

Let us maintain fitness related to motor skills

In order to lead a healthy life it is necessary to maintain physical, mental and social fitness. The complex life styles we lead today have made the modern man extremely busy. Activities that require a large amount of physical exertion in the past are now done easily with the use of modern technology. Furthermore, we are at risk of developing non-communicable diseases from a younger age due to the unhealthy lifestyle. Thus, it is necessary to maintain physical fitness through fitness programmes related to motor skills at your school as well as at home. Development of the main components of fitness related to motor skills will enable you to demonstrate better skills in sports and help you to engage well in day-to-day physical activities. As you already possess some of these skills, you will be able to develop them further through practice.

In Grade 10 you have learnt about health related fitness factors and programmes to develop these.

In this chapter you will be able to learn about components of fitness related to motor skills and exercises to develop them.

Components of fitness related to motor skills

There are 6 components in fitness related to motor skills.

1. Power
2. Agility
3. Coordination
4. Balance
5. Speed
6. Reaction speed

Power

The ability to exert or release a maximal force in the shortest time is known as power. It can also be defined as the ability to move by instant exertion of muscle force against resistance. Power is a product of muscle strength and speed.

Power is essential in all sports. However, some sports require more power than others.

Examples of instances where power is important in sports

- **Weight lifting**



Figure 14.1- Weight lifting

In events such as snatch and power clean, in order to succeed it is necessary to lift a heavy weight instantaneously. The competitor with greater power would win such an event. The resistance is produced by the weight lifting equipment, which is overcome by muscle strength which will result in movement of the equipment.

- **Athletics**

Events such as throwing the shot put and the take off of the long jump require competitors to have developed greater power. In throwing the shot put, it is necessary to concentrate the power in your body on to your throwing arm and to let go of the shot put very quickly. This requires training in specific technical skills of throwing the shot put.

Similarly, the power exerted on the take off board in long jump enables the athlete to jump a longer distance. Therefore the athlete who can instantly release the power in his legs during long jump is able to demonstrate greater skill.

Further examples of how power is useful in sports include;

- spiking in volleyball
- the power exerted at the start of a short distance running event

Activities to improve power

I. Throwing a medicine ball

Medicine balls are made to different weights. The medicine ball can be thrown both forward and backwards using both arms. The ball can be thrown using one arm as well. The steps noted below should be followed when throwing a medicine ball.

- Stand with both feet parallel to each other.
- Hold the medicine ball close to your chest using both hands.
- Bend the knees and move your body downwards, while holding the medicine ball.
- Raise your body while fully extending your arms and throw the medicine ball as far away as possible quickly.



Figure 14.2 - Trowing medicine ball

II. Jumping exercises (these exercises need to be done quickly)

- Hop 5 steps forward using your left leg.
- Hop 5 steps forward using your right leg.

- Keep both feet together and jump forward.
- Keep a few small boxes an equal distance apart and hop over them with one leg (This exercise should be carried out using both feet alternately).

Activity

Use items that can be found in your school and neighbourhood and plan activities that can be done to develop power and carry them out in your playground.

Agility

Agility is the ability to instantaneously and smoothly change course, controlling the direction and position of your body.

In certain sports activities it is necessary to quickly and instantaneously change your posture. When changing from one posture to another, agility is required to identify the next change in posture and to change into it quickly.

Examples of instances where agility is useful in sports



Figure 14.3 - Football

- In sports such as rugby, football and basketball it is necessary to take the ball to the goal while avoiding the players from the opposing team (in order to avoid one's opponents while moving forward, it is necessary to be able to instantaneously change posture).
- In sports such as football and hockey, the goalkeeper needs to change his/her posture depending on how the ball is coming towards him/her.

- Agility is very useful in sports such as javelin throw and hurdles.

Activities to improve agility

I. Zig zag run

Arrange cones into two parallel lines with space in between adjoining cones. This enables the participants to weave through them in a zig zag manner.

