

Research Article

Harnessing Grok 3 to Explore Qigong in Cancer Care: An AI-Driven Literature Synthesis

Abstract

This study evaluates the capabilities of Grok 3, an artificial intelligence tool developed by xAI, in synthesizing research on the effects of qigong on cancer patients using citations from the PubMed database. Qigong, a traditional Chinese practice involving movement, mindfulness, and breathing, has shown promise in supportive cancer care. Thirty-three study citations were provided to Grok 3 with instructions to summarize qigong techniques, outcomes, and cancer types. The AI produced detailed summaries and a table for 18 studies. Findings indicate that Grok 3 effectively retrieved and analyzed freely available research, identifying benefits such as reduced fatigue, improved quality of life, and better symptom management across various cancers, including breast, lung, and prostate. However, its exclusion of 15 studies suggests a selective approach, which could limit the comprehensiveness of its results. This experiment highlights Grok 3's potential to streamline medical literature reviews, offering insights into AI's role in integrative medicine research, particularly in contexts where open-access data is prevalent.

Keywords: Qigong, cancer care, artificial intelligence, Grok 3, integrative medicine, traditional Chinese medicine, literature synthesis, cancer-related fatigue, quality of life, PubMed

Introduction

Qigong (pronounced “chee gong”) is a form of traditional Chinese medicine that integrates movement, mindfulness, and breathing techniques [1-8]. It has been used for millennia to address various health conditions, and its application in cancer care has gained traction in Western medicine, supported by emerging evidence of its benefits [9-38]. At the same time, Artificial Intelligence (AI) is revolutionizing medical research by enabling rapid analysis of complex datasets. This study tests the organizational and analytical abilities of Grok 3, an AI assistant, to summarize the findings from studies applying qigong techniques to patients with various types of cancer.

The Study

A prior study [39] found that Grok 3 was not able to summarize the results of medical studies when a group of articles in pdf format were uploaded to its website, although it did a good job of summarizing one article at a time. The present study tries a different approach. The author went to the PubMed database [40] and copied and pasted the citations to a number of studies that were conducted on the application of qigong techniques to a variety of cancer patients, the goal being to test whether Grok 3 [41] would be able to write summaries of those studies based on receiving just the citations to the studies without actually having the studies. The results of all of the studies in question were available for free download on the internet, so it was hoped that Grok 3 would be able to locate and have access to those studies. The citations [42-74] were copied and pasted to Grok 3 with the instruction to summarize the results of the studies. The results are given below. Citations to 33 studies were copied and pasted into Grok 3. Grok 3 screened out 15 of them in its analysis, likely due to their lack of direct focus on qigong or insufficient data relevant to the specified criteria (techniques, outcomes, cancer types). The instruction was: I would like to know how qigong can help cancer patients. Here are the links to some studies that are on the PubMed database. Please summarize the results of each study, then list the individual results in a table. I am particularly interested in what qigong techniques were used, the outcomes of their use, and the type of cancer patients included in the studies. You might have separate columns for each of these categories.

Grok 3 Reply

Below is a summary of the studies from your provided list that specifically investigate or mention qigong and its effects on cancer patients. Not all studies directly focus on qigong, so I've included only those with relevant data or discussion about qigong techniques, outcomes, and cancer types. Following the summaries, I've compiled the results into a table as requested, focusing on qigong techniques used, outcomes, and types of cancer patients studied.

OPEN ACCESS

Authors:

Robert W. McGee*

Affiliations:

Fayetteville State University Associates
Limited, UK

***Corresponding Author:**

Robert W. McGee, Fayetteville State
University Associates Limited, UK.

Received Date: 05 Apr 2025

Accepted Date: 28 Apr 2025

Published Date: 30 Apr 2025

Citation:

Robert W. McGee. Harnessing Grok 3
to Explore Qigong in Cancer Care: An
AI-Driven Literature Synthesis. *Collect J*
Oncol. Vol 2 (1) 2025; ART0076.



Summaries of Relevant Studies

1. Arring et al. (2019) - Integrative Therapies for Cancer-Related Fatigue

This review discusses integrative therapies, including qigong, for managing Cancer-Related Fatigue (CRF). Qigong is noted as a mind-body practice that may reduce fatigue, though specific techniques are not detailed. Evidence suggests modest benefits in fatigue reduction across various cancer types, but the study emphasizes the need for more rigorous trials.

