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Comparative efficacy of EPO-Boost Natural Blood Builder and Blood Booster Active 17 supplementation on hematological biomarkers and physical performance in CrossFit® athletes. A randomized placebo-controlled trial

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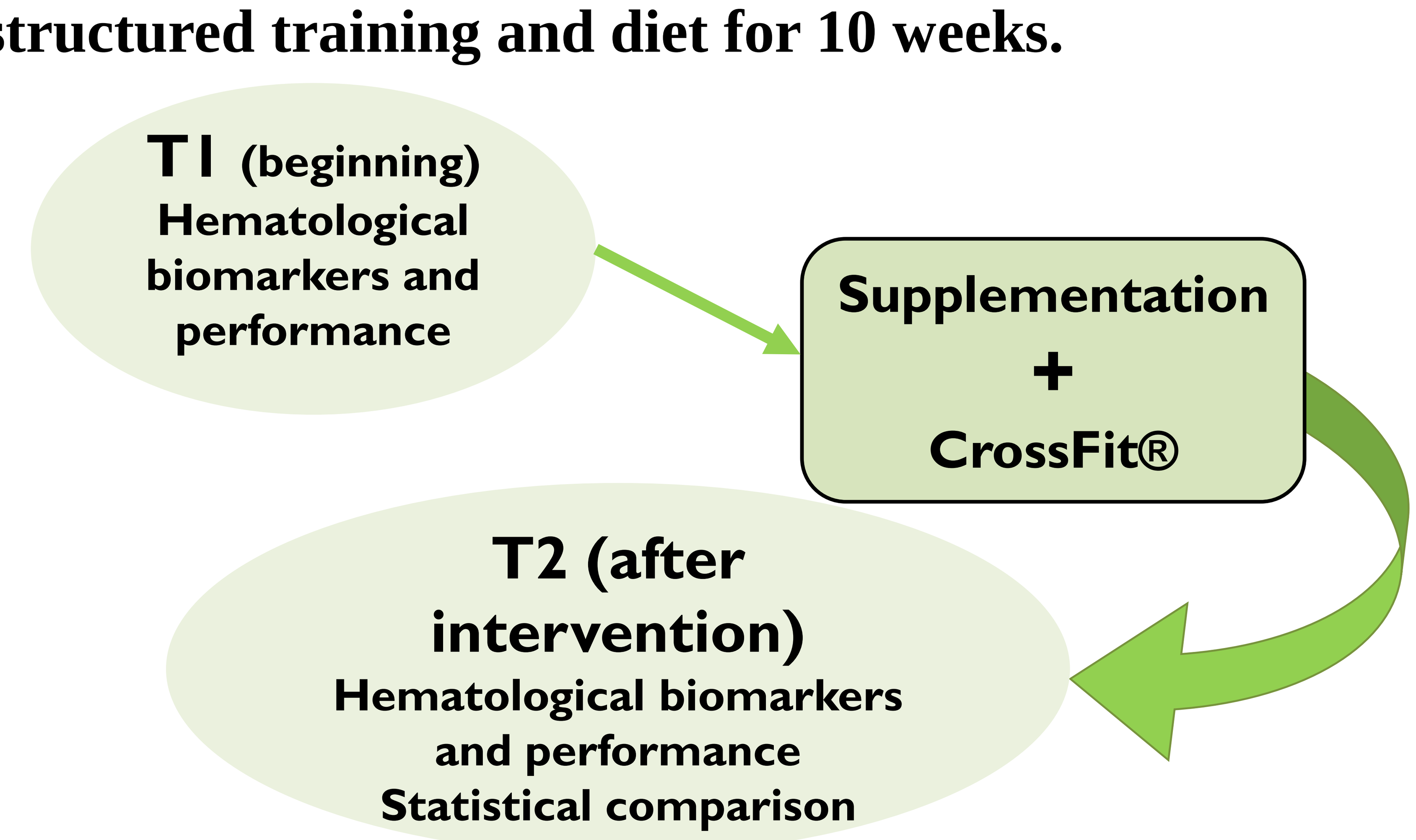
INTRODUCTION & AIM

Iron is essential in athletes' performance (1,2) in cellular respiration and metabolism. However, the increased demand for iron due to strenuous and demanding exercise along with dietary iron insufficiencies amplifies the risk of iron deficiency (3) and possibly anemia.

Our study evaluated the comparative efficacy of oral supplementation with EPO-Boost Natural Blood Builder (EB) and Blood Booster Active 17 (BB) after 10 weeks of programmed training CrossFit®.

METHOD

It's a single-blind, placebo-controlled, randomized trial with 32 male CrossFit® athletes (26.0 ± 5.7 years; 180.3 ± 7.9 cm; 23.9 ± 1.7 kg/m²). Participants were randomized into three groups and received EB (n = 11), BB (n = 10) or placebo (control group: CG; n = 11), with the same structured training and diet for 10 weeks.



Evaluated parameters:

Serum iron (sFe)
Serum ferritin (FER)
Transferrin saturation
Hemoglobin
Hematocrit
Status of Fe levels

Hematological biomarkers

Rowing ergometer test

Sport performance

RESULTS & DISCUSSION

Statistically significant differences were found only in serum ferritin (FER) levels (p = 0.015; η²p = 0.326). CG experienced a 14.33% decrease, while the EB group displayed a 3.60% increase, and the BB group showed a 20.22% increase. Although no statistically significant changes were detected in serum iron levels (sFe) (p = 0.383; η²p = 0.032), it is noteworthy that there was a 10.58% decrease in CG and a 23.76% increase in BB group.

Table 1. Hematological parameters in the control group (CG; n=11) and in the Fe-treated groups EB and BB at baseline (T1) and after 10 weeks (T2).

Group	T1	T2	p (TxG)	η²p	% Change T1-T2
		sFe (µg/dL)			
GC	91,74±39,31	82,03±15,43			-10,584
EB	99,66±25,54	99,34±29,90	0,383	0,032	0,321
BB	81,46±22,01	100,82±40,80			23,766
		FER (ng/mL)			
BB	131,15±56,25	112,35±54,81			-14,335
GS1	138,85±72,76	143,85±61,41	**0,015**	0,326	3,601
GS2	142,85±68,74	171,74±61,43			20,224

Significant differences were found in iron storage levels in the CG (p = 0.031) throughout the study. In this regard, three CrossFit® athletes were categorized with adequate iron levels at the beginning of the intervention and shifted to a state of functional iron deficiency at the end of the study.

Table 2. Status of Fe levels in the control group (CG; n=11) and in the Fe-treated groups EB and BB at baseline (T0) and after 10 weeks (T1).

	T1		T2		p^1
	Appropriate	Functional Deficiency	Appropriate	Functional Deficiency	
GC	6	5	3	8	**0,031**
EB	7	4	6	5	0,123
BB	5	5	6	4	0,842
p^2	0,741		0,584		

Regarding athletic performance, no statistically significant differences were observed in aerobic (p = 0.483; η²p = 0.072) or anaerobic (p = 0.83; η²p = 0.035) thresholds between CG, EB, and BB.

REFERENCES / FUTURE WORK

More research is needed to evaluate the effect of EB and BB supplementation over time and in other sports.

CONCLUSION

Supplementation with EB and BB improves FER levels and could help prevent iron deficiency, although this does not translate into increased athletic performance.