

Relationship between Gym Training and Albuminuria among Female Gym Trainees

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Albuminuria is 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 gym training on urine-albumin excretion. A quasi-experimental research design was used for the study with an interventional approach. 30 female gym trainees in Gampaha divisional secretariat division were selected using proportionate stratified random 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 body weight loss, water intake and urine volume passed. Pearson correlation was used to identify the relationship between hydration level measured by sweating rate, and ACR increase, between intensity and ACR increase and between pre-session ACR level and post-session ACR level. There was a significant difference between pre-session urine ACR and post-session ACR ($P=0.002$). There was a positive correlation between ACR difference and intensity ($p=0.003$, $r=0.521$). There was no significant relationship between sweating rate and ACR difference ($p=0.379$, $r=-0.182$). There was a positive relationship between pre-session ACR and post-session ACR levels ($p=0.010$, $r=0.473$). According to the statistical analysis, the mean value of pre-exercise albumin level of the gym trainees was 1.147 mg/mmol indicating that their average urinary albumin excretion is within the accepted normal range. The post-exercise urine ACR was found as 3.293 mg/mmol indicating that urinary albumin excretion has increased to the range of micro-albuminuria following exercise according to the NICE Guidelines (2008) – UK. 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, Gym training