CS and within the first 24 hours after CS. The first treatment was performed the night before CS, the second was performed 2-4 hours after CS, and the third was performed 8-10 hours after CS. The measures included the Rhodes Index of Nausea and Vomiting, Visual Analog Scale for Anxiety, State-Trait Anxiety Inventory, Visual Analog Scale for Pain, and physiologic indices. Statistical methods included percentages, mean value with standard deviation, t test and repeated measure ANOVA. The use of acupressure reduced the incidence of nausea, vomiting or retching from 69.3% to 53.9%, compared with control group (95% confidence interval = 1.65-0.11; p = 0.040) 2-4 hours after CS and from 36.2% to 15.4% compared with control group (95% confidence interval = 0.59-0.02; p = 0.024) 8-10 hours after CS. Results indicated that the experimental group had significantly lower anxiety and pain perception of cesarean experiences than the control group. Significant differences were found in all physiologic indices between the two groups. In conclusion, the utilization of acupressure treatment to promote the comfort of women during cesarean delivery is strongly recommended.

36. Seers, K., Crichton, N., Martin, J., Coulson, K., Carroll, D. (2008). A randomised controlled trial to assess the effectiveness of a single session of nurse administered massage for short term relief of chronic non-malignant pain., BMC Nurs. 4;7:10. PMID: 18601729

BACKGROUND: Massage is increasingly used to manage chronic pain but its benefit has not been clearly established. The aim of the study is to determine the effectiveness of a single session of nurse-administered massage for the short term relief of chronic non-malignant pain and anxiety.
METHODS: A randomised controlled trial design was used, in which the patients were assigned to a massage or control group. The massage group received a 15 minute manual massage and the control group a 15 minute visit to talk about their pain. Adult patients attending a pain relief unit with a diagnosis of chronic pain whose pain was described as moderate or severe were eligible for the study. An observer blind to the patients'

treatment group carried out assessments immediately before (baseline), after treatment and 1, 2, 3 and 4 hours later. Pain was assessed using 100 mm visual analogue scale and the McGill Pain Questionnaire. Pain Relief was assessed using a five point verbal rating scale. Anxiety was assessed with the Spielberger short form State-Trait Anxiety Inventory.
RESULTS: 101 patients were randomised and evaluated, 50 in the massage and 51 in the control group. There were no statistically significant differences between the groups at baseline interview. Patients in the massage but not the control group had significantly less pain compared to baseline immediately after and one hour post treatment. 95% confidence interval for the difference in mean pain reduction at one hour post treatment between the massage and control groups is 5.47 mm to 24.70 mm. Patients in the massage but not the control group had a statistically significant reduction in anxiety compared to baseline immediately after and at 1 hour post treatment.
CONCLUSION: Massage is effective in the short term for chronic pain of moderate to severe intensity.

37. Li, Y.-H., Wang, F.-Y., Feng, C.-Q., Yang, X.-F., & Sun, Y.-H. (2014). Massage therapy for fibromyalgia: a systematic review and meta-analysis of randomized controlled trials. PloS one, 9(2), e89304. doi:10.1371/journal.pone.0089304 PMID: 24586677

BACKGROUND: Although some studies evaluated the effectiveness of massage therapy for fibromyalgia (FM), the role of massage therapy in the management of FM remained controversial.
OBJECTIVE: The purpose of this systematic review is to evaluate the evidence of massage therapy for patients with FM.
METHODS: Electronic databases (up to June 2013) were searched to identify relevant studies. The main outcome measures were pain, anxiety, depression, and sleep disturbance. Two reviewers independently abstracted data and appraised risk of bias. The risk of bias of eligible studies was assessed based on Cochrane tools. Standardised mean difference (SMD) and 95% confidence intervals (CI) were calculated by more conservative random-effects model. And heterogeneity was assessed based on the I(2) statistic.
RESULTS: Nine randomized controlled trials involving 404 patients met the inclusion criteria. The meta-analyses showed that massage therapy with duration ≥5 weeks significantly improved pain (SMD, 0.62; 95% CI 0.05 to 1.20; p=0.03), anxiety (SMD, 0.44; 95% CI 0.09 to 0.78; p=0.01), and depression (SMD, 0.49; 95% CI 0.15 to 0.84; p=0.005) in patients with FM, but not on sleep disturbance (SMD, 0.19; 95% CI -0.38 to 0.75; p=0.52).
CONCLUSION: Massage therapy with duration ≥5 weeks had beneficial immediate effects on improving pain, anxiety, and depression in patients with FM. Massage therapy