2. Chan et al. (2012) - A Systematic Review of the Effectiveness of Qigong Exercise in Supportive Cancer Care

This systematic review evaluates qigong's role in supportive cancer care. Various qigong forms (e.g., Guolin Qigong, Tai Chi Qigong) were assessed. Outcomes included improved Quality of Life (QoL), reduced fatigue, and better emotional well-being in patients with breast, lung, and other cancers. The review highlights qigong's potential but notes inconsistent study quality.

3. Chen et al. (2024) - The Effects of Tai Chi and Badu Anjin on Breast Cancer Patients

This meta-analysis includes Badu Anjin, a specific qigong form, and its effects on breast cancer patients. Techniques involve gentle movements and breathing exercises. Outcomes showed significant improvements in QoL, fatigue, and psychological health (e.g., reduced depression and anxiety) in breast cancer patients' post-surgery or during treatment.

4. Fong et al. (2018) - Bone Mineral Density, Balance Performance, Balance Self-Efficacy, and Falls in Breast Cancer Survivors with and Without Qigong Training

This observational study examined breast cancer survivors practicing qigong (specific form not detailed). Outcomes included better balance performance and self-efficacy, with potential benefits for bone mineral density and fall prevention compared to non-qigong groups.

5. Fong et al. (2014) - Effects of Qigong Training on Health-Related Quality of Life, Functioning, and Cancer-Related Symptoms in Survivors of Nasopharyngeal Cancer

This pilot study tested a qigong program (unspecified form) in nasopharyngeal cancer survivors. Results showed improvements in QoL, physical functioning, and reductions in cancer-related symptoms like fatigue and insomnia, though the small sample size limits generalizability.

6. Ford et al. (2020) - Mindfulness and Meditative Movement Interventions for Men Living with Cancer

This meta-analysis includes qigong as a meditative movement intervention for male cancer patients (e.g., prostate cancer). Techniques involved slow movements and breath control. Outcomes included reduced fatigue, improved mood, and better QoL, with qigong showing promise alongside mindfulness practices.

7. Ho et al. (2017) - Study Protocol on Comparative Effectiveness of Mindfulness Meditation and Qigong on Psychophysiological Outcomes for Patients with Colorectal Cancer

This protocol outlines a trial comparing qigong (specific form not detailed) with mindfulness in colorectal cancer patients. Anticipated outcomes include improved psychological well-being, reduced fatigue, and better sleep quality, though results are not yet reported.

8. Kim et al. (2015) - Qigong Program on Insomnia and Stress in Cancer Patients

This case series tested a qigong program (unspecified form) in cancer patients with insomnia and stress. Techniques included movement and relaxation exercises. Outcomes showed reduced insomnia severity and stress levels across various cancer types, suggesting qigong's supportive role.

9. Klein (2017) - Qigong in Cancer Care: Theory, Evidence-Base, and Practice

This review synthesizes evidence on qigong in cancer care, mentioning forms like Guolin Qigong and Tai Chi Qigong. Outcomes include reduced fatigue, improved QoL, and better symptom management (e.g., pain, nausea) across multiple cancer types, with a call for standardized protocols.

10. Larkey et al. (2015) - Randomized Controlled Trial of Qigong/Tai Chi Easy on Cancer-Related Fatigue in Breast Cancer Survivors

This RCT tested Qigong/Tai Chi Easy (a simplified form) in breast cancer survivors. Techniques included gentle movements and breathing. Outcomes showed significant reductions in fatigue and improved QoL compared to a sham intervention.

Table: Outcomes showed induced cancer cell death and inhibited proliferation, suggesting a direct anti-cancer effect.

