

Comparison of physiological parameter in terms of resting heart rate among different weight categories of pugilist

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Abstract

The purpose of the present study was to find out the variance of resting heart rate (RHR) among various weight categories of Pugilist. For accomplish the study total 100 players were randomly selected as subjects. The selected subjects were further divided into four weight categories named light welter (64 kg), welter (69 kg), middle (75 kg) and light heavy (81 kg) respectively. Each weight category composed of 25 pugilists. The age of the selected subjects were ranged from 18 to 25 years. The One Way Analysis of Variance was used to detect the variance among the selected weight categories pugilists in their resting heart rate. The level of significance was set at 0.05 respectively.

Keywords: resting heart rate, pugilist

Introduction

The heart rate is the number of times the heart beats in the space of a minute. The heart is a muscular organ in the center of the chest. When it beats, the heart pumps blood containing oxygen and nutrients around the body and brings back waste products. A healthy heart supplies the body with just the right amount of blood at the right rate for whatever the body is doing at that time. For example, being frightened or surprised automatically releases adrenaline, a hormone, to make the heart rate faster. This prepares the body to use more oxygen and energy to escape or confront potential danger. The pulse is often confused with the heart rate but refers instead to how many times per minute the arteries expand and contract in response to the pumping action of the heart. The pulse rate is exactly equal to the heartbeat, as the contractions of the heart cause the increases in blood pressure in the arteries that lead to a noticeable pulse. Taking the pulse is, therefore, a direct measure of heart rate. The normal resting heart rate for adults over the age of 10 years, including older adults, is between 60 and 100 beats per minute (bpm). Highly trained athletes may have a resting heart rate below 60 bpm, sometimes reaching 40 bpm.

Objective: To assess the resting Heart Rate of different weight category Pugilists

Hypothesis: "There would be no significant difference in resting heart rate among different weight category pugilists".

Methodology and procedure

Selection of the Subjects: A total 100 samples were selected as subjects through random sampling technique. The subjects were further divided into four groups such as light welter (64 kg), welter (69 kg), middle (75 kg) and light heavy (81 kg) respectively. Each weight category composed

of 25 pugilists. The age of the sample were ranged from 18 to 25 years.

Selection of Variable: The resting heart rate was determined as variable of the study and it was assessed early morning before any training or activity. A standard digital heart rate monitor was used to measure the resting heart rate.

Statistical Method Used: Mean and Standard Deviation were used as descriptive statistics and One Way Analysis of Variance ANOVA was used for comparative purpose.

Results of the study

Table 1: Descriptive Profile of Pugilists of Different weight Category in their Resting Heart Rate

Weight Categories	N	Mean	SD
Light welter (64 kg)	25	50.32	5.55
Welter (69 kg)	25	51.80	6.21
Middle (75 kg)	25	59	4.58
Light Heavy (81 kg)	25	61.64	4.02
Total	100	55.69	6.97

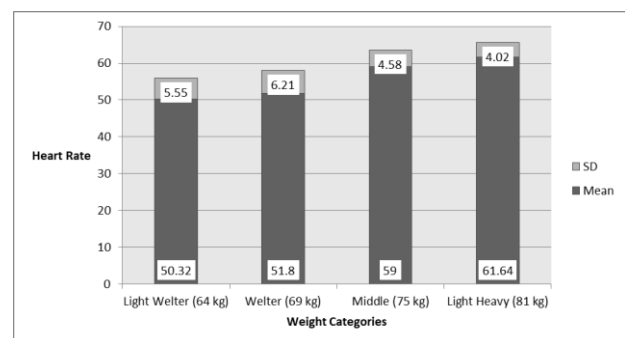


Fig 1: Graphical Profile of Descriptive Statistics of Different Weight Categories in their Resting Heart Rate

Table 2: Analysis of Variance among Various Weight Categories in their Resting Heart Rate

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2258.19	3	752.73	28.21	.000
Within Groups	2561.20	96	26.67		
Total	4819.39	99			

The table no 2 reveals the comparative statistics among the different weight categories in their resting heart rate in term of one way analysis of variance. The calculated F ratio was 28.21 as per the obtained outcomes which was highly significant at 0.05 level of alpha. Therefore the null hypothesis which was formulated earlier that “*There would be no significant difference in resting heart rate among different weight category pugilists*” was rejected. For pair wise comparison see post hoc analysis in table no 3.

Table 3: Pair wise Comparison among different Weight Categories in their Resting Heart Rate

Post Hoc Analysis (LSD)					
Light Welter (64kg)	Welter (69kg)	Middle (75kg)	Light Heavy (81 kg)	Mean Difference	Sig.
50.32	51.80	-	-	-1.480	.314
50.32	-	59	-	-8.68	.000
50.32	-	-	61.64	-11.32	.000
-	51.80	59	-	-7.20	.000
-	51.80	-	61.64	-9.84	.000
-	-	59	61.64	-2.64	.074

table 3 shows the pairwise comparison among the different weight categories of pugilist and it was observed that mean difference between light welter (64 kg) and welter (69 kg) was -1.480 which is not significant at 0.05 level of alpha and mean difference between middle (75 kg) and light heavy (81 kg) was -2.64 which was also not showing significant difference. Except these two groups all weight categories showing significant difference to each other.

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