



## NORMS AND GRADES UNDER NORMAL DISTRIBUTION FOR BASIC MOVEMENT PATTERNS OF FREESTYLE WRESTLING PLAYER

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### **Abstract:**

The aim of this study was to construct norms for Basic Movement Patterns of Freestyle Wrestling Player. Fifty five, male Freestyle Wrestling Player of Guru Nanak Dev University, Amritsar between the age group of 19-25 years volunteered to participate in the study. The 20 Meter Dash Test was used to measure Running Speed, Illinois Agility Test was used to measure Running Agility, Standing Long Jump Test was used to measure Jumping Ability and Overhead Medicine Ball Throw Test was used to measure Throwing Ability. Statistical analyses were performed using the Statistical Package for the Social Sciences for Windows version 16.0 software (SPSS Inc., Chicago, IL). In order to construct the norms, Percentile Scale was used. Further, the scores were classified into five grades (i.e., very good, good, average, poor and very poor). In Running Speed, the scores below 5.149 are considered very poor, from about 4.837-5.49 is considered poor, 4.213-4.837 is considered average, 4.213-3.901 is considered good and the scores above 3.901 are considered very good. In Running Agility, the scores below 17.54 are considered very poor, from about 16.896-17.54 is considered poor, 15.608-16.896 is considered average, 15.608-14.964 is considered good and the scores above 14.964 are considered very good. In Jumping Ability, the scores below 218 are considered very poor, from about 224.409-218 is considered poor, 224.409-237.227 is considered average, 237.227-243.636 is considered good and the scores above 243.636 are considered very good. In Throwing Ability, the scores below 8.983 are considered very poor, from about

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10.582-8.983 is considered poor, 10.582-13.78 is considered average, 13.78-15.379 is considered good and the scores above 15.379 are considered very good.

**Key words:** norms, grades, basketball players, basic movement patterns

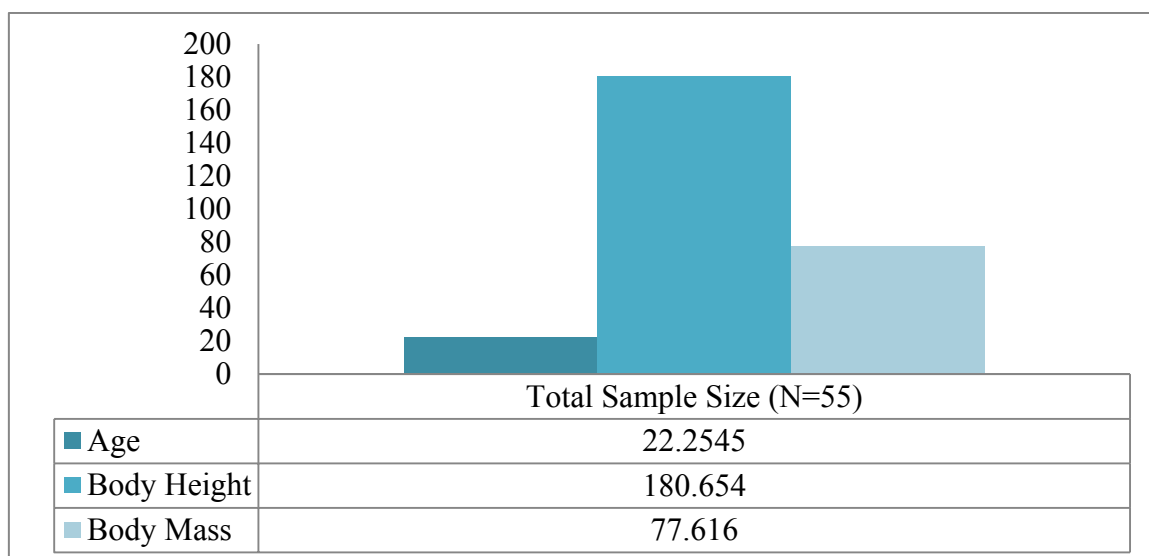
## 1. Introduction

Wrestling has been described as an intermittent physical event which produces great strength and muscle power demands of both the upper and lower body, with a high anaerobic energy metabolism demand (Horswill 1992; Horswill *et al.*, 1989, 1992; Hubner-Wozniak *et al.*, 2004; Kraemer *et al.*, 2001; Sharratt *et al.*, 1986). Numerous researchers have also reported that, although aerobic performance may be a basic requirement for wrestlers, it cannot be considered as a critical component of success in this sport (Horswill 1992; Horswill *et al.*, 1992; Sharratt *et al.*, 1986; Stine *et al.*, 1979; Yoon 2002). During the 1980's a few studies examined fitness profiles for wrestlers at different competitive levels in order to identify physiological differences that may contribute to success (Cisar *et al.*, 1987; Horswill *et al.*, 1989; Song and Garvie 1980).