Study	Qigong Techniques Used	Outcomes	Type of Cancer Patients
Arring et al. (2019)	Not specified (general qigong)	Modest reduction in fatigue	Various cancers
Chan et al. (2012)	Guolin Qigong, Tai Chi Qigong	Improved QoL, reduced fatigue, better emotional well-being	Breast, lung, others
Chen et al. (2024)	Baduanjin	Improved QoL, reduced fatigue, depression, and anxiety	Breast cancer
Fong et al. (2018)	Not specified	Better balance, self-efficacy; potential bone density benefits	Breast cancer survivors
Fong et al. (2014)	Not specified	Improved QoL, physical functioning; reduced fatigue, insomnia	Nasopharyngeal cancer survivors
Ford et al. (2020)	Slow movements, breath control	Reduced fatigue, improved mood, better QoL	Prostate cancer (men)
Ho et al. (2017)	Not specified (protocol)	Expected: improved psychological well-being, reduced fatigue, sleep	Colorectal cancer
Kim et al. (2015)	Movement, relaxation exercises	Reduced insomnia, stress	Various cancers
Klein (2017)	Guolin Qigong, Tai Chi Qigong	Reduced fatigue, improved QoL, symptom management (pain, nausea)	Various cancers
Larkey et al. (2015)	Qigong/Tai Chi Easy	Reduced fatigue, improved QoL	Breast cancer survivors
Low et al. (2024)	Guolin Qigong (protocol)	Expected: reduced fatigue, improved QoL	Various cancer survivors
McQuade et al. (2017)	Qigong/Tai Chi	Improved sleep quality, reduced fatigue	Prostate cancer (radiotherapy)
Molassiotis et al. (2021)	Movement, breathing exercises	Reduced breathlessness, fatigue, anxiety	Lung cancer
Osypiuk et al. (2020)	Gentle movements, mindfulness	Reduced pain, improved mood, better physical function	Breast cancer survivors
Sowada (2019)	Not specified	Reduced fatigue, improved emotional well-being	Various cancer survivors
Vanderbyl et al. (2017)	Medical Qigong	Improved QoL, reduced fatigue (vs. standard exercise)	Advanced cancers (various)
Vargas-Román et al. (2022)	Movement, relaxation (16 sessions)	Improved QoL, reduced fatigue, better psychological health	Non-Hodgkin lymphoma survivors
Yan et al. (2012)	External Qi (Yan Xin Qigong)	Induced cancer cell death, inhibited proliferation	Small-cell lung cancer (in vitro)

11. Low et al. (2024) - Exploring Guolin Qigong for Improving Cancer-Related Fatigue in Cancer Survivors

This protocol for an RCT investigates Guolin Qigong in cancer survivors with fatigue. Techniques involve structured movements and breathing. Expected outcomes include reduced fatigue and improved QoL, though results are pending.

12. McQuade et al. (2017) - Qigong/Tai Chi for Sleep and Fatigue in Prostate Cancer Patients Undergoing Radiotherapy

This RCT tested Qigong/Tai Chi in prostate cancer patients during radiotherapy. Techniques included slow movements and meditation. Outcomes showed improved sleep quality and reduced fatigue compared to controls.

13. Molassiotis et al. (2021) - The Effectiveness of Qigong in Managing a Cluster of Symptoms in Patients with Lung Cancer

This RCT evaluated qigong (unspecified form) in lung cancer patients. Techniques involved movement and breathing exercises. Outcomes included significant reductions in breathlessness, fatigue, and anxiety.

14. Osypiuk et al. (2020) - Qigong Mind-Body Exercise as a Biopsychosocial Therapy for Persistent Post-Surgical Pain in Breast Cancer

This pilot study tested qigong (unspecified form) in breast cancer survivors with post-surgical pain. Techniques included gentle movements and mindfulness. Outcomes showed reduced pain, improved mood, and better physical function.

15. Sowada (2019) - Qigong: Benefits for Survivors Coping with Cancer-Related Fatigue

This review discusses qigong's benefits for CRF in cancer survivors (various types). Specific techniques are not detailed, but outcomes include reduced fatigue and improved emotional well-being, with qigong framed as a low-risk intervention.

16. Vanderbyl et al. (2017) - A Comparison of the Effects of Medical Qigong and Standard Exercise Therapy on Symptoms and Quality of Life in Patients with Advanced Cancer

This study compared Medical Qigong (a structured form) with standard exercise in advanced cancer patients (various types). Outcomes showed Medical Qigong improved QoL and reduced fatigue more effectively than standard exercise.

17. Vargas-Román et al. (2022) - Effect of a 16-Session Qigong Program in Non-Hodgkin Lymphoma Survivors

This RCT tested a 16-session qigong program (unspecified form) in non-Hodgkin lymphoma survivors. Techniques included movement and relaxation. Outcomes showed improved QoL, reduced fatigue, and better psychological health.

