

Exercise and Keep Fit

Exercise Tips for Children and Adolescents



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Benefits of exercise

Unless coupled with regular exercise, dieting alone does not have a long-lasting effect on weight loss. In fact, there are many benefits of exercise.

- Improve heart and lung function
- Build muscle and strengthen bones
- Strengthen joints and improve flexibility, reducing the risk of injury
- Speed up metabolism, burn calories and prevent accumulation of fat
- Feel better, work better and cope with stress better
- Boost immune system
- Reduce the risk of developing heart diseases, hypertension and diabetes

Some rules of exercise

- Choose exercise according to your age and ability
- Be persistent and patient
- Exercise with friends or family members
- Get into the habit of doing exercise
- Incorporate exercise into your daily life, e.g. brisk-walking, stair-climbing, etc.

Recommendation on exercise

- Children and adolescents should do at least an average of 60 minutes per day of moderate- to vigorous-intensity physical activity, mostly aerobic, across the week. Vigorous-intensity aerobic activity, as well as those that strengthen muscle and bone, should be incorporated at least 3 days a week.
- Physical activity includes any activities such as sports, playing with friends, walking or cycling to school, climbing stairs, doing housework or participating in physical education class.

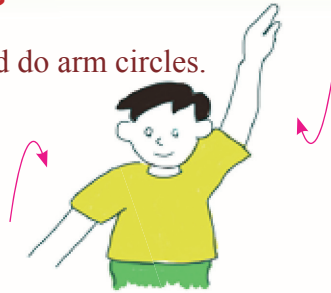
Different types of exercise

(A) Warm-up exercises

- Warm up for about 10 minutes before vigorous exercise
- Increase heart rate and body temperature, increase blood circulation
- Improve body awareness and reflexes
- Increase flexibility and lower the risk of injury
- Prepare your body for vigorous exercise
- Warm-up exercise can be divided into two categories:
 1. Gentle exercise
 2. Stretching exercise

1. Gentle Exercise

- 1) Straighten your arms and do arm circles.

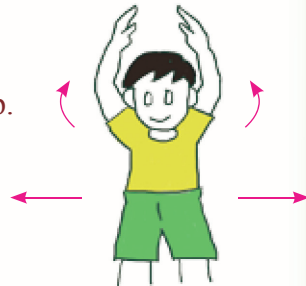


- 2) Arms akimbo, lift up your foot alternately.



- 3) Walk on the spot, raise your leg until your thigh is parallel to the ground.

- 4) Raise your arms upwards and do split jump. Hands down and return to standing.



- 5) Slight bend your knees. Stretch and straighten your arms backwards. Swing your arms upwards and jump.



- 6) Run on the spot 10 times.

2. Stretching Exercise

An exercise that helps improve flexibility and reduce the risk of strain and sprain.

Points to note:

1. Ensure a correct starting position
2. Gradually increase the intensity of stretching
3. Stretch your tight muscles for 10 to 15 seconds and relax your muscles slowly
4. Avoid jump movements during stretching
5. Breathe naturally during stretching
6. Repeat each movement 2 to 3 times
7. Do stretching exercise 3 to 7 times a week

Preparation stance: stand with your feet shoulder-width apart

(a) Stretching exercise for head

Arms akimbo, then:

- 1) Tilt your head to the left, count to 10. Return to the starting position.



- 2) Tilt your head to the right, count to 10. Return to the starting position.



- 3) Turn your head to the left, count to 10. Return to the starting position.



- 4) Turn your head to the right, count to 10. Return to the starting position.



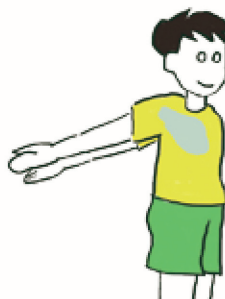
(b) Stretching exercise for upper limbs

(1) Triceps



Straighten your right arm sideways to the left. Cross your left elbow over your right arm and pull your right arm towards yourself. Count to 10 and then repeat on the other side.

