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The Role of Yoga in Longevity and Healthy Ageing: A Narrative Scientific Review

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Abstract

Ageing is associated with progressive loss of physiological reserve, increasing vulnerability to chronic disease, and declining physical and cognitive function. Healthy ageing therefore involves preservation of mobility, cognition, psychological well-being, independence, and quality of life in addition to longevity. Yoga is a multicomponent mind-body practice combining physical postures, regulated breathing, relaxation, and meditative or attentional techniques. This narrative review examines evidence linking yoga with biological and functional domains relevant to healthy ageing. Available studies suggest potential benefits in balance, flexibility, lower-limb strength, gait and physical performance, blood pressure, selected cognitive outcomes, psychological well-being, and quality of life. Mechanistic studies also report changes in oxidative stress, inflammatory signaling, telomerase activity, neurotrophic factors, and stress-related pathways. However, the evidence remains heterogeneous. Many mechanistic studies are small, short-term, uncontrolled, or based on multicomponent interventions, and yoga has not consistently shown superiority over other active exercise programs. Improvements in surrogate biomarkers cannot be interpreted as proof of biological age reversal or increased lifespan. Yoga is therefore best considered a potentially useful adjunct to established healthy-ageing strategies rather than a proven longevity therapy. Future research should emphasize adequately powered randomized trials, standardized interventions, active comparators, and long-term clinically meaningful outcomes.

Categories: Other, Health Policy, Preventive Medicine
Keywords: ageing, lifestyle, longevity medicine, non-pharmacological, yoga

Introduction And Background

Healthy ageing extends beyond survival to an advanced chronological age. The World Health Organization defines healthy ageing as the process of developing and maintaining the functional ability that enables well-being in older age [1]. Functional ability reflects intrinsic physical and mental capacity, the environment in which a person lives, and the interaction between the two. In this context, lifespan refers to duration of life, whereas health span refers broadly to the period during which health, function, and independence are preserved. Mobility, cognition, psychological well-being, social participation, and the capacity to perform activities of daily living are therefore central components of healthy ageing. Ageing is associated with interacting biological processes that include genomic instability, telomere attrition, epigenetic alterations, impaired proteostasis and autophagy, deregulated nutrient sensing, mitochondrial dysfunction, cellular senescence, stem-cell exhaustion, altered intercellular communication, chronic inflammation, and dysbiosis [2]. At the organ-system level, ageing may also involve arterial stiffening, vascular dysfunction, reduced muscle strength and bone mass, impaired balance and flexibility, declining pulmonary reserve, altered autonomic regulation, and changes in neurological function [3].

Established approaches to healthy ageing include regular physical activity, resistance and aerobic exercise, adequate nutrition, appropriate sleep, vaccination, avoidance of tobacco, social engagement, preventive healthcare, and evidence-based management of cardiovascular and metabolic risk. Yoga should be considered within this broader framework rather than as a replacement for established preventive or therapeutic strategies [3,4]. Yoga originated in India and encompasses diverse traditions. In contemporary therapeutic settings, yoga commonly combines asanas or physical postures, pranayama or regulated breathing, relaxation, and meditative or attentional practices [4,5]. Its potential relevance to healthy ageing arises from the integration of physical activity with respiratory regulation, balance, flexibility, attention, and stress modulation.

Yoga versus conventional cardiovascular exercise

Yoga and conventional cardiovascular exercise share some physiological effects but are not equivalent. Aerobic exercise typically involves sustained or repetitive activity of large muscle groups at sufficient intensity to increase heart rate, ventilation, oxygen consumption, and cardiorespiratory fitness. Yoga generally combines controlled postures, flexibility, balance, isometric muscular activity, breathing regulation, relaxation, and attentional or meditative training. Some vigorous forms may provide meaningful

cardiovascular loading, but many therapeutic forms are performed at lower aerobic intensity. Conversely, conventional aerobic exercise usually includes less deliberate training in flexibility, balance, slow breathing, relaxation, and attentional control. Yoga should therefore be considered a complementary mind-body intervention rather than simply another form of cardio exercise [3-5].

Research has examined yoga in relation to oxidative stress, inflammation, telomere biology, autonomic regulation, cognition, cardiovascular physiology, respiratory function, physical performance, frailty, psychological well-being, and quality of life. However, improvements in biomarkers or short-term functional outcomes should not be interpreted as evidence that yoga reverses ageing or increases lifespan.