should be one of the viable complementary and alternative treatments for FM. However, given fewer eligible studies in subgroup meta-analyses and no evidence on follow-up effects, large-scale randomized controlled trials with long follow-up are warrant to confirm the current findings.

38. Hou, W.H., Chiang, P.T., Hsu, T.Y., Chiu, S.Y., Yen, Y.C. (2010). Treatment effects of massage therapy in depressed people: a meta-analysis. J Clin Psychiatry. 71(7):894-901. PMID: 20361919

OBJECTIVE: To systematically investigate the treatment effects of massage therapy in depressed people by incorporating data from recent studies.
DATA SOURCES: A meta-analysis of randomized controlled trials (RCTs) of massage therapy in depressed people was conducted using published studies from PubMed, EMBASE, PsycINFO, and CINAHL electronic database from inception until July 2008. The terms used for the search were derived from medical subheading term (MeSH) massage combined with MeSH depression. Hand searching was also checked for bibliographies of relevant articles. Retrieval articles were constrained to RCTs/clinical trials and human subjects. No language restrictions were imposed. STUDY SELECTION: We included 17 studies containing 786 persons from 246 retrieved references. Trials with other intervention, combined therapy, and massage on infants or pregnant women were excluded.
DATA EXTRACTION: Two reviewers independently performed initial screen and assessed quality indicators by Jadad scale. Data were extracted on publication year, participant characteristics, and outcomes by another single reviewer.
DATA SYNTHESIS: All trials showed positive effect of massage therapy on depressed people. Seventeen RCTs were of moderate quality, with a mean quality score of 6.4 (SD = 0.85). The pooled standardized mean difference in fixed- and random-effects models were 0.76 (95% CI, 0.61-0.91) and 0.73 (95% CI, 0.52-0.93), respectively. Both indicated significant effectiveness in the treatment group compared with the control group. The variance between these studies revealed possible heterogeneity (tau(2) = 0.06, Cochran chi(2)(16) = 25.77, P = .06). CONCLUSIONS: Massage therapy is significantly associated with alleviated depressive symptoms. However, standardized protocols of massage therapy, various depression rating scales, and target populations in further studies are suggested.

39. Moeini, M., Givi, M., Ghasempour, Z., Sadeghi, M. (2011). The effect of massage therapy on blood pressure of women with pre-hypertension. Iran J Nurs Midwifery Res. 16(1):61-70. PMID: 22039381

BACKGROUND: Prehypertension is considered as a cardiovascular disease predicator. Management of prehypertension is an appropriate objective for clinicians in a wide range of medical centers. Treatment of prehypertension is primarily non-pharmacological, one of which is massage therapy that is used to control the blood pressure. This study aimed to evaluate the effect of Swedish massage (face, neck, shoulders and chest) on blood pressure (BP) of the women with prehypertension.
METHODS: This was a single-blind clinical trial study. Fifty prehypertensive women selected by simple random sampling which divided into control and test groups. The test group (25 patients) received Swedish massage 10-15 min, three times a week for 10 sessions and the control groups (25 patients) also were relaxed at the same environment with receiving no massage. Their BP was measured before and after each session. Analyzing the data was done using descriptive and inferential statistical methods (chi square, Mann-Whitney, paired t-test and student t-test) through SPSS software.
RESULTS: The results indicated that mean systolic and diastolic blood pressure in the massage group was significantly lower in comparison with the control group ($p < 0.001$).
CONCLUSIONS: Findings of the study indicated that massage therapy was a safe, effective, applicable and cost-effective intervention in controlling BP of the prehypertension women and it can be used in the health care centers and even at home.

