



شبكة المعلومات الجامعية

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التوثيق الالكتروني والميكرو فيلم

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

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بالرسالة صفحات

لم ترد بالأصل

B 9 ٤٤٤

EFFECT OF AEROBIC TRAINING EXERCISE ON NATURAL KILLER CELLS BEFORE AND AFTER PUBERTY IN GIRLS

Thesis

Submitted in partial fulfillment for requirement of master degree

By

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Effect of aerobic training exercise on Natural Killer cells before and after puberty in girls. **Sahar Mahmoud Mohamed El Sayed**, Supervisors; **Prof. Dr. Neveen Abd El Latif Abd El Raoof**, Assistant professor of physical therapy, **Dr. Soheir Shehata Rezaq Alla**, Lecturer of physical therapy, Basic Science department Faculty of Physical Therapy, Cairo University; **Dr. Zinab Ali Hassan El Saadany**, Lecturer of clinical and chemical pathology, Clinical and Chemical Pathology Department, Faculty of Medicine Cairo University; Master degree thesis, 2011, p 96.

Abstract

Background: Effect of exercise on the immune system becomes a very interesting area for research especially in children and period of puberty. **Purpose:** This study was conducted to investigate the effect of aerobic training exercise on Natural Killer (NK) cells before and after puberty in girls. **Subjects:** sixty healthy girls aged from 10-15 years divided into two equal groups. The mean age (11.0 ± 0.59) for group A (pre-pubertal) and (14.5 ± 0.78) for group B (post pubertal). **Material:** Both groups received aerobic training exercises by walking on treadmill with moderate intensity 60-75% of the maximum heart rate 3 sessions per week for 4 weeks. Blood samples were drawn from both groups before beginning the training and after 24 hours of completing last session to measure NK percentage by measuring its 3 phenotypes: $CD3^+$, $CD16^+$, $CD56^+$. **Results:** There was significant difference between before and after exercise in both groups in $CD16^+$ and the dual ($CD16^+ + CD56^+$) ($P=0.000$) and between before and after exercise in measuring $CD56^+$ in group A, in $CD56^+$ not significant difference between before and after exercise in group B ($P=0.110$) between two groups there was significant difference in pre training level of $CD56^+$ ($P=0.02$) and in post-training level of $CD16^+$ and the dual $CD16^+ + CD56^+$ ($P=0.000$), there was no significant difference in post-training level of $CD56^+$ ($P=1.000$) and also in pre-training level of $CD16^+$ ($p=0.266$). **Conclusion:** The aerobic training exercise had a potent effect on NK cells percentage in healthy girls before and after puberty and the effect was clear on NK cells phenotypes: $CD16^+$ and $CD56^+$ and was greater in group A (pre-pubertal) than group B (post-pubertal). Exercise training can substitute the suppressive effect of estrogen on NK cells. So it was recommended with training of girls in pre & post puberty age and especially for pre-puberty girls.

Key Words: Natural Killer cells, Aerobic exercise, Puberty, immune system.

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