

Research on the Strength Training For physical Health and Fitness and Enjoyable for Adolescents

Kyaw Naing Soe

Assistant Director

Department of Sports and Physical Education

Ministry of Health and Sports

Myanmar

ABSTRACT

The physiological determinants of exercise performance mature during childhood and adolescence. Both growth and development and training produce increases in strength and endurance. Strength training via resistance training serves as the core and other modalities of exercise are included depending on the needs of the athletes. For strength and power athletes would include weight training but also plyometric, sprint/agility training, flexibility exercise and aerobic training. For an individual exercising for general fitness, weight training would be included in addition to flexibility and cardiovascular training. Thus, Strength training is a type of physical exercise specializing in the use of resistance to induce muscular contraction which builds the strength, anaerobic endurance, and size of skeletal muscles. Strength training consists of three parts, such as Complexes, Combinations and Circuit training.

Keyword:- Strength Training, Complexes, Combinations, Circuit, Childhood And Adolescence.

I. INTRODUCTION

An increasing number of children undergo intensive training routines and high level competitions from an early age. Although physical training may foster health benefits, many are injured as a result of it. Carefully controlled studies on the effects of training routines from childhood are however lacking. Measure should be taken no modify the present structure of competitive sport to avoid the possible deleterious effects of intensive physical activity on children. Young competitors undergo increased stress and anxiety due to competition. Parents may influence the outcome of a competition, potentially inducting a greater prevalence of aggression in the young athletes. When the rate of growth increases rapidly it is call a growth spurt. The most important growth spurt is the one which occur at puberty. This spurt produces a rapid increase in both weight and height .The effects of physical training are difficult to separate from to those of puberty. Studies involving children have detected a wide range of results, from growth retardation to no effects at all. A certain amount of physical activity is required for normal growth, but the minimum needed has not been identified, and the ill-effects of intensive training have been carefully clarified. Regular physical activity was found to have no quantifiable effects on

the growth of young male athletes. Young athletes undergoing vigorous training were found to be taller, and to have less body fat and higher VO₂ max than sedentary controls. Intensive training may result in staleness. There have been a number of reports of fatigue syndrome in top class athletes. Various studies have shown that 3% to 5% of school-aged children are injured each year due to sports activity.

II. ADOLESCENTS AND EXERCISE.

Adolescents do not tolerate exercise as well as adults. They are much less aware of their real limits. Adolescents do not breathe as slowly or as deeply as adults. The average six year old child breathes in 38 liters of air to get one liter of oxygen. The average 18 years old need only to breathe 28 liters of air to get one liter of oxygen. This means that the younger the athlete the harder their bodies must work to provide the oxygen their muscle need. The body has three energy systems. Two of these are anaerobic, without oxygen and the other is the aerobic system, using oxygen. Before adolescence child get a higher proportion of their energy from the aerobic system than adults do. In general, children are butter at steady, extended exercise.Physical changes during

and after puberty will improve their anaerobic abilities. The amount of this improvement will help decide what event or distance is best for a young athlete.

(i) Adolescence

It has been defined by WHOM as being between the ages of 10 and 19 years.

(ii) Youth

15 and 24 years

Changes during Adolescence

(i) Physical changes

- **adolescent growth spurt**
 - ◆ Naked size and shape of the body change.
 - ◆ Accentuated differences between boys and girls.
- **Puberty**
 - ◆ The sex hormone secreted-affect-sexual emotional behavior changes tissues of the body.

Boy = (11 - 16) years

Girl = (9 - 14) years

(ii) Psychosocial changes

- ◆ The conflict with parents(e.g. style of drops and taste in music)
- ◆ Sexual pairing.
- ◆ Language is increasingly used to manipulate ideas and conceptualize the ideal.
- ◆ An orientation towards the future now begins in earnest.
- ◆ Moral independence grows.
- ◆ A period of great creativity and energy of new experiences, ideas and skills.

Compare with adolescence, adults are limited in their ability to take in information, make quick decision and evaluate their own performance. Because they have less experience than

adults,adolescence do not know the important things to look for in skills or situations. This means they need help in concentrating on what is important for them at the time. As they develop skills and gain more experience they are better able to take in and use more information.

III. STRENGTH TRAINING FOR EFFECTIVE MANAGEMENT

Health and Fitness can be viewed in three aspects; the mental, the physical, and the chemical. (i.e., by good nutrition)

A. Complex Training

A complex is a full-body circuit; we can string together any number of exercises to form a complex. The weight load used to perform these complexes is lighter than the load used in the circuits and combinations, because complexes are performed at a faster pace and a higher volume than circuits and combinations. The goal is to move the weight. (I.e. perform each rep).

