

1 **POSITION STATEMENT PROPOSAL ON PUBLIC HEALTH INITIATIVES**

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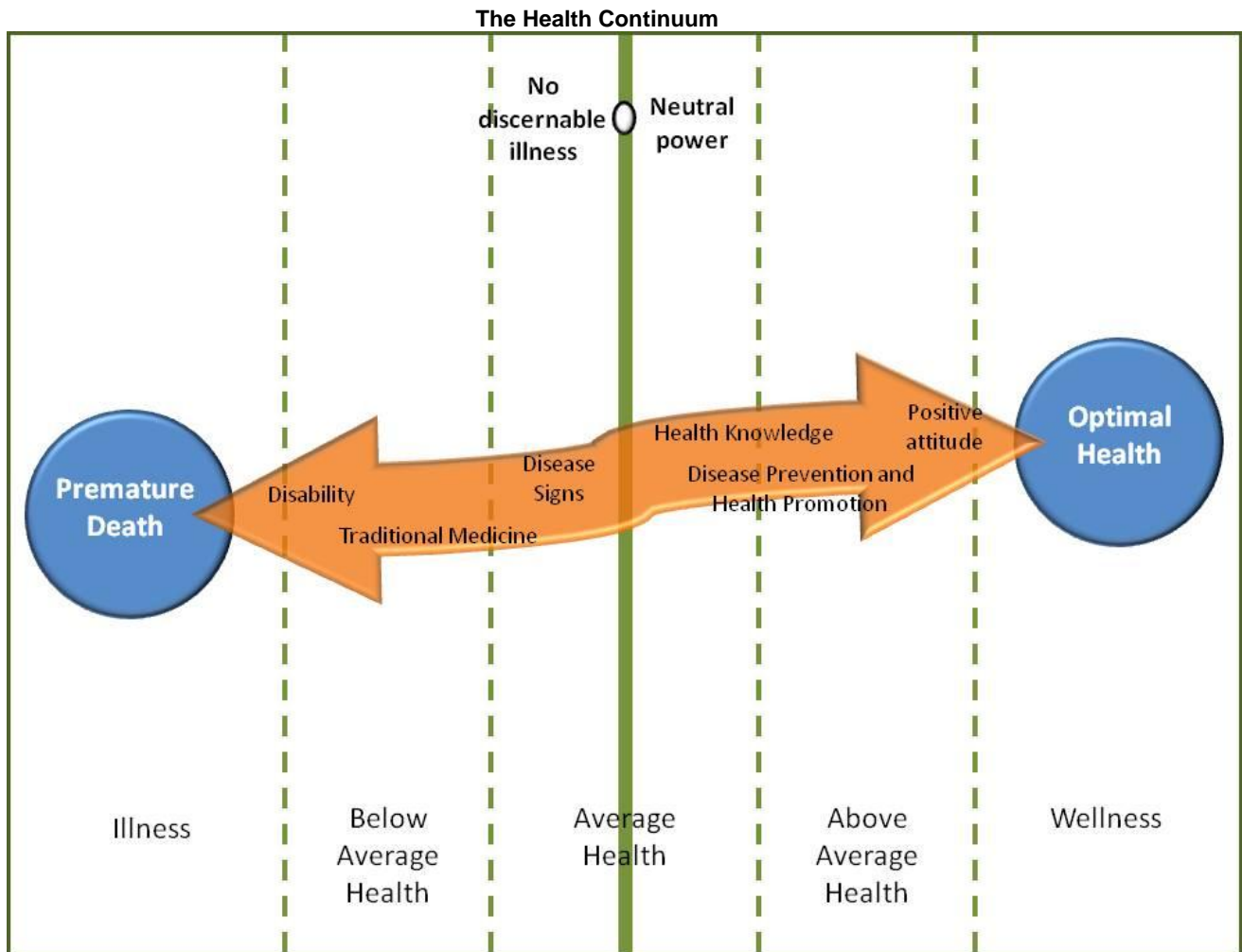
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22 **POSITION STATEMENT PROPOSAL ON PUBLIC HEALTH INITIATIVES**

23
24 **BACKGROUND INFORMATION**

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26 The field of public health has been changing over the last several years. In the past, public health simply
27 looked at disease prevention and public safety issues. Now, however, public health is focused more on the
28 wellness and quality of life of our people, cities, states and Nations.¹ The rising cost of healthcare and our
29 aging population necessitates that we look at all aspects of healthcare and its efficacy.^{2,3} It is now
30 understood that health seems to flow on a continuum with disease on the far side, average health in the
31 middle, and true wellness on the other end. (See illustration 1.1)⁴
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50 (illustration 1.1)⁴

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52 It is also understood in the health community that less than one half of our health and wellness is made up
53 of concepts we cannot change, i.e. age, gender, and race. A full 58% of our health and wellness is based
54 on factors that we influence, diet, exercise, smoking, stress management etc. Our choices and behaviors
55 are inexorably linked to where on the wellness continuum we are located.³

56 The field of public health now has to turn the focus on getting the public to make good choices
57 and change the bad behaviors to good ones. However, many current approaches seem to be failing. The
58 leading causes of death in the nation, cardiovascular disease, cancer, and stroke have strong links to
59 behaviors and choices that we make.⁵ Poor dietary choices, smoking and lack of physical activity are the
60 major culprits in these chronic diseases and causes of mortality. So now public health advocates and
61 policy makers must look to ways to help people make these changes in behavior. Although many people
62 know what is required for good health and wellness there seems to be a health/behavior gap. They know
63 what they need to do be healthy, but they have difficulty making the right choices and be able to change
64 their current behavior. The hard part in this is if people do not feel good, feel worthy, have pain issues, or
65 are under great stresses it seems to be harder to make those good choices and change bad behaviors.

