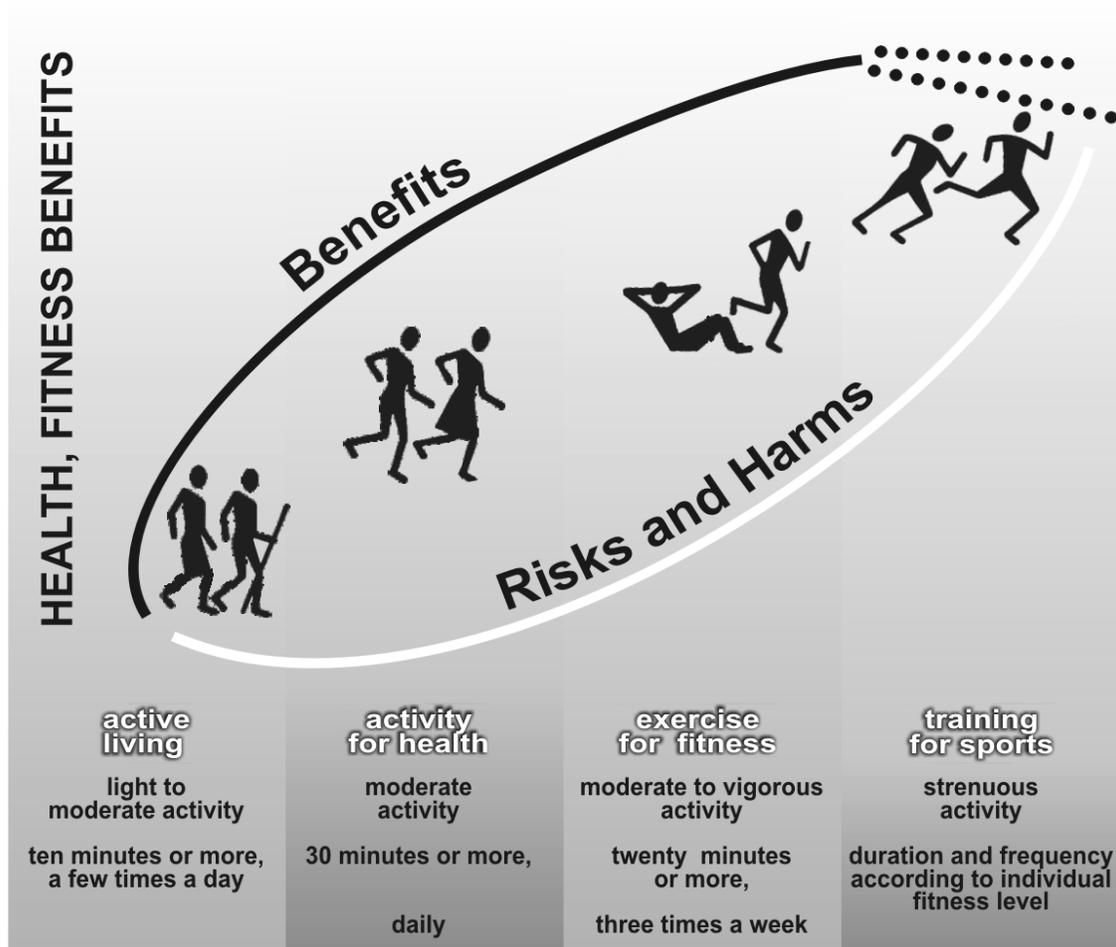


What is Physical Activity?

Physical activity involves any body movement that results in our body expending energy (burning calories). Any movement, therefore, involves physical activity. When we walk briskly, climb stairs, cycle, play sports, dance or even clean the house, we are being physically active! Depending on the energy required for these activities, physical activity can be of different levels of intensity: light, moderate, vigorous or strenuous.

TYPE AND AMOUNT OF ACTIVITY



How is Physical Activity different from 'Exercise' ?

The concept of '*exercise*' being important for health has been recognized for some time. *Exercise* was generally interpreted as being vigorous physical activity performed as a special event, which is independent of the daily routine. Health benefits were attributed to such activities only. Many persons, who felt that they could not allot time for such intense bursts of activity during their daily routine or lacked the motivation for it, considered that there was little that they could do to gain health by way of exercise.

