

1 **POSITION STATEMENT PROPOSAL ON MASSAGE AND HEALTH**

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22 **POSITION STATEMENT PROPOSAL ON MASSAGE AND HEALTH**

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25 **BACKGROUND INFORMATION**

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

31 Research is showing us that massage therapy can help in varying populations with anxiety,^{4, 5, 6, 7, 8, 9, 10, 11,}
32 ^{12, 15, 23, 25, 26, 27, 30, 31, 33, 34} depression,^{4, 7, 15, 24, 25, 26, 27, 33} boosting immune function,^{15, 21, 23, 28, 39} lowering
33 blood pressure,^{5, 7, 15, 18, 35, 38, 39} and pain issues.^{5, 6, 7, 8, 9, 11, 12, 15, 16, 19, 22, 25, 27, 28, 29, 30, 31, 32, 33} There are also
34 some smaller studies that indicate that massage therapy can help those with dementia,³⁶ improving body
35 image,³⁷ and there is also a small study that shows that when people receive massage therapy, they may
36 start to make better choices in their lives³⁴.
37

38 We are now starting to understand how greatly stress negatively impacts our lives, health, well-being and
39 quality of life.^{3, 4} Research has shown that massage therapy can have a positive influence with the issue of
40 stress^{4, 5, 7, 8, 12, 13, 17, 18, 19, 21, 23, 25, 26, 27, 38} and improving quality of life.^{5, 6, 8, 9, 11, 13, 14, 17, 20, 22, 25, 26, 27, 28, 29}
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42 It is clear that massage is good for health and wellness. Massage addresses the issues in the WHO's
43 definition of health; it can aid in the physical, mental, and social well-being of peoples as well as may help

44 prevent disease with improving immune function and reducing stress. The health benefits of massage
45 therapy are even touted on the Mayo Clinic's website, where they state: "massage can be a powerful tool to
46 help you take charge of your health and well-being, whether you have a specific health condition or are just
47 looking for another stress reliever."⁴⁰

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49

50 **RATIONALE**

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52 Peoples' health would benefit from utilizing and incorporating massage therapy given by professional
53 massage therapists working within their scope of practice.

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55 The position statement specifically supports all of AMTA's Core Values:

56 • We are a diverse and nurturing community working with integrity, respect and dignity.

57 • We embrace consistency in education.

58 • We endorse professional standards.

59 • We believe in the benefits of massage.

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

61 • AMTA members are devoted to professionalism and excellence in massage therapy practice.

62 • Quality research is the foundation for evidence-informed massage therapy education and
63 practice.

64 • AMTA promotes its members as the highest quality professionals in massage therapy.

65 • Massage therapy is easily accessible.

66 • Massage therapy is a vital component of health care and wellness.

67

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

69 ***ADVOCACY AND INFLUENCE***

70 Goal: The health care and wellness industry accepts the value of massage therapy.

71 Objective: Increase understanding of the benefits of massage therapy through education of the
72 health care and wellness industry.

73

74 ***INDUSTRY RELATIONSHIPS***

75 Goal: AMTA is a respected leader within the health care and wellness industry.

76 Objective: Increase collaboration between AMTA, its members and other health care and wellness
77 industry leaders.

78

79 ***RESEARCH***

80 Goal: AMTA members are aware of the importance of scientific research to the massage therapy
81 industry.

82 Objective: Increase the opportunities for members to access massage therapy scientific research
83 through AMTA sources.

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86

87 **POSITION STATEMENT**

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89 It is the position of the American Massage Therapy Association (AMTA) that massage therapy
90 can be good for health.

91

92 **REFERENCES**

93

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96

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98 Psychological Association website: [http://www.apa.org/news/press/releases/stress/key-](http://www.apa.org/news/press/releases/stress/key-findings.aspx)
99 [findings.aspx](http://www.apa.org/news/press/releases/stress/key-findings.aspx).

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

103

104 4. Garner, B., Phillips, L.J., Schmidt, H.M., Markulev, C., O'Connor, J., Wood, S.J., Berger, G.E.,
105 Burnett, P., McGorry, P.D. (2008). Pilot study evaluating the effect of massage therapy on stress,
106 anxiety and aggression in a young adult psychiatric inpatient unit. *Aust N Z J Psychiatry*,
107 42(5):414-22.

108

109 **OBJECTIVE:** The aim of the present pilot study was to examine the effectiveness of a
110 relaxation massage therapy programme in reducing stress, anxiety and aggression on a
111 young adult psychiatric inpatient unit.

112

113 **METHOD:** This was a prospective, non-randomized intervention study comparing
114 treatment as usual (TAU) with TAU plus massage therapy intervention (MT) over
115 consecutive 7 week blocks (May-August 2006). MT consisted of a 20 min massage
116 therapy session offered daily to patients during their period of hospitalization. The
117 Kennedy Nurses' Observational Scale for Inpatient Evaluation (NOSIE), the Symptom
118 Checklist-90-Revised (SCL-90-R), the State-Trait Anxiety Inventory (STAI) and stress
119 hormone (saliva cortisol) levels were used to measure patient outcomes at admission and
120 discharge from the unit. The Staff Observation Aggression Scale-Revised (SOAS-R) was
121 used to monitor the frequency and severity of aggressive incidents on the unit.

122

123 **RESULTS:** There was a significant reduction in self-reported anxiety ($p < 0.001$), resting
124 heart rate ($p < 0.05$) and cortisol levels ($p < 0.05$) immediately following the initial and
125 final massage therapy sessions. Significant improvements in hostility ($p = 0.007$) and
126 depression scores ($p < 0.001$) on the SCL-90-R were observed in both treatment groups.
127 There was no group x time interaction on any of the measures. Poor reliability of staff-
128 reported incidents on the SOAS-R limited the validity of results in this domain.

129

130 **CONCLUSIONS:** Massage therapy had immediate beneficial effects on anxiety-related
131 measures and may be a useful de-escalating tool for reducing stress and anxiety in acutely
132 hospitalized psychiatric patients. Study limitations preclude any definite conclusions on
133 the effect of massage therapy on aggressive incidents in an acute psychiatric setting.
134 Randomized controlled trials are warranted.

