

EXERCISE AND HEART

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EXTENT OF HEART DISEASES

Diseases of heart and blood vessels account for approximately 10-12 million deaths every year. Out of these roughly 2.4 million deaths take place in the India alone. There is virtually an epidemic of heart diseases in the country. Roughly 10% of people in age group of 30 years and above in urban areas and half of them in the rural areas are suffering from blocked arteries. Its further estimated that almost 25-30% of urban population and 10-12% of the rural population suffer from high blood pressure. Even the incidence of diabetes in our country is much higher and roughly 7-9% of urban population and 1-3% of rural population suffer from diabetes. All this translate in to high economic loss to the country and to the individual, as well as loss of life and the attendant miseries. Almost 140 people out of every 1 lac population in India die of acute heart attack and this figure is much higher than the rest of the world. In India the prevalence of blocked arteries of the heart is roughly 2-4 times higher than with other population groups world wide, and this is just not confined to Indians in India but also to Indians in western countries. The chance of blockages of the arteries of heart and heart attacks in United States of America is four times higher in Indians than the local white population and six times higher in Indians as compared to the local Chinese population. Therefore it is not wrong to say that there is virtually an epidemic of heart and blood vessel diseases in this country and one really needs to take measures to

prevent the spread of this epidemic. One of the cheapest and easiest way of keeping away from these problems is to exercise regularly.

BENEFITS OF REGULAR EXERCISES:

1. It improves heart and lungs
2. It decreases blood pressure
3. Decreases body fat
4. Decreases bad cholesterol (total and LDL cholesterol)
5. Increases good cholesterol (HDL cholesterol)
6. Increases energy levels
7. Reduces levels of stress and depression
8. Control or prevents diabetes
9. Decreases risk of bone injuries and joint problems.
10. Besides it makes you look and feel good.

Consider the benefits of a well conditioned heart - in one minute with 45-50 beats, the heart of a well conditioned person pumps the same amount of blood as an inactive persons heart pumps in 70-75 beats. Compared to the well conditioned heart, the average heart pumps up to 36000 more times per day or 13 million more times per year.

What kind of exercise should be done?

There are basically three kinds of exercises

1. **Aerobic Exercises** are those which use large muscles of the body and where body uses oxygen more efficiently. They deliver extreme benefits to heart, lungs and the

circulatory system. These exercises are like walking, jogging, swimming, cycling and they are the ones which actually benefit the heart.

2. Toning/Strengthening exercises

3. Flexibility exercises

The latter two are called anaerobic exercises and do not have any benefit for the heart or the lungs but they help in maintaining the flexibility of the body and toning up of the muscles so that there are no problems relating to the joints and bones and stiffness of the body later on in life. A well balanced exercise programme should actually include all three types of exercises in the right mix.

EXERCISE FOR HEALTHY HEART

Aerobic Exercises:

Any aerobic exercise that raises the heart rate to a level where one can still talk but starts getting little bits of perspiration or beads of sweat on the forehead will be beneficial for the heart. Generally speaking at least 20 minutes of exercise, minimum of 4 days in week is necessary. However, one can do exercise 7 days a week, it is desirable. An ideal exercise programme starts with 5 minutes of **warming up period**, which includes gentle movements that will slightly increase the heart rate, going slowly on to 20 minutes of **peak exercise phase** in which one does jogging or brisk walking or bicycling till such time that the target heart rate is achieved. Thereafter another 5 minutes of **cooling off phase** in which a person gradually brings down the level of exercise and comes to a stationary phase. One can do general stretching and walking in the warming up and cooling off phase and more vigorous exercises during the peak phase. The target heart rate is given in the chart below.

Table 1
Target Heart Rate by Age
Heart beats per minute (% of max. HR)

Age (Yr)	Low (50%)	High (75%)
20	100	150
30	95	143
40	90	135
50	85	128
60	80	120
70	75	113

If we are beginning an exercise programme, one should aim for the lower end of the target heart rate and if one exercises regularly, one may want to work out at high end of this target heart rate.

Strengthening Exercises

For example lifting weights or dumbbell exercises. These exercises make your muscles and bones stronger and also make your muscles larger. By increasing muscle mass one burns more calories and therefore ones body looks lean and fit. Strengthening exercises should be performed 2-3 times a week for best results. Always warm up for 5-10 minutes before one begins to lift weights or perform any exercise against resistance. Find the weight that one is comfortable with and once you reach a stage of easily lifting that weight for 12-15 times, it is time to increase the amount of weight. One should choose exercises for legs, arms, chest, back and stomach. Make sure that each

movement is performed in a slow controlled way. Do not jerk or use too much of force. Also do not hold your breath during the movements. Remember to breathe out when you lift the weight and breathe in as one lowers the weight.

