

Effect of Cycling on Albuminuria

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Albuminuria is a presence of abnormal amounts of albumin in urine that is considered as a sign of defective glomerular membrane. It can also be benign when present due to physical exercise; called 'exercise induced albuminuria' which is reversible. Prime aim of this study was to identify the effect of cycling on urine albumin excretion. A quasi experimental research design was used for the study with an interventional approach. 12 –professional cyclists from Naval-base, Welisara were selected using total population sampling. Urine Albumin to Creatinine Ratio (ACR) was used to assess albuminuria before and after training sessions. Workout intensity was measured by calculations done using post training pulse rate. Hydration level was measured using the body weight loss, water intake and the urine volume passed. Paired t-test was used to analyze data from pre and post-test ACR levels. Pearson correlation test was used to identify the relationship between hydration level measured by sweating rate, and ACR increase, between intensity and ACR increase and between pre-test ACR level and post-test ACR level. There was a significant difference between pre session urine ACR and post session ACR ($P=0.026$). There was a positive correlation between the ACR difference and the intensity ($p=0.002$, $r=0.793$). There was no significant relationship between hydration level measured by sweating rate and the ACR difference ($p=0.353$, $r=0.295$). There was a positive relationship between pre-session ACR and post-session ACR levels ($p=0.000$, $r=0.987$). The post exercise urine ACR was calculated to be 1.305 mg/mmol which was within the normal range according to the NICE Guidelines (2008) – UK though the amount had been increased. It was increased up to micro-albuminuria level. Testing urine albumin excretion 24-48 hours after training would be better to confirm recovery of athletes to ensure whether there is no negative effect of training on renal function.

Keywords: ACR, Intensity, Hydration, Cycling