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

134
135 Bone involvement, a hallmark of advanced cancer, results in intolerable pain, substantial
136 morbidity, and impaired quality of life in 34%-45% of cancer patients. Despite the
137 publication of 15 studies on massage therapy (MT) in cancer patients, little is known about
138 the longitudinal effects of MT and safety in cancer patients with bone metastasis. The
139 purpose of this study was to describe the feasibility of MT and to examine the effects of
140 MT on present pain intensity (PPI), anxiety, and physiological relaxation over a 16- to 18-
141 hour period in 30 Taiwanese cancer patients with bone metastases. A quasi-experimental,
142 one-group, pretest-posttest design with repeated measures was used to examine the time
143 effects of MT using single-item scales for pain (PPI-visual analog scale [VAS]) and
144 anxiety (anxiety-VAS), the modified Short-Form McGill Pain Questionnaire (MSF-MPQ),
145 heart rate (HR), and mean arterial pressure (MAP). MT was shown to have effective
146 immediate [$t(29)=16.5, P=0.000$; $t(29)=8.9, P=0.000$], short-term (20-30 minutes)
147 [$t(29)=9.3, P=0.000$; $t(29)=10.1, P=0.000$], intermediate (1-2.5 hours) [$t(29)=7.9,$
148 $P=0.000$; $t(29)=8.9, P=0.000$], and long-term benefits (16-18 hours) [$t(29)=4.0, P=0.000$;
149 $t(29)=5.7, P=0.000$] on PPI and anxiety. The most significant impact occurred 15
150 [$F=11.5(1,29), P<0.002$] or 20 [$F=20.4(1,29), P<0.000$] minutes after the intervention.
151 There were no significant time effects in decreasing or increasing HR and MAP. No
152 patient reported any adverse effects as a result of MT. Clinically, the time effects of MT
153 can assist health care providers in implementing MT along with pharmacological
154 treatment, thereby enhancing cancer pain management. Randomized clinical trials are
155 needed to validate the effectiveness of MT in this cancer population.

- 156
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158 lower back pain. *J Holist Nurs, 19(1):57-70.*

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

- 168
169 7. Moyer, C.A., Rounds, J., Hannum, J.W. (2004). A Meta-Analysis of Massage Therapy Research.
170 *APA Psychological Bulletin. 130(1): 3-18.*

171
172 Massage therapy (MT) is an ancient form of treatment that is now gaining popularity as
173 part of the complementary and alternative medical therapy movement. A meta-analysis
174 was conducted of studies that used random assignment to test the effectiveness of MT.
175 Mean effect sizes were calculated from 37 studies for 9 dependent variables. Single
176 applications of MT reduced state anxiety, blood pressure, and heart rate but not negative
177 mood, immediate assessment of pain, and cortisol level. Multiple applications reduced

178 delayed assessment of pain. Reductions of trait anxiety and depression were MT's largest
179 effects, with a course of treatment providing benefits similar in magnitude to those of
180 psychotherapy. No moderators were statistically significant, though continued testing is
181 needed. The limitations of a medical model of MT are discussed, and it is proposed that
182 new MT theories and research use a psychotherapy perspective.
183

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

187 The purpose of this study was to investigate the immediate effects of traditional Thai
188 massage (TTM) on stress-related parameters including heart rate variability (HRV),
189 anxiety, muscle tension, pain intensity, pressure pain threshold, and body flexibility in
190 patients with back pain associated with myofascial trigger points. Thirty-six patients were
191 randomly allocated to receive a 30-min session of either TTM or control (rest on bed) for
192 one session. Results indicated that TTM was associated with significant increases in HRV
193 (increased total power frequency (TPF) and high frequency (HF)), pressure pain threshold
194 (PPT) and body flexibility ($p < 0.05$) and significant decreases in self-reported pain
195 intensity, anxiety and muscle tension ($p < 0.001$). For all outcomes, similar changes were
196 not observed in the control group. The adjusted post-test mean values for TPF, HF, PPT
197 and body flexibility were significantly higher in the TTM group when compared with the
198 control group ($p < 0.01$) and the values for pain intensity, anxiety and muscle tension were
199 significantly lower. We conclude that TTM can increase HRV and improve stress-related
200 parameters in this patient population.

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202 Quesada-Rubio, J.M., Moreno-Lorenzo, C. (2011). Benefits of massage-myofascial release therapy
203 on pain, anxiety, quality of sleep, depression, and quality of life in patients with fibromyalgia. *Evid
204 Based Complement Alternat Med.* 2011:561753
205

206 Fibromyalgia is a chronic syndrome characterized by generalized pain, joint rigidity,
207 intense fatigue, sleep alterations, headache, spastic colon, craniomandibular dysfunction,
208 anxiety, and depression. The purpose of the present study was to determine whether
209 massage-myofascial release therapy can improve pain, anxiety, quality of sleep,
210 depression, and quality of life in patients with fibromyalgia. A randomized controlled
211 clinical trial was performed. Seventy-four fibromyalgia patients were randomly assigned to
212 experimental (massage-myofascial release therapy) and placebo (sham treatment with
213 disconnected magnotherapy device) groups. The intervention period was 20 weeks. Pain,
214 anxiety, quality of sleep, depression, and quality of life were determined at baseline, after
215 the last treatment session, and at 1 month and 6 months. Immediately after treatment and
216 at 1 month, anxiety levels, quality of sleep, pain, and quality of life were improved in the
217 experimental group over the placebo group. However, at 6 months postintervention, there
218 were only significant differences in the quality of sleep index. Myofascial release
219 techniques improved pain and quality of life in patients with fibromyalgia.
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- 221 10. Black, S., Jacques, K., Webber, A., Spurr, K., Carey, E., Hebb, A., Gilbert, R. (2010). Chair
222 massage for treating anxiety in patients withdrawing from psychoactive drugs. *J Altern*
223 *Complement Med. Sep;16(9):979-87.*
- 224 Therapeutic massage has been proven to be an effective, nonpharmacologic, alternative for
225 managing state and trait anxiety in a variety of clinical situations. However, no controlled
226 study has investigated this effect in an addiction treatment setting.
- 227 AIM: The aim of this study was to investigate the effectiveness of chair massage for
228 reducing anxiety in persons participating in an inpatient withdrawal management program
229 for psychoactive drugs.
- 230 DESIGN: The design was a randomized, controlled clinical trial conducted from June
231 2008 to January 2009.
- 232 SUBJECTS: Eighty-two (82) adult patients received inpatient treatment for psychoactive
233 drug withdrawal (alcohol, cocaine, and opiates).
- 234 SETTING: This study was conducted at the Withdrawal Management Services at the
235 Capital District Health Authority, Halifax, Nova Scotia.
- 236 INTERVENTIONS: Subjects were randomly assigned to receive chair massage (n = 40) or
237 a relaxation control condition (n = 42). Treatments were offered for 3 consecutive days.
238 Standard counseling and pharmacologic management were also offered concurrently to
239 patients in all conditions.
- 240 MEASUREMENTS: The primary outcome measure was anxiety assessed using the
241 Spielberger State-Trait Anxiety Inventory (STAI). State and trait anxiety scores were
242 determined immediately prior to and following each treatment intervention.
- 243 RESULTS: Analysis of STAI scores showed a significant reduction in state and trait
244 anxiety for both interventions ($p < 0.001$). The magnitude in the reduction in state
245 ($p = 0.001$) and trait ($p = 0.045$) anxiety was significantly greater in the chair massage
246 group where the effect on state anxiety was sustained, at least in part, for 24 hours.
- 247 CONCLUSIONS: Within the clinical context of this study, chair massage was more
248 effective than relaxation control in reducing anxiety. Further investigation of chair massage
249 as a potential nonpharmacologic adjunct in the management of withdrawal related anxiety
250 is warranted.
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252 massage therapy in burned adolescents. *J Burn Care Res. May-Jun;31(3):429-32.*
- 253
- 254 Burn can be among the most severe physical and psychological traumas a person may face.
255 Patients with burns commonly have severe itching and pain. Severe itching has also been
256 associated with anxiety, sleep disturbance, and disruption of daily living activities. The
257 addition of complementary treatments to standard care may lead to improved pain
258 management and may offer a safer approach for reducing pain and procedural anxiety for
259 patients with burns. The authors conducted an experimental study to examine whether the
260 effects of massage therapy reduced burned adolescents' pain, itching, and anxiety levels.
261 Sixty-three adolescents were enrolled in this study shortly after admission (mean days = 3

