

TRAINING MANUAL FOR CHILDHOOD FITNESS

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Objectives: This manual is intended to provide important guidelines for instituting fitness programmes in schools as part of the physical education curriculum. The guidelines provided here are universal guidelines. Examples have been provided in the Indian context for ease of understanding. This manual is intended to be used for training of physical education teachers of primary and high schools.

The intention of this manual is not to be used for academic purposes. The material in this manual may not be used for medical purposes or for screening or identifying children with disease or disorders that may pose a danger to exercise.

How to use this manual: this manual is in addition to actual training that must be provided to teachers by qualified therapists (physiotherapists/ exercise physiologists). This manual is not to be used without training and interpretation by trained professionals.

Attempts have been made to describe common scenarios. Anything that is not covered in this book may be considered as beyond the scope of a physical education teacher and such a child must be referred to a doctor.

Pre-test

No.	Question	Yes	No	Don't know
1	Children are naturally fit			
2	Children run around and play and so special care is not needed to encourage fitness			
3	Children will play in the evening and so schools don't have a major responsibility in providing exercise			
4	The PT exercises normally done in schools is adequate			
5	3 hours of PT per week is more than enough and so other periods can be taken for academic subjects			
6	Children who have an aptitude for games only should be trained			
7	Yoga is a good substitute for physical activity			
8	Girls in their teens need not exercise as it might be harmful to them			
9	PT period is for free play including sitting games			
10	Making children run cannot cause any harm even if the child complains of dizziness or breathlessness			

What is fitness? Fitness is a state of good health. This means that a person is able to do normal activities adequately and has reserves of energy to do activities that may not be routine. Fitness does not mean absence of disease. Fitness does not mean body weight.

What is childhood fitness? Childhood fitness is the same as adult fitness. A fit child has more attention, sleeps better, has more energy levels and is active and alert.

Why should children be fit: It has been proven that unfit children will become unfit adults. Lack of fitness is directly associated with certain diseases like diabetes, hypertension etc. fitness has to become a lifelong habit. For this, fitness must be taught in the childhood years.

How can we ensure fitness in children: Due to increasing academic loads in the school years, an Indian child has very little time to devote to unrestricted play. Due to this reason it is necessary to include fitness programs that are adequate and appropriate in the school curriculum itself. Only this will ensure that children get enough physical activity.

Where and how can these programmes be implemented? One of the major requirements for children to get into the habit of being fit is for parents and teachers to be aware and convinced about the benefits of being fit. It is also important for teachers and parents to balance academic requirements with health requirements. Children are naturally interested in playing. Elders' discouraging this activity is what causes children to become sedentary as they grow older. For this, elders must be made aware of the benefits of being fit and the harmful effects of lack of physical activity.

Fitness programmes can be set up in schools, neighbourhoods, homes etc. For physical activity in children there is no need of equipment or special areas. Any playground will be adequate. In case of poor weather conditions when outdoor play is not possible, a classroom can be converted to an indoor play area and activity can be instituted to meet requirements.

What activities will improve fitness? Any activity that increases the breathing rate and is continuous for at least 15- 20 minutes can be done. These include climbing trees, playing on parallel bars, hop scotch, running, hopping, playing team sports like kabaddi, kho-kho, volleyball, basketball, throwball, swimming cycling. Unlike adults, children do not keep up an activity for long periods of time. Children do intense activity in spurts if allowed to play freely. To add upon this type of activity, a structured play time is necessary at least 3-5 times a day. Structured play includes swimming laps, roller skating, football, basketball, hiking etc.

What are the parts of fitness? The parts of fitness are strength, flexibility, balance, stamina. In an adult we try to plan fitness programs keeping these components in

mind. In children however, normal play activities include all. In young children it is necessary to engage them in a variety of sports so that all components of fitness are met. Another reason to involve children in multiple activities is for overall strengthening to occur. Specific activities involve specific muscles. A variety of activities will strengthen all major muscle groups.