66 It is now understood that stress is making a profound impact on not only our health but also our
67 children's' health.^{6,7} A study in Canada shows us that job related stress increases doctor visits.⁸

68 According to the American Psychological Association, our current health care system is not sufficiently
69 dealing with the stress, behavior and health connection.⁹

70 It appears that public health policy makers could include one very important aspect to help the
71 public make these healthful changes - massage therapy. Massage therapy has been shown to help in
72 varying populations with anxiety^{10, 11, 12, 13, 14, 15, 16, 17, 18, 21, 29, 31, 32, 33, 36, 37, 39, 40}, depression^{13, 21, 30, 31, 32, 33, 39},
73 pain issues^{11, 12, 13, 14, 15, 17, 18, 21, 22, 25, 28, 31, 33, 35, 36, 37, 38, 39, 40}, stress^{10, 11, 14, 18, 19, 23, 24, 25, 27, 29, 32, 33}, improving
74 quality of life^{11, 12, 14, 15, 17, 19, 20, 23, 26, 28, 31, 32, 34, 35}, improving immune function^{21, 27, 29, 34}, there is a small
75 study that shows that when people receive massage therapy they start to make better choices in their lives⁴¹
76 and finally, a small study shows that massage therapy may have a positive impact on body image.⁴²

77 Public health initiatives are already in place for exercise and nutrition; massage therapy should
78 also be included as it is a cost effective and non-medicinal way to manage stress, pain, mood issues,
79 improve immune function, improve quality of life and may help people make better choices. If public
80 health policy makers started to include massage therapy in their initiatives we may begin to see a swing
81 toward the wellness side of the continuum for our people, cites, states and nation.

82

83 **RATIONALE**

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85 Those public health institutions, organizations and departments who seek to improve the health of their
86 populace, communities, companies, cities, states, and nations can benefit from utilizing and incorporating
87 massage therapy given by professional massage therapists working within their scope of practice into their
88 programs and initiatives.

89

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

- 91 • We are a diverse and nurturing community working with integrity, respect and dignity.
- 92 • We embrace consistency in education.
- 93 • We endorse professional standards.
- 94 • We believe in the benefits of massage.

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

- 96 • AMTA members are devoted to professionalism and excellence in massage therapy practice.
- 97 • Quality research is the foundation for evidence-informed massage therapy education and
98 practice.
- 99 • AMTA promotes its members as the highest quality professionals in massage therapy.
- 100 • Massage therapy is easily accessible.
- 101 • Massage therapy is a vital component of health care and wellness.

102

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

104 ***ADVOCACY AND INFLUENCE***

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

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

108

109 ***INDUSTRY RELATIONSHIPS***

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

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

113

114 ***RESEARCH***

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

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121 POSITION STATEMENT

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123 It is the position of the American Massage Therapy Association (AMTA) that creating public
124 health initiatives which promote massage therapy for health and wellness would benefit the
125 public.

126

127 REFERENCES

128

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132 [C7462F20F7D0/0/whatisPH.pdf](http://www.apha.org/NR/rdonlyres/80C2EDFC-15E5-4D63-A424-C7462F20F7D0/0/whatisPH.pdf).
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154 BACKGROUND: While there is considerable theoretical and empirical evidence on how
155 job stress affects physical and mental health, few studies have examined the association

156 between job related stress and health care utilization. Using data from the Canadian
157 National Population Health Survey from 2000 to 2008, this paper examines the
158 association between stressful working conditions, as measured by the job strain model,
159 and the utilization of health care services.

160 METHODS: A zero inflated negative binomial regression is used to examine the excess
161 health care utilization due to job strain. Separate regressions are estimated for both males
162 and females since studies have shown gender differences in health care utilization.

163 RESULTS: Estimates for the whole population show that high or medium job strain has a
164 positive and statistically significant association with the number of visits to both a general
165 practitioner (GP) and a specialist (SP). On average, the number of GP visits is up to 26%
166 more (IRR = 1.26, 95% CI = 1.19-1.31) for individuals with high strain jobs compared to
167 those in the low job strain category. Similarly, SP visits are up to 27% more (IRR = 1.27,
168 95% CI = 1.14-1.42) for the high strain category. Results are quantitatively similar for
169 males and females, save for medium strain. In general, findings are robust to the inclusion
170 of workplace social support, health status, provincial and occupational-fixed effects.

171 CONCLUSION: Job strain may be positively associated with the utilization of health care
172 services. This suggests that improving psychosocial working conditions and educating
173 workers on stress-coping mechanisms could be beneficial for the physical and mental
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180 anxiety and aggression in a young adult psychiatric inpatient unit. *Aust N Z J Psychiatry*,
181 42(5):414-22.

