

Effects of Plyometric Training and Resistance Training Programme on Selected Psychological Variables among College Level Male Basketball Players

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Abstract: *The study was designed to investigate the effects of plyometric training and resistance training programme on selected psychological variables among college level male basketball players. Forty five college level male basketball players were randomly selected from affiliated colleges of Bharathiar University, Coimbatore. The age ranged between 18 and 25 years. They were divided into three groups. The group I was considered as plyometric training group, group II was considered as resistance training group and group III was considered as control group. The investigator did not make any attempt to equate the groups. The control group was not given any exercise and the experimental groups were given plyometric training and resistance training for five days per week for six weeks. The following Psychological variables namely Stress and Mood state. All the dependent variables were assessed before and after the training period of 8 weeks. The collected data on psychological variables due to effect of plyometric and resistance training was analyzed by computing mean and standard deviation. In order to find out the significant improvement if any "t" test was applied. 0.05 level of confidence was fixed to test the level of significance. The study revealed that the psychological variables were significantly improved due to the influence of resistance training and plyometric training.*

Keywords: Plyometric training, Resistance training, Stress, and Mood state

1. Introduction

Plyometric training is widely used in athleticism and has been linked with benefits in anaerobic performance such as speed, agility and explosiveness. The combination of eccentric and concentric contractions is also mentioned as the Stretch-Shortening Cycle (Nicol *et.al*, 2006). Plyometric involve a rapid, powerful movement by utilizing a pre-stretch (eccentric phase) that is based upon the SEC. They are characterized by high intensity and they allow they muscle to reach in production of maximum strength in the shortest time possible. The aim of plyometric training is the improvement of the reaction force using both the elastic components of the muscles and tendons as well as a strong amplification of force from the CNS (Wilk *et.al*, 1993).

Resistance training has also become an essential method to improve athletes' speed and explosive power. Research results show that resistance training improves explosive power, vertical jump and speed in professional soccer players by affecting the leg extensor muscles (Miller *et. al*, 2006). In a study investigated the effect of six weeks of plyometric training on young athletes agility, and observed significant improvements. In another study, (Shahidi *et.al*, 2012). examined the effects of eight weeks of resistance training on speed and explosive power in male soccer players and observed significant improvements in these variables.

In psychology, stress is a feeling of strain and pressure. Small amounts of stress may be desired, beneficial, and even healthy. Positive stress helps improve athletic performance. It also plays factor in motivation, adaptation, and reaction to the environment (Fiona Jones *et.al*, 2001). When we think

the demands being placed on us exceed our ability to cope, we then perceive stress. A very much overlooked side of stress is its positive adaptations (Gibbons 2012).

A mood is an emotional state. Moods differ from emotions in that they are less specific, less intense, and less likely to be triggered by a particular stimulus or event. Moods generally have either a positive or negative valence (2010). Research also shows that a person's mood can influence how they process advertising (Hasher, 2010) further mood has been found to interact with gender to affect consumer processing of information (Ekman, 1993).

2. Methodology

The subjects of this study were 45 male Basketball players who aged 18 to 25 years old. The subjects were randomly divided into resistance (n=15), plyometric (n=15) and control group (n=15). The control group was not given any exercises and the experimental group was given Resistance and plyometric training for five days per week for eight weeks. The evaluated parameters were Stress (Perceived Stress Scale (PSS)) and Mood state (Brunel Mood Scale (BRUMS)). The parameter were measured before and after the resistance and plyometric training programme and the effects of the training programme were examined (Table-1). The collected data on was analyzed by computing mean and standard deviation. In order to find out the significant improvement if any "t" test was applied.

3. Certain Measures

S. No	Variables	Selection of test / Questionnaires	Unit / Measurement
1	Stress	Perceived Stress Scale(PSS)	Consists of 10 questions
2	Mood state	Brunel Mood Scale (BRUMS)	Consists of 24 Words

4. Training Programme

During the training period the experimental group underwent the training of selected suitable specific drills for eight weeks in addition to their daily routine activities as per the curriculum. Experimental group underwent training program on three alternate days per week for a period of eight weeks. The maximum duration of training session in all the days lasted between 45 and 50 minutes approximately. All the subjects involved in this study were carefully monitored throughout training program.