Which children are suitable for fitness programmes? All children can be part of fitness programmes/ activity programmes. However the activities must be decided based on the age and fitness levels of the child. Generally all children above the age of 8 can be part of sporting and other activities unless they have a health problem. Children who are differently abled **who do not have a health condition** that might cause harm during exercise can also be part of fitness programmes.

Assessment by a doctor:

To identify if the child is **not** suitable for physical activity, a paediatrician's clearance must be obtained prior to involvement in physical activity. Some conditions are listed below

- If the child has a recent fracture (less than 6 months old)
- If the child complains of pain anywhere
- If the child looks ill, has lack of energy, has a diagnosed heart or kidney ailment
- If the child has a diagnosis of any serious illness or connective tissue disorder (leukaemia/ haemophilia/ Marfan's syndrome)
- If there is a doubt about the child's appropriateness for fitness, get a paediatrician's clearance.

Assessment of children to assess levels of fitness: if the child has no problem with activity, the following tests must be done to assess his/her level of fitness. This will give us a baseline to see if the programme given is beneficial or not. All components of fitness are included in the following tests.

Flexibility

Toe touch (sits and reaches)

The assessment box is very simple to make. Make a box with a sliding bar on top which slides over a scale attached to it. Even more simply, you can stick a scaled cardboard to one wall of a corner. The child sits with feet against the perpendicular wall. Reach distance can be measured against the scale.



Squat

Have the child squat on the floor completely without holding on for support. Measure the distance between the heel and the floor.



Cross legged sitting

Have the child adopt the above posture and measure the distance between the knee and the floor.



Sideways reach

Have the child adopt the above posture taking care not to bend forward. Measure the distance between the floor and the tip of the middle finger.



Bow posture

Have the child adopt the above posture. Measure the distance between the tip of the shoulder and the floor.



Strength

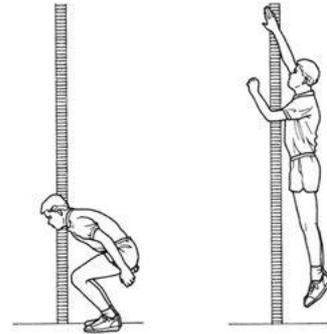
Ball throw

The child stands in a squat posture and throws a weighted ball (1 kg for girls and 2 kgs for boys above 12 years) as far back as possible. The starting position of the hands is near the knees. Measure the distance of the throw



Vertical jump

Stick a scale on the wall. Have the child jump as high as possible while reaching out to touch the scale.



Horizontal jump

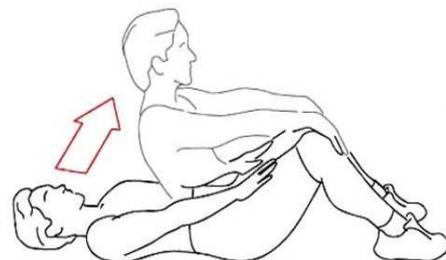
From a starting position marked on the floor, have the child jump forward as far as possible with the feet together. Measure the distance.



Muscle stamina

Sit-ups in 1 minute

With the feet together and knees bent, support the feet of the child on the floor and have the child do sit ups as fast as possible within one minute. Only completed sit ups must be counted. If the child starts compensating by raising the buttocks off the floor, these cannot be counted.



Push ups in 1 minute

Have the child lying in stomach down position and raise himself off the floor on toes and elbows. Count the number of completed push ups in one minute.

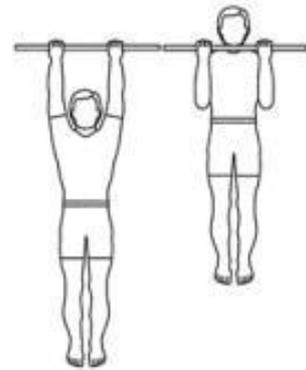


For a girl, modify the position by using bent knees.



Pull ups in 1 minute

Using an overhead bar, forearms turned in ask the child to pull himself/herself off the floor completely until the elbows are fully bent. Count the number completed in 1 minute.



