



Effects Of Strength Based Training On Bio Motor Components And Psychological Variable Of Male Kabaddi Players

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Abstract

The objective of this study was to examine the effects of strength based training on bio motor components and psychological variable of male kabaddi players. To achieve the purpose of the study, thirty kabaddi players (N = 30) were selected from the Department of Physical Education, Bharathiar University, Coimbatore, Tamil Nadu, India. The age of the selected kabaddi players ranged between 21 and 25 years. The selected subjects were divided into two groups: Group I, designated as the Strength Based Training Group (SBTG), and Group II, designated as the Control Group (CG). Each group consisted of fifteen kabaddi players (n = 15). Prior to the intervention, a pre-test was administered to record the baseline values of the selected variables. The bio-motor components selected were Muscular Strength and Muscular Endurance, and the selected psychological variable was Depression. Following the pre-test, the Strength Based Training Group (SBTG) underwent a structured strength-based training programme for a period of eight weeks, while the Control Group (CG) continued with their regular physical activities without any exposure to the specific training protocol. Upon completion of the eight-week training period, a post-test was administered to both groups. Data collected from both groups before and after the training period were statistically examined for significant improvement using the dependent 't' test. The level of significance was set at $p \leq 0.05$. The results revealed that the Strength Based Training Group (SBTG) demonstrated statistically significant improvements in all selected bio-motor components and psychological variables when compared to the Control Group (CG) at the $p \leq 0.05$ level of significance. The findings of the present study conclude that the eight-week strength-based training programme had a significant positive effect on the selected bio-motor components and psychological variables of kabaddi players.

Keywords: Bio Motor Components, Psychological Variables and kabaddi players.

INTRODUCTION

Kabaddi is one of the oldest and most popular indigenous contact sports in India, demanding a unique combination of physical prowess, tactical intelligence, and psychological resilience. Kabaddi players require explosive strength, sprint ability, agility, physical stamina, dynamic balance, neuromuscular coordination, lung capacity, and quick reflexes for both attackers and defenders to meet the physiological and psychological challenges of the game. Given the multifaceted demands of the sport, systematic and scientifically structured training programmes have become essential for optimising player performance at all competitive levels.

Bio-motor components such as muscular strength and muscular endurance are considered fundamental physical capacities for success in contact sports. Kabaddi players demonstrate higher muscular strength compared to players of other traditional sports, consistent with the game's demand for sustained physical effort and strategic gameplay. Muscular endurance, in particular, enables players to maintain repeated bouts of high-intensity effort throughout the duration of a match without significant loss of performance. Structured training programmes, including strength training, plyometrics, circuit training, and combined training modalities, have been shown to significantly enhance physical fitness and kabaddi-specific skills among players.

Strength-based training has emerged as a widely adopted intervention for improving both physical and psychological performance outcomes in athletes. Research examining eight-week plyometric and strength training programmes on elite kabaddi players has demonstrated meaningful improvements in selected physical fitness factors. Furthermore, past research has consistently found a positive impact of structured training methods on strength, conditioning, and skill development among kabaddi players.

Beyond physical performance, the psychological well-being of athletes is an equally critical determinant of competitive success. Depression, defined as a mood condition characterised by excessive sadness and a significantly reduced experience of pleasure, has been identified among athletes across multiple sports contexts (**Storch et al., 2005**). Psychological variables hypothesised to be detrimental to performance, including depression, have been shown to exert a small but significant negative effect on athletic outcomes. The relationship between structured physical training and psychological health is well established. Studies investigating the effects of strength and endurance training on young men have demonstrated meaningful reductions in depression levels following structured exercise interventions, with endurance training showing a particularly notable effect on reducing depression.

Resistance training, which uses progressive resistance to build muscle strength and anaerobic endurance, offers substantial mental health benefits, and research has identified that three sessions per week with three sets per exercise are associated with greater psychological improvements. Moreover, supervised and periodized exercise programmes have been shown to produce significantly greater reductions in depressive symptoms compared to unstructured physical activity, with effects persisting for up to twelve months post-intervention.