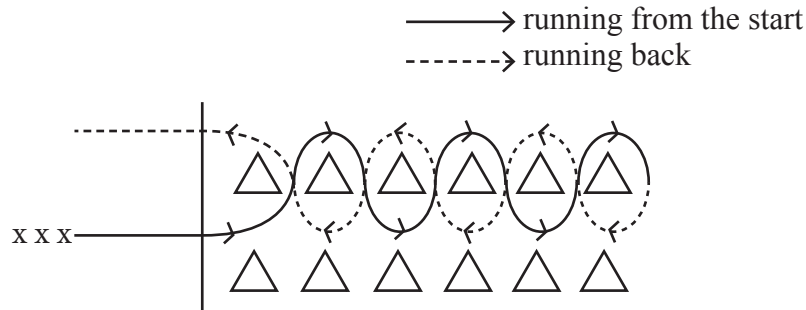


Figure 14.4

II. Shuttle run

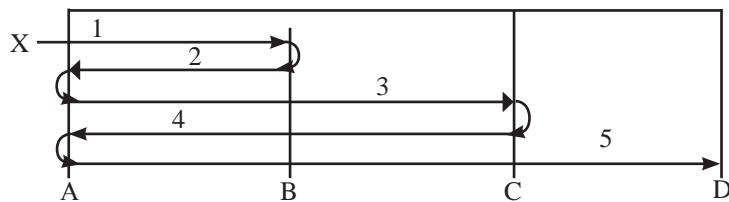


Figure 14.5

According to the figure 14.5 draw four lines named ABCD an equal distance (1m) apart from each other. When a signal is given run from line A to line B and touch line B. Instantly turn around and run back to line A and touch line A. Turn around instantly again and run to line C and touch line C. A person involved in this activity will need to change the posture instantaneously.



Activity

Design other activities that would improve agility and practise them in your playground.

Coordination

Coordination is the ability to use your senses such as hearing and vision and different parts of the body together, to perform tasks smoothly and accurately. For good coordination there should be optimal functioning of the nervous system and the musculoskeletal system of the body. Coordination is important for all sports.

Examples of instances where coordination is useful in sports



Figure 14.6 - Badminton

- In sports where rackets are used, such as table tennis, squash and badminton, there should be good coordination between the eyes and hands. It is important for the player to see the ball and to move the racket to where the ball is coming from.
- In parades to act on a given command the participants need to coordinate what they hear with their musculoskeletal system and move their hands and feet accordingly.
- Competitors with good coordination excel at sporting competitions.

Activities to improve coordination

I. Running ladder

Draw 10 squares, which are 50cm X 50cm in the playground according to figure 14.7

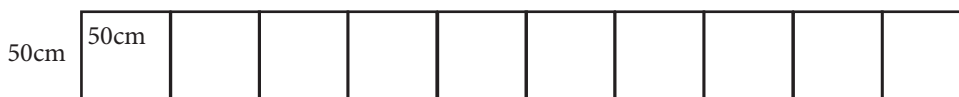


Figure 14.7

- Jump from one square to the next using both feet as you move forward.
- Next use your left leg to hop from one square to the next.
- Thirdly use your right leg to hop from one square to the next.

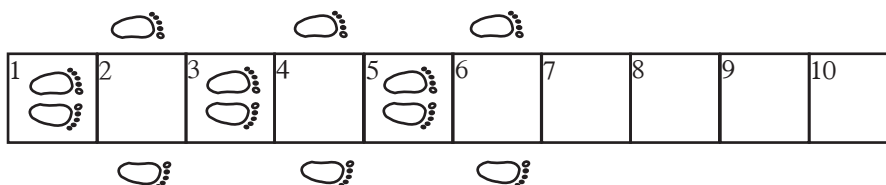


Figure 14.8

- Keep both feet inside the first square.
- Next keep both feet outside the second square.
- Keep both feet inside the third square again.
- In this manner jump forward. (Figure 14.8)



Figure 14.9

- First keep your left foot in the first square.
- Then keep your right foot in the same square.
- Move your left foot to the second square first and then keep your right foot there.
- Move forward placing your feet in this pattern. (Figure 14.9)

II. Other exercises

- Run on the spot slowly to the rhythm of 1, 2, 3, 4
- To the same rhythm, first bend your left leg and while raising it forward use your right hand to touch the toes of your left foot.
- Next bend your right leg while raising it forward and use your left hand to touch the toes of your right foot.
- Thirdly extend your left foot backwards and touch your toes using your right hand.
- Fourthly extend your right foot backwards and touch your toes using your left hand.

