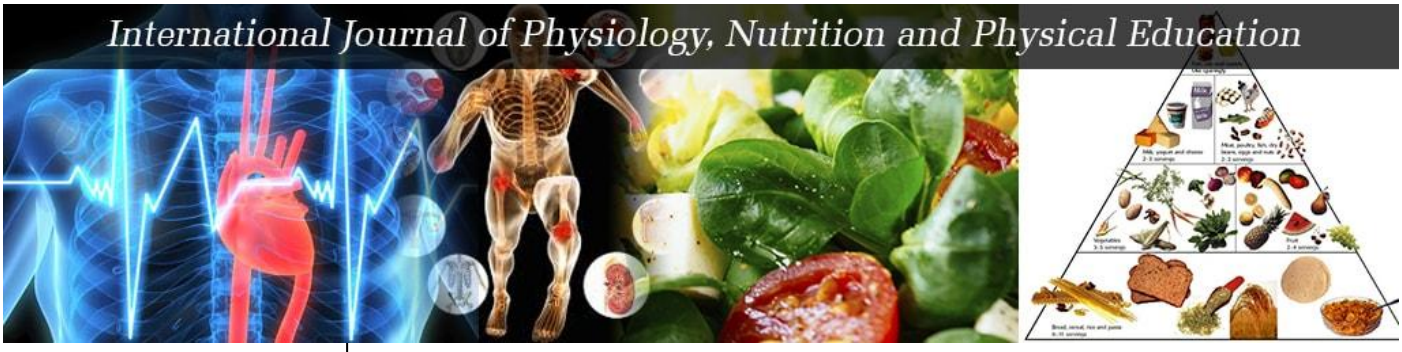

ISSN: 2456-0057
IJPNPE 2018; 3(1): 411-415
© 2018 IJPNPE
www.journalofsports.com
Received: 16-11-2017
Accepted: 17-12-2017

Pushkar Singh Adhikari
Research Scholar, School of Physical Education, Lovely Professional University Phagwara, Punjab, India

Pravin Kumar Sharma
Professor & Head, School of Education and Physical Education, CT University Ludhiana, Punjab, India

Neena Rani
Asst. Prof., Shaheed Kanshi Ram College of Physical Education, Bhagoo Majra, Kharar, Mohali, Punjab, India

Correspondence
Pushkar Singh Adhikari
Research Scholar, School of Physical Education, Lovely Professional University Phagwara, Punjab, India

A study of selected ex-sportsmen in relation to their body composition, resting metabolic rate and medical health

Pushkar Singh Adhikari, Pravin Kumar Sharma and Neena Rani

Abstract
Aim and Objective: The purpose of the study was to investigate the selected ex-sportsmen of 31-40 years and 41-50 years age group, belonging to different sports backgrounds for analyzing their physical, physiological and health related adaptations to age.
Method: The study was conducted on 150 subjects from northern plain region of India and was based on purposive sampling technique. Body composition, Physiological and health related data were collected by sophisticated body composition analyzer machine and by specially designed questionnaires, previously pretested and validated.
Results: For Fat percentage: Significant difference exist between team games1 and high concentration games1 (MD = 3.23); whereas no significant difference was computed between rest of the sports categories in 31-40 and 41-50 years age group of ex-sportsmen.
For muscle percentage: there is a significant difference between team games1 and high concentration games1 (MD=1.64), team games1 and team games2 (MD=2.42), team games1 and combative games2 (MD=2.27), team games1 and high concentration games2 (MD=2.06), combative games1 and team games2 (MD=1.84), combative games1 and combative games2 (MD=1.69); whereas no significant difference was computed between rest of the sports categories in 31-40 and 41-50 years age group of ex-sportsmen.
Conclusion: For Fat Percentage: Team games sports have shown better fat percentage in 31-40 and 41-50 years age group with a mean value of 23.77 and 30.0 respectively. On the basis of findings teams games can be selected, utilized and programmed for maintaining healthier body composition in terms of fat percentage.
For Muscle Percentage: Team games (31-40 years) and High concentration games (41-50 years) have shown better muscle percentage with a mean value of 32.42 and 30.35 respectively. On the basis of findings it is predicted that on aging from 31 to 40 years there would be an average decline of 2.07 percentage muscles. In 41-50 years age group along with high concentration games, team game and combative game also have shown almost similar muscle percentage with minute decimal level differences.

