

The Isolated and Combined Effects of Progressive Resistance Training With Pilates Training and Pnf Stretch Technique on Selected Physical Fitness, Physiological and Psychological Variables Among College Level Men Kabaddi Players

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Abstract

The present study was to find out the isolated and combined effects of progressive resistance with Pilates training and PNF stretch technique on selected physical fitness, physiological and psychological variables among college men Kabaddi players. The selected subjects were the participants of inter college level men Kabaddi tournaments and their age ranged between 18 and 25 years and pre and post-test random group design. Eighty men students were randomly selected and divided into four groups namely Experimental group-I underwent progressive resistance training group (PRTG), Experimental group-II underwent progressive resistance with pilates training group (PRWPTG) and Experimental group-III underwent progressive resistance with PNF stretch technique group (PRWPNFSTG) and Group IV acted as Control Group (CG) each consisting of 20 subjects. In testing the significance of mean difference on post-test among the four groups namely Progressive Resistance Training Group(PRTG - Experimental group-I), Progressive Resistance with Pilates Training Group (PRWPTG- Experimental group-II), Progressive Resistance with PNF Stretch Technique Group(PRWPNFSTG – Experimental group- III) and Control Group (CG-group - IV), the result indicates that the mean differences on criterion variables used in the study at the end of the treatment was found to be statistically significant. Thus it was found that there was a significant mean difference among the three groups in the variables used in the study.

Introduction

A dramatized version of the great Indian epic Mahabharata, has made an analogy of the game a tight situation faced by Abhimanyu, king Pandava, when he was surrounded by the entire enemies. Buddhist literature speaks of Gautam Buddha playing Circle Kabaddi for recreating history reveals that princes of Yore played circle Kabaddi to display their strength to win the game. The Indian epic Shivpurana gives the evidence of battle between Lord Shiva with Demons to protect Devas for maintaining Goodness and Humanity. Again transforming with the ages “Hanuman” of Ramayana times is the great epitome who did remove each and every obstacle by his

strength, vigour, during the fight with Ravana. Further, in Mahabharata, different kings like Jarasandh, Bhim, Balrama, Krishna, Abhimanyu, Kansa, Duryodhana, etc. are few examples who make the history of Great Battle by performing rules of fight.

The King Chandragupta, Krishna Devraya, Prithviraj Chauhan are further great examples for maintaining tradition of Kabaddi in form of sport as well as battle. Again, the Mughal Dynasty has seen overwhelming examples traditionally played across the country under different Empire. The British under his rule observed great face of Gamma Pehalwana and associates of his times and finally

transforming today's world (Sharad Chandra Mishra, 2007).

Methodology

The purpose of the study was to find out the isolated and combined effects of progressive resistance with Pilates training and PNF stretch technique on selected physical fitness, physiological and psychological variables among college men Kabaddi players. To fulfill the purpose of the study, eighty college men Kabaddi players were randomly selected as subjects. The selected subjects were the participants of inter college level men Kabaddi tournaments and their age ranged between 18 and 25 years. The selected subjects hailed from various socio economic conditions, who were willing to participate in the experimental study, were included.

Results of Analysis of Covariance

Eighty college level men Kabaddi players were divided into the four groups namely Experimental group I – Progressive Resistance Training group (PRTG),

Experimental group II – Progressive Resistance with Pilates Training group (PRWPTG), Experimental group III – Progressive Resistance with PNF stretch technique group (PRWPNFSTG) and group IV – Control group (CG). Each group consisted of 20 subjects. To test the significant changes made from the base line to post test on all the groups individually, ‘t’ test was applied. The significance of the means of the obtained test results was tested at 0.05 level of confidence. It was considered a significant for the present study. The collected data have been processed by using analysis co-variance (ANCOVA) to determine if they were any significant difference among the treatment means of each variable. When analysis co-variance showed significant difference between treatment means, Scheffee’s post hoc test was applied to the test the significance of difference between the paired adjusted means at 0.05 level of confidence. The data was analyzed by using the software SPSS.

TABLE-1

Analysis Of Co - Variance Of Pre-Test, Post-Test Adjusted Post Test Between Experimental Groups And Control Group On Muscular Strength And Endurance (in Numbers)

Significant at 0.05 level of confidence

Test	PRTG	PRWPTG	PRWPNFSTG	Control Group (CG)	S O V	df	Sum of Square	Mean Square	F-ratio
Pre-test Mean	11.00	11.1	10.8	10.9	B	3	1	0.33	0.13
					W	76	192.8	2.54	
Post-test Mean	18.3	21.3	22.7	10.5	B	3	1783.2	594.4	8.71*
					W	76	5185.6	68.23	
Adjusted Post-test Mean	18.27	21.21	22.79	10.53	B	3	1779.05	593.02	8.7*
					W	75	5110.66	68.14	

Table-1 reveals that the obtained 'F' values on pre-test, post-test and adjusted post-test mean values of Progressive Resistance Training Group (PRTG), Progressive Resistance with Pilates Training Group (PRWPTG), Progressive Resistance with PNF Stretch Technique Group (PRWPNFSTG) and Control Group (CG) on Muscular Strength and Endurance.