## 2. Material and Methods

### 2.1 Participants

Fifty five, male Freestyle Wrestling Player of Guru Nanak Dev University, Amritsar between the age group of 19-25 years volunteered to participate in the study. The subject's demographics of Basic Movement Patterns (i.e., Running Speed, Running Agility, Jumping Ability and Throwing Ability) of Freestyle Wrestling Player of Guru Nanak Dev University, Amritsar (N=55) are exhibited in Figure-1.



**Figure 1:** Subject's demographics of Basic Movement Patterns (i.e., Running Speed, Running Agility, Jumping Ability and Throwing Ability) of Freestyle Wrestling Player of Guru Nanak Dev University, Amritsar (N=55)

## 2.2 Procedures

The following Basic Movement Patterns (i.e., Running Speed, Running Agility, Jumping Ability and Throwing Ability) and their respective tests were selected for the present study:

Sr. No.	Basic Movement Patterns	Test
1.	Running Speed	20 Meter Dash Test
2.	Running Agility	Illinois Agility Test
3.	Jumping Ability	Standing Long Jump Test
4.	Throwing Ability	Overhead Medicine Ball Throw Test

## 2.3 Statistical Analysis

Statistical analyses were performed using the Statistical Package for the Social Sciences for Windows version 16.0 software (SPSS Inc., Chicago, IL). In order to construct the norms, Percentile Scale was used. Further, the scores were classified into five grades i.e., very good, good, average, poor and very poor.

## 3. Results

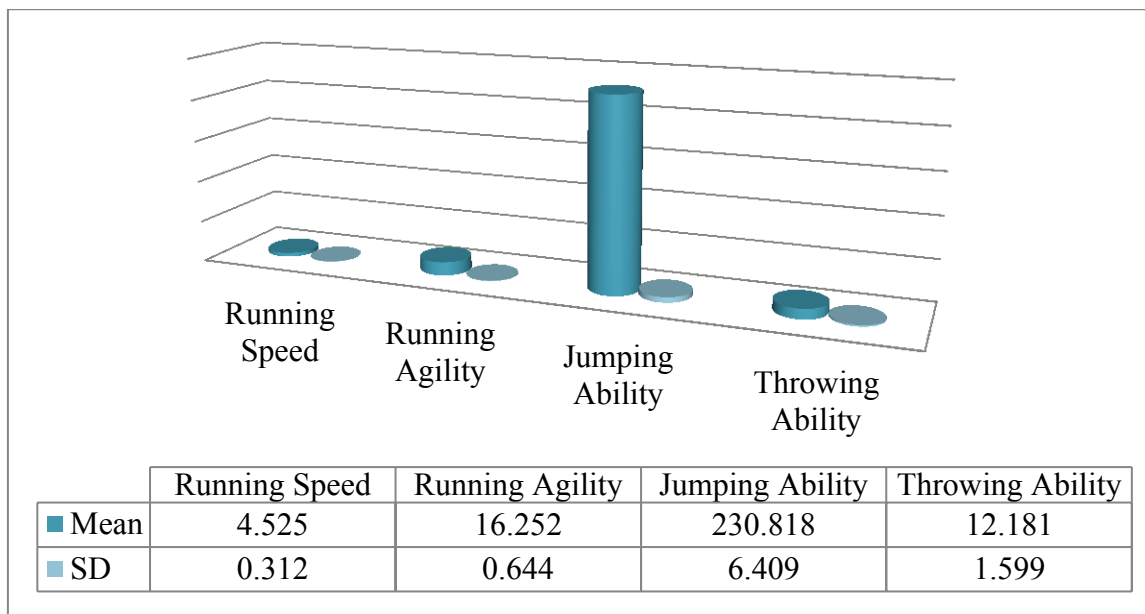
For each of the chosen variable, the result pertaining to Descriptive Statistics (Mean and SD) and Percentile Plot (Hi and Low) of Basic Movement Patterns (i.e., Running Speed, Running Agility, Jumping Ability and Throwing Ability) of Freestyle Wrestling Player of Guru Nanak Dev University, Amritsar are presented in the following tables:

