

عنوان مقاله:

Moderate dose of watercress and red radish does not reduce oxygen consumption during graded exhaustive exercise

محل انتشار:

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خلاصه مقاله:

Objective: Very recent studies have reported positive effects of dietary nitrate on the oxygen consumption during exercise. This research aimed to study the effect of moderate dose of high-nitrate vegetables, watercress (*Nasturtium officinale*) and red radish (*Raphanus sativus*) compared with a control group on the incremental treadmill exercise test following a standard Bruce protocol controlled by computer. Materials and Methods: Group 1 consumed 100 g watercress (n=11, 109.5 mg nitrate/day), and group 2 consumed 100 g red radish (n=11, mg 173.2 mg nitrate/day) for seven days, and control group (n=14) was prohibited from high nitrate intake. Results: During exercise, watercress group showed significant changes in the maximum values of Respiratory Exchange Ratio (RER) ($p<0.05$), End-Tidal O₂ Fraction (FETO₂) ($p<0.05$), and energy consumption from carbohydrate ($p<0.01$). Red radish group had a significant increase in the VCO₂ ($p<0.01$), RER ($p<0.01$), VT ($p<0.05$), VCO₂/kg ($p<0.05$), and energy consumption from carbohydrates ($p<0.01$). When all groups in the same workload were normalized by the subject's body mass, watercress had a significant increase in the total expired CO₂ ($p<0.05$), RER ($p<0.05$), FETO₂ ($p<0.05$), and energy consumption from carbohydrates ($p<0.05$) compared with the control group. Similar comparison between red radish and control group revealed a significant increase during pre-test in the total CO₂ production ($p<0.05$), VCO₂ ($p<0.05$), RER ($p<0.01$), VT ($p<0.05$), and VCO₂/kg ($p<0.05$). Conclusion: Current results indicate higher carbon dioxide production in the experimental groups in the same workload. This might have a negative impact on the exercise performance. Further investigations with controlled exercise program will be necessary.

کلمات کلیدی:

Exercise, Nitrate, Red radish, Watercress

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