

Physical Training for Kids

What to Expect the Preschool Years

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PREFACE

Exercise is good for children's growth and development, however, it is not always clear what to expect and how to do would be the best for the preschool years.

It is not easy for school teachers to set a physical program fitting the children's development needs as well as fulfilling parents' expectation while at the same time it is fun for children. In considering all the above, Physiotherapy Team of Central Para-Medical Services Unit, of the Social Welfare Department publishes this pamphlet, in which school teachers and parents will find information addressing the preschoolers' gross motor development needs, and the suggestions for their most concerned physical training.

We hope the teachers and parents would be better equipped with this knowledge to help children to face their life challenges.

EXERCISE BENEFITS

CHILDREN DEVELOPMENT

- Exercise is the sole way to develop children's physical ability (muscle strength, endurance, balance sense, flexibility, agility, coordination, and cardiovascular endurance), this builds up brain connections (the neurons of the cerebral cortex synapse with the others to set up connections for brain functions). This builds up the fundamentals for both gross motor and fine motor development in their early years.
- Exercise enhances body's immunity for good health. Also, routine aerobic exercise can effectively control children's body weight in desirable range.
- Exercise makes children more physical agile to face daily challenges. The physical ability builds up children's self-esteem and boost their morale in school tasks.

- Exercise makes children experience different spatial concepts, such as high and low, first and latter, front and back, fast and slow, heavy and light...etc. This helps children to learn.
- Exercise in group makes children relate with each other, this provides opportunity for children to develop their social skills, discipline, fairness, justices concepts.
- Exercise allows children act out their emotions. This is good for their mental health.

GROSS MOTOR DEVELOPMENT

Examples of gross motor activities are walking, running, jumping, climbing, throwing, tossing...etc. All human movements are developed from head down to toe direction. The first explicit movement in human is head control, then sitting, creeping, crawling, standing and running..... Not till the child has all these fundamentals, then he/she will learn how to run, jump, hop, skip, bounce, or even to skate, ride bicycle later on in their life.

GROSS MOTOR

DEVELOPMENTAL MILESTONES

Activity	Walk
Aged 2-3	<ul style="list-style-type: none">● Walk steadily through obstacles● For aged 2 yrs 6 months, able to walk backward for 10 feet● Able to walk with tip toes for 5 steps● Push and pull toys
Aged 3-4	<ul style="list-style-type: none">● Able to walk straight line for 6 feet and walk backward on the same straight line
Aged 4-5	<ul style="list-style-type: none">● Walk on tip toes for 8 feet
Aged 5-6	<ul style="list-style-type: none">● Stand on tip toes for 10 sec.● Run on tip toes with ease

Activity	Run	Single Leg Stand
Aged 2-3	<ul style="list-style-type: none"> ● Run steadily but not able to stop and turn suddenly ● Reciprocal arm swing movement are still not developed yet 	<ul style="list-style-type: none"> ● For aged 3, able to stand on one leg for 1-3 sec
Aged 3-4	<ul style="list-style-type: none"> ● Run through obstacles and turn suddenly with ease 	<ul style="list-style-type: none"> ● For aged 4, able to stand on one leg for 5-7 sec
Aged 4-5	<ul style="list-style-type: none"> ● Run on tip toes with reciprocal arm swing 	<ul style="list-style-type: none"> ● For aged 5, able to stand on one leg for 8-12 sec
Aged 5-6	<ul style="list-style-type: none"> ● Mature in running ability, able to run with strength with reciprocal arm swing 	<ul style="list-style-type: none"> ● For aged 6, able to stand on one leg for 15-20 sec

Activity	Walk On Beam	Balance
Aged 2-3		
Aged 3-4	<ul style="list-style-type: none"> ● For aged 3, able to walk on beam which is 8 inches wide 	
Aged 4-5	<ul style="list-style-type: none"> ● Able to walk in beam which is 4 inches 	<ul style="list-style-type: none"> ● Walk in straight line with heel to toe in pattern ● Walk backward for 5 steps on a beam which is 6 inches wide
Aged 5-6		<ul style="list-style-type: none"> ● Walk backward in straight line with heel to toe in pattern

Activity	Jump
Aged 2-3	<ul style="list-style-type: none"> ● For aged 2 yrs 6 mths, able to jump up and jump forward lightly
Aged 3-4	<ul style="list-style-type: none"> ● For aged 3, able to jump down from 4-8 inches steadily ● Able to jump over 2 inches height ● Able to jump forward for 2 feet ● Able to jump with pattern in hopscotch mat
Aged 4-5	<ul style="list-style-type: none"> ● For aged 4, able to jump over 3 inches height ● Able to jump forward for 3 feet ● Able to jump up and turn 180 degrees with arms crossed ● Able to hop 3-4 steps and hop forward for 6 inches
Aged 5-6	<ul style="list-style-type: none"> ● For aged 5, able to hop for 5-8 steps, and able to leap for one and a half feet ● Hop on straight line ● For aged 6, able to hop 20 feet in 6 sec, and able to jump over 10-12 inches height ● For aged 6, able to skip with jumping rope for 3 times