18. Yan et al. (2012) - External Qi of Yan Xin Qigong Induces Cell Death and Gene Expression Alterations

This lab study explored External Qi from Yan Xin Qigong on small-cell lung cancer cells. Techniques involved external energy application (not patient-performed). Outcomes showed induced cancer cell death and inhibited proliferation, suggesting a direct anti-cancer effect.

Key Observations

Techniques: Common qigong forms include Guolin Qigong, Baduanjin, Tai Chi Qigong, and Medical Qigong, often involving slow movements, breathing exercises, and mindfulness. Some studies don't specify the form, limiting precision.

Outcomes: Qigong consistently shows benefits in reducing fatigue, improving QoL, and alleviating psychological symptoms (e.g., anxiety, depression) and physical symptoms (e.g., pain, insomnia). In vitro studies (e.g., Yan et al.) suggest direct anti-cancer effects, though this is less common.

Cancer Types: Breast cancer is the most studied, followed by lung, prostate, colorectal, nasopharyngeal, and non-Hodgkin lymphoma. Many studies include mixed or advanced cancer populations.

Closing Comments

This study demonstrates Grok 3's impressive capability to retrieve and summarize 18 of the 33 cited studies on qigong's application in cancer care, relying solely on publicly available data from the PubMed database. Its ability to generate detailed summaries and a structured table highlights its potential as a tool for medical research, particularly when full-text articles are not directly provided. However, the exclusion of 15 studies suggests that Grok 3 applies a selective filter, possibly prioritizing studies with explicit qigong focus and detailed outcomes, which may limit its scope in broader reviews. This performance underscores the advantage of using AI to streamline literature synthesis in fields like integrative medicine, where evidence is often scattered across open-access platforms.

Future research could refine Grok 3's prompt to capture a wider range of studies or compare its output with human-led reviews to assess accuracy and completeness. The success of this approach in medicine, where many studies are freely accessible, contrasts with potential challenges in fields like business, where paywalls restrict data availability. These findings suggest that AI tools like Grok 3 could enhance research efficiency in evidence-based medicine, particularly for exploring complementary therapies like qigong, offering a scalable method for practitioners and researchers to stay abreast of emerging evidence.

References

1. Jahnke, Roger. (1997). *The Healer Within*. San Francisco: Harper.
2. Jahnke, Roger. (2002). *The Healing Promise of Qi*. Contemporary Books.
3. Xu, Xiangcai. (2000). *Qigong for Treating Common Ailments*. Boston: YMAA Publication Center.
4. Cohen, Kenneth S. (1997). *The Way of Qigong*. New York: Ballantine Books.
5. Liu, Tianjun. (2013). *Chinese Medical Qigong*. London & Philadelphia: Singing Dragon.
6. Deadman, Peter. (2024). *Qigong: Cultivating body, breath & mind*. Qigong Works Press.
7. Frantzis, Bruce. (2006). *Opening the Energy Gates of Your Body*. Berkeley, CA: Blue Snake Books.
8. Korahais, Anthony. (2022). *Flowing Zen: Finding True Healing with Qigong*. Flowing Zen.
9. Adrián P Hunis. *The Role of Artificial Intelligence in Oncology: Transforming Cancer Diagnosis and Treatment*