262 +/- 0.48) at a burn unit in a large university hospital from February 2008 to June 2009.
263 The measures including the pain, itching, and state anxiety were collected on the first and
264 last days of the 5-week study period. The participants had an average age of 14.07 +/- 1.78
265 years and came usually from the lower socioeconomic strata. The authors observed that
266 massage therapy reduced all these measures from the first to the last day of this study (P <
267 .001). In most cultures, massage treatments are used to alleviate a wide range of
268 symptoms. Although health professionals agree on the use of nonpharmacologic method
269 for patients with burns, these applications are not yet common.
270

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272 K.M., Kelly, R.F., Sundt, T.M. 3rd. (2010). Effect of massage therapy on pain, anxiety, and
273 tension after cardiac surgery: a randomized study. *Complement Ther Clin Pract.* May;16(2):70-5.
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275 Integrative therapies such as massage have gained support as interventions that improve
276 the overall patient experience during hospitalization. Cardiac surgery patients undergo
277 long procedures and commonly have postoperative back and shoulder pain, anxiety, and
278 tension. Given the promising effects of massage therapy for alleviation of pain, tension,
279 and anxiety, we studied the efficacy and feasibility of massage therapy delivered in the
280 postoperative cardiovascular surgery setting. Patients were randomized to receive a
281 massage or to have quiet relaxation time (control). In total, 113 patients completed the
282 study (massage, n=62; control, n=51). Patients receiving massage therapy had significantly
283 decreased pain, anxiety, and tension. Patients were highly satisfied with the intervention,
284 and no major barriers to implementing massage therapy were identified. Massage therapy
285 may be an important component of the healing experience for patients after cardiovascular
286 surgery.

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

289 **BACKGROUND:** Patients with brain tumors report experiencing elevated levels of stress
290 across the disease continuum. Massage therapy is a commonly used complementary therapy
291 and is employed in cancer care to reduce psychological stress and to improve quality of life
292 (QoL). The purpose of this pilot study was to obtain a preliminary assessment of the efficacy
293 of massage therapy on patient reported psychological outcomes and QoL.

294 **MATERIALS AND METHODS:** The design of the study was a prospective, single-arm
295 intervention. Participants were newly diagnosed primary brain tumor patients who reported
296 experiencing stress and who received a total of eight massages over a period of 4 weeks.
297 Participants completed the Perceived Stress Scale (PSS-10) and the Functional Assessment
298 of Cancer Therapy-Brain to assess their stress level and QoL.

299 **RESULTS:** As a group, levels of stress dropped significantly between weeks 2 and 3 (M =
300 12.3, SD = 3.09, P ≤ 0.010). A trend for the reduction in stress continued through week 4 (P
301 ≤ 0.063). At the end of week 4, PSS-10 scores of all participants were below the threshold
302 for being considered stressed. By the end of the intervention, participants reported significant
303 improvements in three test domains, emotional well-being, additional brain tumor concerns,
304 and social/family well-being.

305 **CONCLUSION:** This study indicates that participation in a massage therapy program is both

306 feasible and acceptable to newly diagnosed brain tumor patients experiencing stress.
307 Furthermore, participants in this study reported improvements in stress and their QoL while
308 receiving massage therapy.

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

311 AIM: This paper is a report of a study conducted to evaluate change in health-related quality
312 of life for people with constipation receiving abdominal massage and to estimate the cost-
313 effectiveness of two alternative scenarios developed from the original trial.

314 BACKGROUND: Constipation is a common problem and is associated with decrease in
315 quality of life. Abdominal massage appears to decrease the severity of gastrointestinal
316 symptoms, but its impact on health-related quality of life has not been assessed.

317 METHODS: A randomized controlled trial including 60 participants was conducted in
318 Sweden between 2005 and 2007. The control group continued using laxatives as before and
319 the intervention group received additional abdominal massage. Health-related quality of life
320 was assessed using the EQ-5D and analyzed with linear regression. Two scenarios were
321 outlined to conduct a cost utility analysis. In the self-massage scenario patients learned to
322 give self-massage, and in the professional massage scenario patients in hospital received
323 abdominal massage from an Enrolled Nurse.

