

Exercise- An Alternative Remedy For Attention Deficit Hyperactivity Disorder

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Abstract- Attention Deficit Hyperactivity Disorder is the common neurobehavioural problem in children. Hyperactive children can be disruptive in the class room as well as in groups. Exercise is beneficial for strengthening the muscles and bone, reduce the chance of getting type II diabetes, reduction in blood pressure. Physical activity helps improve, concentration, balance, timing, memory, consequences of action and fine motor skills. In the case of children with Attention Deficit Hyperactivity Disorder exercise or physical activity helps them to perform good and live better in future.

Keywords- Attention Deficit Hyperactivity Disorder, exercise, benefits.

I. INTRODUCTION

In current scenario children are very active and highly intellectual due to technological changes. Attention Deficit Hyperactivity Disorder is the most common problem children causes' lot of neurobehavioural problems. Worldwide, the percentage of children with has increased dramatically. Hyperactive children can be extremely disruptive especially in group or class room solution and medication might seem to be the most convenient solution for parents and teachers.

In today's world, we existing less than ever before- a reality that may have undesirable effects on our concentration, learning and other cognitive abilities. Exercise is an activity which requires physical efforts, carried out to sustain or improve health and fitness. It also helps to improve the function of vital organs. In the case of ADHD children it is a best measure to reduce their ADHD symptoms and improve their concentration.

II. BENEFITS OF EXERCISE FOR CHILDREN IN GENERAL

Active children will have:

- Stronger muscles and bones
- Leaner bodies

- Less risk of becoming overweight
- A lower chance of getting type 2 diabetes
- Lower blood pressure and blood cholesterol levels
- A better outlook on life.

III. RECOMMENDED EXERCISES FOR PROMOTING ATTENTION AND CONCENTRATION AMONG CHILDREN IN GENERAL

A)Range of motion exercise

Range of motion exercise refers to activity aimed at improving movement of specific. This motion is influenced by several structures of musculoskeletal system of our body. There are three types of range of motion exercise:-

i) *Passive*, ii) *Active* and iii) *Active assists exercises*.

i) *Passive range of motion exercise* is the movement applied to joint by another person or persons or a passive motion machine. when passive motion is applied the joint of an individual is completely relaxed

ii) *Active range of motion exercise* is the movement of joint provided entirely by the individual performing exercise. In this case there is no outside force aiding in the movement.

iii) *Active assist range of motion exercise* is described as a joint receiving partial assistance from outside force. This range of motion may result from the majority of motion applied by an exerciser or by the person or persons assisting the individual. It also may a half-and half effort on the joint from each source.

B) Strengthening exercise

Strengthening exercise increases muscle strength and mass, bone strength, and the body's metabolism. Strengthening exercise increase muscle strength by putting more strain on muscle than it is normally accustomed to receiving strengthening exercises are in the form of i) *isometric*, ii) *isotonic* and iii) *isokinetic exercise*.

i) Isometric exercise

During isometric exercises, muscles contract there is no motion in the affected joints. The muscle fibres maintain a constant length throughout the entire contraction. The exercises usually are performed against an immovable surface or object such as pressing one's hand against the wall. The muscles of the arm are contracting but the wall is not reacting or moving in response to physical efforts. Isometric training is effective for developing total strength of a particular muscle or group of muscles.

ii) Isotonic exercise

Isotonic exercise differs from isometric exercise in that there is movement of joint during muscle contraction. A classical example of an isotonic exercise is weight training with dumbbells and barrels. As the weight lifted throughout the range of motion the muscle shortens and lengthens. Calisthenics are an example of isotonic exercise. These would include chin-up, push up and sit ups all of which use body weight as the resistance force.

iii) Isokinetic exercise

Isokinetic exercise utilizes machines that control the speed of contraction within the range of motion. Isokinetic exercise attempts to combine the best features of both isometric and weight training.

IV. WHY EXERCISE IS IMPORTANT FOR ADHD CHILDREN?

Exercise isn't just toning the muscles. It can also help to keep the brain active. When we do exercise, our brain releases chemicals called neurotransmitters, including dopamine, which help with attention and clear thinking. People with ADHD often have less dopamine than usual in their brain.

The increased dopamine produced through exercise can help to improve attention and focus in people with ADHD. Exercise also produces endorphins, the 'feel good' chemical in the brain.

EXERCISES FOR ADHD CHILDREN

i) Aerobic exercise.