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

185 METHOD: This was a prospective, non-randomized intervention study comparing
186 treatment as usual (TAU) with TAU plus massage therapy intervention (MT) over
187 consecutive 7 week blocks (May-August 2006). MT consisted of a 20 min massage
188 therapy session offered daily to patients during their period of hospitalization. The
189 Kennedy Nurses' Observational Scale for Inpatient Evaluation (NOSIE), the Symptom
190 Checklist-90-Revised (SCL-90-R), the State-Trait Anxiety Inventory (STAI) and stress
191 hormone (saliva cortisol) levels were used to measure patient outcomes at admission and
192 discharge from the unit. The Staff Observation Aggression Scale-Revised (SOAS-R) was
193 used to monitor the frequency and severity of aggressive incidents on the unit.
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195

196 RESULTS: There was a significant reduction in self-reported anxiety ($p < 0.001$), resting
197 heart rate ($p < 0.05$) and cortisol levels ($p < 0.05$) immediately following the initial and
198 final massage therapy sessions. Significant improvements in hostility ($p = 0.007$) and
199 depression scores ($p < 0.001$) on the SCL-90-R were observed in both treatment groups.

200 There was no group x time interaction on any of the measures. Poor reliability of staff-
201 reported incidents on the SOAS-R limited the validity of results in this domain.
202

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

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209 Body Massage on Pain Intensity, Anxiety, and Physiological Relaxation in Taiwanese Patients
210 with Metastatic Bone Pain: A Pilot Study. *J Pain Symptom Manage.*
211

212 Bone involvement, a hallmark of advanced cancer, results in intolerable pain, substantial
213 morbidity, and impaired quality of life in 34%-45% of cancer patients. Despite the
214 publication of 15 studies on massage therapy (MT) in cancer patients, little is known about
215 the longitudinal effects of MT and safety in cancer patients with bone metastasis. The
216 purpose of this study was to describe the feasibility of MT and to examine the effects of
217 MT on present pain intensity (PPI), anxiety, and physiological relaxation over a 16- to 18-
218 hour period in 30 Taiwanese cancer patients with bone metastases. A quasi-experimental,
219 one-group, pretest-posttest design with repeated measures was used to examine the time
220 effects of MT using single-item scales for pain (PPI-visual analog scale [VAS]) and
221 anxiety (anxiety-VAS), the modified Short-Form McGill Pain Questionnaire (MSF-MPQ),
222 heart rate (HR), and mean arterial pressure (MAP). MT was shown to have effective
223 immediate [$t(29)=16.5, P=0.000$; $t(29)=8.9, P=0.000$], short-term (20-30 minutes)
224 [$t(29)=9.3, P=0.000$; $t(29)=10.1, P=0.000$], intermediate (1-2.5 hours) [$t(29)=7.9,$
225 $P=0.000$; $t(29)=8.9, P=0.000$], and long-term benefits (16-18 hours) [$t(29)=4.0, P=0.000$;
226 $t(29)=5.7, P=0.000$] on PPI and anxiety. The most significant impact occurred 15
227 [$F=11.5(1,29), P<0.002$] or 20 [$F=20.4(1,29), P<0.000$] minutes after the intervention.
228 There were no significant time effects in decreasing or increasing HR and MAP. No
229 patient reported any adverse effects as a result of MT. Clinically, the time effects of MT
230 can assist health care providers in implementing MT along with pharmacological
231 treatment, thereby enhancing cancer pain management. Randomized clinical trials are
232 needed to validate the effectiveness of MT in this cancer population.
233

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

236 Shiatsu, a specific type of massage, was used as an intervention in this study of 66
237 individuals complaining of lower back pain. Each individual was measured on state/trait
238 anxiety and pain level before and after four shiatsu treatments. Each subject was then
239 called 2 days following each treatment and asked to quantify the level of pain. Both pain
240 and anxiety decreased significantly over time. Extraneous variables such as gender, age,
241 gender of therapist, length of history with lower back pain, and medications taken for
242 lower back pain did not alter the significant results. These subjects would recommend
243 shiatsu massage for others suffering from lower back pain and indicated the treatments
244 decreased the major inconveniences they experienced with their lower back pain.
245

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248

249 Massage therapy (MT) is an ancient form of treatment that is now gaining popularity as
250 part of the complementary and alternative medical therapy movement. A meta-analysis
251 was conducted of studies that used random assignment to test the effectiveness of MT.
252 Mean effect sizes were calculated from 37 studies for 9 dependent variables. Single
253 applications of MT reduced state anxiety, blood pressure, and heart rate but not negative
254 mood, immediate assessment of pain, and cortisol level. Multiple applications reduced
255 delayed assessment of pain. Reductions of trait anxiety and depression were MT's largest
256 effects, with a course of treatment providing benefits similar in magnitude to those of
257 psychotherapy. No moderators were statistically significant, though continued testing is
258 needed. The limitations of a medical model of MT are discussed, and it is proposed that
259 new MT theories and research use a psychotherapy perspective.
260

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262 of traditional Thai massage on heart rate variability and stress-related parameters in patients with
263 back pain associated with myofascial trigger points. *J Bodyw Mov Ther.* 15(1):15-23.

264 The purpose of this study was to investigate the immediate effects of traditional Thai
265 massage (TTM) on stress-related parameters including heart rate variability (HRV),
266 anxiety, muscle tension, pain intensity, pressure pain threshold, and body flexibility in
267 patients with back pain associated with myofascial trigger points. Thirty-six patients were
268 randomly allocated to receive a 30-min session of either TTM or control (rest on bed) for
269 one session. Results indicated that TTM was associated with significant increases in HRV
270 (increased total power frequency (TPF) and high frequency (HF)), pressure pain threshold
271 (PPT) and body flexibility ($p < 0.05$) and significant decreases in self-reported pain
272 intensity, anxiety and muscle tension ($p < 0.001$). For all outcomes, similar changes were
273 not observed in the control group. The adjusted post-test mean values for TPF, HF, PPT
274 and body flexibility were significantly higher in the TTM group when compared with the
275 control group ($p < 0.01$) and the values for pain intensity, anxiety and muscle tension were
276 significantly lower. We conclude that TTM can increase HRV and improve stress-related
277 parameters in this patient population.