324 RESULTS: Linear regression analysis showed that health-related quality of life was
325 statistically significantly increased after 8 weeks of abdominal massage. About 40% were
326 estimated to receive good effect. For 'self-massage', the cost per quality adjusted life year was
327 euro75,000 for the first 16 weeks. For every additional week of abdominal massage, the
328 average dropped and eventually approached euro8300. For 'professional massage', the cost
329 per quality adjusted life year was euro60,000 and eventually dropped to euro28,000.

330 CONCLUSION: Abdominal massage may be cost-effective in the long-term and it is relevant
331 to consider it when managing constipation. A crucial aspect will be to identify those who will
332 benefit.

333
334 15. Hughes, D., Ladas, E., Rooney, D., Kelly, K. (2008). Massage therapy as a supportive care
335 intervention for children with cancer. *Oncol Nurs Forum*, 35(3):431-42.

336 PURPOSE/OBJECTIVES: To review relevant literature about massage therapy to assess
337 the feasibility of integrating the body-based complementary and alternative medicine
338 (CAM) practice as a supportive care intervention for children with cancer.

339 DATA SOURCES: PubMed, online references, published government reports, and the
340 bibliographies of retrieved articles, reviews, and books on massage and massage and
341 cancer. More than 70 citations were reviewed.

342 DATA SYNTHESIS: Massage therapy may help mitigate pain, anxiety, depression,
343 constipation, and high blood pressure and may be beneficial during periods of profound
344 immune suppression. Massage techniques light to medium in pressure are appropriate in
345 the pediatric oncology setting.

346 CONCLUSIONS: Massage is an applicable, noninvasive, therapeutic modality that can be

347 integrated safely as an adjunct intervention for managing side effects and psychological
348 conditions associated with anticancer treatment in children. Massage may support immune
349 function during periods of immunosuppression.

350 IMPLICATIONS FOR NURSING: Pediatric oncology nurses are vital in helping patients
351 safely integrate CAM into conventional treatment. Pediatric oncology nurses can help
352 maximize patient outcomes by assessing, advocating, and coordinating massage therapy
353 services as a supportive care intervention.

- 354
355 16. Cherkin, D.C., Sherman, K.J., Kahn, J., Wellman, R., Cook, A.J., Johnson, E., Erro, J., Delaney,
356 K., Deyo, R.A. (2011). A comparison of the effects of 2 types of massage and usual care on
357 chronic low back pain: a randomized, controlled trial. *Ann Intern Med*,155(1):1-9.

358
359 Background: Few studies have evaluated the effectiveness of massage for chronic low
360 back pain.

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362 Objective: To compare the effectiveness of 2 types of massage and usual care for chronic
363 back pain.

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365 Design: Parallel-group randomized, controlled trial. Randomization was computer-
366 generated, with centralized allocation concealment. Participants were blinded to massage
367 type but not to assignment to massage versus usual care. Massage therapists were
368 unblinded. The study personnel who assessed outcomes were blinded to treatment
369 assignment. (ClinicalTrials.gov registration number: NCT00371384)

370
371 Setting: An integrated health care delivery system in the Seattle area. Patients: 401 persons
372 20 to 65 years of age with nonspecific chronic low back pain.

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374 Intervention: Structural massage (n = 132), relaxation massage (n = 136), or usual care
375 (n = 133).

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377 Measurements: Roland Disability Questionnaire (RDQ) and symptom bothersomeness
378 scores at 10 weeks (primary outcome) and at 26 and 52 weeks (secondary outcomes).
379 Mean group differences of at least 2 points on the RDQ and at least 1.5 points on the
380 symptom bothersomeness scale were considered clinically meaningful. Results: The
381 massage groups had similar functional outcomes at 10 weeks. The adjusted mean RDQ
382 score was 2.9 points (95% CI, 1.8 to 4.0 points) lower in the relaxation group and 2.5
383 points (CI, 1.4 to 3.5 points) lower in the structural massage group than in the usual care
384 group, and adjusted mean symptom bothersomeness scores were 1.7 points (CI, 1.2 to 2.2
385 points) lower with relaxation massage and 1.4 points (CI, 0.8 to 1.9 points) lower with
386 structural massage. The beneficial effects of relaxation massage on function (but not on
387 symptom reduction) persisted at 52 weeks but were small.

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389 Limitation: Participants were not blinded to treatment.

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391 Conclusion: Massage therapy may be effective for treatment of chronic back pain, with
392 benefits lasting at least 6 months. No clinically meaningful difference between relaxation
393 and structural massage was observed in terms of relieving disability or symptoms. Primary
394 Funding Source: National Center for Complementary and Alternative Medicine

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

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

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

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.

19. 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.

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.

20. 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.

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

436 cerebral palsy (CP) in the Pacific Northwest in the United States, the reasons that massage is
437 being used, and the limits of recruitment for a future randomized controlled trial.

438 **METHODS:** This study, the first step in a three-stage research plan, was conducted at the
439 Neurodevelopmental and Neurology clinics at Seattle Children's Hospital, a tertiary pediatric
440 hospital that provides service to patients primarily from Washington, Alaska, Montana, and
441 Idaho. As a feasibility study (stage one), it precedes a planned pilot study (stage two), and
442 subsequently, a full-scale randomized controlled trial (stage three) of whether massage can
443 improve the health of children with CP. The study subjects-104 families with a child with CP
444 ranging in age from 17 months to 21 years-were surveyed by the principal investigator and a
445 research assistant in exam rooms at the hospital.

446 **RESULTS:** In the families surveyed, 80% of the children had received massage at some
447 point. Massage was currently being used in 51%, and trained professionals were providing
448 the massage in 23%. Most families use massage for musculoskeletal relaxation, to improve
449 quality of life, and to help their children sleep. Lower maternal income was associated with
450 relatives as compared with professional massage therapists providing the massage. Massage
451 therapy use by the mother and more severe CP were significantly associated with current use
452 of massage for the child.

453 **CONCLUSIONS:** Most children with CP in the Pacific Northwest have used massage. Most
454 parents surveyed believe that massage is helpful to their child. Additional research is needed
455 to determine whether massage should be routinely recommended for children with CP.

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

459 **Abstract Objectives:** Massage therapy is a multi-billion dollar industry in the United States
460 with 8.7% of adults receiving at least one massage within the last year; yet, little is known
461 about the physiologic effects of a single session of massage in healthy individuals. The
462 purpose of this study was to determine effects of a single session of Swedish massage on
463 neuroendocrine and immune function. It was hypothesized that Swedish Massage Therapy
464 would increase oxytocin (OT) levels, which would lead to a decrease in hypothalamic-
465 pituitary-adrenal (HPA) activity and enhanced immune function.

