EFFECT OF RED FRUIT OIL ON MALONDIALDEHYDE LEVEL AT MAXIMUM PHYSICAL ACTIVITY

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ABSTRACT

BACKGROUND: Maximum physical activity can produce an imbalance between reactive oxygen species and antioxidants, which may lead to tissue injury and fatigue. Malondialdehyde (MDA) is an organic compound with the formula $CH_2(CHO)_2$, and a byproduct of lipid metabolism in the body. It is a reactive electrophile species that causes toxic stress in cells and forms covalent protein adducts, called advanced lipoxidation end products (ALE). This reactive species occurs naturally and is a marker for oxidative stress. Red fruit oil (*Pandanus conoideus* Lam) contains high betacarotene and tocopherol. This study aimed to investigate the effect of red fruit oil on malondialdehyde level in maximal physical activity.
SUBJECT AND METHODS: This was a randomized-controlled trial, with pretest-posttest control group design. Thirty athletes were selected for this study and allocated into two groups. During the training program, the subjects in the experimental group consumed 5 ml of the red fruit oil every day. After the training program, all athletes performed maximum physical activity, which was measured by taking a Bleep test. Blood sample was collected before and after the test to measure the level of MDA.
RESULTS: Plasma MDA levels (mean ± SD in nmol/ml) before intervention were comparable and statistically non-significant ($p>0.05$) between the experimental group (1.57 ± 0.12) and the control group (1.52 ± 0.06). Plasma MDA level (mean ± SD in nmol/ml) after intervention was lower and statistically significant ($p=0.001$) in the experimental group (1.11 ± 0.02) than the control group (1.64 ± 0.11). In addition, the VO_2Max after intervention was higher and statistically significant ($p=0.001$) in the experimental group than the control group. Red fruit oil also delayed fatigue in the experimental group longer than the control group.
CONCLUSION: Red fruit oil reduces MDA level, increases endurance, and delays fatigue during maximal physical activity in athletes.

Keywords: red fruit oil, antioxidant, malondialdehyde, maximal physical activity

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