FIGURE-1

Graphical Representation Of The Adjusted Post-Test Mean Values Of Experimental Groups And Control Group on Muscular Strength And Endurance (In Numbers)

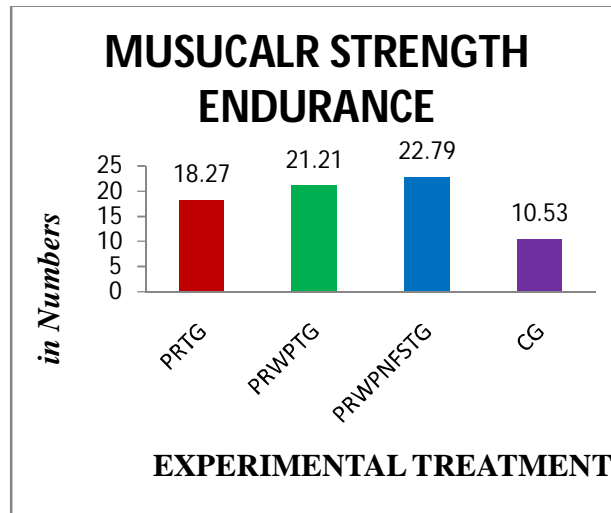


TABLE-2

Analysis Of Co - Variance Of Pre-Test, Post-Test Adjusted Post-Test Between Experimental Groups And Control Group on Body Composition (in Centimeters)

Test	PRTG	PRWPTG	PRWPNFSTG	Control	S	df	Sum of	Mean Square	F-ratio
				Group	O		Square		
				(CG)	V				
Pre-test	31.22	31.43	31.31	31.44	B	3	0.65	0.22	0.07
Mean					W	76	237.83		
Post-test	26.95	25.59	22.71	31.85	B	3	875.47	291.82	85.50*
Mean					W	76	259.4	3.41	
Adjusted	27	25.56	22.86	31.82	B	3	867.06	289.02	99.08*
Post-test					W	75	218.78	2.92	
Mean									

*Significant at 0.05 level of confidence

Table 2 reveals that the obtained 'F' values on pre-test, post-test and adjusted post-test mean values of Progressive Resistance Training Group (PRTG), Progressive Resistance with Pilates Training Group (PRWPTG), Progressive Resistance with PNF Stretch Technique Group (PRWPNFSTG) and Control Group (CG) on Body Composition.

FIGURE-2

Graphical Representation Showing The Adjusted Post-Test Mean Values Of Experimental Groups And Control Group On Body Composition (in Centimeters)

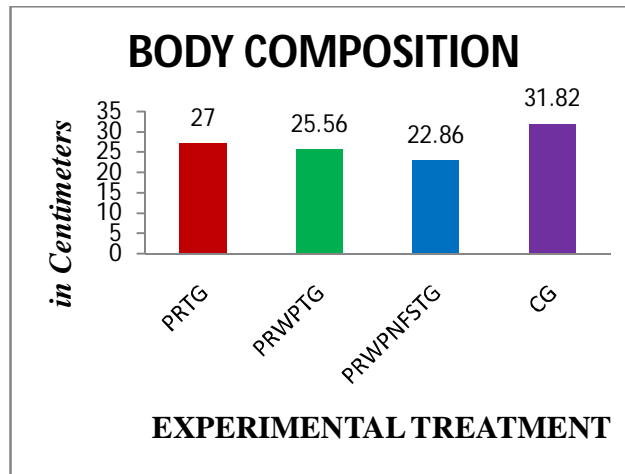


TABLE-3

Analysis Of Co - Variance Of Pre-Test post-Test Adjusted Post-Test Between Experimental groups And Control Group On Resting Pulse Rate (in Beats/Minute)

Test	PRTG	PRWPTG	PRWPNFSTG	Control	S	df	Sum of	Mean Square	F-ratio
				Group	O		Square		
				(CG)	V				
Pre-test	92	91.4	92.05	91.25	B	3	10.05	3.35	0.3
Mean					W	76	857.5	11.28	
Post-test	77.5	79	74.55	90.1	B	3	2772.6	924.21	89.85*
Mean					W	76	781.75	10.29	
Adjusted	77.44	79.05	74.48	90.18	B	3	2800.9	933.64	92.99*
Post-test					W	75	753.02	10.04	
Mean									

*Significant at 0.05 level of confidence

Table 3 reveals that the obtained 'F' values on pre-test, post-test and adjusted post-test mean values of Progressive Resistance Training Group (PRTG), Progressive Resistance with Pilates Training Group (PRWPTG), Progressive Resistance with PNF Stretch Technique Group (PRWPNFSTG) and Control Group (CG) on Resting Pulse Rate.