466 **Design:** The study design was a head-to-head, single-session comparison of Swedish
467 Massage Therapy with a light touch control condition. Serial measurements were
468 performed to determine OT, arginine-vasopressin (AVP), adrenal corticotropin hormone
469 (ACTH), cortisol (CORT), circulating phenotypic lymphocytes markers, and mitogen-
470 stimulated cytokine production.

471 **Setting:** This research was conducted in an outpatient research unit in an academic
472 medical center.

473 **Subjects:** Medically and psychiatrically healthy adults, 18-45 years old, participated in this
474 study.

475 **Intervention:** The intervention tested was 45 minutes of Swedish Massage Therapy versus
476 a light touch control condition, using highly specified and identical protocols.

477 Outcome measures: The standardized mean difference was calculated between Swedish
478 Massage Therapy versus light touch on pre- to postintervention change in levels of OT,
479 AVP, ACTH, CORT, lymphocyte markers, and cytokine levels.

480 Results: Compared to light touch, Swedish Massage Therapy caused a large effect size
481 decrease in AVP, and a small effect size decrease in CORT, but these findings were not
482 mediated by OT. Massage increased the number of circulating lymphocytes, CD 25+
483 lymphocytes, CD 56+ lymphocytes, CD4 + lymphocytes, and CD8+ lymphocytes (effect
484 sizes from 0.14 to 0.43). Mitogen-stimulated levels of interleukin (IL)-1ss, IL-2, IL-4, IL-
485 5, IL-6, IL-10, IL-13, and IFN-gamma decreased for subjects receiving Swedish Massage
486 Therapy versus light touch (effect sizes from -0.22 to -0.63). Swedish Massage Therapy
487 decreased IL-4, IL-5, IL-10, and IL-13 levels relative to baseline measures.

488 Conclusions: Preliminary data suggest that a single session of Swedish Massage Therapy
489 produces measurable biologic effects. If replicated, these findings may have implications
490 for managing inflammatory and autoimmune conditions.

491 22. Nerbass, F.B., Feltrim, M I. Z., Souza, S.A., Ykeda, D.S., Lorenzi-Filho, F. (2010). Effects of
492 massage therapy on sleep quality after coronary artery bypass graft surgery. *Clinics* 65(11), 1105-
493 1110.

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

497 OBJECTIVE: This study evaluated whether massage therapy is an effective technique for
498 improving sleep quality in patients following cardiopulmonary artery bypass graft surgery.

499 METHOD: Participants included cardiopulmonary artery bypass graft surgery patients
500 who were randomized into a control group and a massage therapy group following
501 discharge from the intensive care unit (Day 0), during the postoperative period. The
502 control group and the massage therapy group comprised participants who were subjected
503 to three nights without massage and three nights with massage therapy, respectively. The
504 patients were evaluated on the following mornings (i.e., Day 1 to Day 3) using a visual
505 analogue scale for pain in the chest, back and shoulders, in addition to fatigue and sleep.
506 Participants kept a sleep diary during the study period.

507 RESULTS: Fifty-seven cardiopulmonary artery bypass graft surgery patients were enrolled
508 in the study during the preoperative period, 17 of whom were excluded due to
509 postoperative complications. The remaining 40 participants (male: 67.5%, age: 61.9 years
510 \pm 8.9 years, body mass index: 27.2 kg/m² \pm 3.7 kg/m²) were randomized into control (n =
511 20) and massage therapy (n = 20) groups. Pain in the chest, shoulders, and back decreased
512 significantly in both groups from Day 1 to Day 3. The participants in the massage therapy
513 group had fewer complaints of fatigue on Day 1 (p=0.006) and Day 2 (p=0.028) in
514 addition, they reported a more effective sleep during all three days (p=0.019) when
515 compared with the participants in the control group.

516 CONCLUSION: Massage therapy is an effective technique for improving patient recovery
517 from cardiopulmonary artery bypass graft surgery because it reduces fatigue and improves
518 sleep.

519 23. Noto, Y., Kitajima, M., Kudo, M., Okudera, K., Hirota, K. (2010). Leg massage therapy promotes
520 psychological relaxation and reinforces the first-line host defense in cancer patients. *J Anesth.*
521 24(6):827-31.

522 PURPOSE: Patients with cancer suffer a wide range of physical symptoms coupled with
523 psychological stress. Moreover, cancer chemotherapy induces immunosuppression and
524 consequently causes respiratory infections. Massage therapy has been reported to reduce
525 symptoms in cancer patients via an increase in psychosocial relaxation and to enhance and/or
526 improve immune function.

527 METHODS: In the present study, we determined whether leg massage could induce
528 psychosocial relaxation and activate the first line of the host defense system. To assess effects
529 of rest and leg massage, 15 healthy volunteers rested on a bed for 20 min on the first day, and
530 3 days later the subjects received a standardized massage of the legs for 20 min with
531 nonaromatic oil. Twenty-nine cancer patients also received the same standardized massage of
532 the legs. Anxiety/stress was assessed before and just after the rest or the massage using the
533 State-Trait Anxiety Inventory (STAI-s) and visual analogue scale (VAS). To evaluate oral
534 immune function, salivary chromogranin A (CgA) and secretory immunoglobulin A (sIgA)
535 levels were measured.

536 RESULTS: In healthy volunteers, rest significantly reduced VAS by 34% and increased sIgA
537 by 61%. In contrast, leg massage significantly reduced both STAI-s and VAS by 24% and
538 63%, and increased both sIgA and CgA by 104% and 90%, respectively. In cancer patients,
539 leg massage significantly decreased both STAI-s and VAS by 16% and 38%, and increased
540 both salivary CgA and sIgA by 33% and 35%, respectively.

541 CONCLUSION: Leg massage may promote psychosocial relaxation and reinforce a first-line
542 host defense with an increase in secretion of antimicrobial peptides.

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

545
546 OBJECTIVE: To systematically investigate the treatment effects of massage therapy in
547 depressed people by incorporating data from recent studies.