This complex includes these basic movement patterns;

- (a)Upper-body pushing movement
- (b)Upper-body pulling movement
- (c)Lower-body leg-oriented movement (e.g., squats)
- (d)Lower-body hip-oriented movement (e.g., deadlifts)

B. Combination Training

Metabolic strength training combinations are total-body exercises in the purest sense because they force every joint in your body to work together to perform 1 repetition of the combination, we grab one piece of equipment and use it to train our entire body.

This combination includes these movement patterns;

- (a)Total-body exercise
- (b)Focuses on a different muscle group

(c) One piece of equipment and use it to train your entire body

C. Circuits Training

Circuit training is a classic metabolic strength training concept that involves multiple exercises, using various training equipment from free-weights to machines to body weight, performed back to back with little rest.

This circuit includes these movement patterns;

- (i) Upper-body pulling exercise
- (ii) Lower-body leg or hip exercise
- (iii) Upper-body pushing exercise

IV. WHY ADOLESCENT FITNESS IS NECESSARY?

"Children of today are leaders of tomorrow". In societies where human qualities could be utilized adolescent should be regarded as national assets. Loss of these assets due to disease or disability could be seen by any measure a great failure for the family for the community, for the country and even for the world. So it is necessary to keep our body healthy and fit.

A. Different between Exercise and Training

(i) **Exercise** is a physical activity for its own sake, a workout done for the effect it produces today, during the workout or right after you're through.

(ii) **Training** is physical activity done with a longer – term goal in mind, the constituent workout of which are specially designed to produce that goal. Training is how athletes prepare to win, and how all motivated people approach physical preparation.

B. What is Training efficient?

Training is efficient if the highest sports result is achieved with the least expense of time and energy.

C. Rest

The body needs to recover from strenuous physical activity. Rest is therefore essential, not only for physical recovery but also psychological reasons. Adequate sleep is indicated by a feeling of being refreshed on waking up, and not by lethargy, feeling sleepy and irritable. Adolescent should be healthy, educated, and socially responsible, have freedom of expression and live in a safe and supportive environment. It will surely contribute towards uplift of health, fitness and education standards of the entire nation. To keep things as simple as possible, we are going to divide your training into three distinct segments; Strength Training, Cardiovascular Conditioning and Flexibility. You could not, for instance, sprint to catch your morning train, viewed by many as primarily a cardiovascular endeavor, without sufficient strength and flexibility to propel your body forward. You will know exactly what to do, how long and hard to do it. Before you start,

(i) **Repetition (rep):** one single complete movement of an exercise from start to finish.

(ii) **Set:** A group of repetitions performed in succession until completion.

D. Recovery interval

(i) **Strength training:** The amount rest you take between sets. Usually change depending on the amount of weight we are using.

(ii) **Cardiovascular conditioning;** during an interval workout, an active recovery period will follow a brief, intense bout of exercise to help ensure that we are adequately recovered to attempt the higher intensity again.

E. Intensity

(i) **Strength training:** Simply refer to the amount of weight being lifted.

(ii) **Cardiovascular Conditioning:** Refers to how hard we are working as indicated by heart rate, RPF, or Both.

V. THE WORKOUT

THERE'S STRENGTH IN NUMBERS;

6-WEEK STRENGTH-BUILDING PROGRAM

The workouts in this section have been designed with four specific results in mind: losing fat, building muscle, getting stronger and improving overall fitness. Muscle is metabolically active tissue .Perform the following workout three times per workout, doing each of the three workouts in succession: on a schedule: A/B/C, with at least 24 hours rest between training sessions. Rest a full 2 to 3 minute between sets of the first three exercise of the workout and 90 seconds between sets of the last two, which focus on smaller, yet extremely important muscles like those of the rotator cuff. Cardio can be done either after our workout or on off days from lifting.

WORKOUT A

Squat 5x3-5

Pull up 5x3-5

Military Press 5x3-5

Russian Twist 2x10-12

Back extension 2x10-12

WORKOUT B

Bench Press 5x3-5

Romanian Deadlift 5x3-5

One-Arm Row 5x3-5

Weighted Sit-up 2x8-10

Cable External Rotation 2x10-12

WORKOUT C

Deadlift 5x 3-5

Dip 5x 3-5

Split Squat 5x3-5

Side Bend 2x 8-10

Standing Calf Raise 2x 10-12

These are complete programs that have been designed to get complete where we went to go in the quickest, most efficient way possible.

VI. WHAT IS COMPLEMENTARY EATING?

A complementary meal consists of four components.

(i) Protein (eggs, chicken, fish, bison, beef, and so on)

◆ Protein is the building block of muscle.