FIGURE-3

Graphical Representation Showing The Adjusted Post-Test Mean Values Of Experimental Groups And Control Group N Resting Pulse Rate (in Beats/Minute)

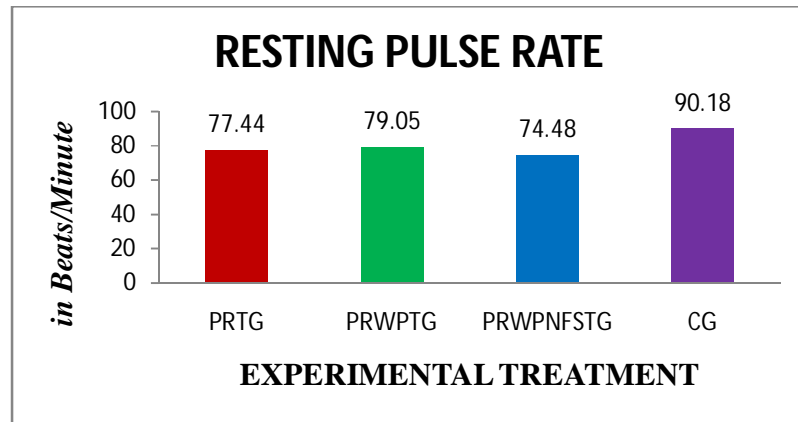


TABLE-4

Analysis Of Co - Variance Of Pre-Test, Post-Test Adjusted Post-Test Between Experimental Groups And Control Group On Systolic Blood Pressure (in mmHg)

Test	PRTG	PRWPTG	PRWPNFSTG	Control	S		Sum of	Mean Square	F-ratio
				Group	O	df	Square		
				(CG)	V				
Pre-test	140.85	139.6	143.3	140.45	B	3	151.3	50.43	0.67
Mean				W	76	5702.5	75.03		
Post-test	131.95	135.15	129.5	414.1	B	3	1509.3	503.08	7.94*
Mean				W	76	4814.3	63.35		
Adjusted	132.1	136.21	127.86	141.54	B	3	2016.7	672.22	28.50*
Post-test					W	75	1769.1	23.59	
Mean									

*Significant at 0.05 level of confidence

Table 6 reveals that the obtained 'F' values on pre-test, post-test and adjusted post-test mean values of Progressive Resistance Training Group (PRTG), Progressive Resistance with Pilates Training

Group (PRWPTG), Progressive Resistance with PNF Stretch Technique Group (PRWPNFSTG) and Control Group (CG) on Systolic Blood Pressure.

FIGURE-4

Graphical Representation Showing The Adjusted Post-Test Mean Values Of Experimental Groups And Control Group On Systolic Blood Pressure (in mmHg)

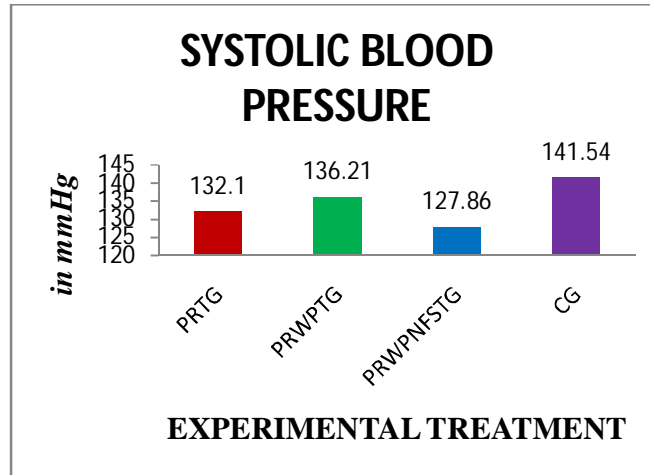


TABLE-5

Analysis Of Co - Variance Of Pre-Test Post-Test Adjusted Post-Test Between Experimental Groups And Control Group On Anxiety (in Points)

