
Kinematical Analysis of Glide Technique in Shot Put

Gurbrinder Kaur¹ and Dr. Nishan Singh Deol²

¹Research Scholar, Department of Physical Education, Punjabi University, Patiala, Punjab,
India

²Professor and Head, Department of Physical Education, Punjabi University, Patiala, Punjab,
India

Received: 04 March, 2016; **Accepted:** 16 March, 2016; **Published:** 24 March, 2016

Abstract: The purpose of the study was to find out Relationship of Selected kinematical Variables with Performance of shot putters. Five inter-university level male shot putters were selected as subjects for the study. The age of the subjects ranged between 18 to 25 years. The data was obtained during glide technique of kinematical variables in shot put. Total five trails were given to each subject. One Digital Video camera “Samsung galaxy GC 100” was used in order to register the glide technique of shot put. The films were analyzed by using “quintic coaching 4.01 v17” software. With regard to purpose of the study Karl Pearson’s product moment coefficient correlation statistical technique was calculated between selected kinematical variables with the performance of subjects in shot put.

Keywords: *kinematical, horizontal velocity and Social.*

Introduction:

The shot put technique involves a series of complex movements within a limited area of a circle which must have a diameter of 2.135m ($\pm$ 5mm) with a board firmly fixed to the fingers connected to the ground outside the outer limits of the circle. The rules require that the shot must be spherical, and weight 7.260kg for men and 4,000kg for women (IAAF Competition Rules 2010-2011). In Linthorne's opinion (2001) the throwing technique requires great throwing explosive strength and the ability to perform the elements in the precise moment and in limited space. The goal of the athlete is to throw the shot away as far as possible, but according to the rules and regulations of the competition. Rotational (spin) and the Slide (O'Brien) throwing techniques are considered equal, but it was noticed that beginners and female athletes often use the slide technique, while men use the rotational

technique of throwing more often. (Linthorne 2001). Biomechanics is often applied in Shot put to define the characteristics of skills, to gain an understanding of their mechanical effectiveness and to identify factors essential for optimal performance. Biomechanical Knowledge is a “Must” for Coaching. Quantitative analysis involves digitization of the video images to permit calculation of spatial and temporal relationships in the movement. Several hardware software packages are available for the purpose. Simple but effective digitizing is also possible with minimal extra hardware and software. This procedure is the time consuming and loses the benefit of immediate feedback to the athlete, but it allows detailed comparisons of one athlete with another or of one athlete before and after an intervention. Video has also been used for time motion or rotational analysis, in which times spent in various modes of activity or in moving at various speeds are estimated from time and distance measurements taken from the video. Therefore, the aim of this study was to determine performance in the competition of shot put glide technique. This aim was met by investigating the biomechanical characteristics of glide technique of shot put technique.

Methodology and Procedure:

The present research was entitled as “KINEMATICAL ANALYSIS OF GLIDE TECHNIQUE IN SHOT PUT”. To achieve this purpose total 5 Inter- University male shot putters were recruited as subject. The age of all subjects were ranged from 18 to 25 years. One Digital Video camera “Samsung galaxy GC 100” was used in order to register the glide technique of shot put. The films were analyzed by using “quintic coaching 4.01 v17” software. After the collection of relevant data, it was processed and analyzed with descriptive statistics. To find out the relationship of selected kinematical Variables with Performance of Shot Putters in Shot Put Karl Pearson’s product moment coefficient correlation statistical technique test was used with the help of SPSS software.

Result and Finding:

Table: 1

The Relationship between the projection angles of shot put with performance

Trails	Variables	Mean	SD	Corelation
25	Projection	43.715	2.715	0.665
	Angle			
25	Performance	13.510	0.822	

$r_{.05}(24) = 0.388$

Table & Figure-1 shows that the mean value of projection angle of shot put was 43.715, whereas the standard deviation (SD) of projection angle of shot put was 2.715, Whereas in case of performance was 13.510 and 0.822 respectively. The critical value of correlation is 0.665; the data does suggest that there was significant relationship exist between the projection angle of shot put with performance.