Do this exercise slowly according to the numbers initially, but once you are used to the sequence you can increase the speed.



Activity

Plan exercises that can be done to develop coordination with or without the use of items that can be found in your school and neighbourhood and do them in your playground with guidance of your teacher.

Balance

The ability to maintain and control your body either when still or when moving is known as balance.

Examples for maintaining balance when still or during slow movements respectively are standing at ease and serving in volleyball.

Gymnastics is an example of maintaining balance when there are quick movements.

Examples of instances where balance is useful in sports



Figure 14.10 - Gymnastic

- In gymnastics, all the movements and the finale need to demonstrate good balance in posture.
- In weight lifting good physical balance is demonstrated when the athlete lifts the weight above his head at the end.
- In martial arts a person must be well balanced while delivering a punch to the opponent as well as when landing after an attack.
- Ballet dancing also requires good balance.
- In athletics, especially high jump and throwing the shot put balance is important.

Activities to improve balance

- I. Jump up and turn half a circle and land on the ground while maintaining balance.
- II. Jump up and turn full circle and land on the ground while maintaining balance.
- III. Stand on one foot, bend your body forward, extend the other foot backwards and extend your arms to either side. Try to maintain this posture for a brief period (this exercise can be done alternating between the left and right foot).



Activity

Plan activities that can be done to improve balance and do them in your playground with the guidance of your teacher.

Speed

The ability to carry out the maximum motor activity during the shortest possible time is defined as speed. All athletes require speed to succeed in sports.

Examples of instances where speed is useful in sports



Figure 14.11 - Running events

- In running events such as 100m, 200m, 100m X 4 relay
- The approach run of the long jump
- Running between the wickets in cricket

Activities to improve speed

- II Run fast for approximately 30m.
- III. Run downwards over a slight incline.
- IV. Roll a ball on the ground and run behind it and try to catch or touch the ball.

Activity

Plan activities that can be done to develop speed and do them in your playground with guidance from your teacher.

Reaction Speed

The speed with which one is able to respond to an external stimulus is called the reaction speed

Sportsmen with a fast reaction speed can make use of this to win games. In team sports players need to react to the movements of the opponents as well as the sporting equipment instantaneously. Thus it is an important skill to develop in sportsmen.

Examples of instances where reaction speed is useful in sports



Figure 14.12 - Wicket keeping

- At the start of short distance running events.
- The wicket keeper needs to have a fast reaction speed in cricket.
- Goalkeepers in football and hockey also require a fast reaction speed.

Activities to improve reaction speed

- I. 'Meeyo Meemo' game-Listen carefully and respond to the correct word.
- II. Draw a starting line and lie on your back close to it. When the leader blows a whistle, or claps his hands, get up and start running forward.
- III. Throw an empty tin backwards while standing and start running forward when you hear the tin hit the ground.

Activity

Plan activities that can improve the reaction speed and do them in the playground with the guidance of a teacher.

Summary

The components in fitness related to motor skills include power, agility, coordination, balance, speed and reaction speed.

The ability to exert or release a maximal force in the shortest time possible is known as power.

Agility is the ability to instantaneously and smoothly change course, controlling the direction and position of your body.

Coordination is the ability to use your senses such as hearing and vision and different parts of the body together, to perform tasks smoothly and accurately.

The ability to maintain and control your body when still or when moving is known as balance.

The ability to carry out the maximum motor activity during the shortest possible time is defined as speed.

The speed with which one is able to respond to an external stimulus is called the reaction speed.

Developing these fitness related components will enable you to do well in sports.

They also play an important role in successfully engaging in day-to-day activities and leading a healthy life.

To develop each fitness related component, you must engage in the relevant exercises.



Exercise

1. Name the six components of fitness related to motor skills
2. Give two examples each of how the above components are useful in sports
3. Describe one activity each for improving the six components of fitness related to motor skills