(ii) Fibrous carbohydrate (fruits and vegetables)

◆ Fibrous carbs move it all through the body and provide energy.

(iii) Starchy carbohydrate (sweet potatoes, rice oatmeal, and so on)

◆ Starchy carbs are a great energy source.

(iv) Fat (avocado, nuts, olive oil, and so on)

◆ Fat decreases inflammation, improves joint and heart health and aids in disease prevention and cognitive function.

VII. FLEXIBILITY EXERCISES

There are two main types of flexibility: Static and Dynamic.

(i) Static flexibility

It is the type most people are familiar with. That's where we take a muscle into the stretched position and hold it there for 15 to 30 seconds at a time. Many experts now feel that it may not be a very effective way to improve mobility, which is movement efficiency-how easily we can move about.

(ii) Dynamic flexibility

It is simply means flexibility that incorporates movement. Unlike static stretches, dynamic flexibility or mobility drills as they're commonly known, work by gradually increasing the range of

motion our muscles work through, while simultaneously firing them up for activity.

VIII. CARDIO TIPS

One of the best ways to beat boredom and keep our body guessing is to use several different cardio pieces during a single workout. Try this workout the next time we're doing cardio and see if it doesn't shake things up a bit.

- Treadmill; 5 to 7 minutes
- Stairclimber; 5 to 7 minutes
- Rower; 3 to 5 minutes
- Elliptical; 5 to 7 minutes
- VersaClimber; 3 to 5 minutes
- Stationary bike; 3 to 5 minutes

(i) Timing is everything; if your goal is weight loss or just general conditioning, it really doesn't make all that much difference when we do our cardio, since it won't have a negative impact on our results. But if we want to build muscle, we best bet is to keep our cardio and strength training as far removed from each other as possible. The last thing we want when we're trying to gain size is to expend lots of energy doing cardio. Try to limit its duration to 12 to 15 minutes at a time. Whatever you do, don't do cardio before we lift, as it might cut into our energy stores and lead to suboptimal gains.

(ii) Don't discount a good walk; Walking gets a bad rep with men. Is it true that walking isn't as effective at burning as many calories compared to other high-intensity exercise? Yes, but is it easy on the joints and capable of burning off body fat? The answer is still yes. Alternate between walking for 10 seconds at a very brisk, power walking pace. Walking for 20 seconds at a normal pace. Continue this fast/slow interval for a minimum of 20 minutes, and then walk slowly for 3 to 5 minutes to cool down. So, Heart will Rey and will burn plenty of calories just walking around gym.

IX. METHOD

Simple movements are best taught as a complete, whole task. Adolescents will learn a lot more easily if they are enjoying what they are doing. Adolescents like to use what they have learned, not just practice it.

All adolescents can find long practices boring. This because even worse in practice and to break practice up into different parts which deal with different skill.

(i) IMPLICATIONS FOR THE COACH

- ◆ Use four guiding principles
 - Explain clearly and simply what they are trying to do
 - Demonstrate and suggest how they might do it
 - Given enough time for practice
 - Be patient and correct errors, one at a time, the most important fault first
- ◆ Keep rule to a minimum with younger athletes
- ◆ Competition should be informal unit about 11 years of age.
- ◆ Avoid placing children into adult-like competition until they are ready.
- ◆ Do not pressure children to win at all costs.
- ◆ Reward children for their efforts.
- ◆ See how you can adapt athletics to fit the child.
- ◆ Use appropriately sized equipment and implements.
- ◆ Change the rules to get better learning.
- ◆ Use small groups where possible.
- ◆ Be creative in solving problems.

X. RESULTS

This research, however, isn't based on fads or miracle claims-it's based on scientifically founded training principles, sensible and realistic strategies, consistency and hard work. That's right; the strength training you're putting in is as smart, safe, efficient, and effective as possible. Put simply, humans are just like cars. If you put a bigger motor in your car (i.e., add muscle mass), you'll burn more fuel. (i.e., doing activities) than you did before. You want to be opposite of your car in that you want to become fuel inefficient, because the more fuel you can burn to perform a given activity, the better. This is why, strength training and maintaining muscle mass through proper training and realistic strategies is

critical for physical health and fitness for adolescents. Various studies have shown that 3% to 5% school-

aged children are injured each year due to sport activities.