Figure: 1

The Relationship between the projection angle in shot put with performance

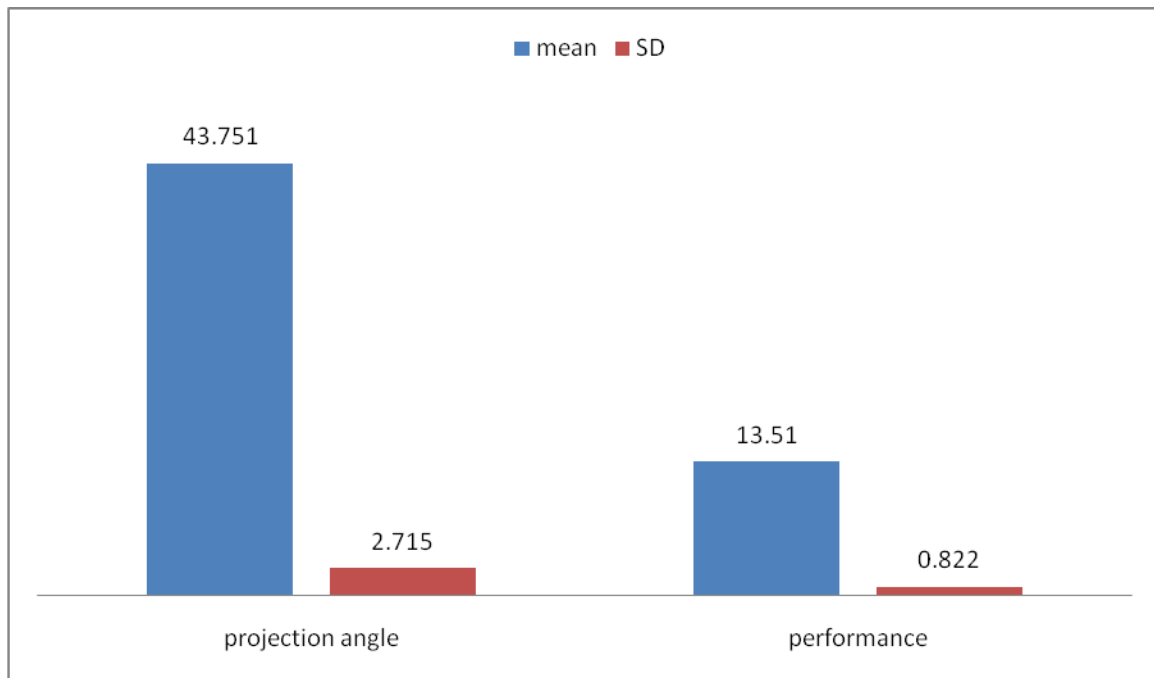


Table No. 2

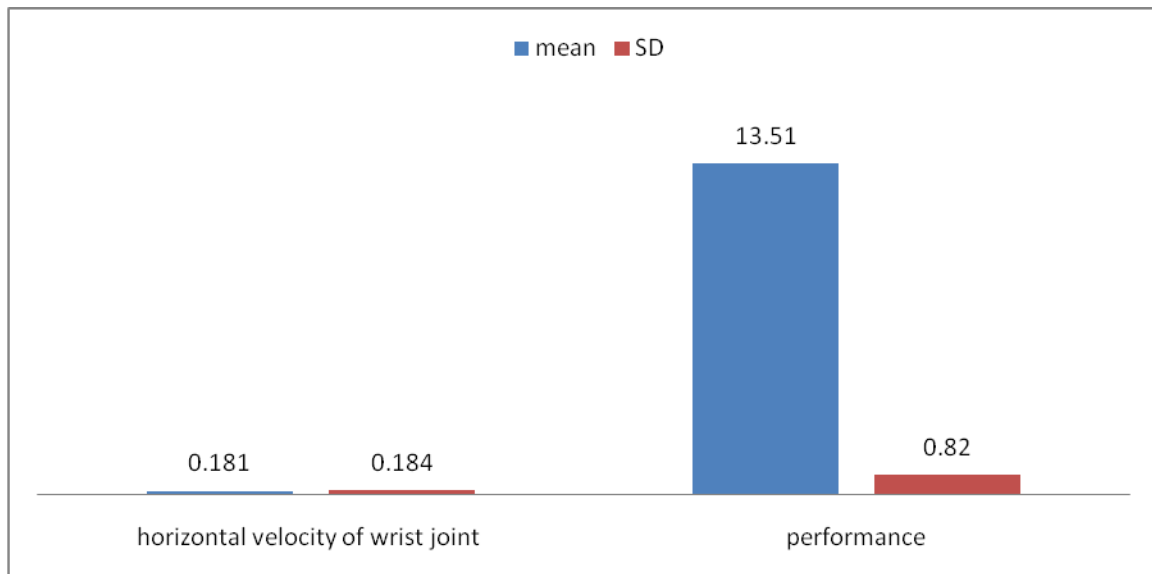
The relationship between horizontal velocity of wrist joint in shot put with performance

Trails	Variables	Mean	SD	Corelation
25	Horizontal Velocity of Wrist	0.181	0.184	-0.297
25	Performance	13.510	0.822	

$r_{.05}(24) = 0.388$

Table & Figure 2 shows that the mean value of Horizontal velocity of wrist in shot put was 0.181, whereas the standard deviation (SD) of horizontal velocity of wrist joint in shot put was 0.184, Whereas in case of performance was 13.510 and 0.822 respectively. The critical value of correlation is -0.297, the data does suggest that there was significant relationship exist between the horizontal velocity of wrist joint in shot put with performance.

Figure: 2
The Relationship between the horizontal velocity of wrist joint in shot put with performance



Discussion:

The results of the study have shown that the kinematical variables of glide technique in shot put i.e. projection angle, horizontal velocity of wrist joint, have significant relationship with performance during Moment of release phase.

References

1. Linthorne, N. P. (2001). Optimum release angle in the shot put. *Journal of Sports Sciences*, 19(5), 359–372.
2. Linthorne, N. P. (2006). Throwing and jumping for maximum horizontal range. Retrieved from <http://arxiv.org/abs/physics/0601148>
3. Kalepwar, Y. (2015). Angular analysis of shot put techniques. *Tactful Management Research Journal*, 3(6).