**Table 1:** Descriptive Statistics (Mean and SD) and Percentile Plot (Hi and Low) of Basic Movement Patterns (i.e., Running Speed, Running Agility, Jumping Ability and Throwing Ability) of Freestyle Wrestling Player of Guru Nanak Dev University, Amritsar (N=55)

Sr. No.	Basic Movement Patterns	Mean ± SD	Hi	Low
1.	Running Speed	Mean	4.525	5.2
		SD	0.312	
2.	Running Agility	Mean	16.252	17.2
		S.D	0.644	
3.	Jumping Ability	Mean	230.818	250
		SD	6.409	
4.	Throwing Ability	Mean	12.181	16
		SD	1.599	

A glance at Table-1 shows the in Running Speed, the mean score was 4.525 and standard deviation score was 0.312. In Running Agility, the mean score was 16.252 and standard deviation score was 0.644. In Jumping Ability, the mean score was 230.818 and standard deviation score was 6.409 whereas, in Throwing Ability, the mean score was 12.181 and standard deviation score was 1.599. The Descriptive Statistics (Mean and SD)

of Basic Movement Patterns (i.e., Running Speed, Running Agility, Jumping Ability and Throwing Ability) of Freestyle Wrestling Player of Guru Nanak Dev University, Amritsar (N=55) has been presented graphically in Figure 2.



**Figure 2:** Descriptive Statistics (Mean and SD) of Basic Movement Patterns (i.e., Running Speed, Running Agility, Jumping Ability and Throwing Ability) of Freestyle Wrestling Player of Guru Nanak Dev University, Amritsar (N=55)

### 3.1 Grades under Normal Distribution

Five types of classification/grades i.e., Very Poor, Poor, Average, Good and Very Good have also been prepared under Normal Distribution. Grades have been presented in Table 2.

**Table 2:** Grading of Basic Movement Patterns (i.e., Running Speed, Running Agility, Jumping Ability and Throwing Ability) of Freestyle Wrestling Player of Guru Nanak Dev University, Amritsar (N=55)

Basic Movement Patterns	Very Poor	Poor	Average	Good	Very Good
Running Speed	Greater than (>) 5.149	4.837-5.149	4.213-4.837	4.213-3.901	Less than (<) 3.901
Running Agility	Greater than (>) 17.54	16.896-17.54	15.608-16.896	15.608-14.964	Less than (<) 14.964
Jumping Ability	Less than (<) 218	224.409-218	224.409-237.227	237.227-243.636	Greater than (>) 243.636
Throwing Ability	Less than (<) 8.983	10.582-8.983	10.582-13.78	13.78-15.379	Greater than (>) 15.379

### 3.2 Running Speed

- In Running Speed, the scores below 5.149 are considered very poor, from about 4.837-5.49 is considered poor, 4.213-4.837 is considered average, 4.213-3.901 is considered good and the scores above 3.901 are considered very good

### 3.3 Running Agility

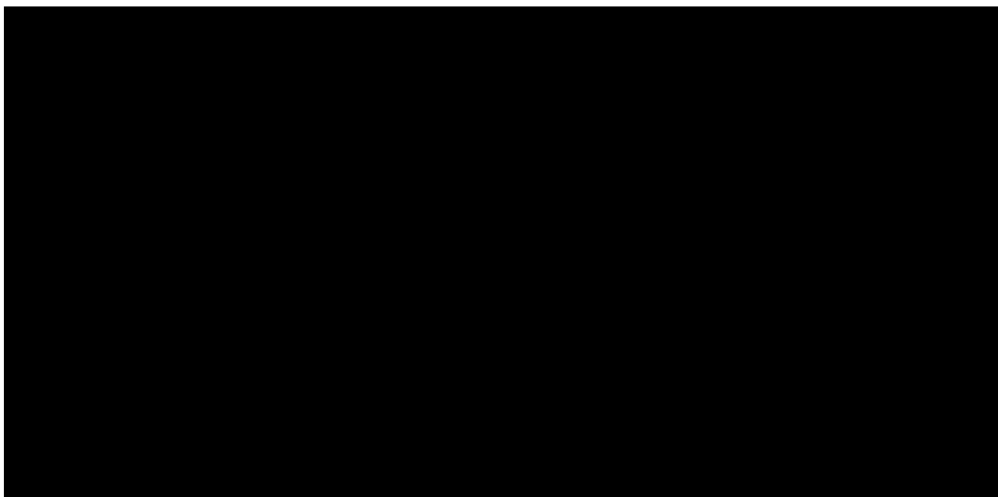
- In Running Agility, the scores below 17.54 are considered very poor, from about 16.896-17.54 is considered poor, 15.608-16.896 is considered average, 15.608-14.964 is considered good and the scores above 14.964 are considered very good.