Flexibility Exercises: These are usually most neglected part of the fitness programme. Flexibility improves the posture, reduces the risk of injuries and releases and eases muscle tension and pains. One must always do 5-10 minutes of warming up to loosen the muscle before doing stretching phase of the programme. Stretching cold muscles can lead to injury. Each muscle group should be put through the stretching according to a laid out programme and each stretch should be done slowly and held for at least 10-30 seconds. Do not bounce. Just loose stretch and do not over stretch a muscle because it can tear. Try not to hold breath while stretching. In fact take long deep breaths throughout the stretching programme.

PREVENTING EXERCISE INJURIES: Just as a good exercise programme can make one physically fit, an improperly organized programme can produce more harm than benefit. In this context the importance of warming up phase of the exercise can not be over emphasized because most people do not take the time to warm up properly. Warming up increases the body temperature and makes the muscles loose to be ready to exercise. Marching in place, walking for a few minutes or doing some kind of activity gets the blood flowing to the muscles and prepares them for exercise. The same set of exercises should also be done to cool down after the peak phase of the exercise.

One should not underestimate the importance of having a good pair of shoes before one begins an exercise programme. Not only it prevents you from getting hurt but also it protects the feet by giving cushioning effect for the weight of the whole body when jogging or jumping. One should go shopping for the shoes at the end of the day when the foot is at its largest size. Also when trying on a shoe, there should be one half inch between the end of the toe and the end of the shoe and foot should not slip or slide around inside the shoe. Also when one wears the shoe one should get a feel good factor and one should not need a breaking in period for the shoe. If one exercises regularly one may be expected to buy new shoe every 3 to 6 months.

When one starts a new programme one needs to be guided by a trainer who should be a certified person who can guide you properly of what exercises to do, for what lengths of time and in a proper manner. When in doubt, one should seek help because doing a wrong exercise or lifting to much of the weight or using the wrong posture when one uses the machine may lead too injuries.

Finally use your own good judgement and staying within your exercise limits is very important. Right exercises performed regularly is always better than one gut wrenching break out session a week. Your body will tell you if you are pushing it too hard. Pain, dizziness, fainting, cold sweat or breathlessness are signs to stop. Even professional Athletes and Coaches will tell you that physical fitness is gained a little at a time. Remember that exercise is not limited to working out in health clubs or jogging around a track. Small things like gardening or running small errands to the market or may be

using stairs instead of the elevator or parking further away from the office or taking a brief walk at lunch will help one to find fitness during ones day.

CAUTION ALERT !

If you belong to any one of the following groups, one should be little cautious before starting a new exercise programme.

1. If you are taking a prescription medicine
2. You are a known case of heart disease
3. You have diabetes and high blood pressure
4. You have problems with yours bone and joints
5. If you have a family history of blocked arteries of the heart
6. If you are a man over 45 years or a lady over 50 years of age who is not used to even moderate levels of exercise
7. If you smoke
8. If you are significantly over weight.

In such situations it is better to first seek medical opinion and take clearance before starting a exercise programme and even thereafter one should start at a very low level of exercise and gradually build it up in weekly intervals and if feasible one must exercise under the supervision of a trainer. People of any age or any fitness can benefit from some type of exercise and it is not that the above mentioned people can't exercise, it is just that their exercise protocols may be little different from others. Most certainly exercise is going to be beneficial for the above said and infact these are the people who need exercise much more than totally healthy people.

FREQUENTLY ASKED QUESTIONS

1. Do I get sufficient exercise from my daily activities?

The answer is clearly "No". Most of the times in our modern day life style, we are traveling in cars, buses and scooters and there is very little element of walking involved. Even what little walking we do is done at leisurely pace which is not beneficial for the heart. Therefore one needs to do extra amount of exercise to bring the benefits to the heart.

2. Can physical activity reduce my chance of getting a heart attack ?

The answer is a very emphatic "Yes". Various studies have shown that physical inactivity is a major risk factor for heart disease. Sedentary life style people are two times more prone to develop heart attacks than physically active people. Even mild to moderate exercises performed regularly help in reducing heart diseases.

3. What are the modern day risk factors for heart disease?

These are cigarette smoking, high blood pressure, high blood cholesterol, physical inactivity, obesity and diabetes. The more risk factors one has, progressive the heart diseases and heart attack.

Cigarette smoking: Heavy smokers are two to four times more likely to have a heart attack than non smokers. The heart attack death rate among all smokers is 17%, much greater than among non smokers.

High Blood Pressure: The risk of developing heart disease is directly proportional to your blood pressure. A blood pressure of 140/90 mmHg or greater is classified as high

blood pressure. However, lower the blood pressure that one can keep, better it is and there is really nothing like a genuinely low blood pressure in community settings. Lower the blood pressure is, higher the longevity and lower is the risk of developing heart attacks. Regular physical exercise, even of moderate intensity, can help reduce high blood pressure.

