



BODY MASS INDEX AND ITS RELATIONSHIP TO PERFORMANCE IN THE SNATCH LIFT AMONG FEMALE WEIGHTLIFTERS OF THE IRAQI NATIONAL WEIGHTLIFTING TEAM

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Abstract

Interest in different physical capacities and health variables on sports performance has increased due to its importance of improving or diminishing athlete's performances. Body fitness of an athlete: Body fitness of an athlete's represents a person's encounter and proficiency in using a part or whole body for expressing sensation, performing motion, creating, or transforming physical activity. This extends to many physical and motor abilities. The Body Mass Index (BMI) is a well-established measure of body composition that derives the ratio 'height in cm/weight in kg' for an individual to express its body mass. It may be used as a convenient and useful tool for sports and health professionals in assessing weight status of individuals, along with associated health consequences or risks by looking at the relative risk of diseases compared to normal weight ranges.

The issue which motivated this study is the fact that female weightlifters exhibit large differences in performance during some of the lifts practiced by these athletes within the sport. This difference influences the reliability of attaining these various outcomes in certain physical abilities and motor tasks (e.g., snatch and clean & jerk). One explanation for this discrepancy may lie in excessive body weight not conducive to the most efficient performance, especially during real-world training interventions. Physical and motor fitness, Good or appropriate physical and motor fitness is a prerequisite in the educational/athletic growth and development of all participants of different sports. Athletes should control BMI to manage body shape appropriately. The purpose of the study is to find out about the snatching level in Olympic weight lifting and nature of relationship between performance measures and BMI. The present study is based on the hypothesis that there would be a correlation between performance in the snatch lift and Body Mass Index. Descriptive method and survey-type of correlational research were utilized by the researchers. We intentionally selected the study group, which included female athletes from the Iraqi national weightlifting team. The BMI of the sampled were estimated using conventional BMIs equation. The experiment was carried out on two days. Day one: The sample was collected in a hall at the Rose Resort Shaqlawa, Erbil along with a helping group. The snatch lift test was implemented on the second day. Data were analysed after BMI measurements and performance tests to estimate the type of association between the studied variables and make inferences accordingly.

Keywords: Body Mass Index (BMI), Performance, Snatch Lift

Introduction

For the purpose of achieving optimal athletic form (peak performance) in the elements of special physical fitness in weightlifters or other athletes, it is necessary to strictly follow the components of the training plan



and be consistent. Health being a yardstick of an individual's success in task performance; be it off the field or on court. To attain this level, there is a need for the development of physical, psychological and social well-being which interacts effectively to maintain the individual in good general health (Aso, 2015). A particular motor performance feature that sets a certain sport apart from others is associated with each sport, the science of training being essential to it. One such sport is weightlifting. BMI (Body Mass Index) is one of the known measures for obtaining body mass from height and weight. It is a practical and simple technique that can be used by professionals in the sports and health area, which allows for an estimation not only of body weight status but also of health status, and also relative risk for diseases when compared to normal weight. Several analyses have perceived BMI to be a covariate. Cite this article: Othersen DFF, Ravenscraft EK (1998) For instance, in the work by Abdelhaq et al. (2010) (Imad Abdelhaq, 2010) also used BMI to assess a sample of students from the Faculty of Physical Education at the University of Palestine and compared it with BMI world classification. The study by Yousef Abdullah Al-Turki (2006) (Yousef Abdullah, 2006) also calculated the BMI of students @ King Saud University in Riyadh, Saudi Arabia based on the standard formula and compared its level with international classification as done by WHO. Other related research also included a study by Al-Quhiz (2006) (Al-Quhiz, 2006) and another by Najoumi & Najm Abadi(2005), conducted on obese students in the University of Tehran. Differences from those studies are twofold; our work focuses on two factors, that is, Body Mass Index (BMI) and Olympic weightlifting snatch performance.

Importance These are two very important factors in those who do this sport, the snatch and BMI. These factors may help to optimize the performance of female lifters and would aid coaches in programming or prescribing appropriate training exercises that will challenge the athlete's psychological, physical, and technical capabilities. This was what directed the attention to investigate the level of performance in the snatch and its association with BMI. One of the leading causes which put an athlete's life in jeopardy is obesity. Writing on a report from the WHO, Mustafa Abdul-Zahra (Mustafa, 2011) notes that at least one-third of the world's population is overweight with about one-tenth obese. When excess body fat accumulates to the extent that it adversely affects health, cardiovascular ill effects can result-most notably heart disease and stroke. They can lead to profound disability or even early death.

