

Editorial

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## Yoga as a Therapeutic Intervention in Patients with Chronic Kidney Diseases

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Complementary and alternative medicine is a therapeutic method in medical and health care systems. According to investigations, 62% of American adults used complementary and alternative medicine in 2004. Yoga-based exercise is one of the most common methods used as a mind-body therapy [1].

*Yoga* is a Sanskrit word which means "the unity of body and mind". It is a combination of physical postures, regular practice of breathing exercises, and meditation. This exercise has been practiced in eastern countries as a traditional medicine for over 5000 years. Totally, hatha yoga (the physical training part) is a combination of postural exercise (*asana*), voluntary control of breathing (*pranayama*), and relaxation and meditation (*shavasana*) [1, 2].

Yoga is known to improve physical and mental health. It increases the parasympathetic tone, decreases the sympathetic activity, improves cardiovascular and respiratory functions, and decreases the effect of stress and strain on the body [3-5].

Yoga has been used in medicine and health care for therapeutic intervention. The number of publications on its clinical application in medicine

has greatly increased over the past 3 decades [6]. Yoga increases the compatibility of psychological, immunological, neurological, and recognition systems in healthy adults, and the quality of life, which is a result of well-being, can be improved by physical, spiritual, psychological, and social intervention methods of yoga training [6,7].

A review of the literature shows that many extended studies have evaluated the benefits of yoga in a wide variety of conditions such as multiple sclerosis [8], bronchial asthma [9], irritable bowel syndrome [10], lymphoma [11], depression [12], HIV/AIDS [13], cancer patients [14,15], mood in psychiatric patients [16], diabetes [17], carpal tunnel syndrome [18], tuberculosis [19], hypertension [20], drug addiction [21], chronic lumbar pain [22], and osteoarthritis [23]. There have also been review articles on the effect of yoga on musculoskeletal and cardiopulmonary function [24], rehabilitation after myocardial infarction [25], and menopausal symptoms [26]. Many researches on diabetic patients are reported that yoga practice leads to a significant improvement in the anti-oxidant status and reduced oxidative stress levels, BMI, and glucose levels [27,28].

Regular exercise and stress reduction using techniques such as yoga are highly effective in the treatment of hypertension in pediatric patients [29].

Laughter and humor therapy have been used in medicine and health care to achieve physiological and psychological-related benefits. Studies of patients with chronic conditions, especially dialysis patients, have shown the potential applications of laughter therapy and humor therapy. Therapeutic interventions could range from humorous videos, stories, laughter yoga, and laughter clowns [30].

To evaluate the effects of the yoga-based exercise on hemodialysis patients, Yurtkuran and coworkers studied 37 stable hemodialysis patients. Pain intensity, fatigue, sleep disturbance, and grip strength (mmHg) as well as biochemical variables (urea, creatinine, calcium, alkaline phosphatase, phosphorus, cholesterol, HDL-cholesterol, triglyceride, erythrocyte, hematocrit) were measured. After 3 months of intervention, significant improvements were noted in most of the variables like pain (37% decrease), fatigue (55% decrease), sleep disturbance (25% decrease), grip strength (15% increase), urea (29% decrease), creatinine (14% decrease), alkaline phosphatase (15% decrease), cholesterol (15% decrease), erythrocyte (11% increase), and hematocrit count (13% increase). The authors reported no side-effects in the study group [31]. Tayyebi et al reported that simple Hatha yoga exercise could improve the adequacy of dialysis. They also showed that it could be used to reduce post-dialysis symptoms and complications [32]. In another study on patients undergoing dialysis, it was demonstrated that 30 minutes of daily hatha yoga exercise significantly reduced oxidative stress and increased the anti oxidant activity. This study showed therapeutic, preventative, and protective effects of Yoga in dialysis and end stage renal diseases patients [33]. Reduced cholesterol levels in patients with end stage renal disease have been reported following regular yoga exercise, too [34]. It has been shown that yoga can increase hemoglobin levels in anemic patients in healthy and CKD patients [35]. In another recent study, stress reduction programs had a beneficial effect on improving the quality and duration of sleep. This study revealed that stress reduction programs could significantly change transplant recipients' overall health and well-being [36]. In conclusion, yoga is a non-invasive and cost-effective intervention at physical and psychological levels for healthy individuals and

patients with chronic kidney disease. It has been shown to be effective in controlling heart rate, blood pressure, blood sugars, lipid levels, and inflammatory markers of the patients. Yoga has also been proven to reduce the oxidative stress, sympathetic tone, psychological stress, and inflammatory markers in patients receiving chronic dialysis. Although yoga is a beneficial intervention in dialysis patients, it should be administered with caution under the guidance of an expert as there are some practices which may worsen the condition [37].

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