5. Statistical Procedure

Statistical analysis was performed using SPSS version 20. Paired t-test was used for within-group comparison and independent t-test was used for between-groups comparison. The significance level of the test was considered $p \leq 0.05$.

Table 1: Computation of “t”-ratio between pre and post test mean values of Plyometric training group of basketball players

Variables		Mean values	Std.deviation	t ratio
Stress	Pre test	28.26	1.86	8.287*
	Post test	32.26	1.72	
Mood state	Pre test	72.20	3.12	12.5*
	Post test	62.20	3.08	

Significant at 0.05 level confidence (2.14)

Table I reveals the computation of ‘t’ ratio between pre test and post on stress and mood state of college level male basketball players. The mean values of pre and post test of experimental group were 28.26, 32.26, 72.20 and 62.20 respectively. Since the obtained “t” ratio 8.28 was greater than the required table value 2.14, it was found to be statistically significant at 0.05 level of confidence for degrees of freedom 1 and 14. The result clearly indicated the stress and mood state of experimental group had been improved. Due to the influence of plyometric training ‘t’ ratio between pre test and post on stress and mood state of college level male basketball players and standard deviation 1.86, 1.72, 3.12 and 3.08 respectively. Since the obtained “t” ratio 8.287 was greater than the required table value 2.14, it was found to be statistically significant at 0.05 level of confidence for degrees of freedom 1 and 14. The result clearly indicated the stress and mood state of experimental group I had shown significantly improved.

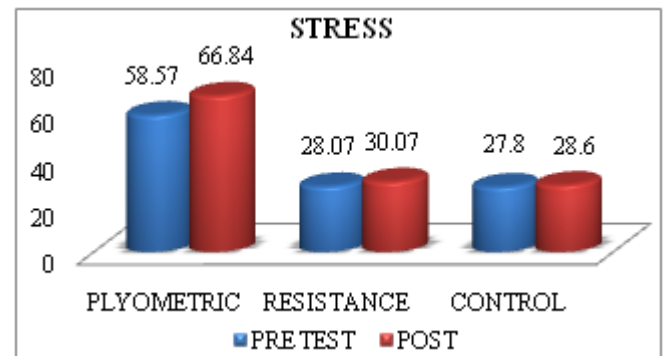


Figure 1

Table 2: Computation of “t”-ratio between pre and post test mean values of Resistance training group of basketball players

Variables		Mean values	Std.deviation	t ratio
Stress	Pre test	28.06	3.54	4.77*
	Post test	30.06	3.37	
Mood state	Pre test	67.73	5.49	5.54*
	Post test	62.73	3.32	

Significant at 0.05 level confidence (2.14)

Table II reveals the computation of ‘t’ ratio between pre test and post on stress and mood state of college level male basketball players. The mean values of pre and post test of experimental group were 28.06, 30.06, 67.73 and 62.73 respectively. Since the obtained “t” ratio 4.77 was greater than the required table value 2.14, it was found to be statistically significant at 0.05 level of confidence for degrees of freedom 1 and 14. The result clearly indicated the stress and mood state of experimental group had been improved. Due to the influence of resistance training ‘t’ ratio between pre test and post on stress and mood state of college level male basketball players. Standard deviations were 3.54, 3.37, 5.49 and 3.32 respectively. Since the obtained “t” ratio 5.54 was greater than the required table value 2.14, it was found to be statistically significant at 0.05 level of confidence for degrees of freedom 1 and 14. The result clearly indicated the stress and mood state of experimental group II had shown significantly improved.

