

Is Heavy Weight Training Best For High School Athletes?

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Abstract

The aim of this study is to look at weight training and the effects it has on young athletes in high school. High school athletes are pushed to the maximum and asked to lift three and four times their body weight in order to draw collegiate coaches to their practices and games, but what if we could gain similar results without implementing same amount of stress on young athlete's bodies. The purpose of this study would be to answer one simple question: (i) Could lifting lighter weight for more reps yield maximum results in young athletes? Participants for the study would come from one random high school that would agree to allow a certified personal trainer/strength conditioning coach to design a specific team workout centered for a decrease in weight and increase in reps. The study would test a young athletes one rep max on bench, squat, vertical jump, and 40-yard dash. Then results would be compared to athletes finishing their senior year from random schools throughout the United States.

Introduction

Athletes in high school are stressed to perform at maximum level, without thinking of the long-term repercussions. Sports look to highlight an athlete's maximum strength, with ability, skill, and knowledge, but is maximum strength necessary? Many high schools establish weight training programs where athletes are encouraged to push, lift, and perform without proper knowledge in technique (Faigenbaum & Myer, 2009). Weight training is seen as a fundamental piece of conditioning and training in relation to sports such as football. 21.2% of high school athletes have injuries in high school that have them removed from practice for more than seven days. 48.2% recorded the injury came in the lower back (Risser and Preston, 1990). Now, what if we could replicate the same results with younger athletes and still maintain peak numbers? What if someone designed a program that made young athletes more physically prepared for the rigors of collegiate competition, without the same stress results on the body? All of the athletes who suffered from back injuries were performing some of the Olympic lifts that are usually required in all high school athletic programs like power clean, clean and jerk, squat or dead lift (Risser and Preston, 1990). Information is needed and safe guards need to be put in place to protect adolescent athletes while conditioning.

Coaches from all over the United States are not certified in any content, but education. Some coaches have played on the collegiate and professional level, but pass down the same expectations and coaching methods they received. According to NCAA statistical analysis that only six percent of athletes receive an athletic scholarship? United States Consumer Product Safety Commission did an evaluation

that showed 77% of youth between the ages of 8-13 years of age injure themselves. Early studies have shown that boys who have not yet hit puberty are incapable of improving muscles strength. Lack of circulating androgens make the incapable of gaining muscle, however children can create strength increase from resistance training (Ramsay, Blimkie, Smith, Garner, MacDougall, & Sale, 1990). The development and expectations of athletes are starting to change, just as research is on resistance training compared to weight training. We need to look at and evaluate the training young athletes are receiving to ensure that proper techniques are being implemented. Between the years of 1973-2005, weightlifting in high school has risen from one thousand students to over twenty thousand students (Faigenbaum & Myer, 2009).

Definitions

The term “weight training”, is being referred to as Olympic style lifts such as: Bench Press, Dead Lift, Power Clean, Squat. The usage of free weights on high school athletes. “Heavy Weight Training”, is designed as focusing on an athletes one rep max in all areas of weight training. It is more so compound and power movements placed on high school athlete’s bodies. The term “Resistance Training”, is being referred to as lighter weight placed on the body. The usage of free weights is used, but the usage of barbells and dumbbells are more applicable. Elastic bands, weighted ball, and plyometric drills. “Resistance Training”, also focuses instead on symmetry and definition, other than maximum weight and power.

Literature Review

Strength and conditioning are relied on heavily when performing to maximum expectations. Weight training is known to increase strength, but when it comes to young athletes it is important to increase strength, speed, and skill. The technique behind developing speed and strength is more pivotal in their progression at a young age (Gopaladhas, Chinnavan, & Rajaram, 2014). Imagine if young athletes understood that heavy weight training does not create maximum force when positioned in a static position. Young athletes can have an advantage physically and mentally when moving on to the next level understanding this. A greater power output can be obtained when releasing energy from elastic stored muscles. According to Gopaladhas, Chinnavan, & Rajaram (2014) the muscles react to the sudden stretch by sending a signal to the central nervous system to resist the sudden stretch. The muscle rebounds rapidly from sudden stretch, which increases reaction time and an athletes speed and power. A study was implemented with Horner et al. (2012) that did a three-month study with resistance training and adolescence. The study included fourteen boys and fifteen girls and Resistance Training enhanced muscle strength, body composition, and metabolic health, possibly having some direct benefits to vascular health. The study also mentioned that to have a more positive correlation between Resistance Training and young athletes a longer trial period is necessary and the boys were more consistent during the training regiment, but the girl's flexibility increased more so than the boys (Falk, 2016).

Weight Training injuries have been noted and studied, many studies have tried to determine the incidence of sport injuries, but the actual definition of “injury,” varies throughout the population. Research design and methods have differentiated and therefore the effects on study conclusions, and make it challenging to compare and understand these studies (Brooks & Fuller, 2006). More than 600 adolescents are registered with the United States Weight Lifting Federation and more than 3000 in the United States Power Lifting. 71 young athletes with an average age of 16, only being in the sport for 17 months, sustained 98 musculoskeletal injuries, causing discontinuance of training for 1126 days. 8500 young athlete’s participants use the same exercise’s and the same risk are linked (Pediatrics, 1990). Very little data is associated with the risk age of young athletes attempting to lift maximum weight, the United States Weight and Power Lifting Federations recommends the age of 14 years old, but other experts state 16 years old. Due to the facts of puberty development tempo difference in adolescents and the changing of the body happens at an average of 15 years old and at this point the adolescent body is more prone to injury (Pediatric, 1990).

In conclusion, though heavy lifting is fundamental in increasing muscle growth and essential for elite athletes in sports, it is not necessary for young maturing athletes learning how to play the sport. Though there is not enough research that shows a specific age to begin heavy lifting, there is enough research to show that increasing muscle growth in young athletes does not need to be obtained by heavy lifting. Many young athletes are being injured and spending more time resting than playing due to improper lifting techniques. It would be safer to be patient with young athletes than to rush the process, placing a demand for a sport at a young age is not pertinent.

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