Keywords: Fat percentage, muscle percentage, RMR, Medical Health, Games1= 31-40 years and Games2= 41-50 years

1. Introduction
The healthful living is one fast emerging practices, trends and approaches to promote health among the people of the nation and the world wide, along with a vast scope of research investigations to nurture the blessing of healthful living. The healthful living is simply affected by the choice of our selection for our lives, which as a result manifested in our lifestyle and it's adjustments for one's health, healing, and happiness process. This process of being in health become more susceptible to the aging process when it is accompanied with non active form of life and one's misery for his health and food habits. In the purview of the healthy living the study was planned as "A study of selected ex-sportsmen in relation to their body composition, resting metabolic rate and medical health". The study aimed on depicting the real and clear picture whether sports participation of the past, does have any significant effect in ageing? It also mainly focuses on the level of contribution by selected sports involvement in ex-sportsmen after 31-40 years and 41-50 years age group in terms of body composition, resting

metabolic rate and medical health. The purpose of the study was to analyse the body composition, resting metabolic rate and medical health of ex-sportsmen of Northern plain regions of India. The study analogies on different parameters of body composition (such as fat percentage and muscle percentage), resting metabolic rate and medical heath. The medical health status parameter comprises of selected commonly prevalent diseases in the society.

2. Methods and material

2.1 Study Area and Sampling Design

The study projects on northern plain regions of India. Three states named Delhi, Haryana and Punjab were selected for the purpose of study. The study was conducted on 150 subjects and was based on purposive sampling technique. For the purpose of the study ex-sportsmen were further divided on the basis of their sports category viz. Team Games (football and hockey), Combative Games (boxing and wrestling), and High Concentration Games (shooting, archery and chess).

2.2 Tools Used

For collection of the required data, different tools and techniques were used. All required tools were available in the Department of Physical Education, LPU, India.

The body composition (fat and muscle percentage) and metabolic rate of the subjects was taken with the help of body composition analyzer machine.

The medical health status of subjects was compiled through self made report on the basis of commonly spread diseases in society, which was designed specifically to measure the spread of such diseases on medical health ground.

2.3 Administration of data collection

Before the test administration, necessary preparations were made. The investigator strictly followed the specification as mentioned in the test. Subjects were given a chance to practice so as to become familiar with the tests and device and to know exactly what was expected to be done. The test was administered on subjects after giving demo on body composition analyzer machine and by providing clear and complete instructions for filling the questionnaire. The subjects on ex-sportsmen were selected from physical education professional institutes, coaching institutes and north zone competition venues of north India.

2.4 Statistical Technique

Data were summarized by descriptive statistics (mean, standard deviation). In order to compare body composition, resting metabolic rate and medical health of subjects between and within groups Analysis of Variance (ANOVA) was used. The significance was tested at 0.05 level. All the statistical procedure was performed with the help of SPSS (v.18).

3. Results

3.1 Findings

The score of fat percentage, muscle percentage, RMR and medical health for various comparisons have been presented in the following tables:

Table 1: ANOVA summary of fat & muscle percentage (body composition), RMR and medical health variable among team games, combative games and high concentration games in 31-40 and 41-50 years age group of ex-sportsmen

Variables	Source of Variance	Sum of Squares	df	Mean Square	F
Fat	Between Groups	227.791	5	45.558	2.675*
	Within Groups	2452.664	144	17.032	
	Total	2680.455	149		
Muscle	Between Groups	122.093	5	24.419	6.597*
	Within Groups	533.046	144	3.702	
	Total	655.139	149		
RMR	Between Groups	151404.373	5	30280.875	1.285
	Within Groups	3393276.320	144	23564.419	
	Total	3544680.693	149		
Medical Health	Between Groups	.913	5	.183	.486
	Within Groups	54.160	144	.376	
	Total	55.073	149		

*Significant

Tab. $F_{.05}$ (5,144) = 2.28)

As statistically analysed in the above table 1 that, the computed value of *F* (2.67) and F (6.59) is more than the tabulated value of *F* (2.28) for fat and muscle percentage hence it is revealed that: There exists a significant difference of fat & muscle percentage (body composition) among team games, combative games and high concentration games in 31-40 and 41-50 years age group of ex-sportsmen but there do not exists significant difference in RMR and medical health variables among team games, combative games and high concentration games in 31-40 and 41-50 years age group of ex-sportsmen.