METHODS AND MEASURES

To achieve the purpose of the study, thirty kabaddi players ($N = 30$) were selected from the Department of Physical Education, Bharathiar University, Coimbatore, Tamil Nadu, India. The age of the selected kabaddi players ranged between 21 and 25 years. The selected subjects were divided into two groups: Group I, designated as the Strength Based Training Group (SBTG), and Group II, designated as the Control Group (CG). Each group consisted of fifteen kabaddi players ($n = 15$). Prior to the intervention, a pre-test was administered to record the baseline values of the selected variables. The bio-motor components selected were Muscular Strength and Muscular Endurance, and the selected psychological variable was Depression. Following the pre-test, the Strength Based Training Group (SBTG) underwent a structured strength-based training programme for a period of eight weeks, while the Control Group (CG) continued with their regular physical activities without any exposure to the specific training protocol. Upon completion of the eight-week training period, a post-test was administered to both groups. Data collected from both groups before and after the training period were statistically examined for significant improvement using the dependent 't' test. The level of significance was set at $p \leq 0.05$.

CRITERION MEASURES: It is evaluate Muscular Strength, Muscular Endurance and Depression variables where chosen as the criterion measures to this study for testing.

TABLE-I
CRITERION MEASURES

S.No	Criterion Variables	Test Items	Unit of Measurements
BIO MOTOR COMPONENTS			
1	Muscular Strength	Push Up	In Counts
2	Muscular Endurance	Sit up	In Counts
PSYCHOLOGICAL VARIABLE			
3	Depression	Lovibond, S.H. & Lovibond, P.F. (1995). Manual for the Depression Anxiety & Stress Scales.	DASS-21 (2 nd Ed) Questionnaire

TABLE -II
THE T- RATIO OF STRENGTH BASED TRAINING GROUP AND CONTROL GROUP ON
SELECTED BIO MOTOR COMPONENTS AND
PSYCHOLOGICAL VARIABLE OF KABADDI PLAYERS

No	Variables	Groups	Pre-Mean	Post-Mean	SD	t-Ratio
1.	Muscular Strength	S&TTG	22.40	29.87	4.12	6.84*
		CG	22.13	22.80	3.95	1.24
2.	Muscular	S&TTG	28.53	36.27	4.68	7.21*
	Endurance	CG	28.20	28.93	4.31	1.16
3.	Depression	S&TTG	14.27	8.13	3.74	5.96*
		CG	14.00	13.47	3.88	0.97

(* Significant at $p \leq 0.05$ | SBTG = Strength Based Training Group (n = 15) | CG = Control Group (n = 15) | Table of t at 0.05 level (df = 14) = 2.145)

The mean, standard deviation, and t-values calculated for each outcome measure are presented in Table I. With regard to bio-motor components, Muscular Strength improved from a pre-test mean of 22.40 to a post-test mean of 29.87 ($t = 6.84^*$), and Muscular Endurance improved from 28.53 to 36.27 ($t = 7.21^*$) in the Strength Based Training Group (SBTG), both of which were statistically significant at the $p \leq 0.05$ level (df = 14) = 2.145). Furthermore, the psychological variable of Depression also demonstrated significant improvement in the SBTG, with the pre-test mean of 14.27 reducing to a post-test mean of 8.13 ($t = 5.96^*$), indicating a meaningful reduction in depression levels following the eight-week strength-based training programme of which were statistically significant at the $p \leq 0.05$ level (df = 14) = 2.145).

In contrast, the Control Group (CG) showed no statistically significant changes in any of the selected variables during the same period, with Muscular Strength recording pre- and post-test means of 22.13 and 22.80 ($t = 1.24$), Muscular Endurance recording pre- and post-test means of 28.20 and 28.93 ($t = 1.16$), and Depression recording pre- and post-test means of 14.00 and 13.47 ($t = 0.97$), none of which attained the required critical value at the $p \leq 0.05$ level (df = 14; critical t = 2.145), collectively indicating that the absence of a strength-based training protocol resulted in no meaningful improvement across any of the measured bio-motor components or psychological variables in the Control Group.