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279 Quesada-Rubio, J.M., Moreno-Lorenzo, C. (2011). Benefits of massage-myofascial release therapy
280 on pain, anxiety, quality of sleep, depression, and quality of life in patients with fibromyalgia. *Evid
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282

283 Fibromyalgia is a chronic syndrome characterized by generalized pain, joint rigidity,
284 intense fatigue, sleep alterations, headache, spastic colon, craniomandibular dysfunction,
285 anxiety, and depression. The purpose of the present study was to determine whether
286 massage-myofascial release therapy can improve pain, anxiety, quality of sleep,
287 depression, and quality of life in patients with fibromyalgia. A randomized controlled
288 clinical trial was performed. Seventy-four fibromyalgia patients were randomly assigned to
289 experimental (massage-myofascial release therapy) and placebo (sham treatment with
290 disconnected magnotherapy device) groups. The intervention period was 20 weeks. Pain,

291 anxiety, quality of sleep, depression, and quality of life were determined at baseline, after
292 the last treatment session, and at 1 month and 6 months. Immediately after treatment and
293 at 1 month, anxiety levels, quality of sleep, pain, and quality of life were improved in the
294 experimental group over the placebo group. However, at 6 months postintervention, there
295 were only significant differences in the quality of sleep index. Myofascial release
296 techniques improved pain and quality of life in patients with fibromyalgia.
297

- 298 16. Black, S., Jacques, K., Webber, A., Spurr, K., Carey, E., Hebb, A., Gilbert, R. (2010). Chair
299 massage for treating anxiety in patients withdrawing from psychoactive drugs. *J Altern*
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301 Therapeutic massage has been proven to be an effective, nonpharmacologic, alternative for
302 managing state and trait anxiety in a variety of clinical situations. However, no controlled
303 study has investigated this effect in an addiction treatment setting.

304 AIM: The aim of this study was to investigate the effectiveness of chair massage for
305 reducing anxiety in persons participating in an inpatient withdrawal management program
306 for psychoactive drugs.

307 DESIGN: The design was a randomized, controlled clinical trial conducted from June
308 2008 to January 2009.

309 SUBJECTS: Eighty-two (82) adult patients received inpatient treatment for psychoactive
310 drug withdrawal (alcohol, cocaine, and opiates).

311 SETTING: This study was conducted at the Withdrawal Management Services at the
312 Capital District Health Authority, Halifax, Nova Scotia.

313 INTERVENTIONS: Subjects were randomly assigned to receive chair massage (n = 40) or
314 a relaxation control condition (n = 42). Treatments were offered for 3 consecutive days.
315 Standard counseling and pharmacologic management were also offered concurrently to
316 patients in all conditions.

317 MEASUREMENTS: The primary outcome measure was anxiety assessed using the
318 Spielberger State-Trait Anxiety Inventory (STAI). State and trait anxiety scores were
319 determined immediately prior to and following each treatment intervention.

320 RESULTS: Analysis of STAI scores showed a significant reduction in state and trait
321 anxiety for both interventions ($p < 0.001$). The magnitude in the reduction in state
322 ($p = 0.001$) and trait ($p = 0.045$) anxiety was significantly greater in the chair massage
323 group where the effect on state anxiety was sustained, at least in part, for 24 hours.

324 CONCLUSIONS: Within the clinical context of this study, chair massage was more
325 effective than relaxation control in reducing anxiety. Further investigation of chair massage
326 as a potential nonpharmacologic adjunct in the management of withdrawal related anxiety
327 is warranted.

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330 Burn can be among the most severe physical and psychologic traumas a person may face.
331 Patients with burns commonly have severe itching and pain. Severe itching has also been

332 associated with anxiety, sleep disturbance, and disruption of daily living activities. The
333 addition of complementary treatments to standard care may lead to improved pain
334 management and may offer a safer approach for reducing pain and procedural anxiety for
335 patients with burns. The authors conducted an experimental study to examine whether the
336 effects of massage therapy reduced burned adolescents' pain, itching, and anxiety levels.
337 Sixty-three adolescents were enrolled in this study shortly after admission (mean days = 3
338 +/- 0.48) at a burn unit in a large university hospital from February 2008 to June 2009.
339 The measures including the pain, itching, and state anxiety were collected on the first and
340 last days of the 5-week study period. The participants had an average age of 14.07 +/- 1.78
341 years and came usually from the lower socioeconomic strata. The authors observed that
342 massage therapy reduced all these measures from the first to the last day of this study (P <
343 .001). In most cultures, massage treatments are used to alleviate a wide range of
344 symptoms. Although health professionals agree on the use of nonpharmacologic method
345 for patients with burns, these applications are not yet common.
346

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348 K.M., Kelly, R.F., Sundt, T.M. 3rd. (2010). Effect of massage therapy on pain, anxiety, and
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350

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

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

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

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

375 **RESULTS:** As a group, levels of stress dropped significantly between weeks 2 and 3 (M =

376 12.3, SD = 3.09, $P \leq 0.010$). A trend for the reduction in stress continued through week 4 (P
377 ≤ 0.063). At the end of week 4, PSS-10 scores of all participants were below the threshold
378 for being considered stressed. By the end of the intervention, participants reported significant
379 improvements in three test domains, emotional well-being, additional brain tumor concerns,
380 and social/family well-being.