40. Dunigan, B.J., King, T.K., Morse, B.J. (2011). A preliminary examination of the effect of massage on state body image. Body Image. 8(4):411-4. PMID: 21764398

Evidence suggests positive effects of massage on psychological health; however, little is known about the effects of massage on body image. This research examined the effect of massage on state body image as well as relations between trait body image and attitudes toward massage. Forty-nine female university students were randomly assigned to either a massage condition or a control condition. It was hypothesized that participants in the massage condition would report improved state body image following the intervention when compared to participants in the control condition. As predicted, participants in the massage condition reported a more favorable state body image than participants in the control condition post-manipulation. Certain body image evaluations were moderately associated with views that massage is pleasurable, with the link between Body Areas Satisfaction and viewing massage as pleasurable reaching significance. Research is needed to determine the mechanism/s through which massage improves body image.

41. Billhult, A., Lindholm, C., Gunnarsson, R., Stener-Victorin, E. (2009). The effect of massage on immune function and stress in women with breast cancer--a randomized controlled trial. Auton Neurosci. 150(1-2):111-5. PMID: 19376750

OBJECTIVES: To examine the short-term effects of light pressure effleurage on circulating lymphocytes by studying the number and activity of peripheral blood natural killer (NK) cells in patients with breast cancer compared to a control group. Furthermore, the effect of light pressure effleurage on salivary cortisol levels, heart rate and blood pressure was studied.
DESIGN: Single centre, prospective, randomized and controlled study.
METHODS: Thirty women, aged 50 to 75 years (mean 61 sd=7.2) with breast cancer undergoing radiation therapy in a hospital in southwestern Sweden were enrolled in the study. They were allocated to either receive massage in the form of a full-body light pressure effleurage treatment, or a control visit where they were given an equal amount of attention. Blood samples, saliva, notation of heart rate and blood pressure were collected before and after massage/control visit. Differences in change over time between groups were analyzed by Student's t-test.
RESULTS: Light pressure effleurage massage decreased the deterioration of NK cell activity occurring during radiation therapy. Furthermore it lowered heart rate and systolic blood pressure. No effects were demonstrated on cortisol and diastolic pressure.
CONCLUSIONS: A single full-body light pressure effleurage massage has a short-term effect on NK cell activity, systolic blood pressure and heart rate in patients with breast cancer. However, the long-term clinical importance of these findings needs to be further investigated.

42. Cherkin, D.C., Sherman, K.J., Kahn, J., Wellman, R., Cook, A.J., Johnson, E., Erro, J., Delaney, K., Deyo, R.A. (2011). A comparison of the effects of 2 types of massage and usual care on chronic low back pain: a randomized, controlled trial. Ann Intern Med,155(1):1-9. PMID: 21727288

BACKGROUND: Few studies have evaluated the effectiveness of massage for chronic low back pain.
OBJECTIVE: To compare the effectiveness of 2 types of massage and usual care for chronic back pain.
DESIGN: Parallel-group randomized, controlled trial. Randomization was computer-generated, with centralized allocation concealment. Participants were blinded to massage type but not to assignment to massage versus usual care. Massage therapists were unblinded. The study personnel who assessed outcomes were blinded to treatment assignment. (ClinicalTrials.gov registration number: NCT00371384)
SETTING: An integrated health care delivery system in the Seattle area. Patients: 401 persons 20 to 65 years of age with nonspecific chronic low back pain.
INTERVENTION: Structural massage (n = 132), relaxation massage (n = 136), or usual care (n = 133).
MEASUREMENTS: Roland Disability Questionnaire (RDQ) and symptom bothersomeness scores at 10 weeks (primary outcome) and at 26 and 52 weeks

