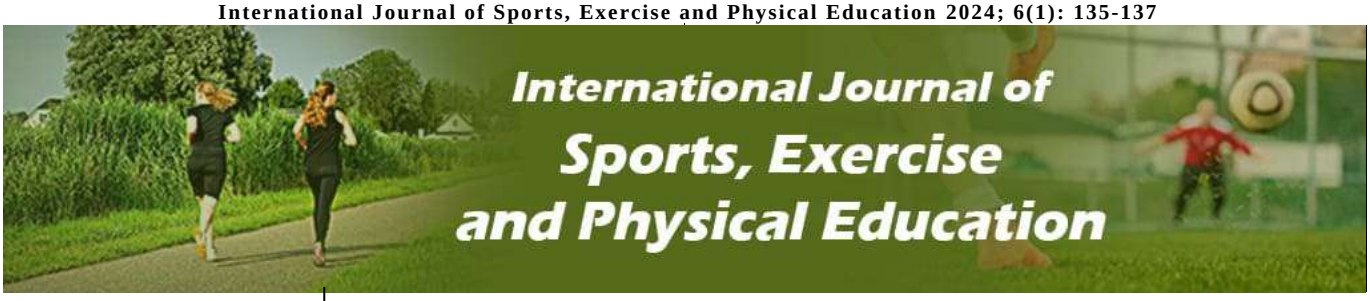

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An assessment of muscular strength between residential and non-residential school girls of Manipur

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Abstract
The main purpose of the study was to compare the muscular strength between the residential and non-residential school girls of Manipur. To achieve the objective of the study, one thousand two hundred (n=1200) i.e. six hundred (n=600) residential school girls and six hundred (n=600) non-residential school girls were taken randomly as a subject for the study. The age of the subjects ranged between 13-15 years. Muscular strength was measured by hand grip strength test by using Handgrip dynamometer for both hands (left hand and right hand). To determine the significance difference on muscular strength, independent 't' test was applied with the help of SPSS software. The level of significance was set at 0.05. Statistical calculation on gathered data showed that there was significant difference on muscular strength (left hand grip) and muscular strength (right hand grip) between residential and non-residential school girls of Manipur.

Keywords: Muscular strength, residential school, non-residential school, right hand grip and left-hand grip

Introduction
Physical fitness is one's richest possession. It cannot be purchased, but has to be earned through a daily routine of physical exercises. The physical fitness is very necessary for the better quality of life. Fitness makes a strong immunity system and save us from diseases. A fit person can achieve the best goal of life (Howell et. al, 1994) [5]. Physical fitness has always been a very important aspect of human life. One of the key goals of physical education is the promotion of health and wellness through exercise, recreation activity, games and sports. A large number of individuals from childhood to old age are now carrying out daily physical exercise to improve health and physical well-being. Physical fitness is an important component of an individual's natural growth and development to lead a healthy lifestyle. A serious threat to an individual's wellbeing is physical inactivity and unconstructive lifestyle behaviours.
Scientific evidence has been generated to demonstrate that people's general health and physical performance abilities rely primarily on their level of physical fitness (Edwin, 1964). Muscular strength is defined as the ability of a muscle or group of muscles to produce tension and a resulting force in one maximal effort, either statically or dynamically, in relation to the demands placed on it. In other words, the muscle builds up maximum tension against a resistive load either by isometric (static) or by isotonic (dynamic) contraction in a single effort. Muscle strength is quite often used interchangeably with muscle force but there are distinct differences between both. As per Newton 's second law of motion, force is a factor that changes the state of rest or of uniform motion. These forces can either be external (created by factors outside the body) or internal (muscle force that helps bones move). The ability of muscle to build up the necessary force depends on the strength of the muscle. Strength is the quantification of this inherent internal tension developed in the muscle that consequently produces force (Everett & Kell 2010) [3].

Objective of the study
The main objective of the study was to compare muscular strength between the residential and non-residential school girls of Manipur.

Method and Procedure

For the purpose of the study, one thousand two hundred (n=1200) i.e. six hundred (n=600) residential school girls and six hundred (n=600) non-residential school girls were taken randomly as a subject of the study from Manipur. The age of the subjects was ranged between 13-15 years. To assess the muscular strength of the subjects hand grip strength test was used by using hand grip dynamometer. To find out the significant difference between the residential and non-residential school girls of Manipur on muscular strength, independent 't' was applied with the help of SPSS software. For testing hypothesis, the level of significance was set at 0.05.

Results and Findings

Analysis of all the collected data, their results and discussion are systematically presented as follows.

Table 1: Descriptive Analysis of Muscular Strength (Right Hand Grip) Between Residential and Non-Residential School Girls of Manipur

Variable	Group	Mean	SD	't'-value	P-value
Muscular Strength (Right Hand Grip)	Residential School	23.60	3.31	9.23*	.000
	Non-Residential School	21.70	3.79		

*Significant at .05 level

't'$_{.05}$ (1198) = 1.96

From Table-1 significant difference was obtained between residential and non-residential school girls of Manipur on muscular strength (right hand grip) since the calculated 't' value 9.23 was greater than the tabulated 't' value 1.96 at 0.05 level of significance.

