The protein supplements and it s inhibition of liver enzymes at athletes

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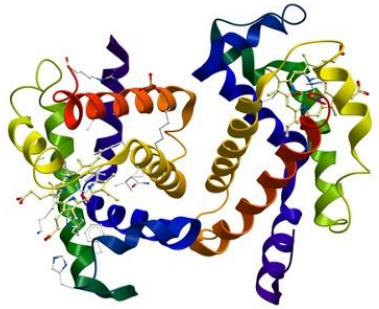
INTRODUCTION

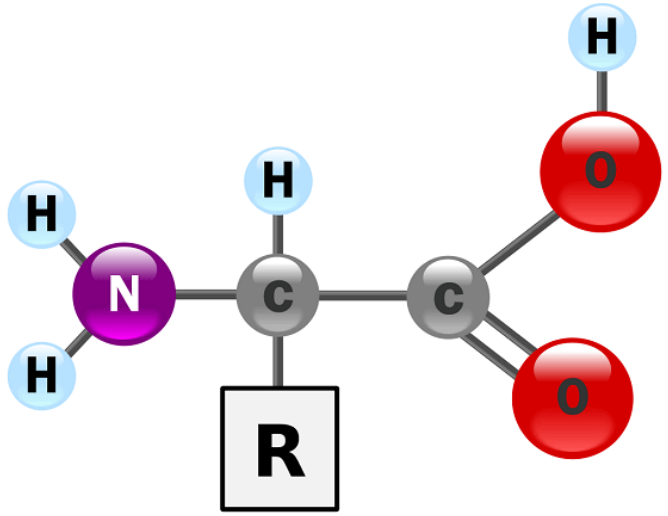


- The daily requirement of high-quality protein for a non-sport person is 0.8 g per kg of body weight.
- The daily need for protein is increased during sporting activity due to increased metabolism and protein breakdown upon loading.
- Athletes and bodybuilders use protein supplements to enhance the development and strength of their muscles and to accelerate the release of growth hormone.
- There is a division in terms of sports activity, so it is recommended to take 1.2-1.4 g protein / kg body weight for endurance and 1.4-1.7 g / kg body weight for strength.

Bioenergetics of the training process

- Organic macromolecules

- Built from different combinations of 20 amino acids



- **Proteins minimum**

- Energy transport (aerobic processes)
- Use of local energy reserves in muscle (anaerobic processes)
- Neural component - as a regulatory factor

Bioenergetics of the training process

- There is a difference between low-intensity and high-intensity training.
- High-intensity training includes: strength training, speed training, endurance training and fitness training.
- Low-intensity training includes strength and endurance training.
- Training and nutrition are closely linked because intensive training causes increased metabolic, physical and mental activity, so the energy needs of athletes are greater than those of people who do not actively engage in sports.
- The purpose of creating a diet for athletes is to improve their strength and endurance, and it depends on the type of sport, gender, age and eating habits.

Protein supplements in sports

➢ Protein supplements are any active substance taken by mouth for the purpose of enriching nutrition, increasing endurance, strength and muscle mass, provided it is not a cure.

- *Whey protein*
- *Gainer protein*
- *BCAA*
- *Isoactive*

AIMS OF STUDY

- Analyze enzymatic activity of ALT, AST, GGT and LDH enzymes in athletes who use and those who do not use protein supplements.
- Determined is there a significant difference between the enzyme values.
- Determined ALT, AST, GGT and LDH enzymes activities in athletes with and low and high intensity training.
- Analyze enzymatic activity of ALT, AST, GGT and LDH enzymes in athletes a seven-day pause of supplementation.

MATERIAL AND METHODS

➢ The activities of the enzymes ALT, AST, GGT, LDH, urine proteins, and urea and creatinine were analyzed. The enzyme was determined on a Mindray BS-200 apparatus.