(secondary outcomes). Mean group differences of at least 2 points on the RDQ and at least 1.5 points on the symptom bothersomeness scale were considered clinically meaningful. Results: The massage groups had similar functional outcomes at 10 weeks. The adjusted mean RDQ score was 2.9 points (95% CI, 1.8 to 4.0 points) lower in the relaxation group and 2.5 points (CI, 1.4 to 3.5 points) lower in the structural massage group than in the usual care group, and adjusted mean symptom bothersomeness scores were 1.7 points (CI, 1.2 to 2.2 points) lower with relaxation massage and 1.4 points (CI, 0.8 to 1.9 points) lower with structural massage. The beneficial effects of relaxation massage on function (but not on symptom reduction) persisted at 52 weeks but were small.
LIMITATION: Participants were not blinded to treatment.
CONCLUSION: Massage therapy may be effective for treatment of chronic back pain, with benefits lasting at least 6 months. No clinically meaningful difference between relaxation and structural massage was observed in terms of relieving disability or symptoms. Primary Funding Source: National Center for Complementary and Alternative Medicine.

43. Piotrowski, M.M., Paterson, C., Mitchinson, A., Kim, H.M., Kirsh, M., Hinshaw, D.B. (2003). Massage as adjuvant therapy in the management of acute postoperative pain: a preliminary study in men. J Am Coll Surg. 197(6):1037-46. PMID: 14644293

BACKGROUND: Opioid analgesia alone may not fully relieve all aspects of acute postoperative pain. Complementary medicine techniques used as adjuvant therapies have the potential to improve pain management and palliate postoperative distress.
STUDY DESIGN: This prospective randomized clinical trial compared pain relief after major operations in 202 patients who received one of three nursing interventions: massage, focused attention, or routine care. Interventions were performed twice daily starting 24 hours after the operation through postoperative day 7. Perceived pain was measured each morning.
RESULTS: The rate of decline in the unpleasantness of postoperative pain was accelerated by massage ($p = 0.05$). Massage also accelerated the rate of decline in the intensity of postoperative pain but this effect was not statistically significant. Use of opioid analgesics was not altered significantly by the interventions.
CONCLUSIONS: Massage may be a useful adjuvant therapy for the management of acute postoperative pain. Its greatest effect appears to be on the affective component (ie, unpleasantness) of the pain.

44. De-la -Llave-Rincon, A. I., Ortega-Santiago, R., Ambite-Quesada, S., Gil-Crujera, A., Puentedura, E. J., Valenza, M. C., & Fernández-de-las-Peñas, C. (2012). Response of pain intensity to soft tissue mobilization and neurodynamic technique: a series of 18 patients with

chronic carpal tunnel syndrome. Journal of manipulative and physiological therapeutics, 35(6), 420ï 427. doi:10.1016/j.jmpt.2012.06.002 PMID: 22858234

OBJECTIVE: The purpose of this prospective case series was to examine the combined effects of soft tissue mobilization and nerve slider neurodynamic technique on pain and pressure sensitivity in women with chronic carpal tunnel syndrome (CTS).
METHODS: Eighteen women with a clinical and electromyographic diagnosis of CTS participated. Patients completed the numerical pain rating scale (NPRS) for current, worst, and lowest pain intensity and underwent pain pressure threshold (PPT) testing over the median, radial, and ulnar nerves; the C5-C6 zygapophyseal joint; the carpal tunnel; and the tibialis anterior muscle. Pain was assessed at baseline and 1-week follow-up, whereas PPT were assessed at baseline and immediately after and 1-week after intervention. Each received soft tissue mobilization and nerve slider neurodynamic technique directed at different anatomical sites of potential entrapment of the median nerve.
RESULTS: A decrease in the mean current intensity and worst level of hand pain (P<.01) was found 1 week after the treatment session (mean changes, 2.2±1.1 points). A treatment effect for PPT levels over the C5-C6 zygapophyseal joint (P<.001) was found: PPT increased bilaterally 1 week after the intervention. No other significant changes in PPT levels were found (P>.195).
CONCLUSIONS: The application of soft tissue mobilization and neurodynamic technique decreased the intensity of pain but did not change pressure pain sensitivity in this group of women with chronic CTS.

