Exercising during dialysis

SILVERFIT: ENJOY EXERCISING

SilverFit, a Dutch company launched in 2008, develops game-based training systems for geriatric rehabilitation, accessible to people with (temporary or chronic) physical or cognitive impairments. Our systems offer game-based therapeutic exercises adapted to everyone's level and capabilities. More than 4500 worldwide care facilities use the SilverFit systems: assisted living residences, nursing homes, (geriatric) rehabilitation centres, hospitals, mental disability care and day care.

Patients who undergo dialysis often are too tired to exercise or participate in daily physical activity. However, dialysis generally results in a deterioration of motor functions. Therefore, it is recommended to exercise while on dialysis, rather than after dialysis *(Mohseni et al., 2013)*. Kontstantinidou et al. (2002) reported that exercise during dialysis results in greater therapy adherence compared to exercise after dialysis. This is partly because patients are more available during their dialysis. Next to this, exercise during dialysis reduces patient fatigue *(Montedayen et al., 2014)* as well as patient boredom.

EXERCISE DURING DIALYSIS RESULTS IN GREATER DIALYSIS EFFICACY

It has been shown that exercise during dialysis results in an improved efficacy of dialysis. Parsons et al (2006) studied the effects of a 20-week training programme during the first 2 hours of dialysis. Dialysis efficacy was improved after the first month as well as throughout the programme (18-19% improvement). Also, walking distance, measured using the six-minute walking test, had increased by 14% percent after 20 weeks.

Patients with chronic kidney disease undergoing dialysis often have low bone mineral density. Marinho et al (2016). concluded from a 24-week training programme during dialysis that resistance training has a positive effect on the bone density of patients undergoing dialysis.

Additionaly, patients with chronic kidney disease show a decline in cognition at every early stage *(Foster et al., 2016)*. McAdams-DeMarco et al. (2018) indicated that physical training using a foot peddler bike in combination with cognitive training during dialysis prevents a decline in psychomotor speed and executive functioning. This conclusion is significant, because psychomotor speed is an important predictor of cognitive decline *(Karssemeijer & Kessels, 2020)*. McAdams-Demarco et al (2018) also indicated that physical training and cognitive training during dialysis are safe.

FATIGUE DECREASES DUE TO EXERGAMING

Exergaming (exercise and gaming), using interactive games, is an innovative way to exercise indoors in a safe and enjoyable way. Segura-Ortí et al (2018) looked at the applicability and impact of exergaming during dialysis. It turned out to be a useful intervention and resulted in an improvement in physical capacity of patients. Cho & Sohng (2012) examined the effect of exergaming on physical fitness and fatigue of dialysis patients. The therapy was offered three times a week, prior to dialysis. After a training programme of 6 weeks, patients physical fitness had increased and their fatigue had decreased.

Example of exercising with SilverFit Mile during dialysis

The SilverFit Mile is an example of exergaming equipment and is used during dialysis at Canisius Wilhelmina Hospital (CWZ) in the Netherlands. The SilverFit Mile is a bicycle system that mimics the experience of cycling outdoors using tour movies. From a safe environment it is possible to cycle to places that recall beautiful memories. In the dialysis department of the CWZ, several SilverFit Mile systems are gratefully used by the patients during dialysis. The dialysis nurses are also very happy with the SilverFit Mile.

"It is fantastic that such a device is available! It is a pleasant activity. During dialysis you normally just look in front of you. Cycling is good for my condition and it makes me lose track of time!"

- A dialysis patient at Canisius Wilhelmina hospital -

HOW DOES IT WORK?

The SilverFit Mile is installed onto a home trainer or active/passive trainer. It is also possible to connect the SilverFit Mile to more than one bike at a time. This way, the clients can cycle a route together with a caregiver, volunteer or family member. A route is shown on the large screen positoned in front of the active/passive trainer. The speed at which the film plays is determined by the speed at which the user cycles. This gives a true feeling of exercising in a different environment.

ARE YOU INTERESTED TO SEE OUR SYSTEMS AT WORK?

We are happy to visit your location or give an online demo. You can contact us at: info@silverfit.nl or 0348 769 110.

LITERATURE

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