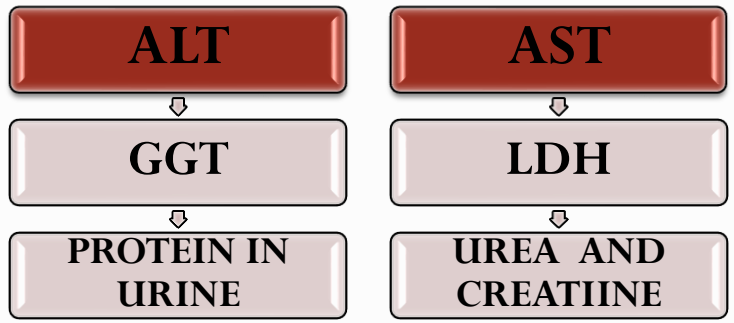
➢**180 participants**

Group I - athletes with high-intensity training

Group II - athletes with low-intensity training

Group III - control group of subjects

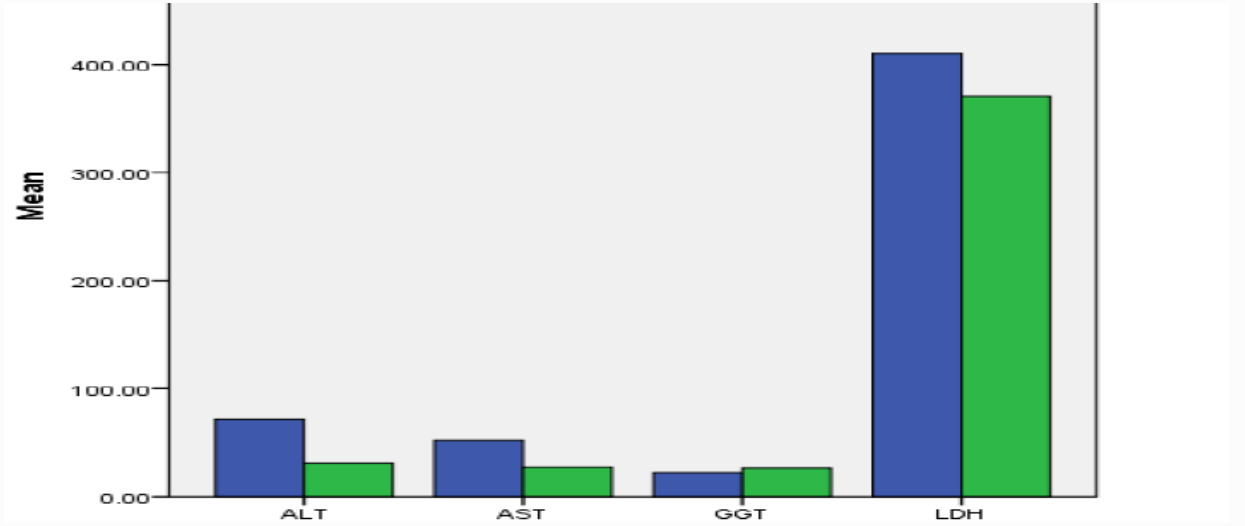
Analyze were



RESULTS

SPORTSMEN WHO USE SUPLEMENTS RELATING TO THOSE WHO DO NOT USE			
	USE OF SUPLEMENTS	Mean	%DIFFERENCES
ALT (U/L)	YES	72.06	56.68
	NO	31.22	
AST (U/L)	YES	52.38	48.78
	NO	26.83	
GGT (U/L)	YES	22.30	14.17
	NO	25.98	
LDH (U/L)	YES	410.42	9.71
	NO	370.59	

Table 1. Display of the difference of the mean value of the tested parameters with respect to supplementation



Graph 1. Graphical representation of the difference of the mean value of the tested parameters with respect to supplementation

	Low-intensity training			High-intensity training		
	Mean values in using supplements	After 7 days break	% decrease of mean values	Mean values in using supplements	After 7 days break	% decrease of mean values
ALT (U/L)	74.83	36.31	***51.48***	68.37	28.74	**57.96**
AST (U/L)	49.04	32.06	***34.62***	56.83	22.97	**59.58**
GGT (U/L)	26.43	21.59	***18.31***	16.80	15.03	**10.54**
LDH (U/L)	421.56	414.92	***1.58***	395.57	382.24	**3.37**

Table 2. Display of the difference in mean values of the tested parameters after 7 days of pause use

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Research Paper

Whey Protein Improves Marathon-Induced Injury and Exercise Performance in Elite Track Runners

Wen-Ching Huang[1], Yung-Cheng Chang[2], Yi-Ming Chen[3], Yi-Ju Hsu[3], Chi-Chang Huang[3], Nai-Wen Kan[4]✉, Sheng-Shih Chen[5]✉

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Effect of Whey Protein Supplement on Physiological Parameters in Building Body Athletes

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In the current clinical study, we found that whey protein could mitigate AST, LDH, CK, BUN, and TC levels which were elevated by a marathon in the placebo group.

There was a significant increase ($P \leq 0.05$) in the levels of Aspartate amino Transferase (AST), Alanine amino Transferase (ALT), Alkaline Phosphatase (ALP) and Bilirubin in athletes whose take supplements compared with control group.

CONCLUSIONS

- The mean value for ALT was 56.68%, AST 48.78%, GGT 14.17% and for LDH 9.71% lower in subjects not using supplements compared to subjects using supplements before, during or after training.

- The mean value of the ALT enzyme tested decreased by 51.48% after a 7-day break in subjects with low-intensity training, and decreased by 57.48% in subjects with high-intensity training.

- Mean AST decreased by 34.62% in subjects with low-intensity training, and decreased by 59.58% in subjects with high-intensity training. A decrease in the mean GGT was found in subjects with low-intensity training by 18.31% and in subjects with high-intensity training by 10.54%. Mean LDH decreased by 1.58% after a 7-day break in subjects with low-intensity training, and decreased by 3.37% in subjects with high-intensity training.

- By examining the difference between enzymes in the study groups we concluded that there was a statistically significant difference between the tested parameters ($p < 0.05$).