

# 不同負重增強式訓練對國中田徑選手下肢爆發力之影響

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## 摘 要

增強式訓練是現相當普及的一種訓練方式，然而所有研究大多以成年之訓練對象為主體，作者訓練之對象卻是青少年國中學生，故期望能夠以探討青少年為對象之比較施行不同增強式訓練前後分析其訓練成果，作為分析探討之依據。本研究具體研究目的為理解施行不同負重增強式訓練前後，對直立蹲距跳(CMJ)、垂直蹲跳(SJ)、深跳(DJ)能力差異分析。本研究應用 AMTI 測力板、紅外線攝影機 12 台與 Motion 影像分析系統以台北縣五峰國中 16 名國內國中田徑選手為受試對象，以無負重、負重體重百分之十五與負重體重百分之三十共三組來進行 4 周增強式訓練，實驗數據以測力板上直立蹲距跳(CMJ)、垂直蹲跳(SJ)、深跳(DJ)三種動作來收集，所蒐集到的資料以應用 SPSS 12.0 版統計軟體中之相依樣本 t 考驗，檢驗不同負重在三種動作參數之間差異（顯著水準  $p < .05$ ）。研究結果顯示：四周增強式訓練在無負重增強式訓練下國中田徑選手 CMJ 動作最大重心速度與最大爆發力，SJ 動作騰空高度 HF、最大重心速度 Vmax 與最大爆發力 Pmax DJ 動作最大重心速度與最大爆發力獲得顯著效果 ( $p < .05$ )。在負重體重百分之十五增強式訓練下國中田徑選手 CMJ 動作最大發力率，DJ 動作最大發力率獲得顯著效果 ( $p < .05$ )。在負重體重百分之三十增強式訓練下國中田徑選手 CMJ 動作最大發力率與最大爆發力，SJ 動作最大重心速度與最大爆發力，DJ 動作最大發力率與最大重心速度獲得顯著效果 ( $p < .05$ )。由以上統計分析證明不同負重增強式訓練對國中田徑選手有明顯的增強效果。由以上統計分析證明不同負重增強式訓練對國中田徑選手有明顯的增強效果。

關鍵詞：增強式訓練、爆發力、田徑

# Effect of Different Weight Plyometric Training on Lower Limb Power of the Junior High School Track and Field Players

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## Abstract

The plyometric training is presently a quite popular training method. However, all researches mostly focus on the adults training. The study focuses on different plyometric trainings of the teenagers in junior high school. The purposes of this research were trying to investigate the effect of the plyometric training, and the ability variance analysis among counter movement jump (CMJ), vertical squat jumps (SJ), and deep jump (DJ). This research sampled 16 track-and-field team members in Wu-Feng junior high school, Taipei County, as the experimental subjects, using the AMTI force platform, 12 infrared cameras and Motion Phantom Analysis System. The subjects were trained by the plyometric training with non-heavy loading, the 15% body weight and 30% body weight heavy loading for 4 weeks. The dependency sample t-test by the SPSS12.0 version statistics software was applied. The results indicated significant effects on Vmax and the Pmax of CMJ movement, the HF of SJ movement, the Vmax and the Pmax, the Vmax and Pmax of the DJ movement ( $p<.05$ ) in non-heavy loading group. Under the training with 15% body weight heavy loading to train the experimental subjects' RFD of CMJ movement, the RFD of the DJ movement obtains the significant effects ( $p<.05$ ). Under the 30% body weight heavy loading to train the experimental subjects' RFD and the Pmax of the CMJ movement, and the Vmax and the Pmax of the SJ movement, the RFD and the Vmax of the DJ movement obtain the significant effects ( $p<.05$ ). According to the statistical analysis above, different kinds of the heavy lording plyometric training achieve significant effects on junior high school track and field players.

Key words: plyometric training, power, track and field