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Prediction of weight lifting performance on the basis of selected anthropometric variables

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Abstract
Weight Training to lose fat is often mis-understood, with many people (women in particular) thinking that they would get bigger in the process. Well, this just isn't true; in fact doing this to lose fat is both good and essential. When people submit to a low calorie diet and cardio workout regime they lose muscle as well as fat. However, when you gain muscle you can actually train your body to burn fat more efficiently. The National level players of weightlifting belonging from the Sports Authority of India (SAI), Coaching Center Kashipur, Uttarakhand, were constitute as the population for this study. The samples were selected by using purposive random sampling technique from the Population i.e. 29. The age of the subjects were ranged 18 to 28 years. To determine the relationship of Anthropometrical characteristics with the Weight lifting Performance of different weight category, the data collected was analyzed by using the correlation matrix (Pearson Product Moment Correlation).

Keywords: Weight Lifters, Anthropometric and Uttarakhand

1. Introduction
Good prediction is one of the key skills necessary to be a successful competitive Pokémon player. Prediction is the only tool a player has at his or her disposal to overcome a poor team match-up; hence, it is important to be able to predict effectively. The ability to predict your opponent is one of the main stumbling blocks for new players and the leap to overcome it can be a great one. Hopefully, for those struggling with prediction, this article can be a starting point for you to become a successful predictor in the future. Some competitive Pokémon players will argue that prediction is nothing more than glorified guessing. In some respects, this is true, but the characterization is wholly inaccurate. Prediction is intelligent guessing based on collected experience and information. A useful analogy is this. Let's say you are throwing a die and are attempting to guess what side it will land on. Your guess simply has a 1 in 6 chance of being correct. Now, let's say I'm aware that one side of the die has been weighted such that there is an increased likelihood of it landing on that weighted side. I will obviously "guess" that it will land on the weighted side. Could I be wrong? Absolutely. However, I am using my knowledge to make an educated guess to increase my likelihood that my guess is correct. This is the difference between guessing and prediction.
Weight Training to lose fat is often mis-understood, with many people (women in particular) thinking that they would get bigger in the process. Well, this just isn't true, in fact doing this to lose fat is both good and essential. When people submit to a low calorie diet and cardio workout regime they lose muscle as well as fat. However, when you gain muscle you can actually train your body to burn fat more efficiently. A good program starts you off by teaching proper techniques. This means in the beginning you'll use very light weights so you can practice good form. Locking down proper form as you lift helps you avoid getting hurt. It also increases the quality of results you'll experience as your weight lifting progresses.

1.1 Objectives of the Study
1. To find out the relationship of each selected anthropometric variables with the weight lifting performance for 62 kg. Weight category.
2. To find out the relationship of each selected anthropometric variables with the weight lifting performance for 69 kg. Weight category.

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3. To find out the relationship of each selected anthropometric variables with the weight lifting performance for 77 kg. Weight category.
4. To find out the relationship of each selected anthropometric variables with the weight lifting performance for 85 kg. Weight category.
5. To find out the relationship of each selected anthropometric variables with the weight lifting performance for 94 kg. Weight category.

1.2 Delimitations of the Study
1. The study was delimited to the twenty (29) male weight lifters.
2. The study was also delimited to the national level weight lifters.
3. The study was further delimited to the subjects which are practicing under the sports authority of India (SAI), coaching centre Kashipur, Uttarakhand.
4. The study was delimited to the subjects belonging to the age group of 18-28 years old.
5. The study was delimited to the five weight categories (62 kg., 69 kg., 77 kg., 85 kg. and 94 kg.)
6. This study was also delimited to the following anthropometric characteristics: Age, Height, Weight, Arm length(Left), Arm length(Right), Waist circumference, Hips circumference, Leg length (Left), Leg length (Left), Thigh circumference (Left) and Calf circumference(Left)

2. Material and Methods
The National level players of weightlifting belonging from the Sports Authority of India (SAI), Coaching Center Kashipur, Uttarakhand, were constitute as the population for this study. The samples were selected by using purposive random sampling technique from the Population i.e. 29. The age of the subjects were ranged 18 to 28 years.

3. Results, Discussion and Conclusions
The analysis of the data and results of the study have been presented in this chapter. To determine the relationship of Anthropometrical characteristics with the Weight lifting Performance of different weight category, the data collected was analyzed by using the correlation matrix (Pearson Product Moment Correlation).

Table 1: Relationship of anthropometrical variables with the weight lifting performance in 62kg weight category (N=6)

Anthropometrical Variables	Weight Lifting Performance
Age	-0.703
Height(Cm)	-0.597
Weight (Kg.)	0.253
Right Arm length	-0.363
Left Arm length	-0.126
Right Leg length	-0.945*
Left Leg length	-0.886*
Waist Circumference.	-0.809
Hips Circumference	-0.922*
Left Thigh Circumference.	-0.440
Left Calf Circumference	0.885*

*Significant at 0.05 levels, Coefficient of correlation required to be Significant for 4 d.f. is 0.811

Table-1, revealed that in case of Leg length (Right & left), Hips Circumference and Left calf circumference in weight lifting, obtained value is greater than tabulated value therefore it has shown significant relationship with the performance of weight lifting. In case of Age, Height, Weight, Arm length (Right & Left), Waist circumference and Left thigh circumference have shown insignificant relationships with the performance of weight lifting in 62 kg weight category.