381 **CONCLUSION:** This study indicates that participation in a massage therapy program is both
382 feasible and acceptable to newly diagnosed brain tumor patients experiencing stress.
383 Furthermore, participants in this study reported improvements in stress and their QoL while
384 receiving massage therapy.

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

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

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

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

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

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

409
410 21. Hughes, D., Ladas, E., Rooney, D., Kelly, K. (2008). Massage therapy as a supportive care
411 intervention for children with cancer. *Oncol Nurs Forum*, 35(3):431-42.

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

415 **DATA SOURCES:** PubMed, online references, published government reports, and the

416 bibliographies of retrieved articles, reviews, and books on massage and massage and
417 cancer. More than 70 citations were reviewed.
418 DATA SYNTHESIS: Massage therapy may help mitigate pain, anxiety, depression,
419 constipation, and high blood pressure and may be beneficial during periods of profound
420 immune suppression. Massage techniques light to medium in pressure are appropriate in
421 the pediatric oncology setting.
422 CONCLUSIONS: Massage is an applicable, noninvasive, therapeutic modality that can be
423 integrated safely as an adjunct intervention for managing side effects and psychological
424 conditions associated with anticancer treatment in children. Massage may support immune
425 function during periods of immunosuppression.
426 IMPLICATIONS FOR NURSING: Pediatric oncology nurses are vital in helping patients
427 safely integrate CAM into conventional treatment. Pediatric oncology nurses can help
428 maximize patient outcomes by assessing, advocating, and coordinating massage therapy
429 services as a supportive care intervention.

- 430
431 22. Cherkin, D.C., Sherman, K.J., Kahn, J., Wellman, R., Cook, A.J., Johnson, E., Erro, J., Delaney,
432 K., Deyo, R.A. (2011). A comparison of the effects of 2 types of massage and usual care on
433 chronic low back pain: a randomized, controlled trial. *Ann Intern Med*,155(1):1-9.

434
435 Background: Few studies have evaluated the effectiveness of massage for chronic low
436 back pain.

437
438 Objective: To compare the effectiveness of 2 types of massage and usual care for chronic
439 back pain.

440
441 Design: Parallel-group randomized, controlled trial. Randomization was computer-
442 generated, with centralized allocation concealment. Participants were blinded to massage
443 type but not to assignment to massage versus usual care. Massage therapists were
444 unblinded. The study personnel who assessed outcomes were blinded to treatment
445 assignment. (ClinicalTrials.gov registration number: NCT00371384)

446
447 Setting: An integrated health care delivery system in the Seattle area. Patients: 401 persons
448 20 to 65 years of age with nonspecific chronic low back pain.

449
450 Intervention: Structural massage (n = 132), relaxation massage (n = 136), or usual care
451 (n = 133).

452
453 Measurements: Roland Disability Questionnaire (RDQ) and symptom bothersomeness
454 scores at 10 weeks (primary outcome) and at 26 and 52 weeks (secondary outcomes).
455 Mean group differences of at least 2 points on the RDQ and at least 1.5 points on the
456 symptom bothersomeness scale were considered clinically meaningful. Results: The
457 massage groups had similar functional outcomes at 10 weeks. The adjusted mean RDQ
458 score was 2.9 points (95% CI, 1.8 to 4.0 points) lower in the relaxation group and 2.5
459 points (CI, 1.4 to 3.5 points) lower in the structural massage group than in the usual care
460 group, and adjusted mean symptom bothersomeness scores were 1.7 points (CI, 1.2 to 2.2
461 points) lower with relaxation massage and 1.4 points (CI, 0.8 to 1.9 points) lower with
462 structural massage. The beneficial effects of relaxation massage on function (but not on
463 symptom reduction) persisted at 52 weeks but were small.

464
465 Limitation: Participants were not blinded to treatment.
466
467 Conclusion: Massage therapy may be effective for treatment of chronic back pain, with
468 benefits lasting at least 6 months. No clinically meaningful difference between relaxation
469 and structural massage was observed in terms of relieving disability or symptoms. Primary
470 Funding Source: National Center for Complementary and Alternative Medicine
471

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

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

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

488 METHODS: The effectiveness of a 15-min. on-site massage while seated in a chair was
489 evaluated for reducing stress as indicated by blood pressure. 52 employed participants' blood
490 pressures were measured before and after a 15-min. massage at work.

491 RESULTS: Analyses showed a significant reduction in participants' systolic and diastolic
492 blood pressure after receiving the massage.

- 493
494 25. Katz, J., Wowk, A., Culp, D., & Wakeling, H. (1999). Pain and tension are reduced among hospital
495 nurses after on-site massage treatments: a pilot study. *Journal of Perianesthesia Nursing*, 14, 128-133.

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

504 RESULTS: Pain intensity and tension levels were significantly lower after massage. In
505 addition, relaxation levels and overall mood state improved significantly after treatments.