Overall stamina

5 minute run distance: mark a field/ track and have the child run for 5 minutes without break. Measure the distance. If the child is unable to run for 5 minutes, note the time and distance. Instructions will be run at a speed that they can keep up for 5 minutes.

Burst power

30 sec dash distance: from a starting position ask the child “to run as fast as you can” and measure the distance covered in 30 seconds.

Balance and coordination

Ball throws at target

Mark a target on the wall. The target can be of any shape. Have the child stand a distance of 2 metres from the wall and throw a tennis ball at the target for 1 minute. Count the number of accurate throws. For children aged 12 and above, increase the distance between the wall and the child to 5 metres.



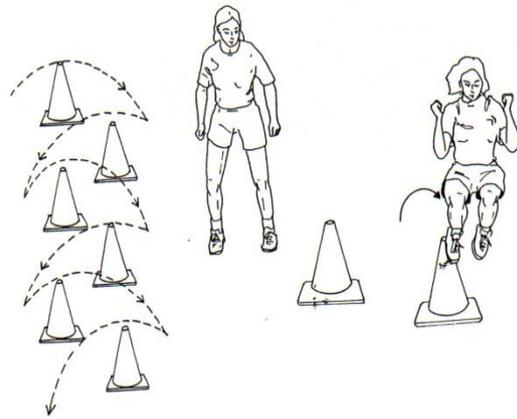
Beam walk

Support a log of non-slippery wood about 1 foot off the ground on a stable base (wood/ stones). The log should be 150 cms in length. Ask the child walk along the beam. Note the time taken and the number of slips.

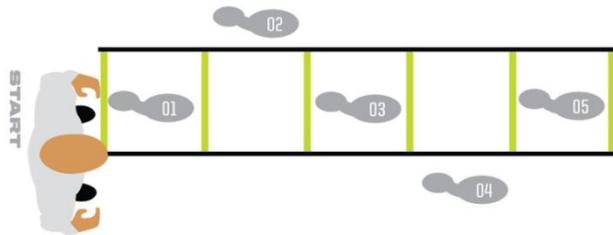


Zigzag hop

Mark a path with cones or footsteps or any other mark in a zigzag fashion. 15-20 cms apart. Have the child hop on both legs (for children below the age of 9) or on the preferred leg (for children above 9) along the path for a minimum of 6 hops/ jumps. Note the number of



accurate steps and the time taken.



Skipping in place in 1 minute

Have the child jump rope and count the number of successful jumps in one minute. This activity is suitable only for children above 9.



Guidelines for implementing fitness programmes in schools

Model programme for children 6-10 years

Mon	calisthenics (exercise class)
Tue	free play but with encouragement towards physical activity
Wed	motor coordination activities (balance and control)
Thu	yoga
Fri	free play

Model programme for children 11-14 years

Mon	calisthenics/ motor coordination activities
Tue	games (team sports)
Wed	games (team sports)
Thu	yoga / track and field events(alternate weeks)
Fri	free play

Model programme for children >15 years

Mon	flexibility (calisthenics) strength (gymnasium activities)
Tue	games (team sports)
Wed	games (team sports)
Thu	yoga
Fri	games (team sports)

- *Children from 12 onwards should be encouraged to participate in sporting events of their choice, while also participating in common activities. For instance if a child enjoys playing tennis and the facilities are available, encourage her to play tennis even if she may not be very good at it. Forcing her to play volleyball instead would give the impression that tennis is a lesser sport or that she is not good enough. We should avoid all such conflicts as much as possible.*

Model for children with poor fitness (in addition to age appropriate programme) additional 30 minutes per day

Mon	individualised flexibility exercise
Tue	motor coordination activities one on one supervision
Wed	balance and strength

Every child between the ages of 6 and 16 must have a minimum of 5 hours of physical education per week. This may include time spent in school and home.