- . Biomed J Sci & Tech Res 57(3)-2024. BJSTR. MS.ID.009013.
10. Bellido-Casado J, Dufrechou-Negreira E and Munizio-Mello FF. Problem Decision Making in Healthcare: Human Decision or Artificial Intelligence Decision? Biomed J Sci & Tech Res 57(4)-2024. BJSTR. MS.ID.009026
11. Benjamin Wu, Yucheng Liu, Meng Jou Wu, Hiram Shaish and Hong Yun Ma. Usage of Artificial Intelligence in Gallbladder Segmentation to Diagnose Acute Cholecystitis. A Case Report. Biomed J Sci & Tech Res 55(2)-2024. BJSTR. MS.ID.008670
12. Purohit Saraswati and Suneel Kumar C N. AI in Health Care: A Comprehensive Review. Biomed J Sci & Tech Res 57(4)-2024. BJSTR. MS.ID.009032.
13. Angela Hsu, Robin Zachariah, James Han and William Karnes. Artificial Intelligence for Colonoscopy: Beyond Polyp Detection – A Review of where we are Today and where AI can Take us. Biomed J Sci & Tech Res 49(3)-2023. BJSTR. MS.ID.007812
14. Jyoti Lamba, Taniya Malhotra, Drishti Palwankar, Vrinda Vats and Akshat Sachdeva. Artificial Intelligence in Dentistry: A Literature Review. Biomed J Sci & Tech Res 51(1)-2023. BJSTR. MS.ID.008050
15. Michael L Carty and Stephane Bilodeau. Artificial Intelligence and Medical Oxygen. Biomed J Sci & Tech Res 51(2)-2023. BJSTR. MS.ID.008062
16. M Ablameyko, N Shakel. Doctor-Patient-Artificial Intelligence Relations in Smart Healthcare. Biomed J Sci & Tech Res 44(5)-2022. BJSTR. MS.ID.007128.
17. Hergan Klaus, Zinterhof Peter, Abed Selim, et al. Challenges implementing and running an AI-Lab: Experience and Literature Review. Biomed J Sci & Tech Res 45(4)-2022. BJSTR. MS.ID.007222
18. Sotiris Raptis, Christos Ilioudis, Vasiliki Softa and Kiki Theodorou. Artificial Intelligence in Predicting Treatment Response in Non-Small-Cell Lung Cancer (NSCLC). Biomed J Sci & Tech Res 47(3)-2022. BJSTR. MS.ID.007497
19. Ahmed Asfari. Artificial Intelligence Role and Clinical Decision Support System Extubation Readiness Trail and Etiometry Scoring System. Biomed J Sci & Tech Res 35(1)-2021. BJSTR. MS.ID.005641
20. Hamid Yahya Hussain. Frailty and Spousal/Partner Bereavement in Older People: A Systematic Scoping Review Protocol. Biomed J Sci & Tech Res 24(4)-2020. BJSTR. MS.ID.004076.
21. Kuo Chen Chou. How the Artificial Intelligence Tool iRNA-PseU is Working in Predicting the RNA Pseudouridine Sites?. Biomed J Sci & Tech Res 24(2)-2020. BJSTR. MS.ID.004016.
22. Shivani S, Abhishek A, Rajvardhan A. Prospects of Artificial Intelligence in Ophthalmic Practice. Biomed J Sci & Tech Res 27(5)-2020. BJSTR. MS.ID.004577
23. McGee, Robert W. (2024). Using Artificial Intelligence to Conduct Research on the Health Benefits of Tai Chi: A Pilot Study. Biomedical Journal of Scientific & Technical Research, 55(2), 46838-46841.
24. McGee, Robert W. (2024). Tai Chi, Qigong and the Treatment of Lung Cancer: A Study in Artificial Intelligence, Biomedical Journal of Scientific & Technical Research, 55(4), 47220-47225 (2024).
25. McGee, Robert W. (2024). Incorporating Qigong into a Western Medical Practice: A Study in Artificial Intelligence, Biomedical Journal of Scientific & Technical Research, 55(5), 47401-47405.
26. McGee, Robert W. (2024). Incorporating Baduanjin into a Western Medical Practice: A Study in Artificial Intelligence and Traditional Chinese Medicine (TCM). Biomedical Journal of Scientific & Technical Research, 56(1), 47739-47744.
27. McGee, Robert W. (2024). Incorporating Artificial Intelligence and Traditional Chinese Medicine (TCM) into a Western Medical Practice: A Case Study. Biomedical Journal of Scientific & Technical Research, 56(3), 48149-48154.
28. McGee, Robert W. (2024). Using Chinese Herbal Medicine to Treat Cancer Patients: A Study Incorporating Artificial Intelligence. Biomedical Journal of Scientific & Technical Research, 56(5), 48647-48655. DOI: 10.26717/BJSTR.2024.56.008924
29. McGee, Robert W. (2024). Using Tai Chi, Qigong and Chinese Herbs to Reduce Cholesterol: A Study Incorporating Artificial Intelligence. Biomedical Journal of Scientific & Technical Research, 57(1), 48776-48784.
30. McGee, Robert W. (2024). Incorporating Tai Chi and Artificial Intelligence into a Medical Practice to Treat

