




EDITORIAL COMMENT

To improve the life of patients with kidney disease: the impact of exercise

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This supplement will address the impact of exercise on the life of patients with kidney disease. Despite the proven benefits, reported in an increasing body of research in the field, and growing implementation in clinical practice, the majority of patients with chronic kidney disease (CKD) are not prescribed exercise training [1]. Further recommendations for increasing adherence to exercise training in patients with CKD are still needed.

The aim of this supplement is to provide a state-of-the-art update concerning the effects of physical activity and exercise training at all stages of CKD including after kidney transplantation, and the interaction between cardiovascular morbidity, nutritional status and physical function, and to provide adequate tools for evaluation and follow-up of physical function and health-related quality of life.

Physical function in patients with CKD is low. Maximal exercise capacity declines as renal function decreases in patients with CKD Stages 3A–5 [2]. In 55-year-old patients on haemodialysis, aerobic capacity measured as VO_2 peak ranges from 11 to 22 mL/kg/min [3]. Interpreted into practical daily activities, this means that many people with higher stages of CKD can at most perform activities of moderate intensity such as walking at a rate of 4.8 km/h, or sweeping the floor or vacuuming a carpet. However, after successful kidney transplantation, physical function improves, but remains lower than that of age-matched healthy controls [4]. A majority of patients on dialysis and many kidney transplant recipients suffer from fatigue and muscle weakness leading to an increasingly sedentary lifestyle. These limitations affect health-related quality of life, imposing

restrictions on patients' ability to work, especially physically demanding work, and tend to affect their mood, which can cause depression, stress and low self-esteem, leading to social isolation [5].

There are a number of aetiological factors responsible for the decrease in physical function in patients with CKD. Anaemia is one of them and is now routinely treated with erythropoiesis-stimulating agents [6]. Cardiovascular morbidity, comprising arterial hypertension, cardiac dysfunction and autonomic neuropathy, is a major factor [7]. Disorders in pulmonary ventilation also contribute. Inadequate nutrition and muscle atrophy are important causes, with the overhanging risk of protein–energy wasting, sarcopenia and frailty [8].

Since the 1990s, numerous studies have shown the beneficial effects of exercise training in patients with CKD ranging from Stages 3 to 5D, as well as after kidney transplantation [2–4, 9, 10]. In fact, patients of all ages and at all stages of CKD are able to improve their physical function with individualized and supervised exercise training prescriptions designed by trained exercise physiologists.

Exercise training is an important and effective non-pharmacological treatment modality. In order to ensure an adequate and safe exercise prescription, it is necessary to determine whether the patient suffers from physiological impairment, functional limitations or disability. The exercise training, whether within a framework of an exercise training programme or as increased everyday physical activity, should be adapted to each patient's status and needs. It is important to evaluate and monitor the effect of the exercise training using

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evidence-based outcome measures of physical function and health-related quality of life.

Naomi Clyne and Kirsten Anding-Rost will give an overview of the effects of exercise training on physical function in patients with CKD Stages 3–5D, describe participation and adherence to exercise training programmes and patients', nephrologists' and nurses' perceptions of barriers and facilitators [11]. Amaryllis van Craenenbroeck and Stefan De Smet will review the effects of exercise training in patients with a kidney transplant [12]. Asterios Deligiannis, Claudia D'Alessandro, and Adamasco Cupisti will outline the impact of exercise training on cardiovascular and skeletal muscle health in patients on dialysis [13]. Finally, Eva Segura Orti, Pellagia Koufaki and Evangelia Kouidi will provide a synopsis of ways to assess and measure physical activity, physical function and health-related quality of life [14].

The 'European Association of Rehabilitation in Chronic Kidney Disease' (EURORECKD) has members who are nephrologists, cardiologists, specialists in Sports Medicine, exercise physiologists, physiotherapists and dieticians, all dedicated to improving the care of people with CKD by exercise training. Our focus is to engage in scientific research and educational activities within the field. A principal objective of the EURORECKD is to further knowledge of the effects of exercise training in the nephrological community.

We hope the information provided in this supplement will be of help to healthcare professionals working with patients with CKD and will facilitate the integration of exercise training into clinical treatment protocols.

THE GUEST EDITORS

Naomi Clyne and Asterios Deligiannis. On behalf of the Administrative Council of the European Association of Rehabilitation in Chronic Kidney Disease (EURORECKD).

CONFLICT OF INTEREST STATEMENT

The results presented in this article have not been published previously in whole or part.

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