

Table 1: Randomised controlled trials of aromatherapy for cancer

Source: Helen Seers, Katja Boehm, CAM-Cancer Consortium. [Aromatherapy \[online document\]](#). June 2017.

Outcome	First author, year (ref no.)	Type of study	Participants (diagnosis, N)	Intervention groups	Results (significant)
Symptomatic					
Pain	Chang, 2008 (12)	RCT	Terminally ill patients with various cancer types, 58	(1) Aromatherapy hand massage (Bergamot, Lavender, Frankincense) (2) General oil hand massage	(1) showed more significant changes in pain (p=0.001)
Nausea	Ndao, 2012 (18)	RCT	Paediatric patients, 37	(1) Bergamot essential oil (2) Non-essential oil-based scented shampoo provided via diffuser placed by bedside	Nausea remained greater among the treatment group at completion of infusion (p<0.01) and one hour post-infusion (p=0.03).
	Lua, 2015 (30)	RCT	Women with breast cancer, 60	(1) 5 day aromatherapy treatment (ginger essential oil) (2) Fragrance matched artificial placebo in necklace	Acute significant effect of intervention on nausea reduction, but no long-term effect. No effect on vomiting.
Constipation	Lai, 2011 (14)	RCT	Various types of cancer, 45	(1) Abdominal massage with aromatherapy oils (bitter orange, black pepper, rosemary, marjoram, patchouli in olive) (2) Abdominal massage without oils (3) Standard care	(1) significantly improved symptoms of constipation compared to (2) and (3)
Oral health	Maddocks-Jennings, (16)	RCT	Head and neck cancer, 19	Application of essential oils gargling on day of radiotherapy or up to 2 days before, continuing for a week after completion (1) Gargling with essential oils (manuka and kanuka) (2) gargling with water (3) standard care	Delayed onset of mucositis and reduced pain and oral symptoms observed in (1) relative to (2) and (3)

Fatigue	Tang, 2014 (24)	RCT (Pilot)	Lung cancer patients, various stages undergoing chemotherapy, 57	(1) Acupressure and essential oils (2) Acupressure only (3) Sham acupressure	(1) and (2) significantly less fatigue better sleep quality and functional status than (3). Longer term significant effect of (1) on sleep also found.
Overall wellbeing/ QoL/comfort	Stringer, 2008 (22)	RCT	Patients with haematological cancer, 39	20 min (1) Massage / light effleurage (stroking) moves (2) Max of 3 aromatherapy oils with carrier oil, individualized (3) Rest	(1) and (2) showed significant improvement in EORTC QLQ-C30 (p=0.009)
	Serfaty, 2012 (21)	RCT	Various types of cancer, 39	(1) Treatment as Usual (TAU) plus up to eight sessions weekly of aromatherapy massage (2) TAU plus up to eight sessions weekly of CBT	No significant differences after 3 and 6 months' follow-up in EuroQoL between groups EuroQoL scores suggested an improvement with both interventions EuroQoL scores suggested an improvement with both interventions
	Tamaki et al., 2017 and (23)	RCT	Women with breast cancer, 162	(1) Aromatherapy (inhaled, no massage) (2) Usual care - control	No significant effect of inhaled aromatherapy on QoL, sleep, physical vital signs.
Psychological					
Anxiety	Ndao, 2010 (18)	RCT	Paediatric patients	(1) Bergamot essential oil (2) Non-essential oil-based scented shampoo provided via diffuser placed by bedside	(1) experienced greater anxiety (p=0.05) than (2), parental anxiety declined in (1) and (2) but no significant difference
	Serfaty, 2011 (21)	RCT	Various types and stages of cancer 39	(1) standard care + up to 8 sessions / week of aromatherapy massage (2) standard care + up to 8 sessions / week of CBT	Significant improvements in POMS but only pre/post within groups
	Graham 2003 (13)	RCT	Various types of cancer, 313	(1) Aromatherapy including carrier oil with fractionated oils (2) carrier oil only (3) pure essential oils (lavender, bergamot, cedar wood)	Group (2) had significantly reduced anxiety scores after treatment as measured with HADS (p=0.04)
	Pimenta 2016 (19)	RCT	Patients with chronic myeloid Leukaemia, 42	(1) Diazepam (2) Citrus aurantium L. essential oil diffused into room (3) Control saline solution diffused into room	Inhalation of Citrus oil associated with decrease in STAI-S and improved physiological measures of stress (blood pressure, cardiac and respiratory frequency - showing a reduction in anxiety after aromatherapy), compared

					to placebo in diazepam group where only blood pressure decreased.
Depression	Chang, 2008 (12)	RCT	Terminally ill patients with various cancer types, 58	(1) Aromatherapy hand massage (Bergamot, Lavender, Frankincense) (2) General oil hand massage	(1) showed more significant changes in depression scores (p=0.000)
Physical					
Heart rate	Potter, 2011 (20)	RCT	Patients receiving reinfusion of autologous hematopoietic progenitor cells / lymphoma and myeloma cancer, 60	(1) Patients sniffed or tasted a quartered orange (2) patients sniffed sweet orange oil aromatherapy (3) patients took deep breaths (control)	Significant increase in heart rate in (2) compared to other 2 groups (p=0.079)
Cortisol	Stringer, 2008 (22)	RCT	Patients with haematological cancer, 39	20 min (1) Massage / light effleurage (stroking) moves (2) Max of 3 aromatherapy oils with carrier oil, individualized (3) Rest	Significant difference between arms in cortisol (p=0.002) from baseline to 30 min post-session
Prolactin	Stringer, 2008 (22)	RCT	Patients with haematological cancer, 39	20 min (1) Massage / light effleurage (stroking) moves (2) Max of 3 aromatherapy oils with carrier oil, individualized (3) Rest	(1) had a significantly greater reduction in prolactin than (2), (3) (p=0.031)
Salivary gland function	Nakayama 2016 (17)	RCT	Patients undergoing radioactive iodine therapy with thyroid cancer, 71	(1) Aromatherapy - inhale lemon and ginger essential oils (2) Control - inhale distilled water	(1) Showed better salivary gland function (physiological), therefore results suggest aromatherapy helps prevents salivary gland disorder.

RCT = randomised controlled trial

QoL = Quality of life