Mean scores of residential and non-residential school girls of Manipur on muscular strength (right hand grip) is depicted graphically in figure-1.

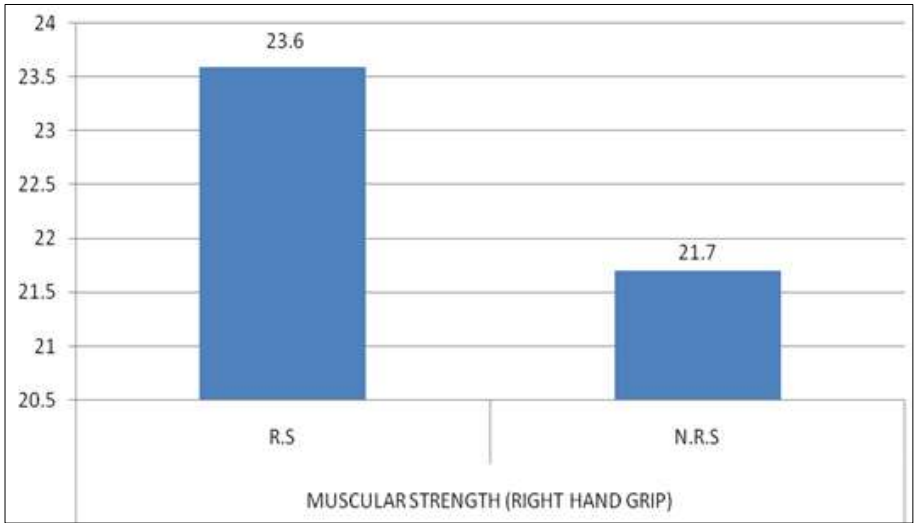

Fig 1: The Graphical Representation of Mean Scores of Residential and Non-Residential School Girls on Muscular Strength (Right Hand Grip)

Table 2: Descriptive Analysis of Muscular Strength (Left-Hand Grip) Between Residential and Non-Residential School Girls of Manipur

Variable	Group	Mean	SD	't'-value	P-value
Muscular Strength (Left Hand Grip)	Residential School	22.41	3.15	7.67*	.000
	Non-Residential School	20.90	3.64		

*Significant at .05 level

't'$_{.05}$ (1198) = 1.96

Table-2 reveals that significant differences were found between residential and non-residential school girls of Manipur on muscular strength (left hand grip), since the calculated 't' value 7.67 was higher than the tabulated 't' value 1.96 at 0.05 level of significance.

Mean scores of residential and non-residential school girls of Manipur on muscular strength (left hand grip) is depicted graphically in figure-2.

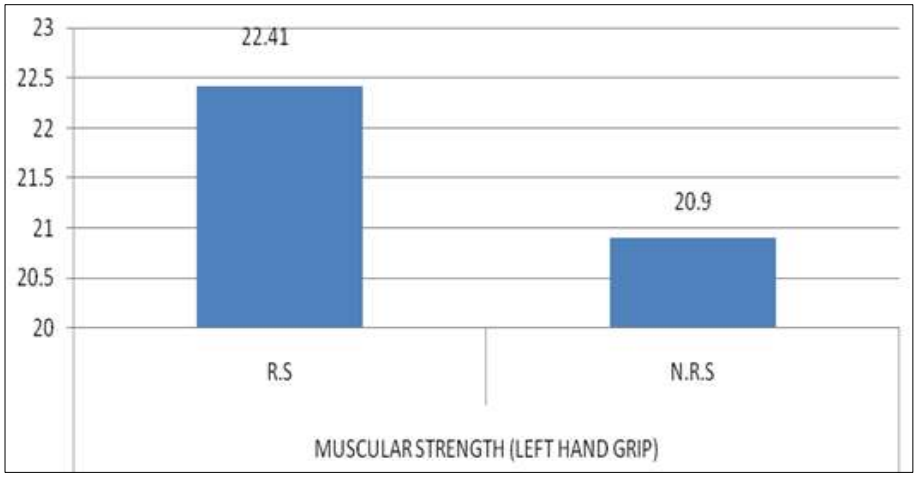

Fig 2: The Graphical Representation of Mean Scores of Residential and Non-Residential School Girls on Muscular Strength (Left Hand Grip)

Discussion of findings

The findings of the study confirmed that significant difference was obtained on muscular strength (right and left hand grip) between residential and non-residential school girls of Manipur. The findings of this study support the results of all previous research i.e. a study conducted by (Harth& Vetter, 1994) [4] found that men are stronger than women in their handgrip strength. Kariyawasam *et al*. (2019) [6] also found that basketball players are significantly higher than the footballer in hand grip strength while comparing the health and skill related physical fitness profiles between healthy male basketball and football players of Sri Lankan National teams. Further, a study conducted by (Kim *et al*. 2011) [7] found that the grip and pinch strength of the dominant hand were significantly higher than those of the non-dominant hand, and regular exercises were shown to give influences on reduction of strength gaps between dominant and non-dominant hand.

Conclusions

Based on the research findings, the following conclusions were drawn.

1. Residential school girls had shown significantly higher than non-residential school girls on muscular strength (right hand grip).
2. Residential school girls were found significantly higher than non-residential school girls on muscular strength (left hand grip).

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