

## AEROBIC CAPACITY AND BODY COMPOSITION IN HAEMODIALYSIS AND RENAL TRANSPLANT PATIENTS: A SINGLE CENTRE STUDY

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Poor physical functioning in haemodialysis patients is associated with morbidity, mortality and diminished quality of life. Consequently, exercise rehabilitation programmes are often advocated for these patients. It has been suggested that measures of physical function, such as aerobic capacity, increase following renal transplantation; however, it is not known whether structured exercise training is required to affect this recovery. This study aimed to compare aerobic capacity and the body composition of renal transplant recipients (RTR) with patients undergoing haemodialysis (HD) from the same centre.

Nine RTR (age:  $49.8 \pm 10.1$  years, mass:  $89.1 \pm 10.3$  kg, height:  $1.66 \pm 0.12$  m) and nine HD (age:  $55.8 \pm 10.5$  years, mass:  $77.9 \pm 9.8$  kg, height:  $1.77 \pm 0.12$  m) that were in a clinically stable condition volunteered. All RTR had received their transplant at least 1 year prior to the study. Patients completed anthropometric measurements, including air displacement plesmography, and a maximal cycling test. During exercise testing ECG and blood pressure were continually monitored and respiratory variables were obtained using breath-by-breath analysis.

Maximal work rate was similar in RTR and HD patients ( $72 \pm 29$  W and  $83 \pm 27$  W, respectively;  $P = 0.413$ ). Peak oxygen uptake ( $\dot{V}O_{2\text{peak}}$ ) was not different between patient groups (RTR:  $17.7 \pm 5.3$  ml·kg<sup>-1</sup>·min<sup>-1</sup>, HD:  $16.5 \pm 4.8$  ml·kg<sup>-1</sup>·min<sup>-1</sup>;  $P = 0.628$ ). Additionally, percentage of age-predicted  $\dot{V}O_{2\text{peak}}$  achieved (RTR:  $55 \pm 16$  %, HD:  $55 \pm 19$  %,  $P = 0.941$ ) were similar. Although no differences were found between patient groups for body fat percentage (RTR:  $38.6 \pm 9.3$  %BF, HD:  $32.9 \pm 17.0$  %BF;  $P = 0.407$ ), significant negative correlations existed between body fat percentage and peak work rate ( $r = 0.74$ ,  $P = 0.001$ ) and between body fat percentage and percentage of age-predicted  $\dot{V}O_{2\text{peak}}$  ( $r = 0.66$ ,  $P = 0.004$ ).

The results showed that no significant differences existed between RTR and HD patients for aerobic capacity and body composition. The aerobic capacities of both patient groups were below age-predicted average values for healthy individuals. Furthermore, strong negative correlations existed between body fat percentage and performance during maximal exercise. These findings suggest that exercise interventions targeting both aerobic endurance and body composition are needed in RTR and HD patient populations.