45. Sherman, K. J., Cook, A. J., Wellman, R. D., Hawkes, R. J., Kahn, J. R., Deyo, R. A., & Cherkin, D. C. (2014). Five-week outcomes from a dosing trial of therapeutic massage for chronic neck pain. Annals of family medicine, 12(2), 112ï 120. doi:10.1370/afm.1602 PMID: 24615306

PURPOSE This trial was designed to evaluate the optimal dose of massage for individuals with chronic neck pain. METHODS We recruited 228 individuals with chronic nonspecific neck pain from an integrated health care system and the general population, and randomized them to 5 groups receiving various doses of massage (a 4-week course consisting of 30-minute visits 2 or 3 times weekly or 60-minute visits 1, 2, or 3 times weekly) or to a single control group (a 4-week period on a wait list). We assessed neck-related dysfunction with the Neck Disability Index (range, 0-50 points) and pain intensity with a numerical rating scale (range, 0-10 points) at baseline and 5 weeks. We used log-linear regression to assess the likelihood of clinically meaningful improvement in neck-related dysfunction (Ó5 points on Neck Disability Index) or pain intensity (Ó30% improvement) by treatment group. RESULTS After adjustment for

baseline age, outcome measures, and imbalanced covariates, 30-minute treatments were not significantly better than the wait list control condition in terms of achieving a clinically meaningful improvement in neck dysfunction or pain, regardless of the frequency of treatments. In contrast, 60-minute treatments 2 and 3 times weekly significantly increased the likelihood of such improvement compared with the control condition in terms of both neck dysfunction (relative risk = 3.41 and 4.98, P = .04 and .005, respectively) and pain intensity (relative risk = 2.30 and 2.73; P = .007 and .001, respectively). CONCLUSIONS After 4 weeks of treatment, we found multiple 60-minute massages per week more effective than fewer or shorter sessions for individuals with chronic neck pain. Clinicians recommending massage and researchers studying this therapy should ensure that patients receive a likely effective dose of treatment.

46. . Crane, J. D., Ogborn, D. I., Cupido, C., Melov, S., Hubbard, A., Bourgeois, J. M., & Tarnopolsky, M. A. (2012). Massage therapy attenuates inflammatory signaling after exercise-induced muscle damage. Science translational medicine, 4(119), 119ra13. doi:10.1126/scitranslmed.3002882 PMID: 22301554

Massage therapy is commonly used during physical rehabilitation of skeletal muscle to ameliorate pain and promote recovery from injury. Although there is evidence that massage may relieve pain in injured muscle, how massage affects cellular function remains unknown. To assess the effects of massage, we administered either massage therapy or no treatment to separate quadriceps of 11 young male participants after exercise-induced muscle damage. Muscle biopsies were acquired from the quadriceps (vastus lateralis) at baseline, immediately after 10 min of massage treatment, and after a 2.5-hour period of recovery. We found that massage activated the mechanotransduction signaling pathways focal adhesion kinase (FAK) and extracellular signal-regulated kinase 1/2 (ERK1/2), potentiated mitochondrial biogenesis signaling [nuclear peroxisome proliferator-activated receptor ɔ coactivator 1Ŭ(PGC-1Ŭ)], and mitigated the rise in nuclear factor əB (NFəB) (p65) nuclear accumulation caused by exercise-induced muscle trauma. Moreover, despite having no effect on muscle metabolites (glycogen, lactate), massage attenuated the production of the inflammatory cytokines tumor necrosis factor-Ŭ (TNF-Ŭ) and interleukin-6 (IL-6) and reduced heat shock protein 27 (HSP27) phosphorylation, thereby mitigating cellular stress resulting from myofiber injury. In summary, when administered to skeletal muscle that has been acutely damaged through exercise, massage therapy appears to be clinically beneficial by reducing inflammation and promoting mitochondrial biogenesis.

