

UNIVERZITA KARLOVA V PRAZE
FAKULTA TĚLESNÉ VÝCHOVY A SPORTU

**The effect of physical activity and nutrition interventions on physical fitness
and quality of life during the first year after kidney transplantation**

Abstract of disertation

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Školící pracoviště:

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Praha, 2012

ABSTRACT

Kidney transplantation is the best known treatment of chronic kidney failure. However, it is often accompanied by a number of health complications. The transplantation itself positively affects both physical fitness and quality of life during the first year after the transplant surgery which are seriously diminished when compared to the healthy population. This improvement can be even enhanced by appropriate physical activity and nutrition interventions otherwise both the physical fitness and quality of life would start declining after the first post-transplant year again.

The aim of this study was to confirm a positive effect of a long-term physical activity and nutrition interventions on health-related physical fitness and health-related quality of life in a representative sample of individuals in the first year after the kidney transplantation. At the same time it was fundamental to verify that the experimental trial can be successfully carried out in the Czech socio-cultural environment and in the public health conditions of the Czech Republic.

Methods: The experimental design containing two factors was used to analyse data of the presented prospective randomised trial. Study sample: individuals after cadaveric kidney transplantation whose health status allowed diagnostic and therapeutic interventions (N = 103) divided into four groups: EXERCISE – physical activity intervention (conditioning or corrective exercise, at least two 20-minute sessions per week for six months), NUTRITION – selective feeding programme (daily protein intake < 1,2g/kg of weight and energy intake < 30 kcal/kg of weight), EXERCISE+NUTRITION – the combination of physical activity and nutrition interventions, NO INTERVENTIONS – regular care. Main study variables: health-related physical fitness (Senior Fitness Test, Handgrip test) and health-related quality of life (KDQOL-SFTM). Secondary study variables: BMI, function of transplanted graft, metabolic adaptation to physical activity and oxygen capacity of blood, daily habitual physical activity and independence in activities of daily living. Statistical methods: descriptive statistics, analysis of variance (ANOVA), non-parametric tests (Wilcoxon and Kruskal-Wallis test), correlation analysis (Pearsons correlation) and multiple range test (Tukey test); p<0.05.

Results: The combination of physical activity and nutrition interventions proved to be the most effective in order to improve health-related physical fitness and health-related quality of life during the first year after the kidney transplantation. The most efficient physical activity

intervention appeared to be corrective exercise and combination of aerobic and corrective exercise performed 2 – 3 times per week.

Practical outcomes: The study provided evidence that physical activity and nutrition interventions at early post-transplant stages can be carried out in the environment of the Czech Republic with a guarantee of high efficiency (and adherence) due to cooperation with the transplant centre.