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Research Article

Analysis of Aerobic Capacity of Master Basketball Players from a Goiania Team

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ABSTRACT

Objective: To analyze aerobic capacity in basketball players from a team in Goiania.

Methods: Participated in the study of a total of seven basketball players, all male men between 50 and 71 years old and average age of 59.85 years. Participants answered or informed consent form performed an anthropometric assessment: total body mass, height and BMI (Body Mass Index), in addition to the six-minute walk test.

Results: Regarding the BMI, 42.9% of the practitioners had levels of excess weight. There is no longer a six-minute walk test with results greater than 27.71%.

Conclusion: The most experienced basketball athletes showed an aerobic capacity higher than expected, or that demonstrated a good performance to perform a sports practice, in addition to daily activities.

Keywords: Physical exercise and aging; Functional capacity; Sports; Health and aging

INTRODUCTION

The elderly population has grown demographically and is becoming increasingly significant today. According to the Brazilian Institute of Geography and Statatistics currently 31 milion elderly people represent 13% of the Brazilian population. Because of this, several researchers have sought to investigate aeras related to the functional capacity, health and quality of life of the elderly in order to pormote strategies that mitigate the impacts caused by aging [1]. Aging is characterized by the sum of changes and adaptations that occur with the orgranism over the years. Among the various changes we can mention the reduction in cardiorespiratory capacity, which is linked to the ability to perform daily activities and the individual's health [2].

In this context, there are several analyzes made about the influence of physical exercise during aging, especially with regard to improving functional capacity. In addition sports as well as the diferente alternatives of physical exercise also induce positive adaptations to the body and that is why we add here the practice of basketball as a modality practiced by elderly individuals. However, there are few investigations based on elderly people who practice sports, however the literature shows positive results for cardiorespiratory capacity in other activies [3].

For example, in the study by Zago et al., (2010) elderly people aged 60 to 70 years were submitted to an aerobic resistance training program, during this period increase of 22 to 30% in VO2 max was observed, but for this to happen, the intensity of the exercise was maintained at levels that provided such changes (approximately 65% of VO2 max) [4].

In another study conducted by Wisloff et al., (2007), two aerobic training protocols were comparad, one of moderate intensity and the other of high intensity, 27 elderly people (mean age 75 years) with severe heart failure (ejection fraction 29%) participated, these were randomly divided into the moderate or high intensity training group for 12 weeks [5-7]. The results showed that interval training increased VO2 max by 46% and continuous training by 14% of VO2 max. Despite the diferences, aerobic training is one of the tools capable of positively favoring the aerobic capacity of elderly individuals. Thus, this study aims to analyze the aerobic capacity of master basketball players from a team in Goiânia [8].

METHODOLOGY

Population

For this study, seven individuals were selected, aged between 50 and 71 years old, all male. The main characteristics of the sample are shown in Table 1 [9].

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	Média
Age (years)	59,85
Body Mass(kg)	93,28
Height (m)	1,84
Body Mass Index (kg/m^2)	27,46

Table 1: Participant Characteristics.

Exclusion criteria

cardiovascular diseases (symptoms of angina pectoris or uncontrolled dysrhythmia), decompensated arterial hypertension, muscle or skeletal impairment that can be altered by applying the functional test, as well as not participating in training at least twice a week, as well as less than a month of training [10].

Study design

After being informed about the objectives, possible risks, benefits and discomforts of the study, the volunteers signed the term informed consen form (TICF), the following day they underwent na anthropometric assessment and after 24 hours the 6-minute walk test was performed minutes (Table 2). This study was approved by the Ethics Committee of the Federal University of Goiás (CAAE: 50717115.4.0000.5083) [11].

1a VISIT	TICF/Anamnesis
2a VISIT	Anthropometric Assessment
3a VISIT	6-Minute Walk Test

Table 2: Study design.

TICF: Term Inform Consent Form

Data collection instruments

Anthropometric variables: To measures body mass and height, the volunteers were barefoot, with minimal clothing anatomical position, erect feet and with their head positioned on the Frankfurt Horizontal line. The measurement of body mass will be obtained using na analog scale (Filizola, mod. Personal 7708, Brazil) and height will be obtained using a stadiometer (Seca, Brazil) with an accuracy of 0.1 cm, respectively according to the procedures described by Gordon et al., 1988. With the values of these two variables, the body mass index (BMI) was calculated using the equation below accordingly [12].

BMI = body mass (kg)/ height (meters^2).

6-Minute walk test: The volunteer completed a 45-meter course, in which they would have to do as many laps a possible in six minutes (RICKLI AND JONES 2008). The analysis of the distance covered was carried out by the equation of Iwama, et al., (2009): 6MWD = 622,461 – (1,846 x Age years) + (61,503 x Gender men = 1; women = 0).

Analysis procedure: The data were analyzed according to the results obtained in the functional and anthropometric assessment using Microsoft Execel 2010 and Microsoft Word 2010 [13].

RESULTS

The results show a higher rate of overweight among the players, according to the average BMI show in (Table 3). Regarding aerobic capacty, the athletes covered 578.5 m at na average speed of 5.76 km/h in the test 6 minutes Table 4. In addition, the yield was 30% more than expected a higher average when compared to the rest of the population with the same group [14].

	Frequence (n)	Percentage (%)	BMI Values (kg/m^2)*
Lower Weight	0	0	Até 18,4
Eutrophic	2	28,8	18,5- 24,9
Overweight	3	42,9	25- 29,9
Obesity I	2	28,8	30-34,9
Obesity II	0	0	35-39,9
Obesity III	0	0	40 our mails
Total	7	100%	

Table 3: Body mass index classification [15].

BMI: Body Mass Index

Individuals	Age	6MWD(M)	Velocity (km/h)*
A	56	674	6,73
B	53	666,5	6,66
C	62	547	5,43
D	51	578	5,76
E	71	514	5,11
F	63	570	5,68
G	63	500	4,96
Average	59,85	578,5	5,76

Table 4: Distance covered in the six minute walk test (6MWD).

*velocity = distance/time(s) x^3, 6 km/h

DISCUSSION

The aim of our studies was to assess the aerobic capacity of a master basketball team. The results show that most athletes are

overweight (42.9%) and have an aerobic capacity above that predicted for a population of the same age group (27.71%) [16].

Regarding anthropometric data, BMI did not show significant differences. However, most of the sample was overweight 42.9% and 28.8% are with grade I obesity. These data corroborate with the study by Correia and Silva (2009) where mean values of 27.1 kg/m2 were found (overweight) in a relatively larger sample of senior male basketball players [17].

In relation to the 6-minute walk test, the results were higher than expected by about 30% more, according to the equation of Iwama et al., (2009), the distance covered varied between 500 and 674 meter in average of 578,5 meters, the speed (km/h) was (5.76 km/h) and it varied between 4.96 and 6.73 km/h [13]. These results are similar to the study by Silva et al., (2004), where the test was applied to a sample of 26 elderly people between 56 and 85 years old participating in a physical exercise programs at North University of Parana, at a distance covered by these individuals varied between 456 and 716 meters in a forecast of 408.3 meters thus exceeding in 20% of the predicted in the covered distance during six minutes [18].

Given this we can see that the level of physical activity tends to favor the autonomy and independence of the elderly, however for a deeper analysis ir would be necessary to carry out a more complete assessment protocol in order to reach other variables of functional capacity.

CONCLUSION

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