The objective of this narrative review is to critically synthesize evidence linking yoga with biological and functional domains relevant to healthy ageing, distinguish surrogate findings from clinically meaningful outcomes, and identify important limitations and research priorities.

Review

Approach to the literature

This article is a narrative scientific review rather than a systematic review or meta-analysis. PubMed/MEDLINE was searched through September 2026, supplemented by reference checking of relevant reviews and primary studies. Search concepts included combinations of yoga, aging/ageing, healthy ageing, older adults, frailty, physical function, balance, cognition, brain, telomere, telomerase, oxidative stress, inflammation, blood pressure, pulmonary function, quality of life, and cancer survivorship. Priority was given to systematic reviews and meta-analyses, randomized controlled trials, mechanistic human studies, neuroimaging studies, and clinically relevant observational research. When multiple studies addressed the same outcome, preference was given to systematic reviews, randomized trials, more recent evidence, and studies specifically involving older adults.

Because this is a narrative review, no prospectively registered protocol, PRISMA-based screening process, duplicate independent study selection, or formal study-level risk-of-bias assessment was performed. The review should therefore not be interpreted as an exhaustive systematic synthesis. For consistency, older adults generally refers here to adults aged 60 years or older, while acknowledging that individual studies use different thresholds. Some recent frailty studies, for example, focus on adults aged 65 years or older [6].

Oxidative stress, DNA damage, and cellular ageing

Reactive oxygen species are continuously generated during normal metabolism. When their production exceeds antioxidant defense capacity, oxidative stress may damage lipids, proteins, mitochondrial structures, and DNA. Oxidative stress interacts with several pathways implicated in ageing [2]. Tolahunase et al. evaluated a 12-week yoga- and meditation-based lifestyle intervention in apparently healthy adults aged 30-65 years [7]. The study was prospective, open-label, exploratory, and single-arm, with outcome data available for 94 participants. After 12 weeks, ROS and 8-hydroxy-2’-deoxyguanosine decreased, while total antioxidant capacity increased [7]. The investigators also reported favorable changes in several stress- and ageing-related biomarkers. This is explained in Table *1*.

Characteristic	Baseline	12 weeks	Direction of change	Source-reported p-value
ROS (RLU/min/10^4 neutrophils)	1215.07 ± 88	1020.81 ± 79	Decreased	<0.0001
TAC (mmol Trolox equivalent/L)	5.94 ± 1.52	7.40 ± 2.10	Increased	<0.001
8-OH2dG (pg/mL)	1026.23 ± 630	790.98 ± 400	Decreased	<0.01
Telomerase activity (IU/cell)	1.89 ± 1.42	2.94 ± 2.20	Increased	<0.001
Telomere length (IU/cell)	2.36 ± 1.60	2.44 ± 1.40	Numerical increase; not significant	0.069
Cortisol (ng/mL)	118.83 ± 50.50	96.32 ± 38.60	Decreased	<0.01
IL-6 (pg/mL)	3.16 ± 2.42	1.94 ± 2.30	Decreased	<0.001
β-Endorphin (ng/mL)	6.20 ± 3.50	8.20 ± 4.20	Increased	<0.001
BDNF (ng/mL)	19.70 ± 6.75	37.10 ± 5.60	Increased	<0.0001
Sirtuin-1 (ng/mL)	26.69 ± 10.42	40.64 ± 11.60	Increased	<0.01
BMI (kg/m^2)	26.30 ± 3.40	23.64 ± 3.55	Decreased	<0.01

TABLE 1: Changes in biomarkers following a 12-week yoga- and meditation-based lifestyle intervention

Data adapted from Tolahunase M, Sagar R, Dada R [7]. The original prospective, open-label, single-arm exploratory study enrolled 96 participants and reported outcomes for 94 participants. Baseline and 12-week values and source-reported p -values are presented. Because the study lacked a parallel control group and used a multicomponent lifestyle intervention, the findings should not be interpreted as definitive evidence of causation.