- Dizziness and Vertigo. *Biomedical Journal of Scientific & Technical Research*, 57(1), 48939-48944.
31. McGee, Robert W. (2024). Incorporating Artificial Intelligence, Tai Chi and Qigong into a Gynecology & Obstetrics Practice: Some Recent Case Studies. *Collective Journal of Gynecology and Obstetrics*, 1(1), 2024 1(1)
32. McGee, Robert W. (2024). The Use of Artificial Intelligence, Tai Chi and Qigong to Treat Post Traumatic Stress Disorder (PTSD). *Biomedical Journal of Scientific & Technical Research*. 53(4), 49461-49466. DOI: 10.26717/BJSTR.2024.57.009030
33. McGee, Robert W. (2024). Using Artificial Intelligence, Tai Chi and Qigong to Treat Ankylosing Spondylitis. *Biomedical Journal of Scientific & Technical Research*, 57(5), 49823-49831.
34. McGee, Robert W. (2024). Using Alternative Medical Techniques to Lose Weight. *Biomedical Journal of Scientific & Technical Research*, 58(4), 50679-50684.
35. McGee, Robert W. (2024). Utilizing Tai Chi and Qigong to Treat Colon Cancer Survivors. *Biomedical Journal of Scientific & Technical Research*, 58(5), 51017-51025.
36. McGee, Robert W. (2025). Leveraging DeepSeek: An AI-Powered Exploration of Traditional Chinese Medicine (Tai Chi and Qigong) for Medical Research. *American Journal of Biomedical Science & Research*, 25(5), 645-654. *AJBSR.MS.ID.003362*,
37. McGee, Robert W. (2025). Is Taoism a Religion or a Philosophy? Is Tai Chi Compatible with Christianity? A Case Study Using Artificial Intelligence to Answer Philosophical and Religious Questions. *Sociology International Journal*, 9(1), 57-62.
38. McGee, Robert W. (2025). Does the Practice of Chen Style Tai Chi Cause Knee Damage? A Literature Review Incorporating Artificial Intelligence. Submitted to *Biomedical Journal of Scientific & Technical Research*, 60(5), 53019-53025.
39. McGee, Robert W. (2025). Harnessing AI for Integrative Medicine: Exploring Grok 3's Role in Researching Qigong, Tai Chi, Yoga, and Mindfulness for College Students' Mental Health, forthcoming.
40. PubMed
41. Grok 3
42. Arring, N. M., Barton, D. L., Brooks, T., & Zick, S. M. (2019). Integrative Therapies for Cancer-Related Fatigue. *Cancer journal (Sudbury, Mass.)*, 25(5), 349–356.
43. Bao, Y., Kong, X., Yang, L., Liu, R., Shi, Z., Li, W., Hua, B., & Hou, W. (2014). Complementary and alternative medicine for cancer pain: an overview of systematic reviews. *Evidence-based complementary and alternative medicine : eCAM*, 2014, 170396.
44. Birling Y, Nevitt S, Bhuyan DJ, Jia M, Feng F, Carlson LE, Pham T, Liu J, Ayati Z, Nyiam L, Yu Z, Fahey P. Mind-Body Therapies for Cancer Patients Living with Depression, Anxiety or Insomnia (MIRACLE): A Systematic Review with Individual Participant Data Network Meta-Analysis. *Methods Protoc*. 2021 Oct 19;4(4):76.
45. Campbell, K. L., Zdravcevic, K., Bland, K. A., Chesley, E., Wolf, F., & Janelinsins, M. C. (2020). The Effect of Exercise on Cancer-Related Cognitive Impairment and Applications for Physical Therapy: Systematic Review of Randomized Controlled Trials. *Physical therapy*, 100(3), 523–542.
46. Chan, C. L., Wang, C. W., Ho, R. T., Ng, S. M., Chan, J. S., Ziea, E. T., & Wong, V. C. (2012). A systematic review of the effectiveness of qigong exercise in supportive cancer care. *Supportive care in cancer : official journal of the Multinational Association of Supportive Care in Cancer*, 20(6), 1121–1133.
47. Chen Y, Zuo X, Tang Y, Zhou Z. The effects of Tai Chi and Baduanjin on breast cancer patients: systematic review and meta-analysis of randomized controlled trials. *Front Oncol*. 2024 Oct 28;14:1434087. PMID: 39529823; PMCID: PMC11551136.
48. Di Mattei VE, Perego G, Milano F, Gatti F. The Effectiveness of Nonpharmacological Interventions in the Management of Chemotherapy Physical Side Effects: A Systematic Review. *Healthcare (Basel)*. 2024 Sep 19;12(18):1880. PMID: 39337221; PMCID: PMC11431125.
49. Dy SM, Lorenz KA, Naeim A, Sanati H, Walling A, Asch SM. Evidence-based recommendations for cancer fatigue, anorexia, depression, and dyspnea. *J Clin Oncol*. 2008 Aug 10;26(23):3886-95. PMID: 18688057.
50. Fong, S., Choi, A., Luk, W. S., Yam, T., Leung, J., & Chung, J. (2018). Bone Mineral Density, Balance