47. Morien A; Garrison D; Smith NK. Range of motion improves after massage in children with burns: a pilot study. J Bodyw Mov Ther. 2008 Jan;12(1):67-71. Epub 2007 Jun 27. PMID: 19083657

Little is known about the effect of massage on post-burn tissue in children. We conducted a pilot study to examine the effect of **massage** (3-5 days) on mood and range of motion (ROM) in eight post-burn children. Participants showed significant increases in ROM from Time 1 (pre-massage, first day) to Time 2 (post-massage, last day) in massaged tissue but not control (non-massaged) tissue. Mood was elevated throughout the study and thus did not change across time. Although massage improved ROM, we are cautious in our interpretation because of the small sample size.

48. Neugebauer CT; Serghiou M; Herndon DN; Suman OE. Effects of a 12-week rehabilitation program with music & exercise groups on range of motion in young children with severe burns. J Burn Care Res. 2008 Nov-Dec;29(6):939-48. PMID: 18849852

Previous studies indicate that rehabilitation programs supplemented with a strength and endurance-based exercise program improve lean body mass, pulmonary function, endurance, strength, and functional outcomes in severely burned children over the age of 7-years when compared with standard of care (SOC). To date, supplemental exercise programming for severely burned children under the age of 7-years has not yet been explored. The purpose of this study was to determine if a 12-week rehabilitation program supplemented with music & exercise, was more effective in improving functional outcomes than the SOC alone. This is a descriptive study that measured elbow and knee range of motion (ROM) in 24 severely burned children between ages 2 and 6 years. Groups were compared for demographics as well as active and passive ROM to bilateral elbows and knees. A total of 15 patients completed the rehabilitation with supplemental music and exercise, and data was compared with 9 patients who received SOC. Patients receiving the 12-week program significantly improved ROM in all joints assessed except for one. Patients receiving SOC showed a significant improvement in only one of the joints assessed. Providing a structured supplemental music and exercise program in conjunction with occupational and physical therapy seems to improve both passive and active ROM to a greater extent than the SOC atone.

49. Garrison, DK, BA LMT; Smith, NK, LMT; et al. Therapeutic Massage for Pediatric Burn Survivors, Poster # 5. Presented at: Southern Region Burn Conference, November 12-14, 2010 at Cook Convention Center in Memphis, TN.

OBJECTIVE: These 2 projects were designed to 1) determine if therapeutic massage intervention produced clinically meaningful changes in ROM, keloid size/shape, and mood variances in children ages 8-18 (2006 project); and 2) to determine if massage alone or massage with AIS produced greater changes in ROM (2010 project).

DESIGN: Data collected at Camp Amigo 2006 and at Camp Amigo & the Central Virginia Burn Camp in 2010.
PARTICIPANTS: From an initial screening of 30 children, 8 children were eventually selected for full protocol in 2006. From an initial screening of 47 children in 2010, no children met the criteria for full protocol, and 24 children were given general therapeutic massage sessions. All were burn survivors living in the Southeastern US and all had thermal burns > 2 years.
RESULTS: Massage significantly increased ROM in participants with scars when comparing the first day of measurement to the last day. Neither circumference nor mood was significantly altered.
CONCLUSIONS: Although ROM was significantly different when comparing first and last day measurements, we are cautious to contribute this entirely to massage because of the small number of participants in the study. More research is needed on both massage & ROM and massage with AIS. We would also strongly encourage studies with adult populations.

50. . Ko WJ, Na YC, Suh BS, Kim HA, Heo WH, Choi GH, Lee SU. The Effects of Topical Agent (Kelo-cote or Contractubex) Massage on the Thickness of Post-Burn Scar Tissue Formed in Rats. Arch Plast Surg. 2013 Nov; 40(6): 697-704 DOI: 10.5999/APS: 2013.40.6.697. Epub 2013 Nov 8 PMID: 24286041

