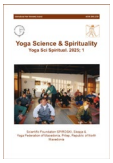
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Yoga as a Method of Rehabilitation of Patients with Chronic Renal Insufficiency

Vasilije Tomanoski[1], Ana Derebanova[1], Vancho Taseski[2*]

[1]Institute for Nephrology, Dialysis and Rehabilitation, Struga, Republic of North Macedonia; [2]Yoga Society, Skopje, Republic of North Macedonia

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***Correspondence:** Vancho Taseski. Yoga Society, Struga, Republic of North Macedonia. E-mail: yogastruga@yahoo.com
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Abstract

BACKGROUND: Chronic renal insufficiency (CRI) leads to progressive physical, psychological, and social impairments, particularly in patients undergoing haemodialysis. Alongside medical treatment, complementary approaches aimed at improving adaptation, psychological balance, and quality of life are increasingly explored.

AIM: To evaluate the effects of a specialized, structured yoga program as a complementary component of integral rehabilitation in patients with CRI undergoing haemodialysis.

METHODS: A seven-month specialized yoga course (62 sessions, 60 minutes each) was conducted at a nephrology and dialysis institute. Twenty-four patients were enrolled, of whom five male patients completed the program. Psychosocial status was assessed using specially designed questionnaires (A1, A2) and the Cornell Index, while clinical condition was monitored through medical examinations, laboratory analyses, and clinical observation.

RESULTS: Improvements were observed within the first weeks to months of practice. All participants showed better tolerance of haemodialysis and diet, reduced muscle and joint pain, cramps, insomnia, headaches, and blood pressure instability, along with increased physical endurance. Psychological benefits included enhanced calmness, mood, self-confidence, and improved social interactions. Some laboratory parameters also improved, although confounding factors were present.

CONCLUSIONS: This pilot study suggests that a specialized yoga program is a feasible and potentially effective supportive therapy in the rehabilitation of haemodialysis patients with CRI, contributing to physical, psychological, and social well-being. Larger controlled studies are warranted to confirm these findings and establish evidence-based recommendations.

Introduction

Various chronic renal diseases may lead to a gradual decrease in renal function, resulting in the development of chronic renal insufficiency (CRI). The final stage in the development of CRI is uraemia, which is characterized by disorders affecting multiple organs and body systems, making survival impossible without dialysis or kidney transplantation [1]. Research on the psychological problems of patients with CRI began in the late 1950s, while the first psychiatric reports in the United States were published in the mid-1960s [2]. This was followed by a large number of studies addressing the psychological and social problems of such patients, conducted by nephrologists, psychiatrists, psychologists, and social workers [3], [4].

Over time, awareness of CRI-related problems and its treatment expanded among medical staff in nephrology centres as well as among patients' families [5].

The analysis of patients with CRI includes problems related to disease recognition and treatment, increased dependence on family members and dialysis machines, sexual activity, disturbances of body image, and restrictions imposed by the disease and its treatment [2], [3], [4]. Research focuses on life attitudes, emotional problems, and factors influencing adaptation to different therapeutic modalities, including conservative treatment, haemodialysis, peritoneal dialysis, and transplantation [3], [5]. It also addresses cognitive factors, such as intellectual efficiency and uraemia-related cognitive changes, as well as conative factors, including self-concept, body image, defence mechanisms, affects, attitudes, and value systems [2], [4]. Furthermore, the analysis includes patients' social

relationships, interactions with medical staff and family members, ability to adapt to therapy, and occupational and social rehabilitation [1], [2], [3], [4], [5].

Materials and Methods

The specialized yoga course for patients with chronic renal insufficiency (CRI) was conducted at the Institute for Nephrology, Dialysis and Rehabilitation in Struga. The course lasted seven months and consisted of 62 lessons, held three times per week, each lasting 60 minutes. This course was attended by 24 patients (19 men and 5 women). The group was inconsistent due to changes in dialysis centres, travel, and shorter stays at the Institute. For these reasons, the course was successfully completed by five patients, and the results and conclusions of this research are based on their participation and achieved outcomes.

In addition to patients, the course was attended by a physiotherapist, a physician, and other assisting medical personnel. In this research, specially prepared questionnaires were applied, including questionnaires A1 and A2, as well as the Cornell Index questionnaire for the assessment of psychoneurotic tendencies in patients [6].

Questionnaire A1 consisted of questions concerning problems experienced before the beginning of the yoga course, effects of applied yoga techniques, and other indicators related to the yoga program. Questionnaire A2 focused on patients' attitudes toward the disease, haemodialysis, and the difficulties encountered during treatment.