(2) Chest muscle

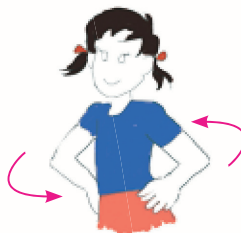


Stand straight, straighten your arms and put both arms behind your back. Lift your arms slowly. Count to 10. Return to the starting position.

(c) Stretching exercise for back and abdomen

Arms akimbo and then:

- 1) Twist your upper body to the left. Count to 10. Return to the starting position.
- 2) Twist your upper body to the right. Count to 10. Return to the starting position.



- 3) Raise your right arm with your left arm akimbo. Bend your upper body to the left. Count to 10. Return to the starting position.
- 4) Raise your left arm with your right arm akimbo. Bend your upper body to the right. Count to 10. Return to the starting position.



- 5) Bend your body backwards with your arms akimbo. Count to 10. Return to the starting position.

(d) Stretching exercise for waist and back

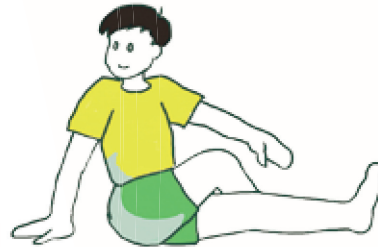
(1) Side waist

Exercise 1



Stand with your legs slightly apart. Raise your right arm with your left arm akimbo. Bend your upper body to the left. Count to 10 and then repeat on the other side.

Exercise 2



Sit on the floor and straighten your left leg. Bend your right leg and cross your right foot over your left leg. Use your right hand to support your body and twist your body to your right. Count to 10 and then repeat on the other side.

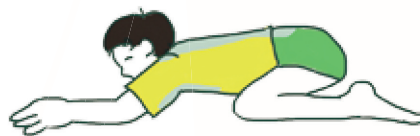
(2) Back

Exercise 1



Lie on the floor. Bend your knees and pull your legs towards your chest with both hands. Swing your body back and forth. Count to 10.

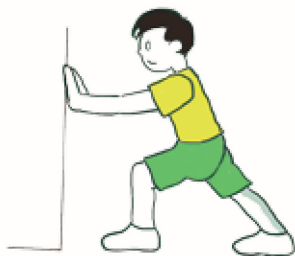
Exercise 2



Kneel down and lie prone on the floor. Extend your arms forwards. Count to 10.

(e) Stretching exercise for lower limbs

(1) Calf muscles



Stand and face the wall with both hands pressing against the wall. Step forward with your left foot with your knee bent. Right foot slide backward and extend. Count to 10. Repeat on the other side.

(2) Inner thigh muscles



Sit on the floor. Bend your knees and bring your feet towards your pelvis with the soles of your feet touching each other. Use both hands to hold your feet. Count to 10.

(3) Outer thigh muscles



Sit on the floor, straighten your left leg, bend your right knee, bend your upper body forward and try to reach your left knee with your forehead. Count to 10. Alternating between your two legs.

(4) Quadriceps



Lie on your right side with your head resting in your right hand. Use your left hand to pull your left foot towards your hip. Count to 10. Alternating between your two legs.

(B) Aerobic exercises

Oxidative metabolism is the main source of energy for aerobic exercises. The exercises usually last for more than 5 minutes and are of moderate to vigorous intensity. They can strengthen heart and lung function, increase endurance and are especially effective in reducing the accumulation of body fat.

Children and adolescents may choose aerobic exercises according to their interest, age and ability e.g. running, cycling, swimming, dancing, ball games, etc.

The ideal level of exercise is determined by the ideal range of heart rate during exercise. The calculation is as follows:

- The ideal range of heart rate=
(50% of the maximum reserved heart rate + resting heart rate)
to
(85% of the maximum reserved heart rate + resting heart rate)
- Maximum reserved heart rate = Maximum heart rate – resting heart rate
- Children and adolescents' maximum heart rate = 200
- Resting heart rate can be measured after resting for 15 minutes by counting the number of times the heart beats per minute

Physical fitness of children and adolescents varies between individuals. You may refer to the chart below to design different training programmes for your child.