Table 2: Relationship of anthropometrical variables with the weight lifting performance in 69kg weight category (N=6)

Anthropometrical Variables	Weight Lifting Performance
Age	0.184
Height(Cm)	-0.765
Weight (Kg.)	-0.75
Right Arm length	-0.378
Left Arm length	-0.243
Right Leg length	-0.102
Left Leg length	-0.111
Waist Circumference.	-0.838*
Hips Circumference	-0.780
Left Thigh Circumference.	0.548
Left Calf Circumference	0.912*

*Significant at 0.05 level, Coefficient of correlation required to be significant for 4 d.f. is 0.811

Table-2, revealed that in case of Waist Circumference and Left Calf Circumference in weight lifting, obtained value is greater than tabulated value therefore it has shown significant relationship with the performance of weight lifting. In case of Age, Height, Weight, Arm length (Right & Left), Hips circumference, Left thigh circumference, arm length (Left & Right) and leg length (Left & Right) have shown insignificant relationships with the performance of weight lifting in 69 kg weight category.

Table 3: Relationship of anthropometrical variables with the weight lifting performance in 77kg weight category (N=5)

Anthropometrical Variables	Weight Lifting Performance
Age	0.435
Height(Cm)	0.896*
Weight (Kg.)	0.119
Right Arm length	0.88*
Left Arm length	0.714
Right Leg length	0.878*
Left Leg length	0.651
Waist Circumference.	0.133
Hips Circumference	-0.410
Left Thigh Circumference.	-0.457
Left Calf Circumference	-0.643

*Significant at 0.05 levels, Coefficient of correlation required to be significant for 3 d.f. is 0.878

Table 3, revealed that in case of Height, Right Arm length, Right Leg length weight lifting, obtained value is greater than tabulated value therefore it has shown significant relationship with the performance of weight lifting. In case of Age, Waist Circumference, Left Calf Circumference, Weight, Arm length (Left), Hips circumference, Left thigh circumference, arm length (Left & Right) and leg length (Left) have shown insignificant relationships with the performance of weight lifting in 77 kg weight category.

Table 4: Relationship of anthropometrical variables with the weight lifting performance in 85kg weight category (N=6)

Anthropometrical Variables	Weight Lifting Performance
Age	-0.857*
Height(Cm)	0.776
Weight (Kg.)	0.732
Right Arm length	-0.126
Left Arm length	-0.229
Right Leg length	0.584
Left Leg length	0.650
Waist Circumference.	0.632
Hips Circumference	0.536
Left Thigh Circumference.	0.605
Left Calf Circumference	-0.052

*Significant at 0.05 levels, Coefficient of correlation required to be significant for 4 d.f. is 0.811

Table-4, revealed that in case of Age in weight lifting, obtained value is greater than tabulated value therefore it has shown significant relationship with the performance of weight lifting. In case of Waist Circumference, Left Calf Circumference, Height, Weight, Arm length (Right & Left), Hips circumference, Left thigh circumference, arm length (Left & Right) and leg length (Left & Right) have shown insignificant relationships with the performance of weight lifting in 85 kg weight category.

Table 5: Relationship of anthropometrical variables with the weight lifting performance in 94kg weight category (N=6)

Anthropometrical Variables	Weight Lifting Performance
Age	0.325
Height(Cm)	0.529
Weight (Kg.)	0.345
Right Arm length	0.858*
Left Arm length	0.897*
Right Leg length	0.385
Left Leg length	0.942*
Waist Circumference.	0.292
Hips Circumference	0.385
Left Thigh Circumference.	0.783
Left Calf Circumference	0.881*

*Significant at 0.05 levels, Coefficient of correlation required to be significant for 4 d.f. is 0.811

Table-5, revealed that in case of Arm length (Right & Left), Left Leg length, Left Calf Circumference in weight lifting, obtained value is greater than tabulated value therefore it has shown significant relationship with performance of weight lifting. In case of Age,Waist Circumference, Height, Weight, Hips circumference, left thigh circumference, arm Length (Left & Right) and leg Length (Left) have shown insignificant relationships with the performance of weight lifting in 85 kg weight category.

4. Discussion and Conclusions
1. From the selected Anthropetric Variables only Right Leg Length, Left Leg Length, Hip Circumference and Calf Circumference have showed significant relationship with the weight lifting performance in 62 kg weight category.
2. From the selected Anthropetric Variables only Waist Circumference and Left Calf Circumference have showed significant relationship with the weight lifting performance in 69 kg weight category.
3. From the selected Anthropetric Variables only Height, Right Arm Length and Right Leg Length have showed significant relationship with the weight lifting performance in 77 kg weight category.
4. From the selected Anthropetric Variables only Age have

showed significant relationship with the weight lifting performance in 85 kg weight category.
5. From the selected Anthropetric Variables only Right Arm Length, Left Arm Length Left Leg Length, and Calf Circumference have showed significant relationship with the weight lifting performance in 94 kg weight category.

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