During the course, patients' health status and the effects resulting from the application of yoga exercises were regularly monitored through medical examinations, laboratory analyses, and clinical observation. Within the framework of integral rehabilitation of patients with CRI—particularly during the initial 1–6 months of haemodialysis treatment—a specialized program of yoga techniques was included [7], [8], [9], [11], [12], [13].

The specialized yoga program was prepared by yoga teacher Pavlos K. Hassanagas in cooperation with yoga instructor Irena Edrovska [7], [8]. The main goal of this first specialized yoga course for patients with CRI was to achieve psychological improvement and balance, with particular emphasis on dynamic and static relaxation techniques and breathing exercises [9], [10], [11], [12].

In addition, the program enabled physical recreation and rehabilitation through activation of the entire musculature, ligaments, joints, and internal organs. Due to the specific manner of exercising—slow, relaxed, with concentration and awareness of each movement—these exercises did not induce fatigue; on the contrary, they relieved muscular and joint tension, spasms, and pain characteristic of patients with CRI [7], [8], [9].

The program was designed to reduce the consequences of excessive tension, stress, anxiety, and other psychophysical problems, to strengthen the body, achieve psychophysical and mental relaxation and stability, and increase awareness of lifestyle, work, rest, and behaviour toward oneself, others, and the environment [8], [9], [10], [11], [12], [13]. At the same time, it served as an introduction to yoga, enabling patients to continue practice after returning home. In developing this specialized yoga program, particular attention was paid to the characteristics of CRI and the specific problems encountered by patients.

The specialized yoga program included the following components:

Relaxation techniques, enabling rapid physical relaxation, balancing nervous system activity, and reducing mental and physical tension; these techniques and the relaxed mode of practice constituted the core of the program [10], [11], [12].

Vyayama, consisting of basic preparatory psychophysical exercises aimed at re-education of locomotion, improvement of body awareness and control, activation of joints and muscles, enhancement of elasticity and circulation, strengthening of the body, and reduction of pain, spasms, and tension, while simultaneously enabling dynamic relaxation during performance [7], [8].

Pranayama, breathing techniques aimed at re-education of proper breathing patterns, enhancement of respiratory capacity, improved gas exchange, and induction of physical and mental calmness, positively influencing multiple body systems [7], [9], [13].

Kriyas, cleansing techniques supporting internal and external bodily hygiene and reducing unnecessary energy expenditure [7], [8].

Asanas, physical postures contributing to psychophysical stability, balancing of the nervous and endocrine systems, and activation and regulation of internal organ functions [7], [8], [9].

Results

The yoga course was successfully accomplished by 5 male patients with average age of 30.2. The average time of subordination to haemodialysis was 7.8 months. The average time of yoga practicing was 5 months.

The problems stated by these patients were characteristic and very similar from physical and psychological point of view: convulsions, irritation, neurosis, indifference, etc. The special problems they had, made their health condition even worse.

The first improvements based on subjective assessment of yoga effects, and the objective laboratory findings came up even during the first month of the practising, which can be seen on Table 1.

Table 1: Health problems before the specialized yoga course and improvements after the completion of the course

Patient	Sex	Age	Time on Dialysis	Duration of Yoga Practice	Improvement After	Difficulties (Before Yoga)	Specific Improvements	Common Improvements
I.B.	M	23	6 months (3 times weekly)	5 months	2 months	• Pain in legs and joints • Headaches • Nervousness • Fatigue • Fear • Lack of motivation	• Stabilization of body weight • Better tolerance of dialysis • Better tolerance of diet • Increased calmness • Improved social interactions	• Reduced muscle and joint cramps • Improved discipline regarding hygienic–dietary regimen • Increased physical endurance and activity
A.Č.	M	32	5 months (3 times weekly)	5 months	1 month	• Nervousness • Lack of motivation • Irritability	• Improved sleep • Stabilization of body weight • Reduction of headaches	—
I.I.	M	20	3 months (3 times weekly)	3 months	2 weeks	• Leg cramps • Irregular breathing • Nervousness	• Improved mood	—
I.S.	M	23	18 months (3 times weekly)	4 months	1 month	• Pain in arms • Digestive problems • Irritability • Insecurity • Fatigue • Depression • Lack of motivation • Nervousness	• Reduced insomnia • Improved flexibility	—
M.D.	M	53	7 months (2 times weekly)	3 months	1 month	• Back and leg pain • Cramps • Insomnia • High blood pressure	• Reduction of insomnia • Reduction of blood pressure	—

After the completion of the course, there can be seen common improvements for all the patients (Table 1), namely:

- better tolerance of dialysis;
- better tolerance of nutrition;
- enhanced calmness;
- improved contact with other people;
- diminished pains in the muscles and joints;
- increased physical condition and activity;
- regulation of the blood pressure;
- increased discipline towards the hygiene - dietetic regime.

