FIGURE 2: Example of an aerobic training session at moderate (A) and high (B) intensity equal in energy expenditure and time.

MO591  EFFECTS OF INTRADIALYTIC EXERCISE ON FALLS IN OLDER PATIENTS UNDERGOING HEMODIALYSIS: A SINGLE-CENTER NON-RANDOMIZED STUDY

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BACKGROUND AND AIMS: Older hemodialysis patients with low physical function who sustain a fall demonstrate reduced activities of daily living and quality of life. Therefore, it is desirable to examine how improving physical function with exercise therapy affects fall prevention. Several recent studies have shown that intradialytic exercise is effective in improving physical function. However, the effect of intradialytic exercise on falls has not been thoroughly investigated. The purpose of this study was to evaluate the effect of a 3-year, intradialytic exercise program on falls in elderly dialysis patients in a non-randomized, prospective intervention.

METHOD: In this single-center, prospective, non-randomized, controlled trial, the patients were assigned to either the exercise or control groups. Patients were assigned to the exercise group based on their spontaneous preference for initiation of intradialytic exercise. The inclusion criteria were age ≥70 years, ability to ambulate without assistance.

The exercise group was offered 3 years of intradialytic exercise training three times a week. The training program involved both resistance and aerobic training exercises. Four types of resistance exercises were performed using an elastic tube. The aerobic exercise program consisted of 20 min of ergometer cycling. The grip strength (GS), leg extremity muscle strength (LES), short physical performance battery (SPPB) score and 10-min walk speed at baseline were evaluated in both groups. These physical functions were re-evaluated each year in the exercise group only.

Falls were monitored during each dialysis treatment. All subjects were followed until the first fall, or until the end of the follow-up period (31 December 2020).

The ethical institution at Seirei Christopher University approved all the procedures performed in this study; informed consent was obtained from all the patients.

Baseline characteristics and physical function were compared using an unpaired t-test or Mann–Whitney U test. In the exercise group, measurements of physical functioning at the initial 1-, 2- and 3-year time points were conducted using multiple comparison tests. The relationship between exercise intervention and falls was studied using the Kaplan–Meier analysis and the log-rank test. All tests were performed at a statistical significance level of P < 0.05.

RESULTS: Of the 85 patients, 31 were assigned to exercise groups and 40 to control groups, with the exception of 14 patients who needed walking assistance. In the control group, six patients started to exercise and were excluded from the analysis. Therefore, 65 patients (79.3 ± 6.7 years) were included in this study. There were no significant differences in age, GS, LES, 10-min walking speed, SPPB score, or other laboratory values between the exercise and control groups at baseline. In the exercise groups, 19 patients (61.2%) continued to exercise for over three years; the median duration of exercise was 3 years (interquartile range: 1.25–3 years). The median follow-up time for all subjects was 35 months (interquartile range: 22–35 months), during which 8 (9.4%, 1 of exercise, and 7 of control group) falls were observed; one of the cases had a fracture. The exercise group showed no significant differences in any physical functioning between each measurement time point. However, the exercise intervention was significantly associated with a reduction in falls in the Kaplan–Meier survival analysis and log-rank test.

CONCLUSION: To our knowledge, this is the first study to show the effect of intradialytic exercise on falls in older adults on HD. This study revealed that physical function did not improve significantly in 3-year intradialytic exercise intervention, contrary to previous studies. However, the effect of exercise on fall prevention in this study supports the results of a previous study in nondialysis patients. This study could provide evidence for the clinical care of older patients undergoing dialysis.

MO592  EVOLUTION OF BODY COMPOSITION DURING A INTRADIALYSIS EXERCISE PROGRAM USING VIRTUAL REALITY

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Background and Aims: There are few follow-up studies on the composition 
body by bioimpedance in exercise programs in different population. It is necessary 
to know if the body composition measured by bioimpedance change during a 
intradialysis exercise program using virtual reality. The aim is to determine evolution 
of body composition of patients on intradialysis exercise program using virtual reality. 

Method: This is a subanalysis in a clinical trial with intradialysis exercise 
intervention. Intradialysis exercise consists in a video game adapted to dialysis: 
Treasure hunting. It is a nonimmersive virtual reality game in which the patient 
must catch some objectives avoiding obstacles by moving the lower limbs. The exercise 
lasts from 20 to 40 min. Intensity was checked through the rate of perceived exertion. 
The body composition is determined by multi-frequency stereoscopic bioimpedance . 
The study started in September 2019 (Baseline) but due to the COVID-19 pandemic 
it was paused for 1 year and started again in March 2021 (Restart). Body composition 
was determined basal, at 3th and 6th month in program. This study is funding from 
Programa Estatal de I + O r i e n t a d a a l o s R e t o s d e l a S o c i e d a d, d e l P l a n E s t a t a l 
of Government of Spain.

Results: This is an open recruitment study, 49 patients have been recruited as of 
September 2021, mean (SD) age 72 (13) years, females 18. About 17 patients dropped out 
(16 of them don’t return after the pandemic start). To date, 32 patients are in 
exercise program. 

Paired data analysis showed no difference in normohydrated weight, lean tissue index, 
or overhydration. The fat tissue index increased significantly (P 0.04) during the pause 
period in the first year of the pandemic. At the time of this communication, only 
12 patients have completed 6 months of the program. We await the evolution of all 
included patients to report results at 6 months. 

Conclusion: The evolution of body composition measured by bioimpedance 
during an intradialysis exercise program by virtual reality did not show relevant 
changes. Considering our results and those of previous studies, it's possible that 
bioimpedance is not a very sensitive test to evaluate an intradialysis exercise program 
in the short to medium term. Longer and larger studies are needed.

|                        | Baseline N 30 | 3-month N 30 | Restart N 28 | 3-month N 28 |
|------------------------|--------------|--------------|--------------|--------------|
| Normal hydration weigh (kg) | 67.8 (14.2)  | 68.0 (12.6)  | 72.1 (17.5)  | 72.4 (18.3)  |
| Body mass index         | 26.2 (5.4)   | 26.4 (5.2)   | 28.5 (6.1)   | 28.6 (6.4)   |
| Overhydration (liters)  | 2.1 (1.2)    | 2.1 (1.4)    | 2.0 (1.4)    | 1.8 (1.6)    |
| Lean tissue index       | 11.7 (2.9)   | 11.0 (2.8)   | 10.5 (2.5)   | 10.2 (2.4)   |
| Fat tissue index        | 13.3 (6.6)   | 14.2 (6.7)   | 16.8 (7.4)   | 17.3 (7.9)   |

Mean (SD)