### 3.4 Jumping Ability

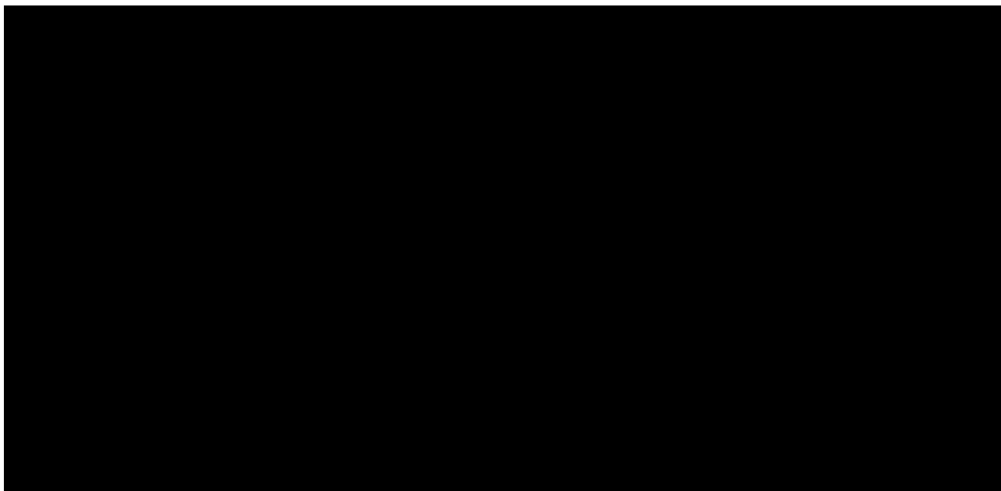
- In Jumping Ability, the scores below 218 are considered very poor, from about 224.409-218 is considered poor, 224.409-237.227 is considered average, 237.227-243.636 is considered good and the scores above 243.636 are considered very good.

### 3.5 Throwing Ability

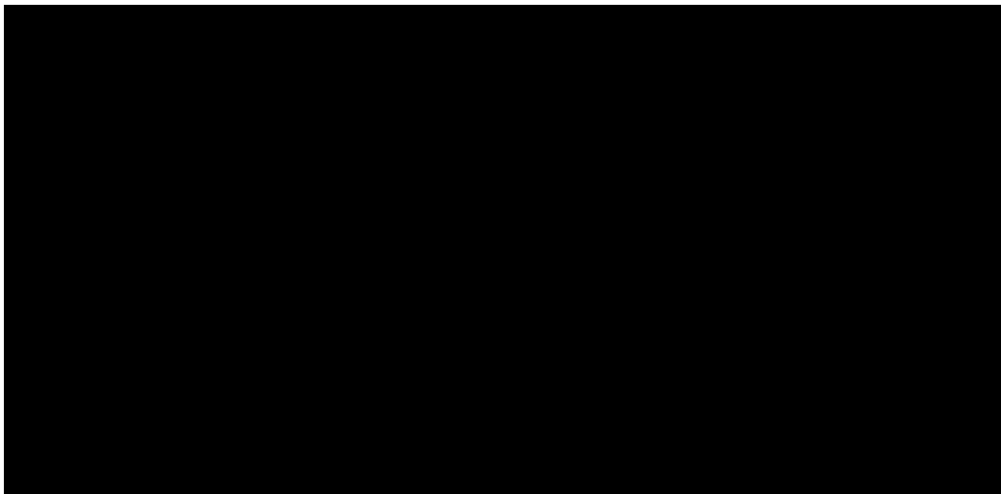
- In Throwing Ability, the scores below 8.983 are considered very poor, from about 10.582-8.983 is considered poor, 10.582-13.78 is considered average, 13.78-15.379 is considered good and the scores above 15.379 are considered very good.



