

STUDY OF THROWING WEIGHT AND THROWING POWER FOR MALE DISCUS THROWERS

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INTRODUCTION: Throwing power means the rate at which muscles work when throwers are doing throwing movements. It depends on the strength and speed of the thrower. The purpose of this paper is to research the relation between throwing weight and throwing power, to advance the best exercise weight in special strength training for male discus throwers, and to proved scientific basis for effective speed strength training.

METHODS:

1. The study objects of this paper are 60 grade 2 and above Chinese men discus throwers (Tab. 1).

Tab.1 General Situation of Study Objects

	Master	Grade 1	Grade 2
Number	15	15	32
Ages	25.6±5.7	23±3.2	19.8±2.5
Master: 54m; Grade 1: 49.50m; Grade 2: 38m			

2. The throwers stand and throw various weight kettle-bells, from 2Kg to 10Kg, take 0.5Kg--1Kg as a weight unit, Each weight has 2--3 times to throw, and the best one is regarded as its decisive result.

3. Two high speed cameras together filmed the movement of the thrower at 200pps, and making an analysis, thereby getting the data about the angle of release, the height of release, and the distance of force.

RESULTS:

To reveal the relation between throwing weight and throwing power for different male discus throwers, we measured the results of male Chinese discus throwers on different levels throwing various weights, and calculated their throwing power (Tab. 2-3).

Tab.2 Contrast Between Kettle-Bell Weight and Throwing Power for male Discus Throwers on Different Levels

	2	3	4	5	5.5	6	7	7.5	8	9	10
Master	1638	2010	2156	2224	2259	2419	<u>2460</u>	2439	2390	2276	
Grade 1	1585	1913	2068	2143	2152	<u>2271</u>	2221	2086	2008	1916	
Grade 2	1325	1547	1654	1741	<u>1777</u>	1692	1603	1574	1513	1434	

Tab.3 The Relation Between Power and Weight for Male Discus Throwers on Different Levels

Grade	Number	Section(ab)
Master	15	0.946
Grade 1	15	0.924
Grade 2	32	0.974

Tables. 2-3 show: 1) There is a very close relation between power and weight. With Increasing weight of the kettle-bell, throwing power also increases. However, when the weight of the kettle-bell reaches a certain extent, if it is increased continually, the power not only increases, but also obviously declines. 2) It is also different for the kettle-bell weights of the greatest power that the thrower displays. Generally speaking, the kettle-bell weights of the greatest power: master > grade 1 > grade 2 Tab.4.

Tab.4 The Greatest Power Weight for Male Discus Throwers on Different Levels(Kg)

	Master	Grade 1	Grade 2
Number	15	15	32
Weight	7.33±0.79	6.88±0.76	5.5±0.75

CONCLUSIONS:

1. There is a very close relation between the power and the weight of the object being thrown. If the weight of kettle-bell is increased, the throwing power also gradually increases. However, when the weight of kettle-bell reaches a certain level, power is not increased, and it will obviously decline if it is increased continually.
2. The greatest power that the thrower displays varies by the weight of the implement. Generally speaking, the greater the thrower's performance, the stronger the greatest throwing power and the heavier the corresponding throwing weight.

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