However, in recent years the concept has changed, due to scientific evidence from several studies. These indicate clearly that *regular moderate levels of physical activity* are adequate to provide many health benefits, especially in preventing several diseases. While higher levels of physical activity (vigorous or strenuous activity) serve to increase *fitness* by increasing the efficiency and endurance levels of the heart, lungs and muscles, they are not essential for gaining other health benefits. Fitness enables you to undertake higher levels of exercise more efficiently while, moderate physical activity provides adequate health benefits.

Regular Moderate Physical Activity	=	Health Benefits (Reduced Risk of Diseases)
Frequent Vigorous Physical Activity	=	Increased Fitness + Health Benefits

Vigorous exercise is also more beneficial for weight control, as it burns more calories.

Should Physical Activity be continuous or can it be spread out over the day ?

Again, it was previously considered that physical activity had to be performed at a single stretch of 30 minutes or so each day, for it to be effective. This too became a barrier for persons who could not set aside such a length of time from their daily routine or found seasonal weather conditions an obstacle for lengthy periods of outdoor activity. When the choice appeared to be *all* or *none*, many chose *none* and remained physically inactive.

Now, we know, through good scientific research, that this need not be the case. We can *accumulate* the health benefits of physical activity through regular periodic moderate physical activity performed at different times of the day. Thus three periods of moderate physical activity, each performed for 10 minutes, would add up to 30 minutes of daily physical activity. Current understanding is that each of these periods should be of at least 10 minutes duration to provide sufficient health benefits. Beyond this, it would be still useful to keep as active as possible throughout the day to use up more calories. For example, you may walk for three 10 minutes stretches each day but also choose to walk over to a colleague's room or desk in the office rather than use the phone. It is important to *keep moving!*

Regular moderate daily physical activity of 30 mts. (accumulated over three periods of 10 mts. each or two periods of 15 mts. each or one period of 30 mts. each) provides health benefits. More vigorous physical activity also promotes fitness and helps weight control.

What are the benefits of Physical Activity?

Regular Physical Activity

- ❖ reduces the risk of dying prematurely
- ❖ reduces the risk of dying from heart disease or stroke, which are responsible for one-third of all deaths
- ❖ reduces the risk of developing heart disease or colon cancer by up to 50%
- ❖ reduces the risk of developing type II diabetes by 50%
- ❖ helps to prevent/reduce hypertension, which affects one-fifth of the world's adult population
- ❖ helps to prevent/reduce osteoporosis, reducing the risk of hip fracture by up to 50% in women
- ❖ reduces the risk of developing lower back pain
- ❖ promotes psychological well-being, reduces stress, anxiety and feelings of depression and loneliness
- ❖ helps prevent or control risky behaviours (especially among children and young people) like tobacco, alcohol or other substance use, unhealthy diet or violence
- ❖ helps control weight and lower the risk of becoming obese by 50% compared to people with sedentary lifestyles
- ❖ helps build and maintain healthy bones, muscles, and joints and makes people with chronic disabling conditions improve their stamina
- ❖ improves the functioning of body's immune system and thereby protects against infections
- ❖ can help in the management of painful conditions, like back pain or knee pain
- ❖ improves productivity by protecting health and promoting fitness
- ❖ enhances performance in sports
- ❖ promotes social networks and family bonding through group activities or sports
- ❖ serves as a stimulus for better urban planning and improved environment, by creating a demand for pedestrian and cycling paths, parks, clean outdoor air etc.

The benefits extend across the life span

✓ *A child will... ..*

- * have better bone and body growth
- * build better capacity for the functioning of heart and lungs
- * gain greater reserves for meeting the challenges of strenuous physical activity and stress in better life
- * properly set body mechanisms that regulate blood pressure, pulse rate, blood cholesterol, blood glucose and body weight.

✓ *A young adult will... ..*

- * avoid high blood pressure
- * prevent diabetes
- * keep blood fats healthy
- * maintain ideal body weight and body fat distribution
- * adopt to challenges of daily life with less stress

✓ *An adolescent will... ..*

- * build better muscle mass and gain bone strength
- * be attractive to others through appealing body shape, gait and confidence
- * cope better with mental stress
- * perform better in sports
- * avoid unhealthy weight gain
- * improve the immune system and avoid infections
- * increase appetite and improve nutrition

✓ *An older adult will... ..*

- * reduce the risk of a heart attack
- * reduce the risk of colon cancer
- * control blood pressure, if elevated
- * improve blood fats, if abnormal
- * control diabetes, if present
- * avoid anxiety and depression
- * keep better body balance
- * minimize risk of joint problems
- * reduce the risk of falls and fractures
- * have regular bowel movement and avoid constipation
- * gain protection from leg cramps
- * ensure a good quality of life