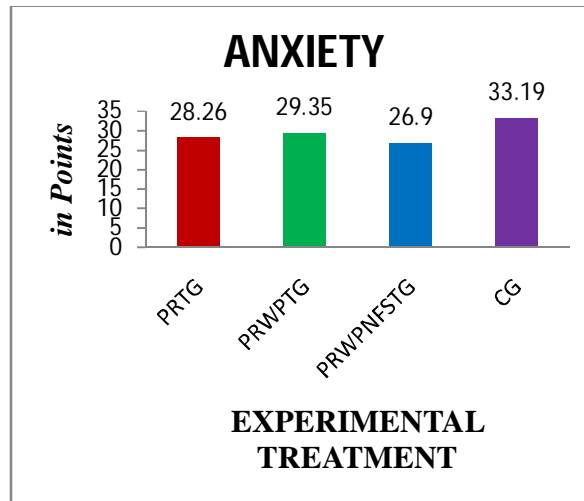
Test	PRTG	PRWPTG	PRWPNFSTG	Control	S		Sum of	Mean Square	F-ratio
				Group	O	df	Square		
				(CG)	V				
Pre-test	32.95	31.6	32.8	32.6	B	3	22.24	7.41	0.59
Mean				W	76	957.75	12.6		
Post-test	28.7	28.5	27.2	33.3	B	3	426.95	142.32	8.83*
Mean				W	76	1224.6	16.11		
Adjusted	28.26	29.35	26.9	33.19	B	3	438.48	146.16	32.14*
Post-test					W	75	341.05	4.55	
Mean									

*Significant at 0.05 level of confidence

Table 5 reveals that the obtained 'F' values on pre-test, post-test and adjusted post-test mean values of Progressive Resistance Training Group (PRTG), Progressive Resistance with Pilates Training Group (PRWPTG), Progressive Resistance with PNF Stretch Technique Group (PRWPNFSTG) and Control Group (CG) on Anxiety.

FIGURE-5

Graphical Representation Showing The Adjusted Post-Test Mean Values Of Experimental Groups And Control Group on Anxiety (in Points)



Discussion and findings:

The groups were tested on selected physical fitness namely muscular strength and endurance, flexibility, cardio-respiratory endurance, body composition, physiological variables namely resting pulse rate, systolic blood pressure, diastolic blood pressure and breath holding time and psychological variables namely anxiety, mood state, stress and fatigue prior and after the training period. The influence of progressive resistance training group (PRTG), Progressive resistance with Pilates training group (PRWPTG) and Progressive resistance with PNF stretch technique group (PRWPNFSTG) and control group (CG) on selected physical fitness, physiological and psychological variables of college level men kabaddi players were analyzed separately.

CONCLUSIONS

In light of the above findings of the present study the following conclusions have been made

It was concluded that the progressive resistance training group produced significant improvement on selected physical fitness namely muscular strength and endurance, flexibility, cardio-respiratory endurance and body composition, physiological variables namely resting pulse rate, systolic blood pressure, diastolic blood pressure and breath holding time and psychological variables namely anxiety, mood state, stress and fatigue among college level men kabaddi players.

It was concluded that the Progressive resistance with Pilates training group

produced significant improvement on selected Physical fitness namely muscular strength and endurance, flexibility, cardio-respiratory endurance and body composition, physiological variables namely resting pulse rate, systolic blood pressure, diastolic blood pressure and breath holding time and psychological variables namely anxiety, mood state, stress and fatigue among college level men kabaddi players.

It was concluded that the Progressive resistance with PNF stretch technique group produced significant improvement on selected physical fitness namely muscular strength and endurance, flexibility, cardio-respiratory endurance and body composition, physiological variables namely resting pulse rate, systolic blood pressure, diastolic blood pressure and breath holding time and psychological variables namely anxiety, mood state, stress and fatigue among college level men kabaddi players.

It was concluded that the Progressive Resistance with PNF Stretch Technique

Group (PRWPNFSTG) was more effective than Progressive Resistance Training Group (PRTG) and Progressive Resistance with Pilates Training Group (PRWPTG) on selected physical fitness namely muscular strength and endurance, flexibility, cardio-respiratory endurance and body composition, physiological variables namely resting pulse rate, systolic blood pressure, diastolic blood pressure and breath holding time and psychological variables namely anxiety, mood state, stress and fatigue among college level men Kabaddi players.

It was concluded that the isolated and combined effects has produced significant effects on selected physical fitness namely muscular strength and endurance, flexibility, cardio-respiratory endurance and body composition, physiological variables namely resting pulse rate, systolic blood pressure, diastolic blood pressure and breath holding time and psychological variables namely anxiety, mood state, stress and fatigue than the control group among college level men Kabaddi players.

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