Apart from these common improvements, some of the patients felt special improvements such as:

- better quality of sleeping;
- increased elasticity of the joints;
- stabilization of the body weight;
- diminished headaches (intensity and frequency).

Besides these improvements, there were improvements of the blood counts of the patients who attended the course, which can be seen from the laboratory findings, before and after the course. There is need for making additional, more precise research about contribution of yoga in improving the blood counts besides other factors such as: geographical and climate conditions in this area, transfusion, nutrition, particular medication, etc.

Because of the low educational level of patients, the Cornell index did not give real distribution of their neurotic tendencies. Because of the nature of the disease, they are too sensitive to their health condition. There is irregular distribution of the inner psychic forces with tendency to repress their own problems.

Discussion

Among the yoga literature and available scientific papers, we have not identified an organized approach to yoga practice specifically designed as a specialized program for patients with chronic renal insufficiency (CRI) [8], [13]. This initial pilot research on the application of yoga in the rehabilitation of patients with CRI does not possess statistical power; however, the observed outcomes merit serious consideration by medical professionals, as well as by yoga centres and institutes engaged in scientific research on yoga and its therapeutic applications [2], [3], [8].

The results appeared within a relatively short period, and with regular practice patients achieved improvements in overall health status and better tolerance of dialysis. Yoga practice can be performed independently of dialysis sessions and may help reduce problems associated with CRI. Nevertheless, it is particularly important for patients to begin practicing yoga within the framework of integral rehabilitation during the so-called adaptation period (1–6–12 months), in order to adjust to dialysis treatment and a new lifestyle [2], [3], [4], [5].

A key finding of this research is the positive influence of yoga on the psychological state and mood of patients. Yoga practice enables individuals to open themselves emotionally, develop self-awareness, and accept their condition while striving for personal improvement [2], [3], [10]. Most patients who attended

the course gradually changed their attitudes toward the disease. Inactivity, self-isolation, and lack of self-confidence were progressively reduced. Patients became more active, self-confident, and willing to re-establish social contacts, including offering support to other patients in more difficult situations [1], [2], [4].

The self-confidence, self-awareness, and mental balance achieved through yoga practice allowed patients to better accept themselves and others, resulting in improved relationships with family members, fellow patients, and medical staff [2], [3]. In addition to health rehabilitation, yoga also facilitated social rehabilitation, helping patients reintegrate into family and social environments, remain active, and avoid social isolation [1], [4], [5].

To successfully organize such research and courses and to ensure a high level of monitoring of the effects and outcomes of yoga techniques in the rehabilitation of patients with CRI, several conditions should be met. These include the formation of a multidisciplinary team, the establishment of experimental and control groups, adequate patient education, sufficient program duration, scheduling compatibility with dialysis, institutional and family support, systematic health monitoring, and comprehensive data analysis [1], [2], [3], [4], [5], [8].

Conclusions

The findings of this pilot study indicate that a specialized, structured yoga program can be a valuable complementary component of the integral rehabilitation of patients with chronic renal insufficiency undergoing haemodialysis. Despite the small number of patients who completed the course and the absence of statistical power, the observed consistent physical, psychological, and social improvements justify further systematic investigation.

Regular yoga practice was associated with improved tolerance of haemodialysis and dietary regimens, reduction of muscle and joint pain, cramps, insomnia, headaches, and blood pressure instability, as well as enhanced physical endurance and activity. Importantly, positive effects were observed relatively early, often within the first one to two months of practice, suggesting that yoga may contribute to faster adaptation to dialysis treatment.

Equally significant were the psychological and psychosocial benefits. Patients demonstrated increased calmness, self-confidence, emotional stability, and improved interpersonal relationships with family members, other patients, and medical staff. Yoga practice appeared to reduce inactivity and social withdrawal, supporting not only medical but also social rehabilitation and reintegration of patients with CRI.

The study also highlights the importance of early inclusion of yoga during the adaptation period of haemodialysis (first 1–6 months), when patients face substantial psychological stress and lifestyle changes. A slow, conscious, and non-fatiguing mode of exercise proved particularly suitable for this vulnerable patient population.

Although improvements in laboratory parameters were observed, their interpretation requires caution due to multiple confounding factors. Larger, controlled studies with standardized outcome measures are necessary to clarify the specific contribution of yoga to hematological and biochemical improvements.

In conclusion, this first experience with a specialized yoga program for patients with chronic renal insufficiency suggests that yoga is a safe, feasible, and potentially effective supportive therapy. Future research should include larger sample sizes, control groups, longer follow-up periods, and multidisciplinary collaboration to confirm these findings and establish evidence-based guidelines for the integration of yoga into renal rehabilitation programs.

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