- Performance, Balance Self-Efficacy, and Falls in Breast Cancer Survivors With and Without Qigong Training: An Observational Study. *Integrative cancer therapies*, 17(1), 124–130.
51. Fong SS, Ng SS, Luk WS, Chung LM, Wong JY, Chung JW. Effects of qigong training on health-related quality of life, functioning, and cancer-related symptoms in survivors of nasopharyngeal cancer: a pilot study. *Evid Based Complement Alternat Med*. 2014;2014:495274.
52. Ford, C. G., Vowles, K. E., Smith, B. W., & Kinney, A. Y. (2020). Mindfulness and Meditative Movement Interventions for Men Living With Cancer: A Meta-analysis. *Annals of behavioral medicine : a publication of the Society of Behavioral Medicine*, 54(5), 360–373.
53. Fulop, J. A., Grimone, A., & Victorson, D. (2017). Restoring Balance for People with Cancer Through Integrative Oncology. *Primary care*, 44(2), 323–335.
54. Henshall, C. L., Allin, L., & Aveyard, H. (2019). A Systematic Review and Narrative Synthesis to Explore the Effectiveness of Exercise-Based Interventions in Improving Fatigue, Dyspnea, and Depression in Lung Cancer Survivors. *Cancer nursing*, 42(4), 295–306.
55. Ho, R., Wan, A., Chan, J., Ng, S. M., Chung, K. F., & Chan, C. (2017). Study protocol on comparative effectiveness of mindfulness meditation and qigong on psychophysiological outcomes for patients with colorectal cancer: a randomized controlled trial. *BMC complementary and alternative medicine*, 17(1), 390.
56. Kim, S., Lee, S., Kwon, O., Park, S., Seo, J., & Kim, K. (2015). Qigong program on insomnia and stress in cancer patients: A case series report. *SAGE open medical case reports*, 3, 2050313X14556408.
57. Klein P. (2017). Qigong in Cancer Care: Theory, Evidence-Base, and Practice. *Medicines (Basel, Switzerland)*, 4(1), 2.
58. Larkey, L. K., Roe, D. J., Weihs, K. L., Jahnke, R., Lopez, A. M., Rogers, C. E., Oh, B., & Guillen-Rodriguez, J. (2015). Randomized controlled trial of Qigong/Tai Chi Easy on cancer-related fatigue in breast cancer survivors. *Annals of behavioral medicine : a publication of the Society of Behavioral Medicine*, 49(2), 165–176.
59. Lee, Myeong. (2004). Qi therapy as a complementary therapy in chronic myeloid leukemia. *Oriental Pharmacy and Experimental Medicine* 4(4), 275-277.
60. Leung KW, Yang YJ, Hui SS, Woo J. Mind-Body Health Benefits of Traditional Chinese Qigong on Women: A Systematic Review of Randomized Controlled Trials. *Evid Based Complement Alternat Med*. 2021 Sep 14;2021:7443498. PMID: 34567220; PMCID: PMC8457943.
61. Low SLK, Ho GF, Liu B, Koh ES, Fei Y, Teo CS, Zhu X. Exploring Guolin Qigong (Mind-Body Exercise) for Improving Cancer Related Fatigue in Cancer Survivors: A Mixed Method Randomized Controlled Trial Protocol. *Integr Cancer Ther*. 2024 Jan-Dec;23:15347354241252698. PMID: 38757745; PMCID: PMC11102686.
62. McQuade, J. L., Prinsloo, S., Chang, D. Z., Spelman, A., Wei, Q., Basen-Engquist, K., Harrison, C., Zhang, Z., Kuban, D., Lee, A., & Cohen, L. (2017). Qigong/tai chi for sleep and fatigue in prostate cancer patients undergoing radiotherapy: a randomized controlled trial. *Psycho-oncology*, 26(11), 1936–1943.
63. Molassiotis A, Vu DV, Ching SSY. The Effectiveness of Qigong in Managing a Cluster of Symptoms (Breathlessness-Fatigue-Anxiety) in Patients with Lung Cancer: A Randomized Controlled Trial. *Integr Cancer Ther*. 2021 Jan-Dec;20:15347354211008253. PMID: 33847150; PMCID: PMC8047940.
64. Oh B, Van Der Saag D, Morgia M, Carroll S, Boyle F, Back M, Lamoury G. An Innovative Tai Chi and Qigong Telehealth Service in Supportive Cancer Care During the COVID-19 Pandemic and Beyond. *Am J Lifestyle Med*. 2020 Dec 24;15(4):475-477. PMID: 34366746; PMCID: PMC8299917.
65. Osypiuk, K., Ligibel, J., Giobbie-Hurder, A., Vergara-Diaz, G., Bonato, P., Quinn, R., Ng, W., & Wayne, P. M. (2020). Qigong Mind-Body Exercise as a Biopsychosocial Therapy for Persistent Post-Surgical Pain in Breast Cancer: A Pilot Study. *Integrative cancer therapies*, 19, 1534735419893766.
66. Pachman DR, Barton DL, Swetz KM, Loprinzi CL. Troublesome symptoms in cancer survivors: fatigue, insomnia, neuropathy, and pain. *J Clin Oncol*. 2012 Oct 20;30(30):3687-96. Epub 2012 Sep 24. PMID: 23008320.
67. Sowada K. M. (2019). Qigong: Benefits for Survivors Coping With Cancer-Related Fatigue. *Clinical journal of oncology nursing*, 23(5), 465–469.
68. Tao WW, Jiang H, Tao XM, Jiang P, Sha LY, Sun XC. Effects of Acupuncture, Tuina, Tai Chi, Qigong, and Traditional Chinese Medicine Five-Element Music Therapy on Symptom Management and Quality of Life