548 DATA SOURCES: A meta-analysis of randomized controlled trials (RCTs) of massage
549 therapy in depressed people was conducted using published studies from PubMed,
550 EMBASE, PsycINFO, and CINAHL electronic database from inception until July 2008.
551 The terms used for the search were derived from medical subheading term (MeSH)
552 massage combined with MeSH depression. Hand searching was also checked for
553 bibliographies of relevant articles. Retrieval articles were constrained to RCTs/clinical
554 trials and human subjects. No language restrictions were imposed.

555 STUDY SELECTION: We included 17 studies containing 786 persons from 246 retrieved
556 references. Trials with other intervention, combined therapy, and massage on infants or
557 pregnant women were excluded.

558 DATA EXTRACTION: Two reviewers independently performed initial screen and
559 assessed quality indicators by Jadad scale. Data were extracted on publication year,
560 participant characteristics, and outcomes by another single reviewer.

561 DATA SYNTHESIS: All trials showed positive effect of massage therapy on depressed

562 people. Seventeen RCTs were of moderate quality, with a mean quality score of 6.4 (SD =
563 0.85). The pooled standardized mean difference in fixed- and random-effects models were
564 0.76 (95% CI, 0.61-0.91) and 0.73 (95% CI, 0.52-0.93), respectively. Both indicated
565 significant effectiveness in the treatment group compared with the control group. The
566 variance between these studies revealed possible heterogeneity ($\tau^2 = 0.06$, Cochran
567 $\chi^2(16) = 25.77$, $P = .06$).

568 CONCLUSIONS: Massage therapy is significantly associated with alleviated depressive
569 symptoms. However, standardized protocols of massage therapy, various depression rating
570 scales, and target populations in further studies are suggested.

571 25. Walach, H., G thlin, C., K nig, M. (2003). Efficacy of massage therapy in chronic pain: a
572 pragmatic randomized trial. *J Altern Complement Med*, 9(6):837-46.

573 BACKGROUND: Although classic massage is used widely in Germany and elsewhere for
574 treating chronic pain conditions, there are no randomized controlled trials (RCT).

575
576 DESIGN: Pragmatic RCT of classic massage compared to standard medical care (SMC) in
577 chronic pain conditions of back, neck, shoulders, head and limbs.

578
579 OUTCOME MEASURE: Pain rating (nine-point Likert-scale; predefined main outcome
580 criterion) at pretreatment, post-treatment, and 3 month follow-up, as well as pain adjective
581 list, depression, anxiety, mood, and body concept.

582
583 RESULTS: Because of political and organizational problems, only 29 patients were
584 randomized, 19 to receive massage, 10 to SMC. Pain improved significantly in both
585 groups, but only in the massage group was it still significantly improved at follow-up.
586 Depression and anxiety were improved significantly by both treatments, yet only in the
587 massage group maintained at follow-up.

588
589 CONCLUSION: Despite its limitation resulting from problems with numbers and
590 randomization this study shows that massage can be at least as effective as SMC in
591 chronic pain syndromes. Relative changes are equal, but tend to last longer and to
592 generalize more into psychologic domains. Because this is a pilot study, the results need
593 replication, but our experiences might be useful for other researchers.

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

598
599 Forty-eight children (M age = 4.8 years) infected with HIV/AIDS and living in the Dominican
600 Republic were randomly assigned to a massage therapy or a play session control group. The
601 children in the massage therapy group received two weekly 20-min massages for 12 weeks;
602 the children in the control group participated in a play session (coloring, playing with blocks)
603 for the same duration and length as the massage therapy group. Overall, the children in the
604 massage therapy group improved in self-help abilities and communication, suggesting that
605 massage therapy may enhance daily functioning for children with HIV/AIDS. Moreover, the

606 HIV infected children who were six or older also showed a decrease in internalizing
607 behaviors; specifically depressive/anxious behaviors and negative thoughts were reduced.
608 Additionally, baseline assessments revealed IQ equivalence below normal functioning for
609 70% of the HIV infected children and very high incidences of mood problems (depression,
610 withdrawn) for 40% of the children and anxiety problems for 20% of the children, suggesting
611 the need for better monitoring and alternative interventions in countries with limited resources
612 to improve cognition and the mental health status of children infected with HIV/AIDS.

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

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

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

636 OBJECTIVE: Rhythmical massage therapy is used in 24 countries but has not yet been
637 studied in outpatient settings. The objective was to study clinical outcomes in patients
638 receiving rhythmical massage therapy for chronic diseases.

639 DESIGN: Prospective 4-year cohort study.

640 SETTING: Thirty-six (36) medical practices in Germany.

641 PARTICIPANTS: Eighty-five (85) outpatients referred to rhythmical massage therapy.

642 OUTCOME MEASURES: Disease and Symptom Scores (physicians' and patients'
643 assessment, respectively, 0-10) and SF-36. Disease Score was measured after 6 and 12
644 months, and other outcomes after 3, 6, 12, 18, 24, and 48 months.

645 RESULTS: Most common indications were musculoskeletal diseases (45% of patients;
646 primarily back and neck pain) and mental disorders (18%, primarily depression and fatigue).
647 Median disease duration at baseline was 2.0 years (interquartile range 0.5-6.0). Median

648 number of rhythmical massage therapy sessions was 12 (interquartile range 9-12), and median
649 therapy duration was 84 (49-119) days. All outcomes improved significantly between baseline
650 and all subsequent follow-ups. From baseline to 12 months, Disease Score improved from
651 (mean +/- standard deviation) 6.30 +/- 2.01 to 2.77 +/- 1.97 ($p < 0.001$), Symptom Score
652 improved from 5.76 +/- 1.81 to 3.13 +/- 2.20 ($p < 0.001$), SF-36 Physical Component score
653 improved from 39.55 +/- 9.91 to 45.17 +/- 9.88 ($p < 0.001$), and SF-36 Mental Component
654 score improved from 39.27 +/- 13.61 to 43.78 +/- 12.32 ($p = 0.028$). All these improvements
655 were maintained until the last follow-up. Adverse reactions to rhythmical massage therapy
656 occurred in 4 (5%) patients; 2 patients stopped therapy because of adverse reactions.

657 CONCLUSIONS: Patients receiving rhythmical massage therapy had long-term reduction of
658 chronic disease symptoms and improvement of quality of life.

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

661 OBJECTIVES: The effect of massage therapy on chronic nonmigraine headache was
662 investigated.

663 METHODS: Chronic tension headache sufferers received structured massage therapy
664 treatment directed toward neck and shoulder muscles. Headache frequency, duration, and
665 intensity were recorded and compared with baseline measures.

