THE STUDY OF PASSIVE REPEATED PLOYMETRIC TRAINING ON VAULT PERFORMANCE IN ARTISTICS GYMNASTIC

Ming-feng Kao
Department of Physical Education, National Hualien Teachers College, Hualien, Taiwan

INTRODUCTION: Over the years, however, research finding from various sports sciences have gradually been fed into what has, essentially, become a science of the theory and methodology training. In training, there are many factors to enhance the performance in Gymnastics, such as perfect skill during the period of competition, enhance the difficulty for an exercise and so on.

METHOD: 12 male gymnastics take part in 6 weeks Passive Repeatedly Plyoymetric Training Machine (PRP) (see Figure 1.)(Chen & Shiang, 1998) to enhance lower extremity strength. The process for examine lower extremity strength will using pre-test and post-test during training period. There are two major kind of measurement test for gymnastics'lower extremity strength: power: standing jump, running high jump, 30 meters running, and maximum muscular strength and power (by the force plate); the actual vault for the test is Tsukahare. Ariel Performance Analysis System (APAS) 2D videography and force plate data were used to record each gymnastics' performance of theactual test to provided kinetic acquisition. Data on the gymnast'sperformance will be quantified via motion analysis procedures. Body segment parameters (BSP) will obtain using Jensen's (1978) elliptical zone modeling technique.

Analysis Methods: Data collected form this experiment will subject to descriptive and inferential statistics to respond to the research questions and that guided this study. The data are expressed in term of means (M) and standard deviation (SD). the repeated measure t-test will use in this study for pre-test and post-test during training period, Pearson's correlation will examine the relation between post-test during training period; the multiple regression will use to optimize lower extremity apply to artistic gymnastics. The level of significance for inferential statistics was at .05 level. The Bonferroni method (Bonferroni, 1936) will use for the multiple test procedures to control for Type I Error.

REFERENCES:
Bonferroni, C. E. (1936). Teoria statistica delle classi e calcolo delle probabilità. Pubblicazioni del R Istituto Superiore di Scienze Economiche e Commerciali di Firenze, 8, 3-62.
Chen, C, S., & Shiang, T. Y. (1998). The development of Passive Repeatedly Plyoymetric Training Machine. The report of National Science Council. Taiwan.

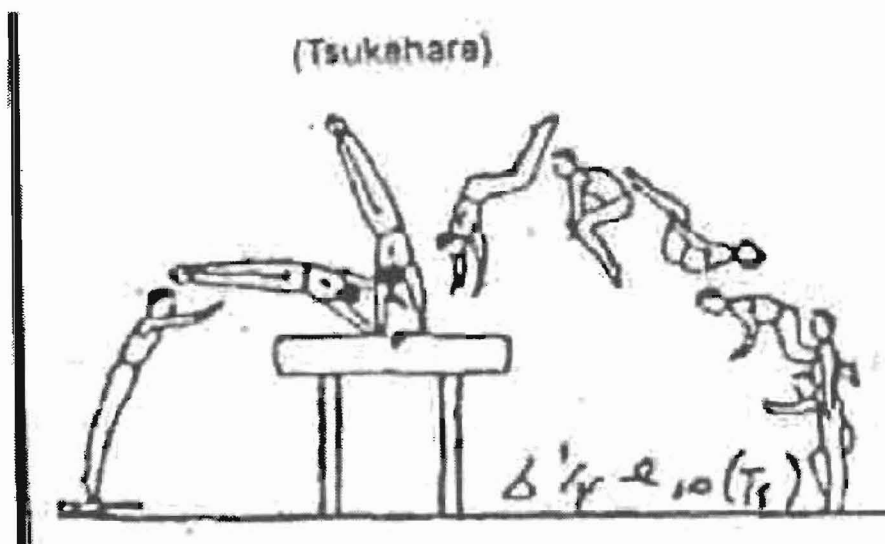Figure 1: Passive Repeatedly Plyoymetric Training Machine.

Figure 2: Tsukahare.