Effect of Protein Supplementation on 10 Km Trial Performance

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Abstract

Protein supplements are consumed frequently by athletes and recreationally active players for various reasons, including improved physical performance and rehabilitation after exercise. Inclusion criteria specified recruiting healthy active athletes less than 40 years of age and evaluating the effects of protein supplements in combination on endurance performance metrics such as time-to-exhaustion, or total power output during sprint intervals. The literature search identified 15 articles, of which 18 incorporated test metrics that permitted exclusive categorization into one of the following sections: ingestion during an acute bout of physical work (n = 13) and ingestion during and after exercise to affect subsequent endurance performance (n = 17). The remaining two articles contained performance metrics that spanned male categories. Protein is among the most common nutritional supplements taken by sports person. Many studies lacked ability to evaluate effects of protein sources on muscle metabolism through determination of muscle glycogen of protein turnover, or changes in key signaling proteins, and therefore could not substantiate changes in rates of synthesis or degradation of protein. As a result, the interpretation of their data was often biased and inconclusive since they lacked ability to test the proposed underlying mechanism of action.

Introduction

Protein supplements are consumed frequently by athletes and recreationally active adults for various reasons, including improved exercise performance and recovery after exercise. Yet, far too often, the decision to purchase and consume protein supplements is based on marketing claims rather than available evidence-based research. In the present study, we have investigated the effect of carbohydrate and protein hydrolyses ingestion on muscle glycogen re synthesis during 4 h of recovery from intense cycle exercise. It is concluded that co ingestion of carbohydrate and protein, compared with ingestion of carbohydrate alone, did not increase leg glucose uptake or glycogen re synthesis rate further when carbohydrate was ingested in sufficient amounts every 15 min to induce an optimal rate of glycogen re synthesis. Subject criteria-Thirty trained athletes (15 males) of 18 to 40 years of age were selected for the present study. Nutritional supplements are used for many purposes. They can be added to the diet to boost overall health and energy; to provide immune system support and reduce the risks of illness and age – related conditions; to improve performance in athletic and mental activities; and to support the healing process during illness and disease.

Objective: The objective of the study was to examine the effect of 30 days of Protein supplementation on 10 km time trial performance in trained distance runners.

METHODOLOGY The aim of this study is to investigate the effects of protein supplementation along with simple home-based exercises on physical work. Thirty trained distance runners (15 males) were selected for the present study. All the subjects were tested on a 10 km time trial performance before supplementation of

Protein and after 30 days of supplementation of Protein. In order to find out the effects of Protein supplementation on 10 km time trial performance, Descriptive Statistics and Analysis of Covariance (ANCOVA) was used. The level of significance was set at 0.05 levels. Thirty-days of Protein supplementation was proved to be effective ('*f*' value of 18.777, $p < .05$) in enhancing performance on 10 km time trial of experimental group. All the participants will receive instructions on simple exercises, dietary protein. The recruitment of patients will be completed during 2014. The primary endpoint of the trial is the change in short physical load battery score and percentage of patients maintaining or improving their physical performance.

Variables-In this study Protein supplementation was considered as independent variables and10 km time trial performance was considered as dependent variable.

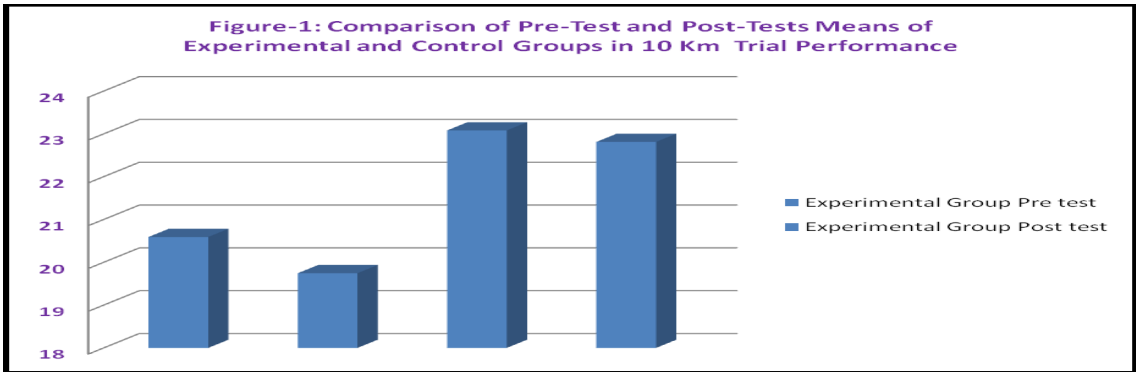
Treatment-In this study, 150 ml of Protein was given to each subject in night after dinner. To the subjects of experimental group for 30 days without any gap in between.

FINDINGS

Table – 1

Descriptive Statistics of 10 Km Time Trial Performance of Experimental Group.

Descriptive Statistics	Different Groups	
	Experimental Group	
	Pre test	Post test
Mean	21.731	23.745
Std. Error of Mean	.962	.653
Std. Deviation	1.983	1.547
Variance	9.291	8.039
Skewness	.785	.737
Std. Error of Skewness	.463	.630
Kurtosis	-.838	-.945
Std. Error of Kurtosis	2.221	2.137
Range	9.83	8.43
Minimum	17.28	17.05
Maximum	28.17	26.43



Results

Our evidence statements assert that when Protein supplementation was delivered at optimal rates during or after exercise, protein supplements provided no further cryogenic effect, regardless of the performance metric used. The influence of bovine CPC on TT40 performance during normal training was unclear (week 7: 1+/-3.1%, week 9: 0.1+/-2.1%; mean+/-90% confidence limits). However, at the end of the HIT period, bovine CPC supplementation, compared to the placebo, elicited a 1.9+/-2.2% improvement from baseline in TT40 performance and a 2.3+/-6.0% increase in time trial intensity (% VO(2max)), and maintained TT40 heart rate (2.5+/-3.7%). In addition, bovine CPC supplementation prevented a decrease in ventilator threshold following the HIT period (4.6+/-4.6%). **1*** These results suggest that muscle glycogen restoration does not appear to be enhanced with the addition of proteins or amino acids to a eucaloric CHO feeding after exhaustive cycle exercise.

Limitations

Many studies lacked ability to measure direct effects of protein supplementation on muscle metabolism through determination of muscle glycogen, kinetic assessments of protein turnover, or changes in key signaling proteins, and therefore could not substantiate changes in rates of synthesis or degradation of protein. As a result, the interpretation of their data was often biased and inconclusive since they lacked ability to test the proposed underlying mechanism of action. **DISCUSSIONS AND CONCLUSIONS** When carbohydrate is delivered at optimal rates during or after endurance exercise, protein supplements appear to have no direct endurance performance enhancing effect. To our knowledge, this is the first large scale randomized controlled trial among community dwelling older people with sarcopenia that focuses on the effects of protein supplementation on physical performance. Various studies have been conducted to see the effect of beetroot supplementation on endurance related activities. In the present study, significant improvement was found in 10 km time trial performance after 30 days of beetroot supplementation. The above mentioned studies revealed the effect of supplementation, but studies do not clarify the type of nutritional supplements. Specific studies also been conducted to see the effect of protein supplementation on endurance related activities. Present study supports the above mentioned studies since time trial performance in trained cyclists and 10 km time trail performance are of similar nature of activities. In the present study, improvement in 10 km time trial performance after protein supplementation might be due to presence of nitrate and nitrate has been linked with endurance related activities.

REFERENCES

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