ROS: reactive oxygen species; TAC: total antioxidant capacity; 8-OH2dG: 8-hydroxy-2'-deoxyguanosine; IL-6:interleukin-6; BDNF: brain-derived neurotrophic factor; BMI: body mass index

Telomere biology and cellular senescence

Telomeres are repetitive DNA sequences at chromosome ends that shorten with repeated cellular division and may be influenced by oxidative stress and inflammation [2]. Telomerase can add telomeric repeats and contribute to telomere maintenance. In the Tolahunase study, telomerase activity increased after the intervention, while telomere length showed only a small, statistically nonsignificant numerical increase [7].

Lavretsky et al. reported greater improvement in telomerase activity among family dementia caregivers assigned to yogic meditation compared with controls [8]. Sharma et al. also reported favorable changes in selected cellular-ageing measures following a 12-week yoga-based lifestyle intervention in individuals with obesity [9]. These studies suggest possible effects on pathways related to cellular stress and telomere maintenance. However, short-term changes in telomerase activity cannot be assumed to translate into preserved telomere length, reduced morbidity, or increased lifespan.

Inflammaging, stress biology, and autonomic regulation

Persistent low-grade systemic inflammation, often termed inflammaging, is an important feature of ageing. Psychological stress may additionally affect the hypothalamic-pituitary-adrenal axis, autonomic function, and inflammatory signaling [2,3]. Tolahunase et al. reported reductions in interleukin-6 and cortisol and increases in β-endorphin, brain-derived neurotrophic factor (BDNF), and sirtuin-1 after the intervention [7]. These changes provide possible mechanistic links between stress regulation and biological resilience. Yoga may also influence autonomic regulation through slow breathing, movement, attention, and relaxation [3]. However, yoga interventions differ substantially in their breathing, postural, and meditative components, and mechanistic conclusions should therefore remain specific to the interventions studied.

Neurobiology and cognitive function

Ageing affects neural systems involved in memory, executive function, attention, emotional regulation, and sensorimotor integration. Gothe et al. systematically reviewed neuroimaging research examining yoga and brain health and identified recurrent findings involving the hippocampus, prefrontal cortex, cingulate cortex, insula, amygdala, and default-mode network [10]. However, several studies were cross-sectional, limiting causal interpretation. Gothe and McAuley reported an overall effect of chronic yoga interventions on cognition of Hedges' $g = 0.33$ (95% CI 0.18-0.48), with effects particularly in attention, processing speed, and executive function [11]. Hoy et al. subsequently reviewed randomized controlled trials of yoga-based interventions in healthy older adults and found that several studies reported improvement in at least one

cognitive outcome, although sample sizes, heterogeneity, and risk of bias limited certainty [12]. Yoga may therefore support selected cognitive functions, but improved test performance cannot be equated with prevention of mild cognitive impairment or dementia.

Cardiovascular and metabolic ageing

Cardiovascular ageing involves arterial stiffening, endothelial dysfunction, altered autonomic regulation, and accumulation of cardiometabolic risk. Wu et al. conducted a systematic review and meta-analysis of 49 controlled trials involving 3,517 participants [13]. Yoga was associated with average reductions of approximately 5 mmHg in systolic blood pressure and 3.9 mmHg in diastolic blood pressure. These findings are clinically relevant because elevated blood pressure is an important modifiable cardiovascular risk factor. However, yoga should be used as an adjunct rather than as a replacement for established lifestyle measures and indicated pharmacological therapy. Metabolic findings require particularly cautious interpretation when yoga is part of broader lifestyle programs involving dietary modification, weight loss, or other behavioral changes [7,9].

Respiratory ageing

Ageing is associated with changes in chest-wall mechanics, respiratory muscle performance, and pulmonary reserve. Liu et al. reviewed five randomized controlled trials involving 233 patients with chronic obstructive pulmonary disease and reported improvements in selected pulmonary-function measures and six-minute walking distance after yoga training [14]. Although these findings support possible respiratory and functional benefits, COPD is a disease-specific population and does not directly represent normal physiological ageing.

Musculoskeletal ageing, physical function, balance, and frailty

Loss of muscle strength, flexibility, balance, and mobility contributes directly to falls, disability, frailty, and loss of independence. Sivaramakrishnan et al. reported that yoga improved balance, lower-body flexibility, and lower-limb strength in older adults, particularly compared with inactive controls [15]. More recent evidence has specifically examined frailty-related outcomes. Loewenthal et al. reviewed 33 studies involving 2,384 adults aged 65 years or older [6]. Moderate-certainty evidence suggested improvement in gait speed and lower-extremity strength and endurance compared with inactive or educational controls. However, yoga did not consistently outperform active exercise interventions, and no included study used a validated overall definition of frailty. Ko et al. also reported improvements in balance, flexibility, muscle strength, and selected psychological outcomes among community-dwelling adults aged 60 years or older [16].