Regular Physical Activity prevents deadly diseases

The risk of **heart attacks** is greatly reduced by regular moderate or vigorous physical activity, which keeps blood pressure and heart rate at relatively lower levels. The demand of the heart for oxygen and the wear and tear of blood vessels is, therefore, less. The body reserve for meeting unexpected physical or mental stress, without excessive elevations of blood pressure or heart rate, is also high. Regular physical activity also raises the blood levels of HDL cholesterol ('good cholesterol') which protects against fat deposition in blood vessels and prevents heart attacks. The lowering of blood pressure can also protect against **strokes** or paralytic attacks. Persons suffering from high blood pressure can also avoid or reduce drug intake through regular physical activity. Blood circulation to the legs improves and reduces the risk of leg cramps.

There is clear evidence that atleast one **cancer** (cancer of **colon** or the large intestine) is less likely to occur in persons who are physically active. The bowels move regularly and constipation is rare in such persons. This helps reduce the risk of prolonged exposure to various cancer causing agents. While there are studies to suggest that some other cancers (such as breast cancer) also may be prevented by physical regular activity, more scientific evidence is needed to support that conclusion.

The risk of developing **diabetes** is greatly reduced by regular physical activity, especially if combined with appropriate diets. Large clinical trials conducted in USA, China and Finland suggest protection levels of around 50%, often better than that provided by drugs. Even persons who have developed diabetes can control it much better and avoid complications through regular physical activity.

Many more health problems can be avoided too.....

Since physical activity stimulates and shapes bone formation and renewal, bone strength is preserved even in elderly persons. It counteracts the tendency of bones to lose calcium and become weak in later life. The problems associated with **osteoporosis** (bone pains and fractures) are, therefore, much less frequent. Joints also remain supple and muscles retain good tone. There is good balance as a result. Falls are avoided and joint aches and **arthritis** do not pose problems even to the elderly.

Overweight and Obesity are more than more cosmetic problems. They are risk factors for heart attacks, high blood pressure, diabetes, high blood fat levels, joint problems, lung disorders etc. Regular physical activity helps to keep body weight in check and prevents excess weight gain and associated health problems.

Mental health is often adversely affected by poor physical fitness and social isolation. Physical activity corrects both of these and helps to avoid anxiety and depression.

Examples of PHYSICAL ACTIVITY

Washing and waxing a car or motorcycle	– 45-60 minutes	
Cleaning/washing windows or floors	– 45-60 minutes	
Playing volleyball/badminton	– 45 minutes	
Playing football/hockey	– 30-45 minutes	
Gardening/digging	– 30-45 minutes	
Walking 1¼ miles in	– 35 minutes (20 Min/mile)	
Basket ball (shooting baskets)	– 30 minutes (10 mile/hr)	
Bicycling five miles in	– 30 minutes	
Dancing fast	– 30 minutes	
Walking two miles in	– 30 minutes (4 miles/hr)	
Water aerobics	– 30 minutes	
Swimming laps	– 20 minutes	
Basketball game	– 15-20 minutes	
Bicycling four miles in	– 15 minutes (16 miles/hr)	
Jumping rope	– 15 minutes	
Running 1½ miles in	– 15 minutes (10 min/mile)	
Stairwalking	– 15 minutes	
		MORE VIGOROUS, LESS TIME

Physical Activity takes the sting out of stress

Stress was an essential survival mechanism which evolved in the days of our hunter-gatherer ancestors who had to fight or flee from the beast. The response to these challenges produced increased activity of the sympathetic nervous system and of the adrenal glands. Adrenaline raised the pulse rate and blood pressure so that more blood would flow to the exercising muscles. The surge of adrenaline and steroids broke down glucose stores and raised blood glucose levels so that the brain (which had to make life saving decisions in a split second) and the muscles (which had to help in fighting or fleeing) were well supplied with their fuel. Blood clotting tendency also increased, to quickly seal off blood loss from any injury sustained during the fight or flight.