666 RESULTS: Compared with baseline values, headache frequency was significantly
667 reduced within the first week of the massage protocol. The reduction of headache
668 frequency continued for the remainder of the study ($P = .009$). The duration of headaches
669 tended to decrease during the massage treatment period ($P = .058$). Headache intensity was
670 unaffected by massage ($P = .19$).

671 CONCLUSIONS: The muscle-specific massage therapy technique used in this study has
672 the potential to be a functional, nonpharmacological intervention for reducing the
673 incidence of chronic tension headache.

674 30. Mitchinson, A.R., Kim, H.M., Rosenberg, J.M., Geisser, M., Kirsh, M., Cikrit, D., Hinshaw, D.B.
675 (2007). Acute postoperative pain management using massage as an adjuvant therapy: a
676 randomized trial. *Arch Surg*. 142(12):1158-67; discussion 1167.

677 HYPOTHESIS: Adjuvant massage therapy improves pain management and postoperative
678 anxiety among many patients who experience unrelieved postoperative pain.
679 Pharmacologic interventions alone may not address all of the factors involved in the
680 experience of pain.

681 DESIGN: Randomized controlled trial.

682 SETTING: Department of Veterans Affairs hospitals in Ann Arbor, Michigan, and
683 Indianapolis, Indiana.

684 PATIENTS: Six hundred five veterans (mean age, 64 years) undergoing major surgery
685 from February 1, 2003, through January 31, 2005.

686 INTERVENTIONS: Patients were assigned to the following 3 groups: (1) control (routine

687 care), (2) individualized attention from a massage therapist (20 minutes), or (3) back
688 massage by a massage therapist each evening for up to 5 postoperative days. Main
689 Outcome Measure Short- and long-term (> 4 days) pain intensity, pain unpleasantness,
690 and anxiety measured by visual analog scales.

691 RESULTS: Compared with the control group, patients in the massage group experienced
692 short-term (preintervention vs postintervention) decreases in pain intensity ($P = .001$), pain
693 unpleasantness ($P < .001$), and anxiety ($P = .007$). In addition, patients in the massage
694 group experienced a faster rate of decrease in pain intensity ($P = .02$) and unpleasantness
695 ($P = .01$) during the first 4 postoperative days compared with the control group. There
696 were no differences in the rates of decrease in long-term anxiety, length of stay, opiate use,
697 or complications across the 3 groups.

698 CONCLUSION: Massage is an effective and safe adjuvant therapy for the relief of acute
699 postoperative pain in patients undergoing major operations.

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

702 The purpose of this study was to examine the effectiveness of acupressure for controlling
703 post-cesarean section (CS) symptoms, such as nausea and vomiting, anxiety perception
704 and pain perception. A total of 104 eligible participants were recruited by convenience
705 sampling of operating schedules at two hospitals. Participants assigned to the experimental
706 group received acupressure, and those assigned to the control group received only
707 postoperative nursing instruction. The experimental group received three acupressure
708 treatments before CS and within the first 24 hours after CS. The first treatment was
709 performed the night before CS, the second was performed 2-4 hours after CS, and the
710 third was performed 8-10 hours after CS. The measures included the Rhodes Index of
711 Nausea and Vomiting, Visual Analog Scale for Anxiety, State-Trait Anxiety Inventory,
712 Visual Analog Scale for Pain, and physiologic indices. Statistical methods included
713 percentages, mean value with standard deviation, t test and repeated measure ANOVA.
714 The use of acupressure reduced the incidence of nausea, vomiting or retching from 69.3%
715 to 53.9%, compared with control group (95% confidence interval = 1.65-0.11; $p = 0.040$)
716 2-4 hours after CS and from 36.2% to 15.4% compared with control group (95%
717 confidence interval = 0.59-0.02; $p = 0.024$) 8-10 hours after CS. Results indicated that the
718 experimental group had significantly lower anxiety and pain perception of cesarean
719 experiences than the control group. Significant differences were found in all physiologic
720 indices between the two groups. In conclusion, the utilization of acupressure treatment to
721 promote the comfort of women during cesarean delivery is strongly recommended.

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

725 BACKGROUND: Opioid analgesia alone may not fully relieve all aspects of acute
726 postoperative pain. Complementary medicine techniques used as adjuvant therapies have
727 the potential to improve pain management and palliate postoperative distress.

728 STUDY DESIGN: This prospective randomized clinical trial compared pain relief after
729 major operations in 202 patients who received one of three nursing interventions:
730 massage, focused attention, or routine care. Interventions were performed twice daily

731 starting 24 hours after the operation through postoperative day 7. Perceived pain was
732 measured each morning.

733 RESULTS: The rate of decline in the unpleasantness of postoperative pain was
734 accelerated by massage ($p = 0.05$). Massage also accelerated the rate of decline in the
735 intensity of postoperative pain but this effect was not statistically significant. Use of opioid
736 analgesics was not altered significantly by the interventions.

737 CONCLUSIONS: Massage may be a useful adjuvant therapy for the management of acute
738 postoperative pain. Its greatest effect appears to be on the affective component (ie,
739 unpleasantness) of the pain.

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

743 BACKGROUND: Massage is increasingly used to manage chronic pain but its benefit has
744 not been clearly established. The aim of the study is to determine the effectiveness of a
745 single session of nurse-administered massage for the short term relief of chronic non-
746 malignant pain and anxiety.

747 METHODS: A randomised controlled trial design was used, in which the patients were
748 assigned to a massage or control group. The massage group received a 15 minute manual
749 massage and the control group a 15 minute visit to talk about their pain. Adult patients
750 attending a pain relief unit with a diagnosis of chronic pain whose pain was described as
751 moderate or severe were eligible for the study. An observer blind to the patients' treatment
752 group carried out assessments immediately before (baseline), after treatment and 1, 2, 3
753 and 4 hours later. Pain was assessed using 100 mm visual analogue scale and the McGill
754 Pain Questionnaire. Pain Relief was assessed using a five point verbal rating scale.
755 Anxiety was assessed with the Spielberger short form State-Trait Anxiety Inventory.