These physical outcomes are directly relevant to health span because they influence mobility and independence. However, improvement in frailty-related markers should not automatically be interpreted as prevention of falls, fractures, institutionalization, or mortality.

Psychological well-being, sleep, and quality of life

Psychological health is integral to healthy ageing. Anxiety, depressive symptoms, stress, pain, social isolation, and sleep disturbance may adversely affect physical activity, cognition, and quality of life. Akdeniz and Kaştan reported perceived benefits among long-term yoga practitioners, including relaxation, improved sleep, self-esteem, pain reduction, and better coping with anxiety and stress [17]. As qualitative research, this study describes participant experience rather than proving treatment efficacy. Meta-analytic evidence among older adults also suggests possible benefits in selected psychological outcomes [16]. However, effects vary substantially according to intervention type, population, comparator, and outcome measure.

Safety, adaptation, and adherence

Yoga is generally considered a relatively low-risk activity when appropriately taught, but adverse events can occur. Matsushita and Oka identified musculoskeletal symptoms among commonly reported adverse events in yoga practitioners [18]. Safety is particularly relevant in older adults with osteoporosis, impaired balance, joint disease, cardiopulmonary disease, or neurological impairment. Such individuals may require modified postures and closer supervision. Adherence should also be reported systematically, including attendance, home practice, dropout rates, instructor qualifications, adaptations, and adverse events.

Cancer survivorship: supportive care rather than survival evidence

Yoga has been studied extensively as supportive care among cancer survivors, particularly for fatigue, sleep disturbance, emotional symptoms, functional limitations, and quality of life. Niu et al. conducted an updated systematic review and meta-analysis of randomized controlled trials and reported benefits across several physical, psychological, and quality-of-life outcomes among cancer survivors [19]. The American Society of Clinical Oncology-Society for Integrative Oncology guideline update also concluded that yoga may be considered for cancer-related fatigue after treatment, although the recommendation was conditional and based on limited evidence [20].

These findings support yoga as supportive care but do not establish prolonged cancer survival. Cancer recurrence and mortality are influenced by tumor biology, stage, treatment, comorbidities, and many other factors. Improvement in quality of life should therefore not be interpreted as evidence of increased cancer longevity.

Summary of the evidence

Overall, evidence is stronger for selected functional and symptom-related outcomes than for modification of the biological ageing trajectory itself (Table *2*).

Domain	Main findings	Major limitations	Interpretation
Oxidative stress	Favorable changes in ROS, 8-OH2dG, antioxidant capacity	Small, uncontrolled mechanistic studies	Preliminary biological plausibility
Telomere biology	Increased telomerase activity in selected studies	Surrogate endpoint; short follow-up	Not proof of slower ageing
Inflammation/stress	Changes in IL-6, cortisol, BDNF, sirtuin-1	Heterogeneous interventions	Hypothesis-generating
Cognition	Improvement in selected cognitive domains	Small trials, heterogeneity, risk of bias	Potential cognitive benefit
Brain health	Structural/functional associations on neuroimaging	Many cross-sectional studies	Mechanistic context
Blood pressure	Modest reduction in systolic and diastolic BP	Heterogeneous trials	Useful adjunct
Respiratory function	Improved selected measures in COPD	Disease-specific population	Possible functional benefit
Strength/balance/mobility	Improved balance, flexibility, gait, and strength	Variable comparators	One of the stronger domains
Frailty-related outcomes	Improvement in selected physical markers	Overall frailty prevention not established	Promising but incomplete
Psychological well-being	Improvement in selected outcomes	Variable study quality	Potential complementary benefit
Cancer survivorship	Improved symptoms and quality of life	No evidence of survival extension	Supportive care

TABLE 2: Major domains of evidence linking yoga with healthy ageing

Interpretation and public-health relevance

The scientific interpretation of yoga research should remain close to the outcomes measured. Improvements in balance, flexibility, lower-limb strength, gait, blood pressure, cognition, psychological well-being, and quality of life may contribute meaningfully to health span [6,11-16,19]. In contrast, molecular findings involving oxidative stress, inflammatory mediators, telomerase activity, cortisol, BDNF, and sirtuin-1 are biologically interesting but remain surrogate measures [7-9].