FIGURE: I
SHOW THE PRE AND POST MEAN VALUES OF MUSCULAR STRENGTH
AND MUSCULAR ENDURANCE

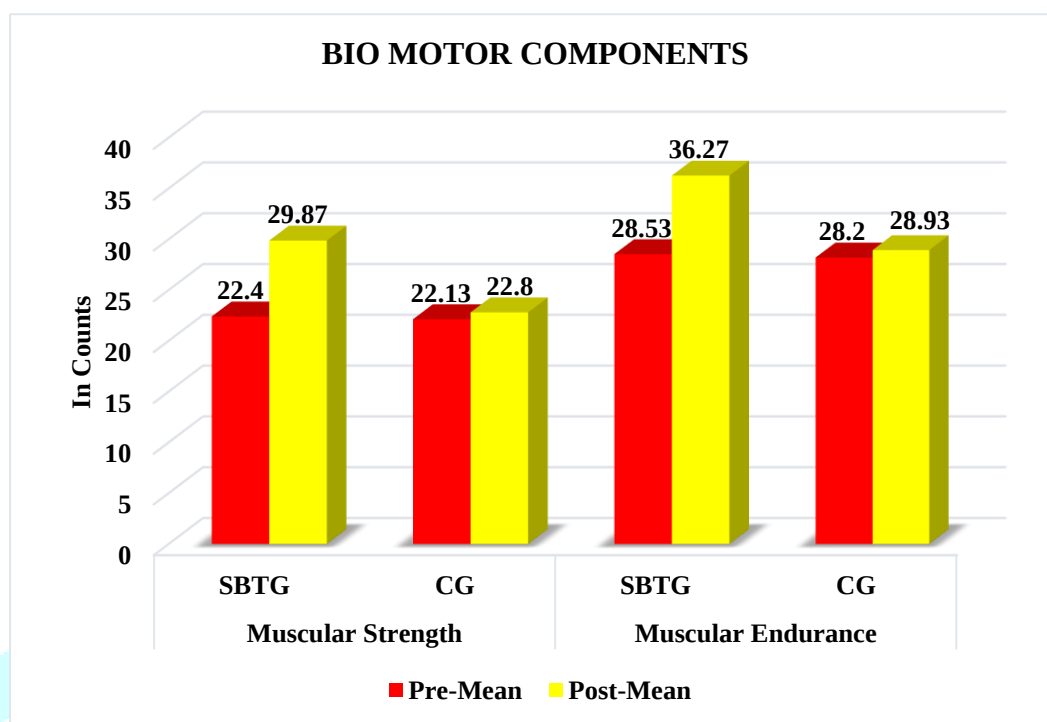
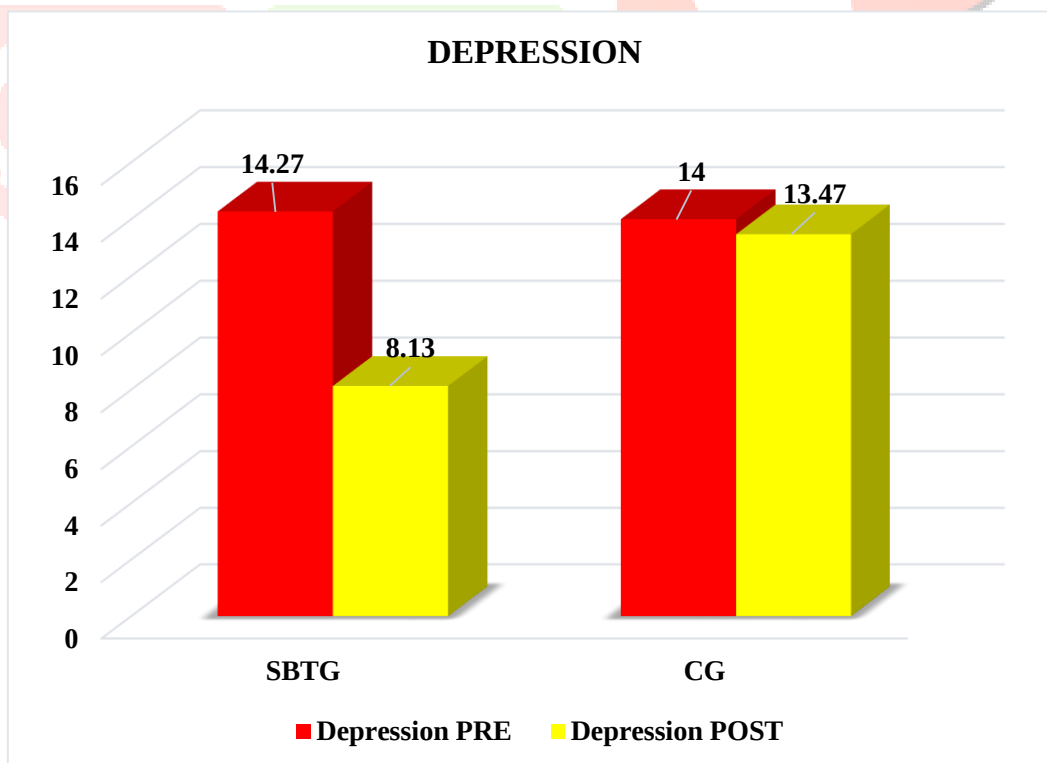


