

ABSTRACT**THE EFFECT HEAVY AND PROLONGED EXERCISE
OF INDONESIAN TIGHT SOCCER ON PERSEKABPAS ATHLETE'S
ERITROCYTE PROFILES****Ugik Setyo Darmoko**

Heavy exercise was a physical stressor which has potentiality to decrease erythrocyte oxygen transport. Erythrocyte profiles were some parameters used to show oxygen transport ability. Erythrocyte profile changes were related with the decrease of athlete's performance. Heavy exercise activated some system responses such as sympathetic adrenal medullary (SAM) system and hypothalamus pituitary adrenal axis (HPA) system. SAM activity secreted epinephrine and nor epinephrine hormone, in other hand HPA activity secreted cortisol. These study was used the randomized pre test and post test control group design by experimental field activity. Subjects were 33 Persekabpas soccer athlete's which randomized into 2 different groups. Control group consist of 7 athlete's who act as substitute or didn't always follow regular schedule team. Treatment group consist of 7 athlete's who always play in regular schedule team. At the end of the competition session (about 3 months), all athletes were taking 2 ml blood samples for erythrocyte profile examination. Results obtained in control group pretest was 14.457 ± 0.690 ; 5.3814 ± 0.3276 ; 84.000 ± 4.509 , and in treatment group was 15.214 ± 0.543 ; 5.4286 ± 0.2908 ; 86.643 ± 2.754 . Control group with data taken directly after last competition schedule had 15.743 ± 0.834 ; 5.6743 ± 0.3100 ; 86.029 ± 4.806 . Treatment group with data taken directly after last competition schedule had 15.057 ± 0.461 ; 5.0143 ± 0.2031 ; 85.329 ± 2.803 . The results of univariate test between the delta of control group and treatment group show difference in hemoglobin delta, erythrocyte delta, and MCV delta. In conclusion: Erythrocyte count, hemoglobin and MCV were found raised significantly on control group. MCV rise was found greatest followed by hemoglobin and erythrocyte count. Erythrocyte profiles were found decreased on treatment group significantly. The greatest decrease was found in MCV examination. These were suggested that chronic heavy exercise decreased erythrocyte profiles due to chronic β_3 adrenergic receptor exposures on erythrocyte membrane, and α_1 adrenergic receptor exposure bone marrow and spleen. So they needed rest from exercise for more than two days.

Keywords: heavy exercise chronic, erythrocyte profiles