Reduced oxidative stress does not prove slower ageing. Increased telomerase activity does not establish longer lifespan. Improved cognition does not establish dementia prevention. Improved balance and strength do not automatically establish fewer fractures, and improved quality of life among cancer survivors does not establish longer cancer survival. Yoga nevertheless has practical advantages. Many forms require little equipment, can be practiced in groups or at home, and can be adapted for different levels of mobility. Its combination of movement, balance, flexibility, breathing regulation, relaxation, and attention may allow several domains of healthy ageing to be addressed simultaneously.

Yoga should therefore be integrated with, rather than substituted for, established healthy-ageing measures such as aerobic and resistance exercise, adequate nutrition, sleep optimization, vaccination, smoking avoidance, social engagement, and evidence-based management of chronic disease.

Limitations of this review

This review has several limitations. First, it is a narrative rather than systematic review and was not based on a prospectively registered protocol or exhaustive PRISMA-based screening process. Selection bias

therefore cannot be excluded. Second, no independent duplicate study selection or formal study-level risk-of-bias assessment was undertaken specifically for this review. Third, substantial heterogeneity exists across yoga interventions in terms of style, postures, breathing techniques, meditation, duration, frequency, intensity, instructor contact, and home practice. Comparator conditions also vary considerably. Fourth, many mechanistic studies use small samples, short follow-up, and surrogate outcomes. Positive publication bias and selective outcome reporting are possible.

Finally, evidence remains limited for major long-term outcomes including dementia incidence, fractures, hospitalization, cardiovascular events, cancer survival, disability-free survival, and all-cause mortality.

Priorities for future research

Future studies should prioritize adequately powered multicenter randomized controlled trials in well-characterized older populations. Interventions should be described in sufficient detail to permit replication, including yoga style, postures, breathing and meditation components, session frequency, duration, intensity, instructor qualifications, home practice, and adaptations. Active comparators such as stretching, aerobic exercise, resistance training, health education, or attention controls should be used where appropriate to distinguish yoga-specific effects from nonspecific benefits. Future trials should also report adherence, medication changes, diet, sleep, background physical activity, and adverse events. Research should move beyond isolated surrogate biomarkers toward clinically meaningful outcomes such as gait speed, falls, fractures, validated frailty measures, activities of daily living, cognitive impairment, hospitalization, quality of life, institutionalization, and mortality.

Conclusions

Yoga is a multicomponent mind-body practice with potential relevance to several biological, physical, cognitive, and psychological domains of healthy ageing. Evidence from controlled trials and systematic reviews suggests possible benefits in balance, flexibility, lower-limb strength, gait, physical performance, blood pressure, selected cognitive outcomes, psychological well-being, and quality of life. Mechanistic studies additionally report favorable changes in oxidative stress, inflammatory signaling, telomerase activity, cortisol, BDNF, and related pathways. These findings provide biological plausibility but do not establish reversal of ageing or increased lifespan. The current literature remains limited by intervention heterogeneity, short follow-up, small samples in some mechanistic studies, inconsistent comparators, and reliance on surrogate endpoints. Evidence that yoga prevents dementia, reduces fractures, prolongs cancer survival, or extends overall human lifespan remains insufficient.

Yoga is therefore best viewed as a potentially useful adjunct within a comprehensive healthy-ageing strategy rather than as a stand-alone anti-ageing or longevity therapy. Future high-quality longitudinal studies should determine whether its functional and physiological benefits are durable and translate into reduced frailty, preserved independence, and longer health span.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