Activity	Climb	Climb Stair
Aged 2-3	<ul style="list-style-type: none"> ● Climb up on furniture 	<ul style="list-style-type: none"> ● Ascend with alt foot per step with assistance, descend with 2 feet per step
Aged 3-4	<ul style="list-style-type: none"> ● For aged 3, able to step up to climb on playground facilities 	<ul style="list-style-type: none"> ● For aged 3, able to ascend with alt foot per step, descend with 2 feet per step
Aged 4-5	<ul style="list-style-type: none"> ● For aged 4, able to climb climber 	<ul style="list-style-type: none"> ● For aged 4, able to ascend and descend with alt feet per step independently
Aged 5-6	<ul style="list-style-type: none"> ● For aged 5, able to climb on climber with ease 	<ul style="list-style-type: none"> ● Able to run up and down stair independently

Activity	Riding Tricycle	Kick Ball
Aged 2-3	<ul style="list-style-type: none"> ● For aged 2 yrs 6 months, able to climb up and down tricycle and ride for a straight line 	<ul style="list-style-type: none"> ● For aged 2 yr 6 months, able to kick a stationary ball
Aged 3-4	<ul style="list-style-type: none"> ● Ride a tricycle through obstacles 	<ul style="list-style-type: none"> ● For aged 3, able to kick a moving ball which is kick to his/her direction
Aged 4-5	<ul style="list-style-type: none"> ● Ride a tricycle through obstacles and even ride backward quickly 	<ul style="list-style-type: none"> ● Able to kick a moving ball
Aged 5-6	<ul style="list-style-type: none"> ● Ride bicycles with assistant wheels 	<ul style="list-style-type: none"> ● Able to kick a moving ball and use foot to stop the ball ● Able to kick ball through poles

Activity	Throw Ball or Bean Bags
Aged 2-3	<ul style="list-style-type: none"> ● Throw ball underarms but unable to control direction precisely ● Able to toss a small ball 6 feet but unable to control directions precisely
Aged 3-4	<ul style="list-style-type: none"> ● Throw ball underarms to a basket 3-4 feet apart ● Able to throw ball overhand
Aged 4-5	<ul style="list-style-type: none"> ● To toss a bean bag to a basket 5 feet apart
Aged 5-6	

Activity	Catch Ball	Bounce Ball
Aged 2-3	<ul style="list-style-type: none"> ● To catch a ball with arms which is thrown to his /her direction 	
Aged 3-4	<ul style="list-style-type: none"> ● To catch a ball with arms 2 times out of 5 throws 	
Aged 4-5	<ul style="list-style-type: none"> ● To catch balls with arms precisely ● Able to toss up and catch back bean bags 	
Aged 5-6	<ul style="list-style-type: none"> ● For aged 6, able to catch ball with ease ● Able to toss up high and catch back bean bags or ball 	<ul style="list-style-type: none"> ● For aged 5, able to bounce ball at least 5 times

Activity	Push Up	Somersault	Sit Up
Aged 2-3			
Aged 3-4			
Aged 4-5		<ul style="list-style-type: none"> ● Able to roll forward one time on mat 	<ul style="list-style-type: none"> ● Able to do sit up 3-4 times in 30 sec
Aged 5-6	<ul style="list-style-type: none"> ● Able to do push up with knees on floor 7-8 times in 20 sec 		<ul style="list-style-type: none"> ● Able to do sit up 6-8 times in 30 sec

GUIDELINES ON GROSS MOTOR ACTIVITIES

1. Environment and Equipment

Ensure the floor is flat and padded, the equipment or play sets are well fitted and sharp-free.

2. Children's Health Condition

Don't let children exercise in hot, humid and sunny day for long time. Always provides drinks at the site. If any illness, tiredness reported, let the concerned child slow down his/ her activities or even take a rest. In case the problems persist, teachers or parents should consider medical consultation at the nearest site.

For those with well known medical conditions, such as heart murmur, epilepsy...etc. Teachers and the parents should follow the medical advices if any in arranging the child's physical activities. This ensures the child is health safe under all circumstances.

3. Children's Ability and Interests

Different child has different ability, some are bulky and strong, some are small but agile. Children with special needs might slower in development, poorer in motor skill, not well balance, weaker in strength and endurance and even less attentive in all tasks. Teachers and parents better tailor the training programs right enough to upgrade their ability but in an achievable and fun manner. Music, role play, drama are commonly used in training.

4. Daily Life Training

It is always good to integrate the training into the child's daily life, such as riding bike to school, climbing steps to go home, climbing steps and walking more in shoppingParents should exercise with the children regularly. On one hand this nurtures parent-child relationship. On the other hand this enhances health for all members in family.

