

DEHF Final Year Project – Proposal.

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Title: Strength Training V's Power Training in Youth Athletic Performance within Team Sports.

Background Literature:

There has been growing acceptance, exploration and experimentation supporting the benefits of resistance training and its positive effects on youth athletic development since the turn of the century. There are various modes of resistance training, which can be defined as "an exercise that causes a muscle to contact due to external resistance with the expectation of increasing strength, tone, mass and/or endurance" (Weil 2017). The two primary modes of resistance training in relation to athletic performance are general strength training and plyometric training.

In terms of the primary physical needs of athletes, strength is a dominant factor needed to develop the greatest athletic potential. Strength training consists of a combination of open and closed kinetic chain movements preformed with free weights and weight machines to create a base of general strength transferable to a sport. However, general strength training can often lack specificity and can sometimes develop maladaptation's to a sport. To avoid this from happening, coaches have begun to incorporate plyometric training into athletic development from a young age.

Plyometric training is a form of strength training used to develop muscular power. This type of training focuses on combining muscular strength with speed and explosive movements to create greater muscular power output (Power = Strength x Speed), which in turn yields significant athletic potential (Wilson 1993).

It has been established that, under appropriate guidance, plyometric training at a young age can enhance physical literacy development, improve muscular fitness, reduce injury likelihood and increase physical longevity. This, in turn can also help reduce the chance of future chronic diseases later in life (Faigenbaum 2018).

Many sports science bodies have reported the benefits of combined strength and plyometric training programs as opposed to individual strength and plyometric programs. In a quasi-experimental designed study, Gopaladhas *et al.* 2014, compared these various programs over a 6-week period and found that the experimental group, training plyometric and strength training yielded greater results in maximum vertical jump, 50-yard dash and 1 rep max back squat than the control group who only trained plyometrics for the duration.

Although there is sufficient evidence available displaying the benefits of strength training and plyometric training for athletic performance, most of these studies have been carried out on male and female athletes over the ages of 18 with little evidence being researched on youth athletes.

Lack of resistance training or muscular development at a young age can be detrimental to physical health and can be an early indication of chronic diseases in adulthood, therefore specific research on this population is needed in order to create awareness of the benefits. One Longevity study over 20 years has shown that early intervention methods of exercise with a focus of muscular fitness development in youths has helped reduce these symptoms of chronic disease in adults (Fraser *et al.* 2017).

Purpose:

The purpose of this study will be to investigate the various modes of resistance training used in youth athletic performance, the benefits of each form of training and the most suitable way to apply these forms of training.

The topics being discussed in the research are as followed:

- Explore the different forms of resistance training used to develop general athletic performance as well as sports specific athletic performance.
- Investigate the various modes of resistance training that are used to improver athletic performance in adolescents and youth athletes
- Identify common performance metrics used in athletic performance.
- Explore the most effective training implementation available to improve markers of athletic performance including, but not limited to, speed, strength, power, explosiveness and agility.

Timeline for completion.

• Literature Review: research available papers, journal, articles and other reputable sources providing detail on the topics of the title. Completed end of December 2018

- Initial Draft: Include chapters, main body, initial conclusion, etc. Completed end of Feb 2019.
- Final draft: apply all final corrections and altercations. Complete by the end of March 2019.
- Submission: April 11th 2019.

Allocation of available time:

Introduction -5%

Literature review – 40%

Research & Data Collection – 10%

Data analysis – 15%

Results, Conclusions and evaluations - 15%

Recommendations – 10%

References and Appendixes - 5%

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