How to assess programme effectiveness: for a school to see the effectiveness of an overall fitness programme, the following yardsticks can be used

The major indicator would be

- Fewer children who are unfit,
- better performance of school in athletic events

Other indicators are listed below:

Fitness levels of children: improvement in fitness tests of individual children by at least 20%

Behaviour of children: more attention span, less disruptive behaviour. Children are naturally energetic. When this energy is not allowed to be let free they become mischievous. If energy is allowed to be used in a meaningful manner on the playground, they will behave better in the classroom.

Academic performance: improvement in maths skills, handwriting. Balance and motor coordination are improved in sports. The same improvement will be seen in handwriting and maths which also require the same skills of coordination and problem solving.

Attention/ concentration: less fidgeting, less speaking out of turn, less combative behaviour. When a child's natural energy is expended meaningfully and they get enough attention, they will try less attention seeking behaviours and be more attentive in class.

Athletic performance: better performance, more team playing: if all children are given enough opportunity to participate in sporting activity, there are greater chances of catching talent and improving the school teams. Children with athletic ability will be given more focussed training improving their performance.

Precautions: the following precautions will help to prevent/ decrease the severity of injury during sporting events. One important thing to remember is to choose a sport appropriate for the child's fitness level, gender and age.

Ground/ surface: the surface the child is playing or doing exercise on must be firm but not hard. A good surface is a playground covered in short grass. In door surfaces can be lines with wood if possible. A good surface decreases the resistance from the ground and prevents injury. The surfaces must be non-slippery and dry. In general the following rules must be followed at the minimum.

- Even out the surface to fill in potholes
- Remove stones and pebbles
- Mark the pitch for individual sport

Footwear: for normal play the child can be barefoot. But for important events it is necessary to have good shoes. A good shoe prevent slipping, decrease the resistance from the surface and helps to support the foot and ankle. Students may be encouraged to choose appropriate footwear for physical education. Canvas shoes should be discouraged. Children should choose footwear which is half or one size bigger than their feet. Shopping for footwear must be done in the evening when the foot is its biggest size. Children, who are involved in a particular sport, should use sports specific shoes.

Clothing: while attending physical education classes, the child must wear loose fitting, light coloured cotton clothes. Cotton absorbs sweat and allows the body to cool. Synthetic clothes that do not allow heat to escape, makes the child uncomfortable. The material of clothes is especially important for inner wear.

Rules of play: rules for team sports have been made in order to enforce discipline and make the game safe. Hence it is necessary to enforce rules from the school itself. Theory classes must be taken to ensure that all the children know the rules.

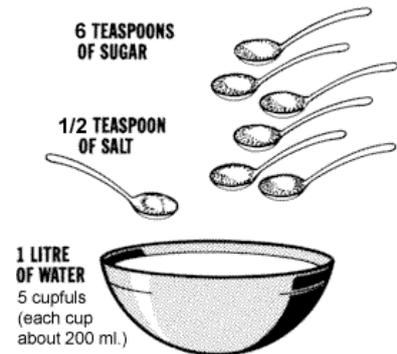
Equipment maintenance: all equipment used for play must be in excellent condition at all times. Equipment in poor condition make the user more prone to injury. Special care must be taken to check the handles of bats, racquets, the amount of air in balls, baskets, poles holding nets etc. Make the children responsible for checking equipment before and after play and report poor condition. Do not punish them for equipment that has broken down. Broken down equipment means that the equipment has been used. It is a good thing. If the child is punished for reporting poor state of equipment, they will not report it the next time and this will make them more prone for injury by using poorly maintained sport equipment.

Nutrition and Hydration:

Water is a nutrient which when taken in proper quantities, can prevent heat related injuries and can improve the participation of children without getting too tired. Every child should be encouraged to drink approximately 150 - 200 ml of water (one small soft drink bottle) every 20 minutes of their participation in outdoor sport.

Soft drinks must not be given instead of water.

If the weather is unusually hot and humid or there are children who have recovered from vomiting and diarrhoea, add half teaspoon of salt and 6 teaspoons of sugar to one litre of water.