When we were catapulted into modernity, the nature of the threats has changed. They are, more often than not, threats to our self-esteem or our tranquility than to our physical survival. Secondly, the originally intended outlet of fight or flight does not usually operate in current times. So what happens is that the adrenaline and steroids do surge but the racing pulse, raised blood pressure, elevated blood sugar and thickening blood serve no 'useful' purpose. The result is damage to blood vessels, heart attacks, paralytic strokes, diabetes and many more health hazards associated with modern living.

Physical activity and exercise help in coping with stress and minimizing its adverse effects. Physical activity, especially if vigorous, evokes acute stress like responses with respect to pulse rate, blood pressure etc. However, repetitive activity conditions the body to accept more and more challenges with less and less adrenaline rise. Gradually

A study in USA found that when children are challenged with complex mathematical problems, their blood pressure usually rises. Interestingly, however, children who were physically active through regular games and sports had a much lower rise of blood pressure than children who were usually sedentary. Physical activity not only promotes fitness but also promotes cross-tolerance to stress. It can be great fun too! Just do it!

the body gets used to performing a lot of work at lower heart rates and blood pressure, with higher reserves left to meet further challenges. Exercise breeds cross tolerance to mental stress too. Persons who are physically active have a less intense adrenaline response to mental or emotional challenges and cope better with stressful situations. Remember, the original outlet for the stress response was physical activity (when our forefathers ran after or away from the beast). What better way, to release your stress, than to spiritedly chase a shuttlecock or tennis ball or skillfully evade the pursuit of your soccer opponent? Perhaps an office worker too could persuade his or her boss to install a table tennis table in the office! That would relieve office stress and build workplace solidarity. Regular physical activity, even around home, will act as a shield against school or workplace stress.

Remember Physical Activity is also pleasurable!

You need not do it only because it prevents disease you should also do it to feel good and at ease!

Physical activity improves body image, promotes self esteem, makes you feel energetic with a spring in your step, keeps you alert, improves concentration, makes your body supple and movements graceful, builds and radiates confidence – in a word it makes you feel ALIVE!

Physical activity also provides opportunities for pleasant family interaction, when other members join, and for social bonding with friends, neighbour or colleagues at worksites. You will have more hands to shake and more friendships to make as you reach out to the world fitter, faster, and farther. You will be a WINNER!

Why is Physical Activity important for Indians

India, like many other developing countries, is experiencing a rapid health transition. This means that health disorders like heart diseases, cancers, diabetes, mental illnesses, chronic lung diseases, accidents and injuries are becoming major public health problems even as we are getting better control of infectious diseases and nutritional deficiencies. Even now, India tops the world list in terms of the disability burden due to heart and blood vessel diseases (more than all industrial countries put together!) and the death rates due to heart diseases are expected to double in another 25 years. India already has the highest number of diabetics and this figure would increase 3 fold by 2025. High blood pressure is a rapidly increasing problem. Many of these are striking at a younger age, with many deaths in mid-life.

As we urbanise and change our patterns of eating and physical activity, more and more people are becoming over weight or obese—even at a young age. Indians have a tendency to accumulate fat in the abdomen (pot belly). This 'central obesity' predisposes to diabetes, heart attacks, abnormal blood fats and high blood pressure.

Much of this multiple disease burden can be avoided by regular physical activity which keeps body weight and body fat in check and helps to prevent diseases. Since diagnosis and treatment of many of these disorders are very expensive, it is best to prevent them. Of all preventive methods, regular physical activity and avoiding tobacco are the least expensive and have multiple health benefits. Alongwith a balanced diet (low in salt and certain types of fats; high in fruit and vegetables), these can provide the best protection against many diseases.

Indians fare badly in Olympics. We regard it as a matter of national shame. However, we cannot produce outstanding sportspersons as long as the general population levels of fitness are low and there is no general love of physical activity. Only if we get moving as nation, will we get Indians to stand proudly on the medals' stand.

If you choose routine Physical Activity.....

- ☞ Take a brisk walk (10 mts. X 3 times/day)
- ☞ Climb stairs (stay away from the elevator upto 3rd floor)
- ☞ Walk/cycle to the nearby market (instead of the scooter/car)
- ☞ Do household work (cleaning, mopping, washing clothes)
- ☞ Gardening (digging, cleaning, watering)
- ☞ Dance (even at home – it is not as mad as you think!)
- ☞ Play with children, friends
- ☞ Do aerobic exercises
- ☞ Skip with a rope
- ☞ Learn and practice Yoga

If You Choose 'Exercise'.....

