

## The Effect of Whole-Body Vertical Rhythm Training on Fatigue, Physical Activity, and Quality of Life to the Middle-Aged and Elderly with Hemodialysis Patients

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**Abstract :** The study aims to investigate the effect of full-body vertical rhythmic training on fatigue, physical activity, and quality of life among middle-aged and elderly hemodialysis patients. The study adopted a quasi-experimental research method and recruited 43 long-term hemodialysis patients from a medical center in northern Taiwan, with 23 and 20 participants in the experimental and control groups, respectively. The experimental group received full-body vertical rhythmic training as an intervention, while the control group received standard hemodialysis care without any intervention. Both groups completed the measurements by using "Fatigue Scale", "Physical Activity Scale" and "Chinese version of the Kidney Disease Quality of Life Questionnaire" before and after the study. The experimental group underwent a 10-minute full-body vertical rhythmic training three times per week, which lasted for eight weeks before receiving regular hemodialysis treatment. The data were analyzed by SPSS 25 software, including descriptive statistics such as frequency distribution, percentages, means, and standard deviations, as well as inferential statistics, including chi-square, independent samples t-test, and paired samples t-test. The study results are summarized as follows: 1. There were no significant differences in demographic variables, fatigue, physical activity, and quality of life between the experimental and control groups in the pre-test. 2. After the intervention of the "full-body vertical rhythmic training," the experimental group showed significantly better results in the category of "feeling tired and fatigued in the lower back", "physical functioning role limitation", "bodily pain", "social functioning", "mental health", and "impact of kidney disease on life quality." 3. The paired samples t-test results revealed that the control group experienced significant differences between the pre-test and post-test in the categories of feeling tired and fatigued in the lower back, bodily pain, social functioning mental health, and impact of kidney disease on life quality, with scores indicating a decline in life quality. Conversely, the experimental group only showed a significant worsening in bodily pain" and the impact of kidney disease on life quality, with lower change values compared to the control group. Additionally, there was an improvement in the condition of "feeling tired and fatigued in the lower back" for the experimental group. Conclusion: The intervention of the "full-body vertical rhythmic training" had a certain positive effect on the quality of life of the experimental group. While it may not entirely enhance patients' quality of life, it can mitigate the negative impact of kidney disease on certain aspects of the body. The study provides clinical practice, nursing education, and research recommendations based on the results and discusses the limitations of the research.

**Keywords :** hemodialysis, full-body vertical rhythmic training, fatigue, physical activity, quality of life

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