A training programme can be divided into three stages:

Training Programme	Week	Exercise Frequency (times per week)	Level of Exercise (% of maximum reserved heart rate)	Duration of exercise (minutes)
Early Stage	1	3	40-50	12
	2	3	50	14
	3	3	60	16
	4	3	60-70	18
	5	3	60-70	20
Training Stage	6-9	3-4	70-80	21
	10-13	3-4	70-80	24
	14-16	3-4	70-80	24
	17-19	4-5	70-80	28
	20-23	4-5	70-80	30
	24-27	4-5	70-85	30
Maintenance Stage	28+	3	70-85	30-45

- ❖ Apart from the training programme mentioned above, Children and adolescents should do at least an average of 60 minutes per day of moderate- to vigorous-intensity physical activity.

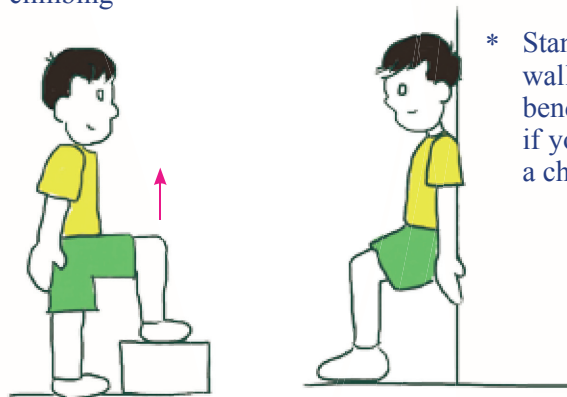
(C) Muscle-building exercise

- Improve muscle strength and endurance
- No additional equipment is required
- Do the exercise 3 times a week. Repeat each movement 10 to 25 times according to your ability. Do the whole set of movement 3 times

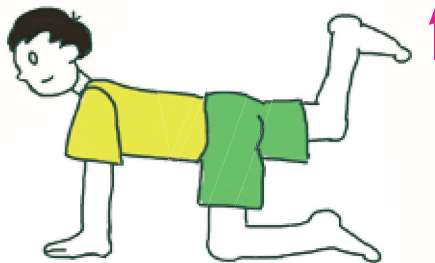
Examples of muscle-building exercises

1) Lower limbs

* Stair climbing



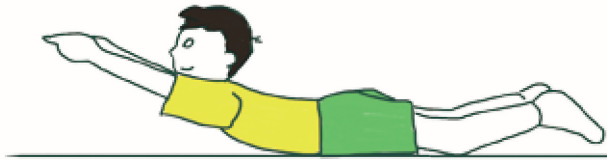
* Stand against the wall and slightly bend your knees as if you are sitting on a chair



* Kneel with your hands on the floor, then raise one leg until it is parallel to the floor, alternating between two legs

2) Back

Lie prone on the floor, then lift your shoulders and arms off of the ground without using your arms to help



3) Abdomen

Sit-ups: lie on the floor, bend your knees, cross your arms in front of your chest and lift your head and shoulders until your shoulder blades are not touching the floor



4) Upper limbs

Do push-ups with your knees on the floor. If you cannot do this movement, you may stand up and do wall push-ups

(D) Cool-down exercises

- Do after main exercise for about 10 minutes
- Allow organs and systems in body to cool down slowly
- Enhance the blood supply to muscles, help remove metabolic waste due to exercises, so that muscles recover faster
- Movements are similar to that of warm-up exercises except to gradually decrease the speed and range of movements. Movements include walking on the spot, walking, deep breathing, stretching exercise, etc.

