



Improving health and quality of life during dialysis

The diagnosis of kidney failure and the associated start of haemodialysis means a serious change in everyday life for the patients concerned. Dialysis is performed three times a week for up to five hours per treatment. Over the course of an entire year, patients spend around 750 hours on the dialysis couch. In addition, there is transport and medical examinations, which represent further burdens in everyday life. The effects of dialysis on the quality of life are no less severe, due in particular to muscle atrophy, cardiovascular diseases as a result of lack of exercise and an inadequately adjusted diet.

In order to stay as fit as possible despite dialysis, patients should also go to rehabilitation sports several times a week - the time burden for dialysis patients is therefore very high and often also has an effect on the psyche. Numerous studies have already proven that dialysis patients can achieve a clear gain in health and mobility through physical activity in general, but especially during dialysis. (1) Physical training is recommended by experts for all stable patients with chronic kidney failure (CKD), regardless of age, gender, concomitant diseases or previous physical activity. Experts also emphasise the importance of informing patients about the correct execution of movements and the associated benefits (2). In addition, numerous studies have shown that exercise interventions are beneficial, feasible and safe for people with ESRD (3/4). Both aerobic exercise and resistance training have been shown to be beneficial for patients.

Effect of physical activity on fitness or frailty

Frailty can result from the accumulation of many small reasons that lead to increasing vulnerability and a lack of functional reserve over time (5). One of the main causes

of frailty is muscle weakness. Experts show that isokinetic muscle strength correlates with VO2 peak (6) and muscle strength correlates with gait speed, another component of frailty (7). Both gait speed and muscle weakness have been positively influenced by resistance training and aerobic intervention in various studies (3/4).

Effect of physical activity on hospitalisation

Until recently, little attention was paid to falls in haemodialysis patients. The literature confirms that older people on haemodialysis have a significantly higher risk of falling than the general age-appropriate population (8). While 30% of people over 65 years of age fall every year, the figure is 47% for haemodialysis patients under and over 65 years of age (9). Furthermore, severe falls leading to radiologically confirmed fractures (10) are common in haemodialysis patients (11,12).

Effect of physical activity on the psyche

Unfortunately, there is an increased suicide rate among dialysis patients. A US study showed over 24 suicides per 100,000 patients on dialysis. This corresponds to an 84% increased risk of suicide compared to the general population (13). Exercise in general, but especially during dialysis, can counteract depression and anxiety (14) and thus improve the mental well-being of those affected. Several scientific studies have already shown that regular physical training has positive effects on physical and mental well-being and therefore demonstrably leads to a better quality of life (6).

Effect of physical activity on dialysis quality

The improvement of dialysis performance as well as the quality of treatment are further advantages associated with exercise during dialysis. Several studies have shown that exercise during dialysis has a positive effect on dialysis efficiency (urea and phosphate elimination) and thus improves the quality of haemodialysis (15/16). Several studies have also shown a reduction in arterial stiffness and BNP (B-type natriuretic peptide) as well as increased heart rate variability (17/18).

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