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

508 BACKGROUND: Conventional medicine and complementary and alternative medicine
509 (CAM) are merging into the broader field of "integrative medicine." Massage is no longer
510 considered complementary or alternative in some conventional medical circles today.

511 PURPOSE: We aimed to determine the prevalence of massage use among children with
512 cerebral palsy (CP) in the Pacific Northwest in the United States, the reasons that massage is
513 being used, and the limits of recruitment for a future randomized controlled trial.

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

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

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

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

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

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

547 Setting: This research was conducted in an outpatient research unit in an academic
548 medical center.

549 Subjects: Medically and psychiatrically healthy adults, 18-45 years old, participated in this
550 study. Intervention: The intervention tested was 45 minutes of Swedish Massage Therapy
551 versus a light touch control condition, using highly specified and identical protocols.

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

555 Results: Compared to light touch, Swedish Massage Therapy caused a large effect size
556 decrease in AVP, and a small effect size decrease in CORT, but these findings were not
557 mediated by OT. Massage increased the number of circulating lymphocytes, CD 25+
558 lymphocytes, CD 56+ lymphocytes, CD4 + lymphocytes, and CD8+ lymphocytes (effect
559 sizes from 0.14 to 0.43). Mitogen-stimulated levels of interleukin (IL)-1ss, IL-2, IL-4, IL-
560 5, IL-6, IL-10, IL-13, and IFN-gamma decreased for subjects receiving Swedish Massage
561 Therapy versus light touch (effect sizes from -0.22 to -0.63). Swedish Massage Therapy
562 decreased IL-4, IL-5, IL-10, and IL-13 levels relative to baseline measures.

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

566 28. Nerbass, F. B., Feltrim, M. I. Z., Souza, S. A., Ykeda, D. S., Lorenzi-Filho, F. (2010). Effects of
567 massage therapy on sleep quality after coronary artery bypass graft surgery. *Clinics* 65(11), 1105-
568 1110.

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

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

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

582 RESULTS: Fifty-seven cardiopulmonary artery bypass graft surgery patients were enrolled
583 in the study during the preoperative period, 17 of whom were excluded due to
584 postoperative complications. The remaining 40 participants (male: 67.5%, age: 61.9 years
585 \pm 8.9 years, body mass index: 27.2 kg/m² \pm 3.7 kg/m²) were randomized into control (n =
586 20) and massage therapy (n = 20) groups. Pain in the chest, shoulders, and back decreased
587 significantly in both groups from Day 1 to Day 3. The participants in the massage therapy
588 group had fewer complaints of fatigue on Day 1 (p=0.006) and Day 2 (p=0.028) in

589 addition, they reported a more effective sleep during all three days ($p=0.019$) when
590 compared with the participants in the control group.

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

594 29. Noto Y, Kitajima M, Kudo M, Okudera K, Hirota K. (2010). Leg massage therapy promotes
595 psychological relaxation and reinforces the first-line host defense in cancer patients. *J Anesth.*
596 24(6):827-31.

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

602 METHODS: In the present study, we determined whether leg massage could induce
603 psychosocial relaxation and activate the first line of the host defense system. To assess effects
604 of rest and leg massage, 15 healthy volunteers rested on a bed for 20 min on the first day, and
605 3 days later the subjects received a standardized massage of the legs for 20 min with
606 nonaromatic oil. Twenty-nine cancer patients also received the same standardized massage of
607 the legs. Anxiety/stress was assessed before and just after the rest or the massage using the
608 State-Trait Anxiety Inventory (STAI-s) and visual analogue scale (VAS). To evaluate oral
609 immune function, salivary chromogranin A (CgA) and secretory immunoglobulin A (sIgA)
610 levels were measured.

611 RESULTS: In healthy volunteers, rest significantly reduced VAS by 34% and increased sIgA
612 by 61%. In contrast, leg massage significantly reduced both STAI-s and VAS by 24% and
613 63%, and increased both sIgA and CgA by 104% and 90%, respectively. In cancer patients,
614 leg massage significantly decreased both STAI-s and VAS by 16% and 38%, and increased
615 both salivary CgA and sIgA by 33% and 35%, respectively.

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

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

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

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

629 STUDY SELECTION: We included 17 studies containing 786 persons from 246 retrieved
630 references. Trials with other intervention, combined therapy, and massage on infants or

631 pregnant women were excluded.
632 DATA EXTRACTION: Two reviewers independently performed initial screen and
633 assessed quality indicators by Jadad scale. Data were extracted on publication year,
634 participant characteristics, and outcomes by another single reviewer.
635 DATA SYNTHESIS: All trials showed positive effect of massage therapy on depressed
636 people. Seventeen RCTs were of moderate quality, with a mean quality score of 6.4 (SD =
637 0.85). The pooled standardized mean difference in fixed- and random-effects models were
638 0.76 (95% CI, 0.61-0.91) and 0.73 (95% CI, 0.52-0.93), respectively. Both indicated
639 significant effectiveness in the treatment group compared with the control group. The
640 variance between these studies revealed possible heterogeneity ($\tau^2 = 0.06$, Cochran
641 $\chi^2(16) = 25.77$, $P = .06$).
642 CONCLUSIONS: Massage therapy is significantly associated with alleviated depressive
643 symptoms. However, standardized protocols of massage therapy, various depression rating
644 scales, and target populations in further studies are suggested.