Further to analyze which sports group had better fat and muscle percentage, Tukey Post-hoc test was performed and its result is presented in the following table:

Table 2: Tukuy's results for fat percentage variable among team games, combative games and high concentration games in 31-40 and 41-50 years age group of ex-sportsmen

Occupational Category		Mean Value of 31-40 Years Age Group			Mean Value of 41-50 Years Age Group		
		Team Games1 (M=23.77)	Combative Games1 (M=24.26)	High Concentration Games1 (M=27.01)	Team Games2 (M=26.81)	Combative Games2 (M=26.08)	High Concentration Games2 (M=26.18)
Mean Value of 31-40 Years Age Group	Team Games1	-	-0.48	-3.23*	-3.03	-2.30	-2.41
	Combative Games1		-	-2.74	-2.55	-1.81	-1.92
	High Concentration Games1			-	0.19	0.93	0.82
Mean Value of 41-50 Years Age Group	Team Games2				-	0.73	0.62
	Combative Games2					-	-0.10
	High Concentration Games2						-

*****Significant at .05 level

Pair wise mean comparison of fat percentage is presented in table 2, and it is revealed that there is a significant difference between team games1 and high concentration games1 (*MD* = 3.23); whereas no significant difference was computed between rest of the sports categories in 31-40 and 41-50 years age group of ex-sportsmen.

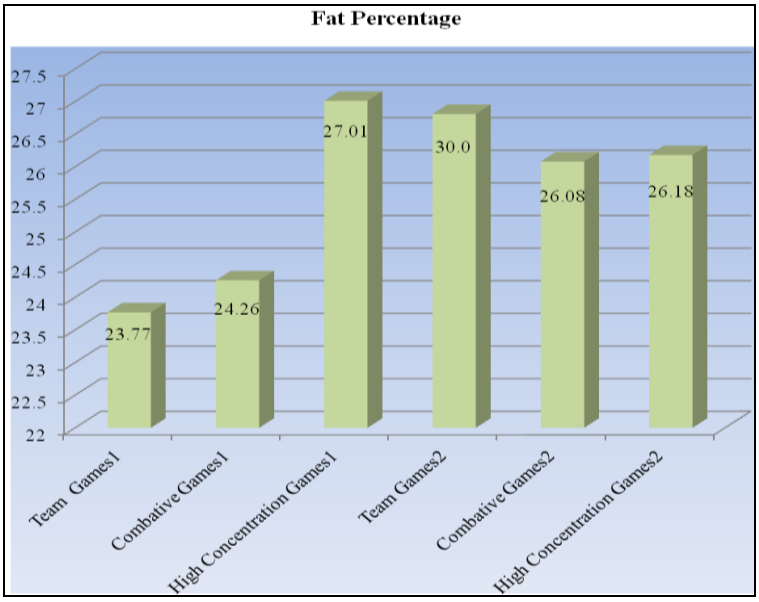

Fig 2: Mean comparison of fat percentage on body composition variable among team games, combative games and high concentration games in 31- 40 and 41-50 years age group of ex-sportsmen

Table 3: Tukuy's results for muscle percentage variable among team games, combative games and high concentration games in 31-40 and 41-50 years age group of ex-sportsmen.

