

The background of the entire cover is an abstract, high-energy image. It features a blurred figure of a person, likely a runner, in motion. The figure is overlaid with vibrant, streaky light trails in shades of teal, blue, and orange, creating a sense of speed and dynamic movement. The overall composition is energetic and modern.

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EXTENDED ABSTRACT

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IMPACT OF BLOOD FLOW RESTRICTION TRAINING ON SPRINT PERFORMANCE AND FATIGUE IN FUTSAL PLAYERS

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I. INTRODUCTION

Blood Flow Restriction (BFR) training offers a low-load alternative to high-intensity exercises, potentially enhancing athletic performance while minimizing overuse injuries. Despite its growing popularity, its impact on speed and fatigue index in high-intensity sports like futsal remains underexplored. This study examines the acute effects of BFR on the fatigue index and sprint performance, addressing gaps in understanding its efficacy for intermittent sports.

II. METHODS

Twenty healthy male futsal athletes participated, free of injuries or chronic diseases. Two trials were conducted: one with BFR applied during Yo-Yo IR1 training and the other as a control without BFR. After training, athletes performed repeated sprint tests. Speed was measured using Smartspeed timing gates, and the fatigue index was calculated using the power output method as described in the Running-based Anaerobic Sprint Test (RAST). Results were statistically analyzed.

III. RESULTS AND DISCUSSION

A. Speed

Sprint speeds were significantly lower in the BFR condition (4.39 ± 0.30) compared to the non-BFR condition (4.93 ± 0.51), as demonstrated by an independent sample t-test. This finding indicates that BFR training is more effective for enhancing sprint performance, with BFR potentially impairing speed during high-intensity intermittent activities.

B. Fatigue Index

The fatigue index was significantly lower during BFR training (0.96 ± 0.51) compared to non-BFR training (1.15 ± 0.70), as demonstrated by an independent sample t-test. This suggests that athletes experienced a reduced rate of performance decline under non-BFR conditions.

TABLE I
INDEPENDENT SAMPLES T-TEST OF AVERAGE SPEED AND FATIGUE INDEX BETWEEN BFR AND NON-BFR GROUPS.

Variables	Group	N	Mean (SD)	t	df	P value
Average Speed	BFR	20	4.388 (0.302)	-4.055	38	0.001
	NON-BFR	20	4.930 (0.511)			
Fatigue Index	BFR	20	0.96 (0.51)	-0.963	38	0.342
	NON-BFR	20	1.15 (0.70)			

IV. CONCLUSIONS

This study highlights that Blood Flow Restriction (BFR) training effectively enhances sprint performance while increasing fatigue index during high-intensity activities [1,2,3]. BFR offers a promising alternative to traditional training methods, optimizing speed performance for futsal athletes. These findings support the utility of BFR in improving performance metrics in intermittent, high-intensity sports like futsal [4].

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