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References

1. World Health Organization: healthy ageing and functional ability . (2020). Accessed: September 20, 2026: https://www.who.int/news-room/questions-and-answers/item/healthy-ageing-and-functional-ability.
2. López-Otín C, Blasco MA, Partridge L, Serrano M, Kroemer G: Hallmarks of aging: an expanding universe . Cell. 2023, 186:243-78. 10.1016/j.cell.2022.11.001
3. Loewenthal JV, Farkas EJ, McGough K, Tomita B, Wayne PM, Orkaby AR: Corrigendum to 'The impact of yoga on aging physiology: A review'. J Nutr Health Aging. 2024, 28:100249. 10.1016/j.jnha.2024.100249
4. Madhivanan P, Krupp K, Waechter R, Shidhaye R: Yoga for healthy aging: science or hype? . Adv Geriatr Med Res. 2021, 3:10.20900/agmr20210016
5. Woodyard C: Exploring the therapeutic effects of yoga and its ability to increase quality of life . Int J Yoga. 2011, 4:49-54. 10.4103/0973-6131.85485
6. Loewenthal J, Innes KE, Mitzner M, Mita C, Orkaby AR: Effect of yoga on frailty in older adults: a systematic review. Ann Intern Med. 2023, 176:524-35. 10.7326/M22-2553
7. Tolahunase M, Sagar R, Dada R: Impact of yoga and meditation on cellular aging in apparently healthy individuals: a prospective, open-label single-arm exploratory study. Oxid Med Cell Longev. 2017, 2017:7928981. 10.1155/2017/7928981
8. Lavretsky H, Epel ES, Siddarth P, et al.: A pilot study of yogic meditation for family dementia caregivers with depressive symptoms: effects on mental health, cognition, and telomerase activity. Int J Geriatr Psychiatry. 2013, 28:57-65. 10.1002/gps.3790
9. Sharma P, Yadav RK, Khadgawat R, Dada R: A 12-week yoga-based lifestyle intervention might positively modify cellular aging in Indian obese individuals: a randomized-controlled trial. J Integr Complement Med. 2022, 28:168-78. 10.1089/jicm.2021.0215
10. Gothe NP, Khan I, Hayes J, Erlenbach E, Damoiseaux JS: Yoga effects on brain health: a systematic review of the current literature. Brain Plast. 2019, 5:105-22. 10.3233/BPL-190084
11. Gothe NP, McAuley E: Yoga and cognition: a meta-analysis of chronic and acute effects . Psychosom Med. 2015, 77:784-97. 10.1097/PSY.0000000000000218
12. Hoy S, Östh J, Pascoe M, Kandola A, Hallgren M: Effects of yoga-based interventions on cognitive function in healthy older adults: a systematic review of randomized controlled trials. Complement Ther Med. 2021, 58:102690. 10.1016/j.ctim.2021.102690
13. Wu Y, Johnson BT, Acabchuk RL, et al.: Yoga as antihypertensive lifestyle therapy: a systematic review and meta-analysis. Mayo Clin Proc. 2019, 94:432-46. 10.1016/j.mayocp.2018.09.023
14. Liu XC, Pan L, Hu Q, Dong WP, Yan JH, Dong L: Effects of yoga training in patients with chronic obstructive pulmonary disease: a systematic review and meta-analysis. J Thorac Dis. 2014, 6:795-802. 10.3978/j.issn.2072-1439.2014.06.05
15. Sivaramakrishnan D, Fitzsimons C, Kelly P, Ludwig K, Mutrie N, Saunders DH, Baker G: The effects of yoga compared to active and inactive controls on physical function and health related quality of life in older adults- systematic review and meta-analysis of randomised controlled trials. Int J Behav Nutr Phys Act. 2019, 16:33. 10.1186/s12966-019-0789-2
16. Ko KY, Kwok ZC, Chan HY: Effects of yoga on physical and psychological health among community-dwelling older adults: a systematic review and meta-analysis. Int J Older People Nurs. 2023, 18:e12562. 10.1111/opn.12562
17. Akdeniz Ş, Kaştan Ö: Perceived benefit of yoga among adults who have practiced yoga for a long time: a qualitative study. Biopsychosoc Med. 2023, 17:19. 10.1186/s13030-023-00276-3
18. Matsushita T, Oka T: A large-scale survey of adverse events experienced in yoga classes . Biopsychosoc Med. 2015, 9:9. 10.1186/s13030-015-0037-1
19. Niu N, Huang R, Zhao J, Zeng Y: Health benefits of yoga for cancer survivors: an updated systematic review and meta-analysis. Asia Pac J Oncol Nurs. 2024, 11:100316. 10.1016/j.apjon.2023.100316
20. Bower JE, Lacchetti C, Alici Y, et al.: Management of fatigue in adult survivors of cancer: ASCO-Society for Integrative Oncology guideline update. J Clin Oncol. 2024, 42:2456-87. 10.1200/JCO.24.00541