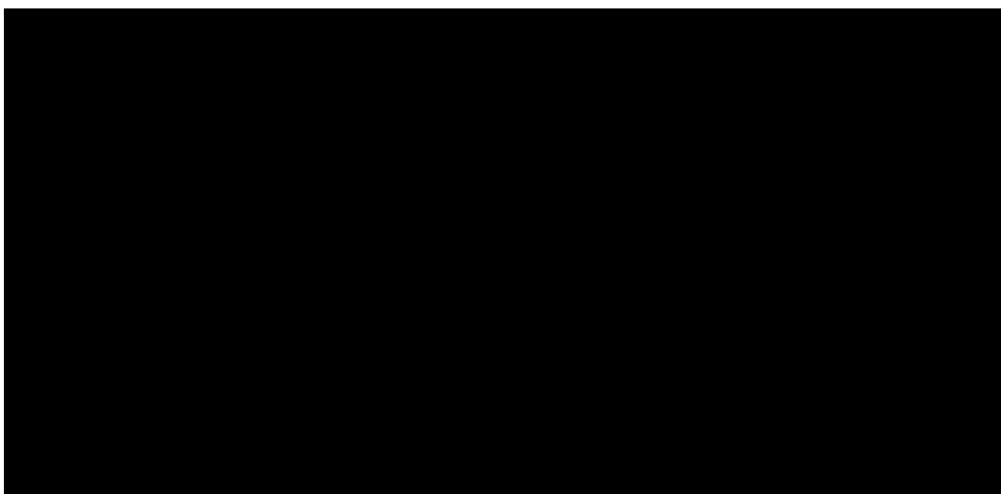
(a)



(b)



(c)



(d)

**Figure 3:** Normal distribution of Basic Movement Patterns (i.e., Running Speed, Running Agility, Jumping Ability and Throwing Ability) of Freestyle Wrestling Player of Guru Nanak Dev University, Amritsar (N=55)

#### 4. Conclusions

In summary, the present study manifests an intervening attempt to construct norms for Basic Movement Patterns of Freestyle Wrestling Players of Guru Nanak Dev University, Amritsar.

According to the results, we can conclude that the in Running Speed, the scores below 5.149 are considered very poor, and the scores above 3.901 are considered very good. In Running Agility, the scores below 17.54 are considered very poor, and the scores above 14.964 are considered very good. In Jumping Ability, the scores below 218 are considered very poor, and the scores above 243.636 are considered very good. In Throwing Ability, the scores below 8.983 are considered very poor, and the scores above 15.379 are considered very good.

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#### References

1. Cisar CJ, Johnson GO, Fry AC, Housh TJ, Hughes RA, Ryan AJ, Thorland WG. (1987). Preseason body composition, build and strength as predictors of high school wrestling success. *J Appl Sports Sci Res* 1:66–70.
2. Horswill CA. (1992). Applied physiology of amateur wrestling. *Sports Med* 14:114–143.
3. Horswill CA, Scott JR, Galea P. (1989). Comparison of maximum aerobic power, maximum anaerobic power, and skinfold thickness of elite and nonelite junior wrestlers. *Int J Sports Med* 10:165–168.
4. Hubner-Wozniak E, Kosmol A, Lutoslawska G, Bem EZ. (2004). Anaerobic performance of arms and legs in male and female free style wrestlers. *J Sci Med Sport* 7:473–480.
5. Kraemer WJ, Fry AC, Rubin MR, Triplett-McBride T, Gordon SE, Koziris LP, Lynch JM, Volek JS, Meuffels DE, Newton RU, Fleck SJ. (2001). Physiological and performance responses to tournament wrestling. *Med Sci Sports Exerc* 33:1367–1378.
6. Sharratt MT, Taylor AW, Song TM. (1986). A physiological profile of elite Canadian freestyle wrestlers. *Can J Appl Sport Sci* 11:100–105.

7. Song TM, Garvie GT. (1980). Anthropometric, flexibility, strength, and physiological measures of Canadian wrestlers and comparison of Canadian and Japanese Olympic wrestlers. *Can J Appl Sport Sci* 5:1–8.
8. Stine G, Ratliff R, Shierman G, Grana WA. (1979). Physical profile of the wrestlers at the 1977 NCAA Championships. *Physician Sportsmed* 7:98–105.
9. Yoon J. (2002). Physiological profiles of elite senior wrestlers. *Sports Med* 32:225–233.



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