Home Exercise Programme

Examples of home exercise programme

Every Monday, Wednesday, Friday	
10 minutes	warm-up exercises / stretching exercises
20-30 minutes	aerobic exercises (improve heart and lung function)
10 minutes	cool-down exercises

Every Tuesday, Thursday, Saturday	
10 minutes	warm-up exercises / stretching exercises
20-30 minutes	muscle-building exercises
10 minutes	cool-down exercises

Every Sunday	
10 minutes	warm-up exercises
20-30 minutes	<ul style="list-style-type: none">exercises for better balance and eye-hand coordination and quicker response
	<ul style="list-style-type: none">Parents should encourage their child to participate in outdoor activities and non-competitive sports such as dancing, skipping and cycling. This will prevent the child from giving up too easily due to a fear of failure. It would be better if parents can also participate in these activities
10 minutes	cool-down exercises

Sports Injury

1. Common sports injuries among children and adolescents

- Abrasions and bruises
- Strain in muscles and ligaments
- Muscle cramps
- Sprained joints
- Low back pain
- Heat stroke
- Head injury

2. Safety tips

- Consult your physician before sports training, especially if you suffer from a medical condition e.g. heart disease, asthma, etc.
- Parents' or teachers' guidance during exercise is important to ensure safety
- Always do warm-up and cool-down before and after exercise to lower the risk of strain and sprain
- Wear appropriate, comfortable clothing and cushioned footwear to support your heel and arches
- Wear protective gear during exercise e.g. wear a cycle helmet and knee pads for cycling, and a life jacket for water sports like canoeing, windsurfing, etc.
- Do not exercise immediately on a full stomach
- Beware of the weather and environmental conditions. Avoid doing vigorous exercises in extremely hot or humid weather
- Whatever the physical activity you choose, exercise regularly and progressively according to your own ability. Never expect to see much progress after exercising several times only
- Do not exercise if you feel unwell
- Stop exercising and take a rest if you feel breathless, dizzy, or nauseous
- Do not make dangerous movements that may harm yourself or others

3. Management of sports injury

- Keep calm and inform your parents or teachers immediately if accident happens
- Parents and teachers should learn first aid and teach elder children some simple ways to cope in accidents
- Clean the wound with clean water and dress it with a sterile adhesive bandage or sterile gauze to prevent further injuries
- Seek medical advice whenever necessary

Roles of parents

Parents influence their children in many ways throughout their lives. It is important for parents to set good role-models by actively participating in different types of physical activities.

Notes to parents

- Encourage your child to try various kinds of sports e.g. cycling, swimming, etc.
- Arrange outdoor activities with family on weekends or holidays e.g. hiking, picnicking, swimming, etc.
- Exercise with your child for fun and giving support
- Share your child's feelings and give appropriate advice



Energy expenditure in various types of physical activity

In order to stay healthy, we must adopt a healthy diet and exercise regularly at an early age. To prevent obesity in children and adolescents, it is important to balance energy intake and expenditure through diet and exercise.

- The unit for energy expenditure is calorie (1000 calories = 1 kilocalorie)
- Energy expenditure differs between different activities
e.g. for a child weighing 45kg, a 30-minute skipping will expend
 $0.162 \text{ kilocalories/min/kg} \times 30 \text{ minutes} \times 45\text{kg} = 219 \text{ kilocalories}$

Type of physical activity	Energy expenditure (kilocalories/min/kg)	Energy expended by a 45 kg child performing this activity for 30 minutes (kilocalories)
Sitting	0.021	28
Knitting, Sewing	0.023	31
Card game	0.023	31
Standing	0.028	38
Writing	0.030	41
Playing piano	0.040	54
Playing violin	0.047	63
Canoeing	0.047	63
Doing housework	0.062	86
Gymnastics	0.064	86
Table-tennis	0.068	92
Walking	0.083	112
Bowling	0.094	127
Badminton	0.098	132
Tennis	0.109	147
Roller-skating	0.113	153
Free style swimming	0.128	173
Running on flat ground (run 4 laps around a football field, equivalent to 1.6 kilometres, in 11 minutes)	0.134	181
Basketball	0.138	186
Marching	0.143	193
Breaststroke swimming	0.162	219
Skipping	0.162	219
Running on flat ground (run 4 laps around a football field, equivalent to 1.6 kilometres, in 9 minutes)	0.194	262
Judo	0.196	265