756 RESULTS: 101 patients were randomised and evaluated, 50 in the massage and 51 in the
757 control group. There were no statistically significant differences between the groups at
758 baseline interview. Patients in the massage but not the control group had significantly less
759 pain compared to baseline immediately after and one hour post treatment. 95% confidence
760 interval for the difference in mean pain reduction at one hour post treatment between the
761 massage and control groups is 5.47 mm to 24.70 mm. Patients in the massage but not the
762 control group had a statistically significant reduction in anxiety compared to baseline
763 immediately after and at 1 hour post treatment.

764 CONCLUSION: Massage is effective in the short term for chronic pain of moderate to
765 severe intensity.

766
767 34. Sommers, E.A. (2009). WIN WIN Hands On: Incorporating massage into an adolescent health
768 program to reduce risk of diabetes. Final Report for The Massage Therapy Foundation.

769
770 35. Moeini, M., Givi, M., Ghasempour, Z., Sadeghi, M. (2011). The effect of massage therapy on
771 blood pressure of women with pre-hypertension. *Iran J Nurs Midwifery Res.* 16(1):61-70.

772 BACKGROUND: Prehypertension is considered as a cardiovascular disease predictor.
773 Management of prehypertension is an appropriate objective for clinicians in a wide range

774 of medical centers. Treatment of prehypertension is primarily non-pharmacological, one of
775 which is massage therapy that is used to control the blood pressure. This study aimed to
776 evaluate the effect of Swedish massage (face, neck, shoulders and chest) on blood pressure
777 (BP) of the women with prehypertension.

778 **METHODS:** This was a single-blind clinical trial study. Fifty prehypertensive women
779 selected by simple random sampling which divided into control and test groups. The test
780 group (25 patients) received Swedish massage 10-15 min, three times a week for 10
781 sessions and the control groups (25 patients) also were relaxed at the same environment
782 with receiving no massage. Their BP was measured before and after each session.
783 Analyzing the data was done using descriptive and inferential statistical methods (chi
784 square, Mann-Whitney, paired t-test and student t-test) through SPSS software.

785 **RESULTS:** The results indicated that mean systolic and diastolic blood pressure in the
786 massage group was significantly lower in comparison with the control group ($p < 0.001$).

787 **CONCLUSIONS:** Findings of the study indicated that massage therapy was a safe,
788 effective, applicable and cost-effective intervention in controlling BP of the
789 prehypertension women and it can be used in the health care centers and even at home.

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

792 **AIM:** To explore the effects of foot massage on agitated behaviours in older people with
793 dementia living in long-term care.

794 **METHODS:** Seventeen men and 5 women (mean age 84.7 years), with a diagnosis of
795 dementia and a history of clinically significant agitation, received a 10-minute foot
796 massage each day for 14 days. The short form of the Cohen-Mansfield Agitation Inventory
797 (CMAI-SF) and the Revised Memory and Behavior Problems Checklist (RMBPC) were
798 completed at baseline, post-test and 2-weeks follow up.

799 **RESULTS:** CMAI-SF and RMBPC scores were significantly reduced at post-test and
800 remained significantly lower than baseline at follow up.

801 **CONCLUSION:** This study provides preliminary evidence suggesting that limited short-
802 duration foot massage reduces agitation and related behavioural problems in people with
803 dementia, and that these behaviour changes are maintained after the massage ceases. A
804 randomised controlled trial is required to confirm these findings.

805
806 37. Dunigan, B.J., King, T.K., Morse, B.J. (2011). A preliminary examination of the effect of massage
807 on state body image. *Body Image*. 8(4):411-4.
808

809 Evidence suggests positive effects of massage on psychological health; however, little is
810 known about the effects of massage on body image. This research examined the effect of
811 massage on state body image as well as relations between trait body image and attitudes
812 toward massage. Forty-nine female university students were randomly assigned to either a
813 massage condition or a control condition. It was hypothesized that participants in the

814 massage condition would report improved state body image following the intervention
815 when compared to participants in the control condition. As predicted, participants in the
816 massage condition reported a more favorable state body image than participants in the
817 control condition post-manipulation. Certain body image evaluations were moderately
818 associated with views that massage is pleasurable, with the link between Body Areas
819 Satisfaction and viewing massage as pleasurable reaching significance. Research is needed
820 to determine the mechanism/s through which massage improves body image.

821
822 38. Day, A.L., Gillan, L., Francis, L., Kelloway, E.K., Natarajan, M. (2009). Massage therapy in the
823 workplace: reducing employee strain and blood pressure. *G Ital Med Lav Ergon.* 31(3 Suppl
824 B):B25-30

825 AIM: Assess the effects of workplace-based massage therapy on physiological and
826 psychological outcomes.

827 METHODS: We used a field experiment in which 28 participants were randomly assigned
828 into either an experimental (n = 14) or control (n = 14) group. The experimental group
829 received weekly massage treatments at work for a four week period while the control
830 group did not.

831 RESULTS: Both strain and blood pressure were significantly reduced during treatment for
832 the experimental group but not for the control group.

833 CONCLUSIONS: This study provides initial support for the effectiveness of workplace-
834 based massage therapy as part of a comprehensive workplace health strategy.

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

838 OBJECTIVES: To examine the short-term effects of light pressure effleurage on
839 circulating lymphocytes by studying the number and activity of peripheral blood natural
840 killer (NK) cells in patients with breast cancer compared to a control group. Furthermore,
841 the effect of light pressure effleurage on salivary cortisol levels, heart rate and blood
842 pressure was studied.

843 DESIGN: Single centre, prospective, randomized and controlled study.

844 METHODS: Thirty women, aged 50 to 75 years (mean 61 sd=7.2) with breast cancer
845 undergoing radiation therapy in a hospital in southwestern Sweden were enrolled in the
846 study. They were allocated to either receive massage in the form of a full-body light
847 pressure effleurage treatment, or a control visit where they were given an equal amount of
848 attention. Blood samples, saliva, notation of heart rate and blood pressure were collected
849 before and after massage/control visit. Differences in change over time between groups
850 were analyzed by Student's t-test.

851 RESULTS: Light pressure effleurage massage decreased the deterioration of NK cell
852 activity occurring during radiation therapy. Furthermore it lowered heart rate and systolic
853 blood pressure. No effects were demonstrated on cortisol and diastolic pressure.

854 CONCLUSIONS: A single full-body light pressure effleurage massage has a short-term
855 effect on NK cell activity, systolic blood pressure and heart rate in patients with breast
856 cancer. However, the long-term clinical importance of these findings needs to be further
857 investigated.

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