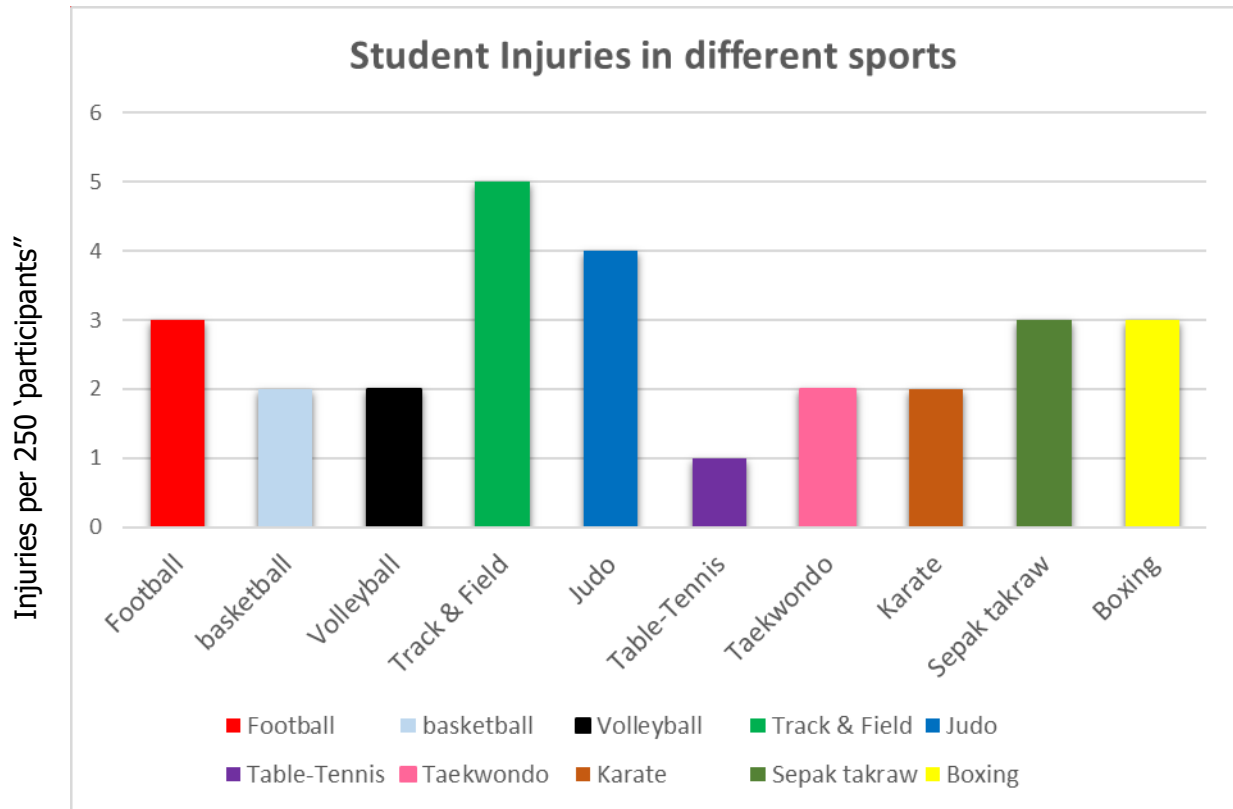


Fig. 1

XI. CONCLUSIONS

The physiological responses to training in children appear to be similar to those found in adults and in the short term at least, seem beneficial. Children are not just adults in miniature, and they should not be assumed to be capable of the same amount and quality of exertion as adults. Preparation and performance standards should take into account the chronological and biological age of the participants, and their physical and psychological immaturity. All adults dealing with high standard athletic children should not exploit the youngsters, but maintain the state of health of the children under their care, while help them to improve their athletic performance. Time is needed for a growing child to incorporate his own body changes, and probably little room is left at this critical stage for developing speed, strength and resistance.

REFERENCES

- [1] THE SCIENCE OF TRAINING, Talent training and performance, the secrets of success//Genes vs. training
- [2] Strength training for Fat Loss/ Nick Tumminello , www.Human Kinetics.com
- [3] The Men's Health GYM BIBLE,MYATT MURPHY, c.s.c.s and MICHAEL MEJIA,m.s.,c.s.c.s ,ISBN;978-1- 62336-811-1 paperback
- [4]ACSM's Foundations of STRENGTH TRAINING AND CONDITIONING WWW.acsm.org, NICHOLAS RATAMESS
- [5] Resistance training-health benefits-Better Health Channel, <http://www.betterhealth.vic.gov.au>
- [6] Advantages and Risks of Interscholastic Strength Training, <https://olinemasters.ohio.edu>

[7] Question- Quora, <https://www.quora.com>

[8] 16 Surprising Benefits of Playing Sports,
<http://www.organicfacts.net>

[9] Benefits of sport and recreation

[10] Five surprising ways sport clubs benefit children
and youth. <https://blogs.ec.europa.eu>