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Analysis and evaluation of strength among shot put throwers and hammer throwers of Nagpur district

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Abstract

The Hammer Throw and Shot Put are thrown within a circle. Throwing Events primarily depend upon strength, power and speed. The purpose of the present study to find out the Strength among shot put throwers and Hammer Throwers of Nagpur. The sample for the present study consists of 20 Male shot put throwers and 20 Male Hammer Throwers of Nagpur Between the age group of 16-20 Years group. To assess the Strength Test Shotput back throw were given to Hammer Throwers and Shot put Throwers. This study shows that shot-putter are having more strength than Hammer throwers. Most shot putters are relatively strong and sturdily built. Their workouts include various weight training exercises to develop the strength compare to the Hammer Throwers.

Keywords: Strength, hammer throw, shot put etc.

Introduction

In Athletics the throwing events comprise of javelin throw, discus throw, hammer throw and shotput. The differences between the four disciplines includes the type of implement that is thrown and the run-up or pattern of movement prior to the throw. A Javelin is a long spear like implement. The thrower runs down a runway prior to releasing the implement. To record a legal throw in javelin the thrower must ensure the tip of the javelin contacts the ground first. A discus is a circular implement, which when thrown should spin while in the air and is released from the throwers hand with a straight arm. A shot put is a spherical lead implement which must be thrown from a position close and tight into the neck of the thrower to record a legal throw. A Hammer is similar to a shotput but has a wire extending from it to a handle, by which it is rotated in a circular motion before being released. Discus, Shot Put and Hammer Throw are all thrown from within a circle rather than from a runway. All the throwing events rely on strength, power and speed for performance.

The hammer throw is one of the four throwing events in regular track and field competitions, along with the discus throw, shot put and javelin. The "hammer" used in this sport is not like any of the tools also called by that name. It consists of a metal ball attached by a steel wire to a grip. The size of the ball varies between men's and women's competitions.

The men's hammer weighs 16 pounds (7.26 kg) and measures 3 feet 11 $\frac{3}{4}$ inches (121.3 cm) in length, and the women's hammer weighs 8.82 lb (4 kg) and 3 ft 11 in. (119.4 cm) in length. Like the other throwing events, the competition is decided by who can throw the implement the farthest. Although commonly thought of as a strength event, technical advancements in the last 30 years have evolved hammer throw competition to a point where more focus is on speed in order to gain maximum distance.

The throwing motion involves about two swings from a stationary position to generate the initial momentum. Then the hammer is swung around three, four or very rarely five rotations of the body in a circular motion using a complicated heel-toe movement of the foot. The ball moves in a circular path, gradually increasing in angular velocity with each rotation with the high point of the hammer ball toward the target sector and the low point at the back of the circle. The thrower releases the ball at the side of the circle as the hammer's velocity tends upward and toward the target.

During the launch process, the thrower is given a circular area to perform the throw.

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The athlete is not allowed to step outside the circle before the object has landed. Before and after the throw, the thrower may only enter and exit from the rear of the launch circle. Finally, the hammer must land within a 35 degree sector. A violation of the rules result in a foul, where the throw is not counted.

As of 2015 the men's hammer world record is held by Yuriy Sedykh, who threw 86.74 m (284 ft 6¾ in) at the 1986 European Athletics Championships in Stuttgart, West Germany on 30 August. The world record for the women's hammer is held by Anita Włodarczyk, who threw 82.98 m (272 ft 2¾ in) during the Kamila Skolimowska Memorial on 28 August 2016.

The shot put is a track and field event involving "throwing"/"putting" (throwing in a pushing motion) a heavy spherical object—the shot—as far as possible. The shot put competition for men has been a part of the modern Olympics since their revival in 1896, women's competition began in 1948. With roots dating back to the 15th century, the contemporary version of the hammer throw is one of the oldest of Olympic Games competitions, first included at the 1900 games in Paris, France (the second Olympiad of the modern era). Its history since the late 1960s and legacy prior to inclusion in the Olympics have been dominated by European and Eastern European influence, which has had an impact on interest in the event in other parts of the world.