Occupational Category		Mean Value of 31-40 Years Age Group			Mean Value of 41-50 Years Age Group		
		Team Games1 (M=32.42)	Combative Games1 (M=31.84)	High Concentration Games1 (M=30.78)	Team Games2 (M=30.0)	Combative Games2 (M=30.14)	High Concentration Games2 (M=30.35)
Mean Value of 31-40 Years Age Group	Team Games1	-	0.57	1.64*	2.42*	2.27*	2.06*
	Combative Games1		-	1.06	1.84*	1.69*	1.48
	High Concentration Games1			-	0.78	0.63	0.42
Mean Value of 41-50 Years Age Group	Team Games1				-	0.14	0.35
	Combative Games1					-	0.20
	High Concentration Games1						-

*****Significant at .05 level

Pair wise mean comparison of muscle percentage is presented in table 3, and it is revealed that there is a significant difference between team games1 and high concentration games1 (MD=1.64), team games1 and team games2 (MD=2.42), team games1 and combative games2 (MD=2.27), team games1 and high concentration games2 (MD=2.06), combative games1 and team games2 (MD=1.84), combative games1 and combative games2 (MD=1.69); whereas no significant difference was computed between rest of the sports categories in 31-40 and 41-50 years age group of ex-sportsmen.

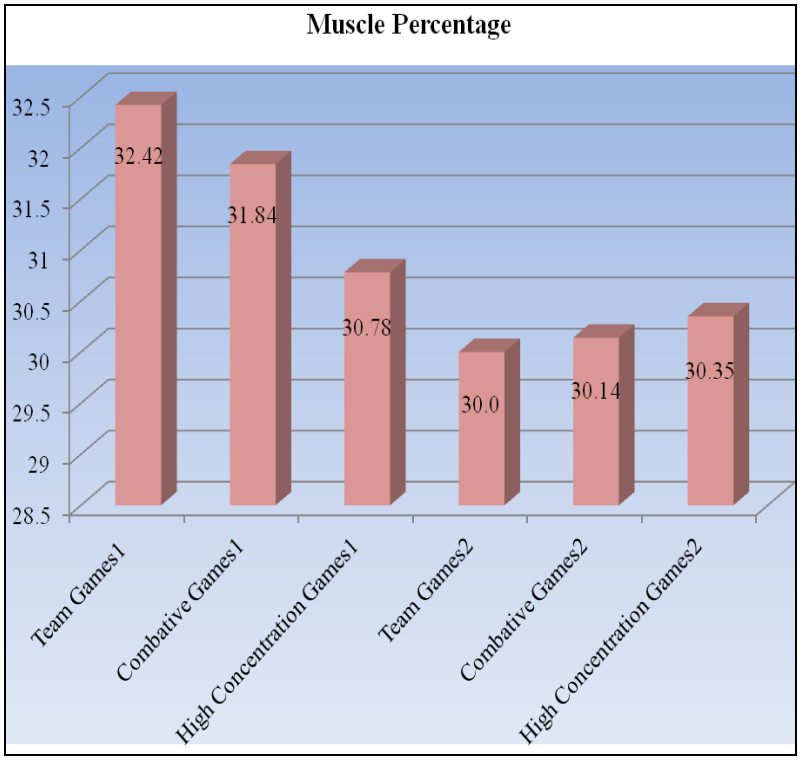

Fig 3: Mean comparison of muscle percentage on body composition variable among team games, combative games and high concentration games in 31- 40 and 41-50 years age group of ex-sportsmen

4. Discussion

It was found that significant difference exists among team games, combative games and high concentration games in 31-40 years age group than 41-50 years age group of ex-sportsmen for fat & muscle percentage variable (body composition), whereas no significant difference exists in RMR and medical health variable.

It may be due to the reason that in ex sportsmen 41-50 years age group the body would be freezed for sufficient long duration in non active form, as physicals factors affected easily once body took non active form. While RMR and medical health shows stable adjustments despite being aging and hence did not make significant changes.

5. Conclusion

Within limitations of the study, following summarized conclusions have been presented as an abstract outcome of the research study.

5.1 For Fat Percentage: Team games sports have shown better fat percentage in 31-40 and 41-50 years age group with a mean value of 23.77 and 30.0 respectively. On the basis of findings teams games can be selected, utilized and programmed for maintaining healthier body composition in terms of fat percentage among the mass population.

5.2 For Muscle Percentage: Team games (31-40 years) and High concentration games (41-50 years) have shown better muscle percentage with a mean value of 32.42 and 30.35 respectively. On the basis of findings it is predicted that on aging from 31 to 40 years there would be an average decline of 2.07 percentage muscles. In 31-40 years age group along with high concentration games, team game and combative game also have shown almost similar muscle percentage with minute decimal level differences.

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