The main source of energy comes from food like fruits, vegetables, nuts, seeds and grains. Hence after physical education classes children may be encouraged to have fruits or a handful of nuts/ seeds like groundnuts, cooked chana, sunflower seeds, melon seeds etc. A little bit of jaggery is a good addition.



When should a child not be allowed to participate in PE: if a child is ill or is injured, do not allow the child to participate. If there are extreme weather conditions, it is better to cancel PE classes.

How to manage injury: in case of minor injury, apply ice for 10-15 minutes and apply a crepe bandage. Major injury must be treated in a hospital. To apply ice, take

ice crush it and wrap in a damp towel and apply it to the part. It is necessary to wrap the ice in a damp towel to allow penetration of the cold.

It is good to have bandages and crutches of different sizes in the school so that if there is injury adequate protection can be given.

Tips to encourage children to be active:

- Give adequate time for play
- Encourage achievement on the playground
- Reward achievement on the playground with the same interest as academic achievement.
- Make it interesting: make physical activity, sporting interesting and fun. Do not be strict. Don't shout. Let PE class be fun.
- Take part in activities with the children. Teachers must play with children.
- Give adequate importance to physical fitness (report card): give a physical fitness report card(grades A,B,C)along with academic report card. The scores on the tests given above can be given on the card.
- Involve all children: make sure all children take part in PE classes. Don't allow them to take PE period to finish homework etc.
- Don't compare: don't make fun of children who cannot run very fast or play basketball. They may have other abilities. Find them and encourage them.
- Don't reward only athletic achievement. Even is a child does not achieve athletically, reward fitness for example if a child is able to perform 18 sit ups rather than 5, reward the effort.

Other possibilities

Encourage scouts, and guides participation.

Encourage field events on a monthly basis instead of just once a year. The child will get an overall fitness with field events and will be able to excel in most of the other sports that he/she attempts to play.

PE classes must not be boring with the same exercise every day. Use variety.

Organise tournaments, interclass, or interschool. This will encourage the child and instil positive competitiveness.

Provide basic necessities for sports like balls, nets. Investment in these necessities will help the overall achievements of the school.

Organise summer camps or vacation camps which has multiple sporting options under trained coaches.

Arrange for a physical education instructor who ensures that children get involved in sports. Don't use PE teachers as substitute teachers. Pay them equally as other teachers.

In case of extreme weather arrange for PE class in a hall so that the class does not need to be cancelled. Indoor games like table tennis; badminton etc. can be encouraged then.

Preferably a PE class should be scheduled just before its time for the school to leave. This will not interfere with their tidy appearance in school. PE classes must not be scheduled between 11 am and 3 pm especially during the summer months.

Rewards for sporting activities should be given overall and also in sub categories like best female/male player of the year. This will encourage equal participation.

Sports also teaches you valuable skills like team spirit, reasoning, planning, strategizing and most importantly it teaches you sportsmanship. It teaches you to never underestimate your opponent but always respect and consider them as equal.

It teaches you to cope with losing and winning. These skills will help children later on.

Wrong ideas

People think that physical activity will

- decrease your child's growth
- that because of activity he will be unable to perform well in studies

There is a misconception that girls should not play much or should not engage in activities which exert them especially after maturity. But the hormonal changes during a menstrual cycle provides more energy than other days. This energy should be used wisely instead of wasting it. Play activity and sporting activities can be performed during a menstrual cycle. In fact this will decrease the discomforts associated with menstrual cycle like cramps.

Summary:

- Assess all children at the beginning of the year for fitness levels
- Divide children as fit, less fit and overweight

- Have at least 5 PT periods a week. Follow guidelines to plan an overall fitness and sporting curriculum.
- Be flexible and imaginative to make PT interesting for children
- Reward achievements
- Have many competitive events during the year
- Give education on nutrition, water intake and game rules
- Maintain sports ground and equipment regularly to keep them in good condition
- Use the PT teacher effectively
- Ensure that PT is fun
- Allow children to take decisions on the field. Don't be strict
- Check fitness levels, individual achievements, school's sporting record, overall children's behaviour to see how successful your programme is.