Aerobic exercises are active, fairly continuous and reasonably intense exercises. You perspire and breathe deeply. They are great for heart and lung (aerobic) fitness and weight control.

Callisthenics are useful for improving flexibility, increasing muscle strength, and endurance.

They are best as warm up and cool down sessions of your exercise routine.

High resistance exercise is useful for sportsmen and athletes, since it builds muscle bulk. It is not really suitable for older people or non-competitive sports.

Your guide to exercise

Choose an aerobic exercise that conveniently fits your daily routine. One you can enjoy and do regularly is best. Get started slowly and build up gradually. Once you enjoy the activity, like other healthy and active people, you will soon not want to give up.

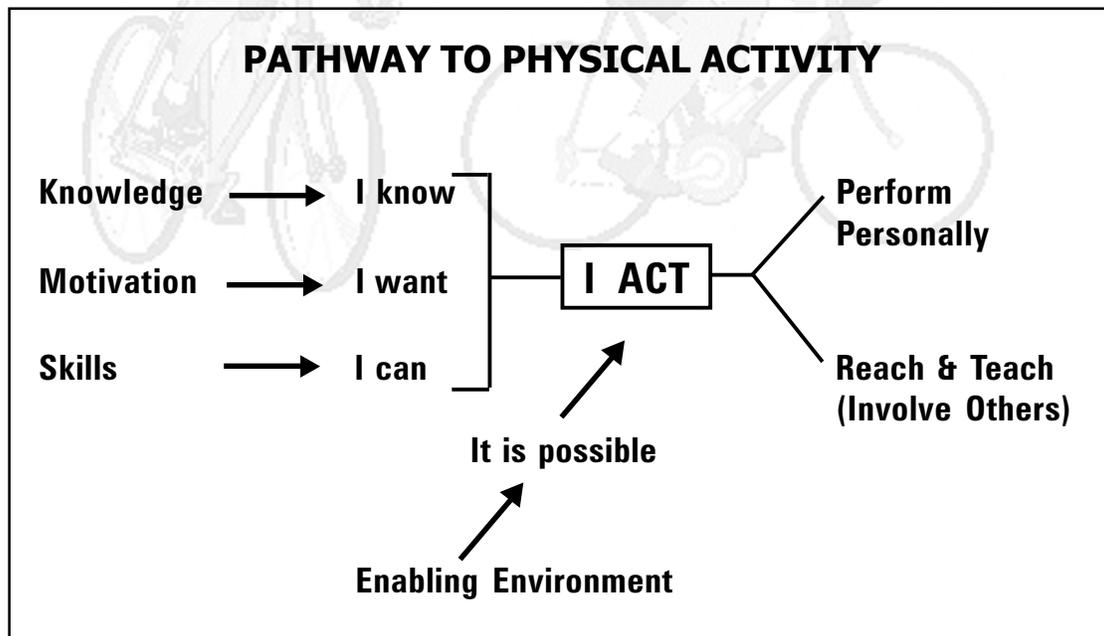
Activity	Aerobic Fitness	Muscle Fitness	Suppleness	Weight Control
Aerobic Dance	• • • •	• • •	• • • •	• • •
Badminton	• • • •	• • •	• • • •	• • • •
Basketball	• • • •	• • • •	• • • •	• • • •
Body-building	•	• • • •	• •	• •
Cycling	• • • •	• • •	• •	• • •
Golf (18 holes)	•	•	•	• •
Jogging	• • • •	• • •	• • • •	• • • •
Martial arts	• • •	• • • •	• • •	• • •
Soccer	• • • •	• • • •	• • • •	• • • •
Squash	• • • •	• • •	• • •	• • • •
Swimming	• • • •	• • • •	• • •	• • •
Table Tennis	• • •	• • •	• • •	• •
Tennis	• • •	• • •	• • •	• • •
Walking	• • •	• •	• •	• •

• • • • Excellent • • • Good • • Fair • Minimal

We need a supportive environment

Even as we make personal choices to become more physically active, we also need a supportive environment in schools, workplaces and community settings:

- ☆ Playgrounds + sports equipment
- ☆ Protected time for school sports
- ☆ Worksite facilities for physical activity & sports
- ☆ Community recreation centres
- ☆ Parks and playgrounds in residential areas
- ☆ Safe pedestrian paths
- ☆ Protected cycle lanes



We need to seek, support and sustain policies which will promote such an environment in various settings, even as we employ educational methods to enhance awareness and motivate behaviour change.