BACKGROUND: We conducted an experimental study to compare the effect of massage using topical agents (Kelo-cote or Contractubex) on scar formation by massaging the healed burn wound on the dorsal area of Sprague-Dawley (SD) rats.
METHODS: Four areas of second degree contact burn were made on the dorsal area of each of 15 SD rats, using a soldering iron 15 mm in diameter. After gross epithelialization in the defect, 15 SD rats were randomly divided into four groups: the Kelo-cote group, Contractubex group, Vaseline group, and control group. Rats in three of the groups (all but the Control group) were massaged twice per day for 5 minutes each day, while those in the Control group were left unattended. For histologic analysis, we performed a biopsy and evaluated the thickness of scar tissue.
RESULTS: In the Kelo-cote and Contractubex groups, scar tissue thicknesses showed a significant decrease, compared with the Vaseline and control groups. However, no significant differences were observed between the Kelo-cote and Contractubex groups. In the Vaseline group, scar tissue thicknesses showed a significant decrease, compared with the control groups.
CONCLUSIONS: The findings of this study suggest that massage using a topical agent is helpful in the prevention of scar formation and that massage only with lubricant (no use of a topical agent) also has a considerable effect, although not as much as the use of a

topical agent. Thus, we recommend massage with a topical agent on the post-burn scar as an effective method for decreasing the scar thickness.

51. Moyle, W., Johnston, A.N., O'Dwyer, S.T. (2011). Exploring the effect of foot massage on agitated behaviours in older people with dementia: a pilot study. Australas J Ageing. 30(3):159-61. PMID: 21923711

AIM: To explore the effects of foot massage on agitated behaviours in older people with dementia living in long-term care.
METHODS: Seventeen men and 5 women (mean age 84.7 years), with a diagnosis of dementia and a history of clinically significant agitation, received a 10-minute foot massage each day for 14 days. The short form of the Cohen-Mansfield Agitation Inventory (CMAI-SF) and the Revised Memory and Behavior Problems Checklist (RMBPC) were completed at baseline, post-test and 2-weeks follow up.
RESULTS: CMAI-SF and RMBPC scores were significantly reduced at post-test and remained significantly lower than baseline at follow up.
CONCLUSION: This study provides preliminary evidence suggesting that limited short-duration foot massage reduces agitation and related behavioural problems in people with dementia, and that these behaviour changes are maintained after the massage ceases. A randomised controlled trial is required to confirm these findings.

52. Skovdahl, K., Sörlie, V., Kihlgren, M. (2007). Tactile stimulation associated with nursing care to individuals with dementia showing aggressive or restless tendencies: an intervention study in dementia care. Int J Older People Nurs. 2(3):162-70. 853 PMID: 20925872

AIM: This study aimed to describe from documentation both the caregivers' experiences of giving tactile stimulation to five people with moderate-to-severe dementia and who showed aggressive or restless tendencies, and the changes seen in them.
BACKGROUND: Clinical experiences indicate that tactile stimulation can contribute to a feeling of trust and confirmation as well as to improving communication, promoting relaxation and easing pain. There is, however, very little scientific documentation of the effects of touch massage for people with dementia.
DESIGN: From caregivers' documentation (28 weeks) of experiences, the giving of tactile stimulation to five randomly selected people with dementia showing aggressive or restless tendencies and the subsequent changes noticed.
METHOD: The documentation was analyzed by using qualitative content analysis.
RESULTS: All residents displayed signs of positive feelings and relaxation. The caregivers stated that they felt able to interact with the residents in a more positive way and that they felt they had a warmer relationship with them.

CONCLUSION: Tactile stimulation can be seen as a valuable way to communicating non- verbally, of giving feedback, confirmation, consolation or a feeling of being valuable and taken care of.

RELEVANE TO CLINICAL PRACTICE: Tactile stimulation has to be administered with respect and care, and given from a relational ethics perspective. Otherwise, there is a risk that tactile stimulation will be used merely as a technique instead of as a part of an effort to achieve optimal good, warm nursing care.

53. Health, N. I. of. (n.d.). Chapter 6: Effects on Well-being and Quality of Life. Retrieved March 14, 2014, from http://www.nidcr.nih.gov/datastatistics/surgeongeneral/sgr/chap6.htm