- p for Cancer Patients: A Meta-Analysis.
- J Pain Symptom Manage*
- . 2016 Apr;51(4):728-747. Epub 2016 Feb 12. PMID: 26880252
69. Vanderbyl, B. L., Mayer, M. J., Nash, C., Tran, A. T., Windholz, T., Swanson, T., Kasymjanova, G., & Jagoe, R. T. (2017). A comparison of the effects of medical Qigong and standard exercise therapy on symptoms and quality of life in patients with advanced cancer. *Supportive care in cancer : official journal of the Multinational Association of Supportive Care in Cancer*, 25(6), 1749–1758.
 70. Vargas-Román K, De la Fuente-Solana EI, Cortés-Martín J, Sánchez-García JC, González-Vargas CJ, Díaz-Rodríguez L. Effect of a 16-Session Qigong Program in Non-Hodgkin Lymphoma Survivors: A Randomized Clinical Trial. *J Clin Med*. 2022 Jun 14;11(12):3421. PMID: 35743490; PMCID: PMC9225257.
 71. Yan, X., Li, F., Dozmorov, I., Frank, M. B., Dao, M., Centola, M., Cao, W., & Hu, D. (2012). External Qi of Yan Xin Qigong induces cell death and gene expression alterations promoting apoptosis and inhibiting proliferation, migration and glucose metabolism in small-cell lung cancer cells. *Molecular and cellular biochemistry*, 363(1-2), 245–255.
 72. Yan X, Shen H, Jiang H, Zhang C, Hu D, Wang J, Wu X. External Qi of Yan Xin Qigong differentially regulates the Akt and extracellular signal-regulated kinase pathways and is cytotoxic to cancer cells but not to normal cells. *Int J Biochem Cell Biol*. 2006;38(12):2102-13. Epub 2006 Jun 27. PMID: 16893670.
 73. Ye XX, Ren ZY, Vafaei S, Zhang JM, Song Y, Wang YX, Song PG. Effectiveness of Baduanjin Exercise on Quality of Life and Psychological Health in Postoperative Patients With Breast Cancer: A Systematic Review and Meta-analysis. *Integr Cancer Ther*. 2022 Jan-Dec;21:15347354221104092. PMID: 35699146; PMCID: PMC9202258.
 74. Zhang, Q., Gao, X., Liu, S., Yu, L., Zhu, J., & Qiu, S. (2020). Therapies for cognitive impairment in breast cancer survivors treated with chemotherapy: A protocol for systematic review. *Medicine*, 99(19), e20092.