研究業績 英文表記

和文	
表題	円盤投における男子日本トップ選手と大学トップ選手の体力要素と投てき動作の比較および選手による投てき動作に対する主観的評価.
著者名	池田祐介 ¹⁾ , 小林志郎 ¹⁾ , 堤雄司 ²⁾ , 下門洋文 ¹⁾ , 市川浩 ¹⁾ .
所属	 1)新潟医療福祉大学、2)群馬綜合ガードシステム株式会社
英文	
Title	Comparison of the discus throw technique and physical fitness between top-level national and college throwers, and subjective evaluation of own throwing movement.
Author	Ikeda Y ¹⁾ , Kobayashi S ¹⁾ , Tsutsumi Y ²⁾ , Shimojo H ¹⁾ , Ichikawa H ¹⁾ .
Affiliation	1)Niigata University of Health and Welfare, 2) Gunma Sohgo security services co., LTD.
Abstract	The purpose of the present study was to elucidate the characteristics of the throwing techniques and physical fitness of a top-level Japanese discus thrower (JDT) who had held the national record (60 m 74) using comparisons with a college top-level discus thrower (CDT). Two subjects performed the following fitness tests: 1 Repetition Maximum bench press, the bench press power test using Fitrodyne, and three types of medicine ball throws. In discus throw tests, subjects performed two types of throws: a standing throw and normal throw with a turn movement. The throwing motion of each subject was recorded by two high-speed video cameras. The motion of the discus throw was then divided into five phases: the double support phase (P1), single support phase by the left foot (P2), non-support phase (P3), single support phase by the right foot (P4), and delivery phase (P5). The velocity of the center of mass and rotational velocities of the hip and shoulder were calculated. Regarding physical fitness characteristics, bench press power was greater for JDT than for CDT, while the throwing distances of the three types of medicine ball throws were smaller for JDT than for CDT. Regarding the duration time of the throwing motion, the time of the P5 phase was longer for JDT than for CDT, and the peak angular velocities of the shoulder and hip during P5 were greater for JDT than for CDT. These technical differences between JDT and CDT were attributed to the position of the body at left foot-on.
keyword	Biomechanics, Technique, Physical strength, Release angle.
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