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

647 BACKGROUND: Although classic massage is used widely in Germany and elsewhere for
648 treating chronic pain conditions, there are no randomized controlled trials (RCT).
649

650 DESIGN: Pragmatic RCT of classic massage compared to standard medical care (SMC) in
651 chronic pain conditions of back, neck, shoulders, head and limbs.
652

653 OUTCOME MEASURE: Pain rating (nine-point Likert-scale; predefined main outcome
654 criterion) at pretreatment, post-treatment, and 3 month follow-up, as well as pain adjective
655 list, depression, anxiety, mood, and body concept.
656

657 RESULTS: Because of political and organizational problems, only 29 patients were
658 randomized, 19 to receive massage, 10 to SMC. Pain improved significantly in both
659 groups, but only in the massage group was it still significantly improved at follow-up.
660 Depression and anxiety were improved significantly by both treatments, yet only in the
661 massage group maintained at follow-up.
662

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

668 32. Hernandez-Reif, M., Shor-Posner, G., Baez, J., Soto, S., Mendoza, R., Castillo, R., Quintero, N.,
669 Perez, E., Zhang, G. (2008). Dominican Children with HIV not Receiving Antiretrovirals:
670 Massage Therapy Influences their Behavior and Development. *Evid Based Complement Alternat*
671 *Med*, 5(3):345-354
672

673 Forty-eight children (M age = 4.8 years) infected with HIV/AIDS and living in the Dominican

674 Republic were randomly assigned to a massage therapy or a play session control group. The
675 children in the massage therapy group received two weekly 20-min massages for 12 weeks;
676 the children in the control group participated in a play session (coloring, playing with blocks)
677 for the same duration and length as the massage therapy group. Overall, the children in the
678 massage therapy group improved in self-help abilities and communication, suggesting that
679 massage therapy may enhance daily functioning for children with HIV/AIDS. Moreover, the
680 HIV infected children who were six or older also showed a decrease in internalizing
681 behaviors; specifically depressive/anxious behaviors and negative thoughts were reduced.
682 Additionally, baseline assessments revealed IQ equivalence below normal functioning for
683 70% of the HIV infected children and very high incidences of mood problems (depression,
684 withdrawn) for 40% of the children and anxiety problems for 20% of the children, suggesting
685 the need for better monitoring and alternative interventions in countries with limited resources
686 to improve cognition and the mental health status of children infected with HIV/AIDS.

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

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

707 34. Hamre, H.J., Witt, C.M., Glockmann, A., Ziegler, R., Willich, S.N., Kiene, H. (2007). Rhythmical
708 massage therapy in chronic disease: a 4-year prospective cohort study. *J Altern Complement Med.*
709 13(6):635-42.

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

713 DESIGN: Prospective 4-year cohort study.

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

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

716 OUTCOME MEASURES: Disease and Symptom Scores (physicians' and patients'

717 assessment, respectively, 0-10) and SF-36. Disease Score was measured after 6 and 12
718 months, and other outcomes after 3, 6, 12, 18, 24, and 48 months.

719 RESULTS: Most common indications were musculoskeletal diseases (45% of patients;
720 primarily back and neck pain) and mental disorders (18%, primarily depression and fatigue).
721 Median disease duration at baseline was 2.0 years (interquartile range 0.5-6.0). Median
722 number of rhythmical massage therapy sessions was 12 (interquartile range 9-12), and median
723 therapy duration was 84 (49-119) days. All outcomes improved significantly between baseline
724 and all subsequent follow-ups. From baseline to 12 months, Disease Score improved from
725 (mean +/- standard deviation) 6.30 +/- 2.01 to 2.77 +/- 1.97 ($p < 0.001$), Symptom Score
726 improved from 5.76 +/- 1.81 to 3.13 +/- 2.20 ($p < 0.001$), SF-36 Physical Component score
727 improved from 39.55 +/- 9.91 to 45.17 +/- 9.88 ($p < 0.001$), and SF-36 Mental Component
728 score improved from 39.27 +/- 13.61 to 43.78 +/- 12.32 ($p = 0.028$). All these improvements
729 were maintained until the last follow-up. Adverse reactions to rhythmical massage therapy
730 occurred in 4 (5%) patients; 2 patients stopped therapy because of adverse reactions.

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

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

735 OBJECTIVES: The effect of massage therapy on chronic nonmigraine headache was
736 investigated.

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

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

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

748 36. Mitchinson, A.R., Kim, H.M., Rosenberg, J.M., Geisser, M., Kirsh, M., Cikrit, D., Hinshaw, D.B.
749 (2007). Acute postoperative pain management using massage as an adjuvant therapy: a
750 randomized trial. *Arch Surg*. 142(12):1158-67; discussion 1167.

751 HYPOTHESIS: Adjuvant massage therapy improves pain management and postoperative
752 anxiety among many patients who experience unrelieved postoperative pain.
753 Pharmacologic interventions alone may not address all of the factors involved in the
754 experience of pain.

755 DESIGN: Randomized controlled trial.

756 SETTING: Department of Veterans Affairs hospitals in Ann Arbor, Michigan, and

757 Indianapolis, Indiana.

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

760 INTERVENTIONS: Patients were assigned to the following 3 groups: (1) control (routine
761 care), (2) individualized attention from a massage therapist (20 minutes), or (3) back
762 massage by a massage therapist each evening for up to 5 postoperative days. Main
763 Outcome Measure Short- and long-term (> 4 days) pain intensity, pain unpleasantness,
764 and anxiety measured by visual analog scales.

