

## 1. ACRÓNIMO (Para el botón tipo MEETINGS)

REVID

### TITLE

PROGRAMA DE EJERCICIO MEDIANTE REALIDAD VIRTUAL EN HEMODIÁLISIS. INFLUENCIA DEL MOMENTO DE REALIZACIÓN DE EJERCICIO EN LOS RESULTADOS

### MAIN RESEARCHER

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### SUMMARY

Exercise for patients undertaking hemodialysis (HD) patients is performed the first two hours of the dialysis session to ensure hemodynamic stability, and results in benefits on physical function, health-related quality of life (HRQoL) and physical activity. Despite the proven benefits, exercise is not a clinical routine at HD units. Several factors contribute to the low implementation of exercise programs such as the lack of patients' interest and lack of knowledge and time from professionals at the HD unit. Virtual reality (VR) has a positive impact on different patients' populations, and a single VR exercise session performed during the last 30 minutes of the HD session does not result in hemodynamic instability. On the other side, nutritional advice is challenging in this cohort since they have many dietary restrictions. Finally, assessment of this cohort is very complex, and our group is exploring new assessment tools that could be used during the HD treatment.

The main projects aim is to compare the VR exercise effect performed at two different moments of the HD session, last versus the first two hours of the HD session, on hemodynamic stability. The secondary aims are comparing the VR exercise effect performed at two different moments on the post-dialysis rebound and dialysis dose, exercise adherence, physical function, HRQoL, and physical activity level. This project also aims at the adaptation of the system to new tracking devices that are commercially available and to create a new VR exercise game with a nutrition educational background. Finally, we will calculate the reliability of the lower limb strength assessment using the handheld dynamometer during the HD session.

This is a randomized clinical trial, where patients from Hospital de Manises will be randomized into one of two VR exercise intradialysis groups, the last two hours or the first two hours of HD treatment. Assessment will take place at baseline, after 3, 6, 12 of exercise, and at 3 and 6 months of follow-up after the program stops. Participants will perform a battery of physical function tests and will fulfill several questionnaires (HRQoL, physical activity, and mental state). The exercise program will consist of playing at several adapted VR interactive games. Hemodynamic instability episodes will be registered, and the dialysis dose and postdialysis rebound (urea, creatinine, potassium, and phosphorus) will be determined. Physical function tests will be assessed. We will assess the impact of the new VR game with nutritional background on nutritional status. Data will be analyzed with a mixed model of repeated measures to evaluate the effect of time and group on all variables. We will calculate the intraclass correlation coefficient (ICC) of strength assessment. We expect no difference

between groups on the instability episodes, so as an equal improvement in all groups on physical function, HRQoL, and physical activity. We also expect better results on dialysis rebound and molecules rebound in the group exercising during the last two hours of the HD session. We also expect high reliability of the lower limb muscle strength measurement with the handheld dynamometer.

## 2. HOME-BASED EXERCISE/ EJERCICIO EN CASA (Botón bilingüe)

### **RESEARCH TEAM**

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Esta serie de ejercicios está recomendada para pacientes en hemodiálisis, puede realizarse en casa fácilmente siguiendo las instrucciones de los siguientes vídeos.

These exercises are recommended for patients undertaking hemodialysis. Home-based exercises are easy and feasible to perform. Watch this serie of videos

[https://www.youtube.com/playlist?list=PLDt-M0gErNrx4h27t0JH0HsFMdkOpF0\\_h](https://www.youtube.com/playlist?list=PLDt-M0gErNrx4h27t0JH0HsFMdkOpF0_h)