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### Sports Science & Weightlifting for teens

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# Sports Science & Weightlifting for teens

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## **Abstract**

In this project we delve into weightlifting and its principals, while mostly emphasizing on the safety of teenage lifters. Nevertheless, the bigger realm where weightlifting belongs, sport science, is also analyzed quite extensively, covering most related professions and branches. Apart from showcasing some examples of weightlifting activity, its benefits for every age group are highlighted. The main controversial topic researched, though, is whether teenagers' growth is going to be stunned due to the external loads that need to be moved. By including detailed but essential studies, doctors' and experts' opinions, we manage to map out the parameters that are to be taken into consideration. The physical prowess achieved from such exercise is then correlated with renowned psychologists' theories concerning character and ethical development of physically capable persons.

### **1. Introduction**

As teenagers who engage in weightlifting activities we have often come across different opinions regarding its effect and potential dangers on young folks. We, therefore, reached conclusions through meticulous consideration and presentation of scientific facts and research. Also, since we believe that exercise and sport are deeply correlated with character-building, values and behavior, we took an extra step by examining physical prowess' effect on the spiritual aspect of a human.

### **2. Sports Science**

Is a multidisciplinary field that applies scientific principles to understand and improve athletic performance, as well as to prevent and rehabilitate sports-related injuries.

### **3. Psychology**

Sports psychology focuses on the mental aspects of athletic performance, includes motivation, goal-setting, concentration, confidence and stress management. Sport psychologists work with athletes to develop mental skills that can improve performance and enhance overall well-being.

### **4. Strength and Conditioning**

Strength and conditioning coaches design and implement training programs to improve strength, power, speed, agility and endurance in athletes. These programs often involve a combination of resistance training, plyometrics, speed and agility drills, a cardiovascular exercise tailored to the specific needs of the athlete and sport.

### **5. Injury Prevention and Rehabilitation**

Sports scientists and athletic trainers work to prevent injuries through techniques such as proper warm-up, conditioning and biomechanical analysis. In the event of an injury, they

develop rehabilitation programs to help athletes recover safely and return to play as quickly as possible while minimizing the risk of re-injury.

## 6. Sports Medicine

Sports medicine involves the diagnosis and prevention of sports-related injuries. This interdisciplinary field includes medical professionals such as sports medicine physicians, orthopedic surgeons, physical therapists and athletic trainers who work together to provide comprehensive care of athletes

## 7. Nutrition

Nutrition plays a crucial role in athletic performance and recovery. Sports nutritionists work with athletes to develop individualized nutrition plans that support their energy needs, promote muscle, recovery and enhance overall performance. This involves understanding macronutrients, micronutrients, hydration and timing of meals.

## 8. Sports science and Weightlifting for teens - Examples of weightlifting and resistance training

- Deadlift - Targets back, core and biceps muscles, quadriceps, hamstrings and glutes
- Squats - Targets core and leg muscles
- Bench press - Targets chest, triceps and shoulders
- Pull-ups - Targets back and biceps muscles
- Dips - Targets triceps, chest and shoulders

## 9. Why do people lift?

- To become stronger
- To look better
- To improve cardiovascular health
- To improve physical and mental health
- To improve mood, brain, bones
- To improve mobility and flexibility

## 10. What about teens?

Guess what... They are provided the same benefits!

Participating in sports when people are young can potentially

- kick off a lifetime of **consistent fitness habits**
- heighten **self-confidence**
- impart a sense of **empathy** and **resilience**
- keep overall **health in mind**

Whether younger people should engage in weight training, is a *controversial matter*

After decades the question remains: ***Does weightlifting stunt growth?***

***"There's no evidence that weight lifting stunts growth,"***

Carol Mack, D.P.T., C.S.C.S., strength coach and doctor of physical therapy

### **11. Research**

"Research increasingly indicates that resistance training can offer unique benefits for children and adolescents when appropriately prescribed and supervised. The qualified acceptance of youth resistance training by medical, fitness, and sport organizations is becoming universal. Youth resistance training is outdated and there's now enough information to support the practice, as long as training follows age-appropriate guidelines." (*National Strength and Conditioning Association – 2009*)

"Injuries related to strength training for young participants were primarily caused by misuse of equipment, inappropriate weight, improper technique, or lack of qualified adult supervision, rather than by lifting itself" (*Research review in an issue of Sports Health – 2009*)

"Resistance training done by young athletes provides benefits for long-term health and athletic performance, since it provides neuromuscular adaptation". (*Research review published in an issue of Frontiers in Physiology – 2016*)

"Properly designed resistance training programs have no apparent negative effect on linear growth, growth plate health, or the cardiovascular system of children and adolescents." (*Clinical report from the American Academy of Pediatrics – 2020*)

### **12. A psychologists opinion on physical prowess in relation with character development**

- Dr. Jordan B. Peterson, a renowned psychologist, author, and online educator, supports that one can't be called good and moral if he is harmless. That means that he simply is not capable of causing harm.
- Only a person able to hurt somebody mentally, sentimentally or physically, who chooses not to, should be considered a good and moral person as he is faced with tough decisions during heated arguments.

### **13. Branches related to weightlifting and sports in general**

- Biomechanics
- Physiology
- Nutrition
- Psychology
- Strength and conditioning

- Injury prevention and rehabilitation
- Technology in sports science
- Performance analysis
- Sports medicine
- Ethics and doping control

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