This investigation should lead to some results that can be put into the hands of coaches in this sport, so they can be better informed about what are the relative strengths and what are the weak points that need addressing as female lifters look for appropriate support as this sport continues to grow.

Research Problem:

Possessing both physical and psychological fitness is considered a crucial factor in the educational and athletic development of female athletes practicing different events in weightlifting. By managing and controlling Body Mass Index (BMI), athletes can maintain an appropriate athletic physique. Based on this, the research problem was formulated to investigate the nature of the relationship between performance in the snatch lift and Body Mass Index (BMI) among female weightlifters of the Iraqi national team.

Research Objectives:

This research aims to: Identify the level of performance in the snatch lift and Body Mass Index (BMI) among female athletes of the Iraqi national weightlifting team (research sample).

Determine the correlation between Body Mass Index (BMI) and performance in the snatch lift among female athletes of the Iraqi national weightlifting team.

Research Hypotheses:

There is a statistically significant correlation between the results of performance in the snatch lift in Olympic weightlifting and the Body Mass Index (BMI) among the female athletes of the Iraqi national weightlifting team (research sample).



Research Fields:

Human Field: Female athletes of the Iraqi national weightlifting team.

Temporal Field: The period from 15/07/2024 to 30/07/2024.

Spatial Field: The weightlifting hall at the national training center, located in Rose Resort, Shaqlawa, Erbil.

Research Procedures

Research Methodology:

The researchers used the descriptive method, employing both the survey and correlational approaches, as it suited the nature and problem of the study.

Research Population and Sample:

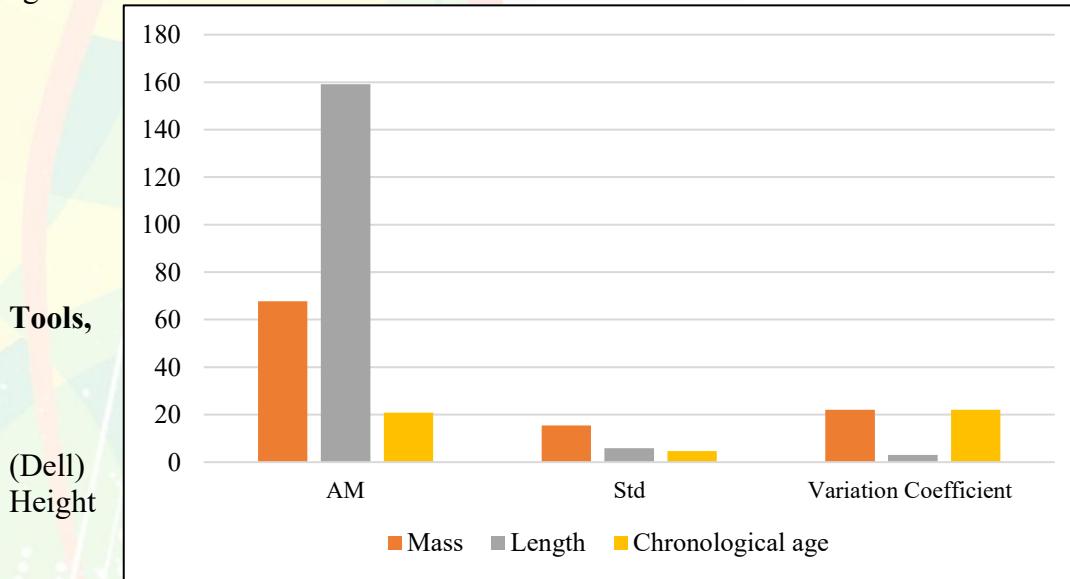
The research population was intentionally selected and consisted of female athletes from the Iraqi national weightlifting team, totaling 10 participants. Table 1 shows the specifications of the sample in terms of body mass, height, and chronological age.