Aerobic exercise creates new pathways in the brain and floods it with the chemicals that help to pay attention. The person can do running, brisk walking, biking or swimming. Do these activities as outdoors or indoors, but it is

better to go outside. Studies showed that being in nature can reduce the ADHD symptoms even more than when the ADHD child perform exercise inside.

ii) Martial arts.

Experts say that the more complex nature of exercise is, much better for the brain. Sports like karate, taekwondo, jujitsu, and judo focus on self-control and bringing together the mind and body.

When do martial arts, get training in skills such as:

- Focus and concentration
- Balance
- Timing
- Memory
- Consequences of actions
- Fine motor skills

Martial arts like tae kwon do and kung fu give children structured environments that encourage mental focus as well as physical development. Many children with ADHD enjoy learning martial arts because they get to practice diverse moves that keep them interested and active. It's a fun form of exercise that anyone can practice at home with little to no equipment. Other sports may offer similar benefits, but they're harder to practice indoors.

iii) Other complex exercises: If martial arts isn't possible to practice, other physical activities such as

- Rock climbing
- Dance
- Gymnastics
- Yoga can help the body and mind.

SUGGESTED INDOOR EXERCISES FOR CHILDREN WITH ADHD

- Dance to Burn Excess Energy
- Aerobic Activities for Coordination

Some indoor games that meet this criteria include:

- **Lava floor** is an indoor exercise, in which imagine that the floor is made of lava and the children are safe in designated spots. Now, challenge the kids to cross the floor without getting burned.
- **Hopscotch:** Use tape to create a hopscotch court on a hard floor. Hopscotch challenges kids to identify numbers while exercising coordination.

- **Horse:** Indoor basket ball goals make it safe for kids to play inside. Playing games like Horse encourage children to improve physical accuracy, That can help to develop own games and use different words, or even math, depending on the child's age.

V. LITERATURE SUPPORTED FOR THE IMPACT OF EFFECTIVE EFFECT EXERCISE AMONG ADHD CHILDREN

Trevor and Danilo (2014) conducted a study on physical exercise and suggested that exercise improves cognition and health in ADHD. The researchers reviewed interventions that in corporate physical exercise programs, independent of specific type of activity or the proportions or endurance/resistance ingredients. These interventions have been found invariably to improve and alleviate symptom profiles, sometimes replacing the traditional treatments. In many cases, the presence of accompanying behavioural disruptions may be alleviated through exerciseregimes.

Charles H. Hillman et al (2014) was conducted a study over a nine-month period and involved 221 children aged 7 to 9 years who were randomly chosen to either participate in a Physical Activity (PA) program or put on a waiting list for the program. They measured changes in physical fitness, electrical activity in the brain, Increases in executive control in the brain executive control in the brain assists with the ability to withstand distractions and increase focus (inhibitions), the capacity to move easily from one task to another (cognitive flexibility), and the ability to remember facts recently learned and to come to conclusions regarding those facts (working memory). These are all traits that children with ADHD struggle with. The study results concluded that, exercise was a contributing factor in increasing executive control in the brains of the children who participated in the PA program. The authors recommended that, participating in classes regularly in at school, would give a rise of physical and aerobic fitness, but there would be a positive spin-off effect in reading and mathematics learning; both of these are dependent on efficient executive control in the brain.

Berwid GO , Halperin MJ (2012) published a paper on emerging support for a role of exercise in Attention-Deficit/Hyperactivity Disorder intervention planning. The researchers reviewed that the evidence for a direct impact of exercise on neural functioning and preliminary evidence that exercise may have positive effects on children with ADHD.

Pondifex BM et al., (2013) studied on exercise improves behavioral, neurocognitive, and scholastic performance in children with ADHD. The objective of the study was to

examine the effect of moderate-intensity aerobic exercise on pre-adolescent children with attention-deficit/hyperactivity disorder (ADHD) using objective measures of attention, brain neurophysiology, and academic performance. The results indicated that, both children with ADHD and healthy match-control children exhibited greater response accuracy and stimulus-related processing – with children with ADHD also exhibiting selective enhancements in regulatory processes – compared with after a similar duration of seated reading. In addition, greater performance in the areas of reading and arithmetic were observed following exercise in both groups. These findings indicated that, moderately-intense aerobic exercise may have positive implications on neurocognitive function and inhibitory control in children with ADHD.

VI. CONCLUSION

Physical activity is a best medicine for ADHD symptoms among children with ADHD. It helps to improve concentration, increase the production of neurotransmitters and they reduce their stress level and live better. Exercise is also a mood lifter, which makes ADHD children less tensed and fidgeting and more motivated and rejuvenated.

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