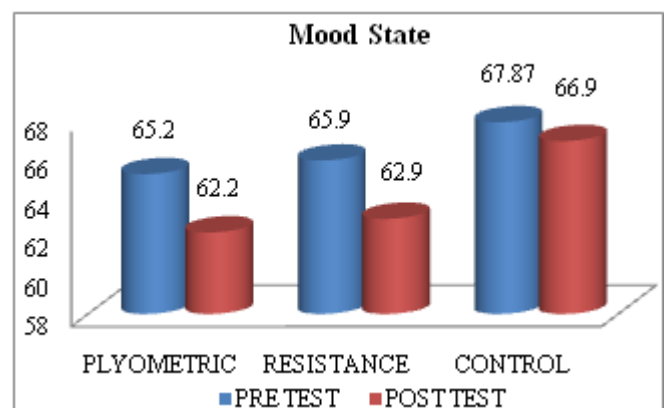


Figure 2

Table 3: Computation of “t”-ratio between pre and post test mean values of control group of basketball players

Variables		Mean values	Std.deviation	t ratio
Stress	Pre test	27.80	1.89	1.24
	Post test	28.60	1.84	
Mood state	Pre test	62.40	2.44	1.94
	Post test	64.46	2.83	

Table IV reveals the computation of ‘t’ ratio between pre test and post on stress and mood state of college level male basketball players. The mean values of pre and post test of control group were 27.80, 28.60, 62.40 and 64.46 respectively. Since the obtained “t” ratio 1.24 was lesser than the required table value 2.14, it was found to be in significant at 0.05 level of confidence for degrees of freedom 1 and 14. The result clearly indicated the stress and mood state of control group had not been improved. Standard deviations of control group were 1.89, 1.84, 2.44 and 2.83 respectively. Since the obtained “t” ratio 1.94 was less than the required table value 2.14, it was found to be in significant at 0.05 level of confidence for degrees of freedom 1 and 14. The result clearly indicated the stress and mood state of control group had not shown significantly improved.

6. Discussion on Findings

The present study experiment the effects of plyometric training and resistance training programme on selected psychological variables among college level male basketball players. The result of this study indicated that plyometric training and resistance training programme on selected psychological variables among college level male basketball players improved the parameter such as stress and mood state. The findings of the present study hand similarity with the findings of the investigators referred in this study.

7. Conclusions

Based on the results, the following conclusions have been arrived.

1. It was concluded that there was a significant improvement on psychological variables of College level male basketball players, due to the influence of plyometric training programme
2. There was a significant improvement on psychological variables of College level male basketball players, due to the influence of Resistance training programme.

Reference

- [1] Nicol et al.,(2006) Health benefits of physical activity the evidence, **journal of CMAJ**. Mar14, 2006; 174(6): 801–809. PMID: PMC1402378
- [2] Wilk et al (1993).Stretch-shortening drills for upper extremities: theory and clinical application. **Journal of Orthopaedic Sports and Physical Therapy**, 17, 225-239
- [3] Miller et al (2006) The effects of a 6-week plyometric training program on agility, **Journal of Sports Sci**

Med. Sep 2006; 5(3): 459–465.Published online Sep 1, 2006.

- [4] Shahidi et al (2012)The effect of two resistance training types on muscle fitness and anaerobic capacity in 16-18 years old male soccer players” **Annals of Biological Research**, 3(6),2713-2717
- [5] Fiona Jones et al (2001)Stress: myth, theory, and research, **Pearson Education**, 2001, p.4
- [6] Gibbons, C. (2012)"Stress, positive psychology and the National Student Survey” **Psychology teaching Review**18 (2): 22–30.
- [7] Hasher, L.et al (2010)"Positive mood is associated with the implicit use of distraction”. **Motivation & Emotion**, 34(1), 73-77.
- [8] Ekman, P et al (1993) American Psychologist. **Facial Expression and Emotion**.(384-391)
- [9] Davison et al (2008).Abnormal Psychology. Toronto: Veronica Visentin.P.154 - ISBN 978-0-470-40726.
- [10] Barlow, David H(2000)."Unravelling the mysteries of anxiety and its disorders from the perspective of emotion theory"**American Psychologist**55 (11): 1247–63.doi:10.1037/0003-066X.55.11.1247.PMID-11280938.