Table 1: Specifications of the Research Sample: Body Mass, Height, and Age

| Variables Statistical parameters | AM | Std | Variation Coefficient |
|----------------------------------|-------|------|-----------------------|
| Mass | 67.8 | 15.4 | 22 |
| Length | 159.2 | 5.9 | 3 |
| Chronological age | 20.8 | 4.61 | 22 |

It is observed from Table 1 that the values of the coefficient of variation were (22, 3, 22), respectively, all of which are less than 30. This indicates that the sample is homogeneous in the variables mentioned in the table, as the participants are the same female weightlifters and are relatively close in age group.

Figure 1. shows the specifications of the research sample in the variables of mass, height, and chronological age.



Equipment, and Materials Used in the Research:

Stopwatch (1), Laptop (1), Hand calculator, measuring device (1), Weight scale (2), Measuring tape,

Adhesive tape, Stationery (papers – pens), Arabic and foreign references, and Tests and measurement tools

Field Research Procedures:

Main Experiment, Snatch Lift:



The researchers, with the help of the assisting team, conducted the snatch lift test, allowing each of the 10 female athletes in the sample to perform three attempts. The best attempt was recorded on Saturday, July 20, 2024, in the sports hall. This was done in order to establish the scientific foundations of the test, as detailed below.

Scientific Basis of the Snatch Lift Test (Wadih, 2018, p. 149):

It was essential for the researchers to ensure the test met the scientific standards of validity, reliability, and objectivity, as these are among the most important psychometric properties a test should have. Since the test was designed for specific evaluative purposes, confirming these properties was necessary to ensure the quality and appropriateness of the measurement tool used in evaluation and assessment.

Test Validity:

Validity is one of the fundamental characteristics of psychological measurements, as it refers to a tool's ability to measure what it is intended to measure. Validity is directly related to the objective upon which the test is built (Wahib, 2010, p. 33). The researchers will verify the validity of the measurement through content validity indicators.

Test Reliability:

The reliability coefficient of the test will be determined by using the test-retest method on the pilot sample.

BMI (Body Mass Index) Test (Muhammad, 1998, pp. 213-217) and How It Is Measured:

This test expresses the relationship between the student's weight and height. It is the most widely recognized global measure used to distinguish between overweight and obesity, and it is considered the best standard for measuring obesity worldwide.

BMI is calculated by dividing weight in kilograms by the square of height in meters, as follows:

$$\text{Body Mass Index (BMI)} = \text{Weight (kg)} / \text{Height}^2 (\text{m}^2)$$

Statistical Tools:

The researchers will use statistical tools from the SPSS program.

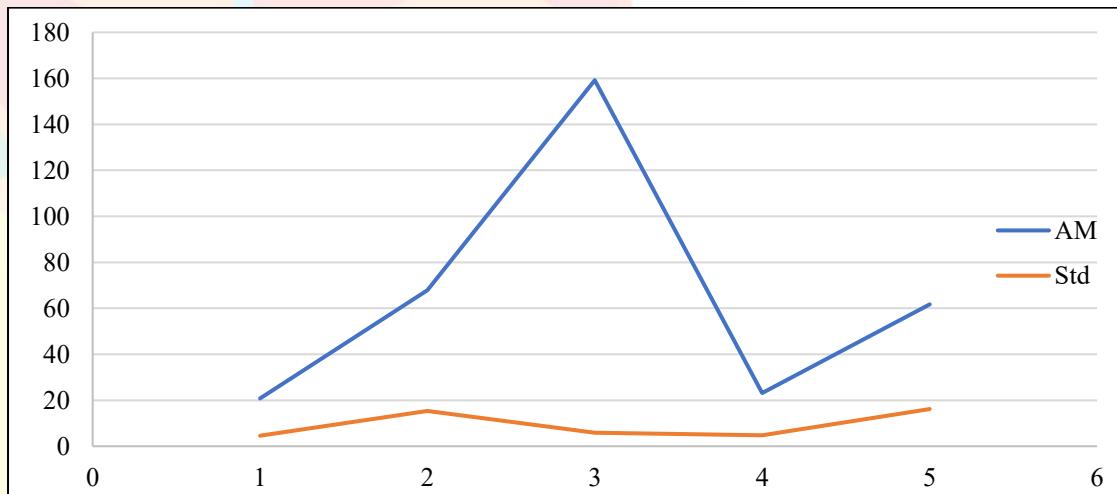
Results and Discussion

Results:

