

The Effects of Beta-Alanine Supplementation and High-Intensity Interval Training on Cardiovascular Parameters, Fatigue, and Anxiety in Male Basketball Players Over To Years Old

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ABSTRACT

This present study investigated beta-alanine supplementation and HIIT on cardiovascular parameters and fatigue and anxiety indices in basketball players over "o years of age. A total of "7 athletes divided into three groups: one group received placebo with HIIT, one group received beta-alanine with HIIT, and one group received beta-alanine without exercise. Measured parameters included heart rate variability, fatigue index, and anxiety index. Based on the results obtained, it has been observed that the combination of beta alanine with HIIT has positively influenced the improvement in performance, reduction of fatigue, and anxiety in this age group.

Keywords: Beta Alanine, HIIT, Fatigue and Anxiety

INTRODUCTION

Significant physiological changes mark aging in many systems of the body, particularly in the cardiovascular and muscular systems of the athlete. These changes may have unfavorable influences on both athletic performance and the quality of life for the individual. Therefore, scientific and effective attention needs to be paid to the improvement of middle-aged athletic performance, which uses sport supplements like beta-alanine. It is established that beta-alanine is a non-essential amino acid capable of leading to increased concentrations of carnosine in muscles. In its turn, carnosine provides buffering function for muscles and can be used for delaying the onset of muscular fatigue. In its turn, HIIT is mentioned among the effective methods for improving cardiovascular capacity as well as reductions in levels of body fat in athletes. Due to its short duration and high intensity, HIIT is considered one of the popular strategies in training programs, especially for those who would want to quickly enhance their performances. Research conducted on athletes has shown that HIIT can have many positive effects in terms of the development of endurance and anaerobic capacity.

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METODOLOGY

In this study, The male basketball players over the age of The were divided randomly into three groups: Placebo group with HIIT-The members Beta-alanine group with HIIT-The members Beta-alanine group without exercise-The members - Beta-Alanine Supplementation: Groups two and three are to receive to The grams of beta-alanine daily.

HIIT training: All placebo and beta-alanine groups were on HIIT for r days, three days a week.

Parameters measured before and after the study period included:

Heart Rate Variability: The heart rate monitoring devices measured the HRV.

Fatigue Index: General Fatigue Scale, PFS was used for the assessment of the fatigue index.

Anxiety Scale: Measured using the Hospital Anxiety and Depression Scale.

RESULTS

Let's examine the charts

**Table **. *Anxiety index*

Group	Average (before)	Average (after)	t_value	P_value
Placebo+HIIT.vs beta alanine +HIIT	۲۲.۰	۲۱.۰	١.٣٤	.191
Placebo+HIIT.vs beta-alanine (without exercise)	۲۲.۰	۲۱.۰	••.•	1
Beta+HIIT.vs beta-alanine (without exercise)	۲۱.۰	١٦.٠	٣.٥٠	٠.٠٠٢

Table ₹. Fatigue index

Group	Average (before)	Average (after)	t_value	p_value
Placebo+HIIT.vs beta alanine +HIIT	٣٠.٠	۲۸.۰	۲.1۰	٠.٠٤١
Placebo+HIIT.vs beta-alanine (without exercise)	٣٠.٠	۲٩.٠	•٨٥	٠.٤٠٨
Beta+HIIT.vs	۲٩.٠	۲٤.٠	۳.٥٠	٠.٠٠٢

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beta-alanine		
(without		
exercise)		

Table ♥. HRV

Group	Average (before)	Average (next)	t_value	P_alue
Placebo+HIIT.vs beta alanine +HIIT	٤٤.٥	٤٦.٠	۲.٤٥	۲۳
Placebo+HIIT.vs beta-alanine (without exercise)	٤٤.٥	٤٥.٥	١.٦٧	٠.١٠٣
Beta+HIIT.vs beta-alanine (without exercise)	£7 <u>.</u> £	٤٥.٥	٣.٢٢	

Table 4. Descriptive summary of data

Group	HRV (before)	HRV (next)	Fatigue index (before)	Fatigue index (next)	Anxiety index (before)	Anxiety index (next)
Placebo + HIIT	٤٤.٥ ±١.٣	٤٦.٠ ±١.٥	۳۰.۰ ±۲.۰	۲۸.۰ ±۲.٥	۲۲.، ±۱.۰	۲۱.۰ ±۱.۸
beta- alanine + HIIT	٤٦.٤ ±١.٢	۰۰.٤ ±۱.۳	۲۹.• ±۲.•	7 £ . • ±7 . •	۲۱.۰ ±۱.٤	1.7 ±1.0
Beta- alanine (without exercise)	££.0 ±1.1	٤٥.٥ ±١.٠	۳۰.۰ ±۱.۹	Υ٩.٠ ±١.٨	77. 1.1±	Y1.・ ±1.Y

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DISCUSSION

Results from this study have shown that the combination of beta-alanine supplementation and HIIT improves performance and reduces fatigue and anxiety in basketball players over $\begin{tabular}{c} \begin{tabular}{c} \begin$

CONCLUSION

The current study investigated the effects of HIIT training combined with beta-alanine supplementation on cardiovascular parameters, as well as indices of fatigue and anxiety in basketball players over ro years of age. It could therefore be useful in planning both training and supplementation strategies for middle-aged athletes.

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