The putting action is best described as shoving the shot, because the rules require that the arm may not extend behind the shoulders during the putting action. The spherical shot is made of metal. The men's shot weighs 7.26 kg (16 pounds) and is 110–130 mm (4.3–5.1 inches) in diameter. Women put a 4-kg (8.82pound) shot that is 95–110 mm (3.7–4.3 inches) in diameter.

The putter must launch the shot from within a ring 2.135 metres (7 feet) in diameter and so must gather momentum for the put by a rapid twisting movement. Shot-putters are among the largest athletes in track and field, the most massive ranging from 250 to 300 pounds (113 to 136 kg). Beginning in the 1950s, weight training became a major part of a shot-putter's training program. In that same period the O'Brien style of putting was popularized, with outstanding results. Developed by Parry O'Brien (U.S.), the style involved a 180-degree turn (rather than the usual 90-degree turn) across the ring, getting more speed and momentum into the action. O'Brien was the best exponent of the style, winning three Olympic medals (two gold) and raising the record from 17.95 metres (58 feet 10.75 inches) to 19.30 metres (63 feet 4 inches).

Some athletes have turned to a style in which the putter spins one and a half turns before releasing the shot, a technique developed by Brian Oldfield (U.S.).

One of the four traditional throws events in track and field. The shot, a metal ball (7.26kg/16lb for men, 4kg/8.8lb for women), is put – not thrown – with one hand. The aim is to put it as far as possible from a seven-foot diameter (2.135m) circle that has a curved 10-centimetre high toe-board at the front.

Methodology

The sample for the present study consists of 20 Male Shot Put Throwers and 20 Male Hammer Throwers between the age group of 18-22 Years and participated in the Nagpur District Athletics Championships, District Schools and Junior Colleges Athletics Meet and Inter College Athletics Meets. To assess the Strength the Shot-put back throw were

conducted on Shot put Throwers and Hammer Throwers.

Shot put back throw

This test involves throwing an 8 pound shot put for maximum distance. The Back Throw Test is one of the tests used in the International Physical Fitness Test.

Aim: This test measures core body strength and total body power and strength.

Equipment required: 8 lb shot put, tape measure, clear open area for testing.

Procedure: The athlete starts with his back to the throwing area, with their heels at the start line, and the shot cradled in both hands between the knees. The subject bends forward and downward before throwing the shot backwards over their head in a two-handed throwing action (optimally at about 45 degrees).

Several practices may be required to get the best trajectory for maximum distance.

Scoring: Measurement is made from the starting line to the point of impact of the shot put with the ground.

The measurement is recorded in meters and centimetres. The best result of two trials is recorded.

Results and Discussion

This study shows that Shot putters are having better strength compare to the Discus Throwers.

Table 1: Mean values and Independent Samples Test of Shot Put Back Throw between Shot Putters and Hammer Throwers

Variables	Group	Mean	SD	t	P - Value
	Shot Put Throwers	14.14	1.26		
Shot Put Back Throw	Hammer Throwers	14.06	1.22	1.22	0.231

*Significant at 0.05 level

In Table 1 the Mean Values of Pre Test of Shot Put Throwers in Shotput Back Throw is 14.14 and Hammer Throwers is 14.06. The Standard Deviation of Shotputters is 1.26 and Hammer throwers are is 1.22 and t is 1.22 and P-Value is 0.231.

Conclusion

1. It is concluded that Shotputters are having better strength than Hammer Throwers.
2. It is concluded that there will be Shotputters requires more strength to throw the shot spherical lead implement compare to the Hammer Throwers,
3. Weight training exercises plays a major role for improvement of physical fitness and performance in the Shot Put Throwers and Hammer Throwers.

Recommendations

1. Similar studies can be conducted on other throwing events in Athletics among girls also.
2. This study also helps the physical educators and coaches to improve their training regime to excel in Shotput.

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