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

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

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

776 The purpose of this study was to examine the effectiveness of acupressure for controlling
777 post-cesarean section (CS) symptoms, such as nausea and vomiting, anxiety perception
778 and pain perception. A total of 104 eligible participants were recruited by convenience
779 sampling of operating schedules at two hospitals. Participants assigned to the experimental
780 group received acupressure, and those assigned to the control group received only
781 postoperative nursing instruction. The experimental group received three acupressure
782 treatments before CS and within the first 24 hours after CS. The first treatment was
783 performed the night before CS, the second was performed 2-4 hours after CS, and the
784 third was performed 8-10 hours after CS. The measures included the Rhodes Index of
785 Nausea and Vomiting, Visual Analog Scale for Anxiety, State-Trait Anxiety Inventory,
786 Visual Analog Scale for Pain, and physiologic indices. Statistical methods included
787 percentages, mean value with standard deviation, t test and repeated measure ANOVA.
788 The use of acupressure reduced the incidence of nausea, vomiting or retching from 69.3%
789 to 53.9%, compared with control group (95% confidence interval = 1.65-0.11; $p = 0.040$)
790 2-4 hours after CS and from 36.2% to 15.4% compared with control group (95%
791 confidence interval = 0.59-0.02; $p = 0.024$) 8-10 hours after CS. Results indicated that the
792 experimental group had significantly lower anxiety and pain perception of cesarean
793 experiences than the control group. Significant differences were found in all physiologic
794 indices between the two groups. In conclusion, the utilization of acupressure treatment to
795 promote the comfort of women during cesarean delivery is strongly recommended.

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

799 BACKGROUND: Opioid analgesia alone may not fully relieve all aspects of acute

800 postoperative pain. Complementary medicine techniques used as adjuvant therapies have
801 the potential to improve pain management and palliate postoperative distress.

802 STUDY DESIGN: This prospective randomized clinical trial compared pain relief after
803 major operations in 202 patients who received one of three nursing interventions:
804 massage, focused attention, or routine care. Interventions were performed twice daily
805 starting 24 hours after the operation through postoperative day 7. Perceived pain was
806 measured each morning.

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

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

814 39. Walach, H., G uthlin, C., K onig, M. (2003). Efficacy of massage therapy in chronic pain: a
815 pragmatic randomized trial., *J Altern Complement Med.* 9(6):837-46.

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

818
819 DESIGN: Pragmatic RCT of classic massage compared to standard medical care (SMC) in
820 chronic pain conditions of back, neck, shoulders, head and limbs.

821
822 OUTCOME MEASURE: Pain rating (nine-point Likert-scale; predefined main outcome
823 criterion) at pretreatment, post-treatment, and 3 month follow-up, as well as pain adjective
824 list, depression, anxiety, mood, and body concept.

825
826 RESULTS: Because of political and organizational problems, only 29 patients were
827 randomized, 19 to receive massage, 10 to SMC. Pain improved significantly in both
828 groups, but only in the massage group was it still significantly improved at follow-up.
829 Depression and anxiety were improved significantly by both treatments, yet only in the
830 massage group maintained at follow-up.

831
832 CONCLUSION: Despite its limitation resulting from problems with numbers and
833 randomization this study shows that massage can be at least as effective as SMC in
834 chronic pain syndromes. Relative changes are equal, but tend to last longer and to
835 generalize more into psychologic domains. Because this is a pilot study, the results need
836 replication, but our experiences might be useful for other researchers.

837
838 40. Seers, K., Crichton, N., Martin, J., Coulson, K., Carroll, D. (2008). A randomised controlled trial
839 to assess the effectiveness of a single session of nurse administered massage for short term relief of
840 chronic non-malignant pain., *BMC Nurs.* 4;7:10.

841 BACKGROUND: Massage is increasingly used to manage chronic pain but its benefit has
842 not been clearly established. The aim of the study is to determine the effectiveness of a

843 single session of nurse-administered massage for the short term relief of chronic non-
844 malignant pain and anxiety.
845 METHODS: A randomised controlled trial design was used, in which the patients were
846 assigned to a massage or control group. The massage group received a 15 minute manual
847 massage and the control group a 15 minute visit to talk about their pain. Adult patients
848 attending a pain relief unit with a diagnosis of chronic pain whose pain was described as
849 moderate or severe were eligible for the study. An observer blind to the patients' treatment
850 group carried out assessments immediately before (baseline), after treatment and 1, 2, 3
851 and 4 hours later. Pain was assessed using 100 mm visual analogue scale and the McGill
852 Pain Questionnaire. Pain Relief was assessed using a five point verbal rating scale.
853 Anxiety was assessed with the Spielberger short form State-Trait Anxiety Inventory.
854 RESULTS: 101 patients were randomised and evaluated, 50 in the massage and 51 in the
855 control group. There were no statistically significant differences between the groups at
856 baseline interview. Patients in the massage but not the control group had significantly less
857 pain compared to baseline immediately after and one hour post treatment. 95% confidence
858 interval for the difference in mean pain reduction at one hour post treatment between the
859 massage and control groups is 5.47 mm to 24.70 mm. Patients in the massage but not the
860 control group had a statistically significant reduction in anxiety compared to baseline
861 immediately after and at 1 hour post treatment.
862 CONCLUSION: Massage is effective in the short term for chronic pain of moderate to
863 severe intensity.
864

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

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