FIGURE: II
SHOW THE PRE AND POST MEAN VALUES OF DEPRESSION



DISCUSSION ON FINDINGS

The findings of the present study show that the strength based training group, which underwent strength based training, showed significant improvement in muscular strength, muscular endurance, and a reduction in depression levels when compared to the control group.

The improvement in muscular strength can be directly attributed to the nature of strength-based training, which emphasizes progressive overload, resistance, and targeted muscle activation. Regular participation in such training enhances neuromuscular efficiency, increases motor unit recruitment, and promotes muscle hypertrophy, thereby improving force production capacity. This finding is supported by **Fleck and Kraemer (2004)**, who reported that structured resistance training programs significantly enhance muscular strength through neural and muscular adaptations.

The enhancement in muscular endurance may be explained by the repeated contractions and sustained muscular effort involved in strength-based exercises. Over time, this leads to improved fatigue resistance, better energy utilization, and increased efficiency of muscular performance. Strength training also contributes to improvements in both aerobic and anaerobic energy systems, allowing individuals to perform activities for longer durations without fatigue. This is in line with the findings of **McArdle, Katch, and Katch (2010)**, who emphasized that consistent resistance training enhances endurance capacity by improving metabolic and muscular efficiency.

The reduction in depression levels among the experimental group can be attributed to the psychological and physiological benefits of strength-based training. Engaging in regular physical activity stimulates the release of endorphins and other mood-enhancing neurotransmitters, which help reduce stress and depressive symptoms. Additionally, improvements in physical fitness often lead to enhanced self-esteem, confidence, and overall mental well-being. This finding is supported by **Fox (1999)**, who highlighted that physical exercise plays a crucial role in reducing depression and improving mental health.

In contrast, the control group did not exhibit meaningful improvements in the selected variables, likely due to the absence of strength based training stimulus. This further confirms the effectiveness of strength-based training in enhancing both physical and psychological variables.

CONCLUSION

The present study concludes that strength-based training is an effective method for enhancing both physical fitness and psychological well-being. Participants who engaged in the strength based training program demonstrated clear positive changes, indicating that such interventions can produce meaningful adaptations in the body and mind. The improvements observed suggest that regular exposure to resistance exercises promotes better functional capacity of muscles, increases work efficiency, and supports overall physical performance. In addition to physical benefits, the training also contributed to improved emotional health, highlighting the important role of exercise in managing psychological conditions such as depression. The lack of similar changes in the control group emphasizes the necessity of planned and systematic strength based training for achieving desirable outcomes. It indicates that mere routine activity without proper training stimulus may not be sufficient to bring about significant development. It concluded that the strength-based training can be considered an essential component in the conditioning program of kabaddi players, as it not only improves their

physical capabilities but also supports their psychological readiness, ultimately contributing to enhanced sports performance.

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