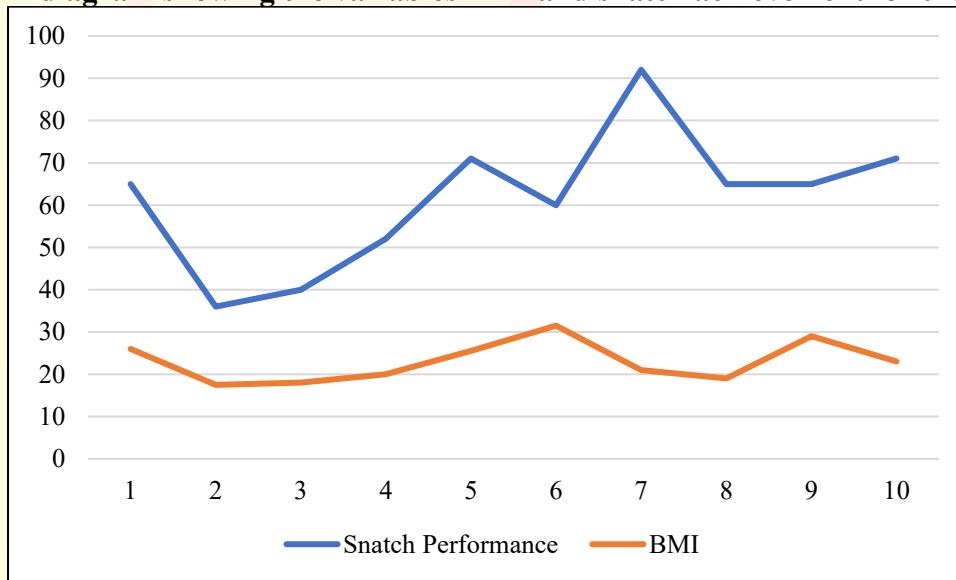
Presentation of Descriptive Data for the Research Sample

| No. | Variables | Unit of measurement | AM | Std |
|-----|--------------------|---------------------|-------|-------|
| 1 | Age | Year | 20.8 | 4.6 |
| 2 | Weight | Kg | 67.8 | 15.4 |
| 3 | Height | cm | 159.2 | 5.9 |
| 4 | BMI | kg/m ² | 23.1 | 4.8 |
| 5 | Snatch Performance | kg | 61.7 | 16.17 |

Descriptive data diagram of the research sample



A diagram showing the variables BMI and snatch achievement for the research sample.



Displaying the correlation coefficient between the studied variables

Table No. 4 shows the positive correlation between the two variables (snatch lift and body mass index (BMI)).

| Sequence | Correlation value | Sign. |
|--------------------|-------------------|-----------------------------|
| BMI | 0.348 | |
| Snatch Achievement | | Positive Direct Correlation |

Discussion:

The correlation value between performance in the snatch lift and Body Mass Index (BMI) was 0.34, which indicates a positive direct correlation. This reveals the association between BMI and snatch lift performance. That is why also Wadie Al-Tikriti points out in his work that female lifters need to conform to as well as retain their weight and BMI (Wadie, 2010, P.9). This helps them to stay away from diseases such as hypertension, diabetes and heart related ailments. Daily participation in at least 30 min of physical activity supports consumption based on needs and can lead to annual weight loss of approximately 11 kg, with slight individual



differences (Amed, 2015). Moreover, you should avoid the intake of food that can make you gain your weight fast such as junk/fast foods since there is a growing increase in it and they are rich source of fats, proteins and sugars. Athletes should also be encouraged to eat more organic foods such as vegetables and fruits because of the high nutritive value with low calories absorbed (Farouk, 1995, p.80).

Conclusions

1. There is a positive relationship between the Body Mass Index (BMI) and snatch lift weight among Iraqi national female weightlifting athletes.
2. Performance in the snatch lift was over BMI values (average value for snatch lift 61.7 kg and BMI =23.1).
3. The research sample belonged to the category of normal weight, (BMI classification according to WHO; 18.5-25).

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