GROSS MOTOR ACTIVITIES SUGGESTIONS

1. Strength, Endurance Training

You can vary exercise output and intensity as follows:

- Put different weights around limbs (ankle or wrist)
- Increase exercise repetition
- Increase exercise duration

Suggested Training

1.1 Barrel Wheel Push; this strengthens head, trunk, and upper limbs.

- Trainer can sit on chair with wheels and put the child's leg up on his/her thighs in helping those heavy big children.
- Trainers can let the child creep with his/her elbows if the child is not strong enough.

1.2 Jumping in bouncer; this strengthens lower limbs and enhances cardiovascular fitness.

- All bouncing activities should be under supervision. It is safer for toddlers to use bouncer with handle.
- It is good starting way to teach toddlers to jump in bouncer.

1.3 Four - point kneeling, raise limb up one by one for strengthening.

- Put weight on limbs to vary the training difficulties

1.4 Stepping on pump, this strengthens lower limbs

1.5 Pull hula- hoop, rubber rings, and towels with trainers, this strengthens upper limbs.

1.6 Running, such as cops and robbers games, this strengthens lower limbs and enhances cardiovascular endurance.

1.7 Fanning a ping-pong ball, this strengthens forearms.

- Use a bigger or heavier ball to vary the difficulties
- Game or competition with other children to make the training enjoyable

1.8 Stepping or walking up slope/ hill, this strengthens lower limbs and improves cardiovascular endurance

- Integrate the training in daily life, such as climbing stairs on the way home

1.9 Pull up; this strengthens upper limbs

- If the child is not strong enough for pull up, he/she can do push up with knees on the floor.

1.10 Climbing on overhead frame, this strengthens upper limbs and improves coordination.

1.11 Riding a bike with weight, this strengthens lower limbs

1.12 Raising water bottles, this strengthens upper limbs

- Put different amount of beans or volume of water to vary the training difficulties.

2. Balance Training

You can vary the training difficulties as follows:

- Move body to change the centre of gravity
- Decrease the surface of support
- Vary the stability of supporting base
- Close eyes, repeat the action again.

Suggested Training

2.1 Walking on beams / the rims in garden

- Use high and narrow beam
- Walk with bean bag on head/ walking over obstacles/ walking backward
- Parent's hand support vary the training difficulties

2.2 Walking on poles or uneven grounding

- In school setting, the teachers can set up different levels of blocks for this training

2.3 Standing on one leg with ball/ block for balance training

2.4 Yan Balance; Single leg standing with body maintaining in horizontal position

- This training is suitable for kids aged 5 or up. The child can act as a plane to make this training enjoyable.

2.5 Squatting on balance beam to pick up objects

2.6 Standing on wobble board

- Change positions / move sideway to vary the training difficulties
- Put beam bags under the rocking boat to vary the amplitude of movement

2.7 Using hula-hoop to put through the body to intimate dressing actions

- This training is suitable for child aged 4 or up

2.8 Stair climbing

2.9 Walking on uneven ground or piles of beanbags

- This training is suitable for toddlers

3. Coordination Training

You can vary the training as follows:

- Increase the complexity of movement
- Increase the speed of movement
- Repeat the action blindfolded

Suggested Training

3.1 Riding tricycle

3.2 Hopscotch games

- These training are suitable for the child aged 4 or up

3.3 Dancing Mat

- This training is suitable for child aged 5 or up

3.4 Skipping/ jumping with Z pattern

3.5 Jumping through pattern

3.6 Dancing

- This training is suitable for the child aged 4 or up

3.7 Building blocks

3.8 Fishing games

3.9 Climbing on web

- This exercise is suitable for the child aged 4 or up

3.10 Ball Throwing and catching

- Throw and catch either with overhand or underhand techniques
- Practise with a ball hanging from the ceiling for beginners

3.11 Bouncing ball

- This is suitable for the child aged 5 or up
- Use a bouncing plastic ball with diameter about 7 to 8 inches.
- Do not use a very light ball because most of the children will find it difficult to control

3.12 Three legged race

3.13 Two children standing face to face together to copy movement of each other

3.14 Swimming, dancing, performing Kung-Fu are all good coordination exercises

3.15 Marching

- Background music is recommended to enhance rhythmic movement
- This training is suitable for the child aged 3 or up

4. Integrated Exercise Training

Set up the beams, hula hoops, tunnels, blocks according to the children's exercise needs. This makes the children fully exercise to their limits. And this makes the training much more interesting.

CONCLUSIONS

Through good use of facilities, environment and time and together with the knowledge of gross motor development, teachers and parents can set up physical training in school and home to maximize the training effects.

In publishing this pamphlet, we would like to give an overview of gross motor development and training suggestions to the teachers and parents concerned. Hopefully, they will find this pamphlet fruitful.

If ability of the child is in question, the teachers or parents are welcomed to consult our physiotherapist upon school visit.

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