Table 1: Systematic reviews of Coenzyme Q10 for cancer

Source: Pawel Posadki, CAM-Cancer Consortium. Coenzyme Q10 [online document]. June 2024.

Study year	Design and methods	Included studies and participants	Included interventions and outcomes	Main results/Conclusions	Comments
Alimohammadi 2021	Type of review: SR Search strategy: PubMed, Web of Science, Scopus, Google Scholar, and Embase (up to December 2020); no language restrictions mentioned. Quality assessment: Jadad scale Measure of treatment effect: standard deviation Data synthesis: Meta-analysis.	Studies: 2 RCTs (reported in several publications, total number of breast cancer participants is unclear due to double counting)	Intervention: CoQ10 100 mg/day (all studies) Control: placebo or no intervention Concurrent treatment: not mentioned Outcome measures: inflammation biomarkers or oxidative stress markers including TNF-α, IL-1β, IL-8, CRP, IL-6, MMP-2, MMP-9, TIMP-1, TIMP-2, MDA, SOD, CAT, GPx, GSH, and TBARS	Results for outcome measures: 1. Vascular endothelial growth factor [SMD −1.88, 95% CI (−2.62 to−1.13) (significant) 2. Interleukin-8 [SMD −2.24, 95% CI (−2.68 to −1.8) (significant) 3. matrix metalloproteinase-2 [SMD − 1.49, 95% CI (− 1.85 to − 1.14) (significant) 4. matrix metalloproteinase-9 [SMD − 1.58, 95% CI (− 1.97 to − 1.19) (significant) 5. tumour necrosis factor-α [SMD −2.30, 95% CI (−2.50 to −2.11) (not significant) 6. Interleukin-6 [SMD −1.56, 95% CI (−1.73 to −1.39) 7. Interleukin-1β [SMD −3.34, 95% CI (−3.58 to −3.11) (not significant) 8. catalase [SMD 1.40, 95% CI (1.15 to 1.65) (not significant) 9. superoxide dismutase [SMD 2.42, 95% CI: (2.12 to 2.71) (not significant) 10. glutathione peroxidase [SMD 2.80, 95% CI (2.49 to 3.11) (not significant) 11. glutathione [SMD 4.71, 95% CI (4.26 to 5.16) (not significant) 12. thiobarbituric acid reactive substances [SMD − 3.20, 95% CI (−3.53 to −2.86) (not significant) Results quality assessment: poor	Review limitations: Between-study variation was not addressed in the synthesis as there was a considerable amount of heterogeneity. Confusion between Jadad scale and Cochrane Risk of Bias Tool. The findings are unlikely to be robust.

Arring 2019	Type of review: SR Search strategy: PubMed, CINAHL, PsycINFO, and EMBASE (from January 1, 1990, through April 1, 2019); English language restrictions. Quality assessment: modified Delphi approach Measure of treatment effect: n/m Data synthesis: narrative	Studies: 1 RCT* Participants: 236 breast cancer * = excludes trials of polytherapy which included an amino acids, coenzyme Q10, and L-carnitine blend.	Intervention: 1. CoQ10 300 mg Control: placebo Concurrent treatment: 300 IU vitamin E Outcome measures: 1. Profile of Mood States-Fatigue questionnaire, 2. Functional Assessment of Chronic Illness Therapy-Fatigue tool, 3. Functional Assessment of Cancer Therapy-Breast Cancer instrument, 4. Center for Epidemiologic Studies-Depression scale, 5. Quality of life	Results for outcome measures: 1. not significant 2. not significant 3. not significant 4. not significant 5. not significant Results quality assessment: 5 out 5 (modified Delphi) Conclusions: "[…] insufficient evidence to recommend them for clinical practice in cancer patients during active treatments".	Review limitations: Formal quality appraisal using validated tools is missing. Unclear whether there were any departures from the pre-planned analyses. Between-study variation was not addressed in the synthesis. Unclear whether the findings are robust i.e., no sensitivity or subgroup analyses were undertaken.
Roffe 2004	Type of review: Systematic review Search strategy: dates, databases, restrictions July 2003: AMED, Complementary Medicine Database, British Nursing Index, CINAHL, DH-DATA, EMBASE, MEDLINE, Cochrane Central Register of Controlled Trials. All from inception to July 2003. No limitations. Quality assessment: Jadad score. Measure of treatment effect: n/m. Data synthesis: narrative.	Studies: 6 CCTs, 3 thereof RCTs. Participants: 277 various cancers	Intervention: 30-240mg CoQ10 plus standard care. Control: standard care (chemotherapy) in 5 trials, 1 placebo. Outcome measures: 1. measures of heart function and toxicity (n=5) 2. hair loss and liver enzyme levels (n=1)	Results for outcome measures: Some protection against cardiotoxicity or liver toxicity but limited by methodological shortcomings. Results quality/risk of bias: very low, out of 5 possible points on Jadad score, 4 studies scored only 1 point and 2 studies only 2 points. Conclusions: "Suggestions that CoQ10 might reduce the toxicity of cancer treatments have not been tested by rigorous trials."	Thoroughly conducted SR. Comprehensive search. Monopreparations only. Great heterogeneity in included studies.

Tafazoli 2017	Type of review: systematic review Search strategy: PubMed only (no dates specified); English language restrictions. Quality assessment: none Measure of treatment effect: n/m Data synthesis: narrative	Studies: unclear, flow-chart states 10 CCTs but only 4 are included in table, and only 2 reported in text. Participants: 421 breast cancer	Intervention: 30-390mg CoQ10 daily plus standard care (mostly tamoxifen) Control: standard care only. Outcome measures: 1. survival 2. tumour regression and relapse 3. disease progression and tumour invasion 4. quality of life 5. mood 6. fatigue and performance status 7. adverse effects	1-7: no synthesized results reported Conclusions: "[…]further well- designed clinical studies with dose optimization are now required to stratify the role of this supplement in current BC regimens"	Narrative review burdened with a high risk of bias and its findings need to be interpreted cautiously; only one database; no risk of bias assessments. Some serious concerns with the eligibility criteria; the way in which data was collected and appraised; and robustness of the findings.