High Blood Cholesterol: A blood cholesterol level of 220 mg% or above increases the risk of heart disease. However, one should attempt to keep the total blood cholesterol level well below 200mgm% to be able to put you at a lower risk of heart attack. Cholesterol can be of two types. Good cholesterol or HDL and bad cholesterol or LDL. One should try to keep the good cholesterol above 45mg% and this can be kept high by regular physical exercises and bad cholesterol should be kept below 130 mg% and that can be done by controlling the diet and avoid fried, fatty and oily foods.

Physical inactivity: Lack of physical activity increases the chances of developing heart diseases. Even persons who have had a heart attack, can increase the chances of survival if they change their life style and include regular physical exercise in it.

Tips for your heart health

1. Stay physically active
2. Stop smoking and avoid other people's smoke (passive smoking)
3. Control high blood pressure and high blood cholesterol
4. Cut down on total fats, saturated fats and cholesterol in your diet
5. Reduce weight, if overweight

4. I have heard of fatalities during exercises. What are they due to ?

Yes, in some cases people have died while exercising but then most of these deaths are caused by over exertion and over exercising in patients who are not accustomed to exercise and they already have a underlying heart disease. In young people, that is under the age of 30 years, these could be congenital heart defects (birth defects) like holes in the heart and blue baby syndrome. In people over the age of 40 years the heart condition is usually coronary artery disease (blocked arteries of the heart). Many of these deaths are usually preceded by warning signs such as chest pain, light headedness, fainting, sweating and extreme breathlessness. These symptoms should warn a person to stop exercising immediately and to seek medical attention. Also do not forget that some of these deaths reported in media may be totally unrelated to exercise and may just be coincidental. There is a evidence that incidence of sudden death in population is reduced if regular exercises are followed.

5.Can I Exercise if I had a Heart Attack in Past ?

Most certainly you can, but only after having taken a clearance from the doctor. Regular and brisk physical activities can reduce the risk of having a second heart attack and prolongs life. Besides regular exercise can also improve the quality of life and how one feels and looks. It also can help in development of alternative sources of blood supply of the heart (collaterals) and may infact reduce the frequency, severity and the incidence of anginal chest pain.

FIVE COMMON MYTHS ABOUT EXERCISE

1. "Exercising makes you feel dull & drained of Energy"

Most people, once they become physically fit, infact feel more energetic after exercise than before exercise. Regular moderate brisk exercise can help you reduce fatigue and manage stress.

2. "Exercising takes too much of time"

If you consider that we have 24 hours in a day then, 30 minutes of exercise per day is not a long time for ensuring a smooth, healthy and uneventful journey through life. If one doesn't have 30 minutes in a stretch, one can find two 15 minutes period or even three 10 minutes period between the work schedules and do these exercises. Once you discover, how much you enjoy these exercise breaks, you would make them a habit and then physical activity becomes a natural part of your life.

3. "All exercises give the same benefits"

That is not correct because only regular and at least moderate level exercise like brisk walking, jogging, swimming or cycling, will improve the efficiency of the heart and lungs and burn off extra calories. Other activities may give you other benefits such as increased flexibility or muscle strength but will not improve the function of your heart or lungs.

4. "The older you are, the less exercise you need"

As we catch on age we tend to become less active and therefore we need to make sure that we get enough physical activities. In general, middle aged and older people benefit from physical activity just as much as the young people do and if one is used to regular activity, age may not be a limiting factor. However, one needs to tailor the physical activity to ones particular needs and to your fitness level.

5. "You have to be athletic to exercise"

One need not have any special talent to exercise and just plain simple walking in a healthy environment without any equipment of any kind is just as good as doing exercise on sophisticated equipment in gymnasiums.

6. "I need to exercise very hard"

Nothing can be further from truth than this statement because it is important to exercise at a comfortable pace. For example, when jogging or walking, briskly, one should be able to keep on talking comfortably and if one does not feel normal again within 10 minutes of stopping exercise then probably one is pushing him self or her self too much, and need to reduce the level of exercise. Also if you have breathing difficulty or experience faintness or prolonged weakness during or after exercise then one is probably exercising too hard and therefore one needs to simply cut back or take medical opinion. One should try to achieve any thing between 50-75% of the maximum heart rate. (Refer Table 1), because exercising below 50% of the heart rate hardly gives any benefit to the heart and lungs and exercising above 75% of the maximum heart rate also does not give proportional benefits. Therefore, it is moderate level of exercise performed regularly which is the best form of exercise.

HOW DO I AVOID INJURIES

The most powerful medicine for injuries is prevention. Here are some tips to avoid injuries.

1. Build up your level of activity gradually and always include a warming up and cooling phase in your exercise programme.

2. Try not to set your goals too high, otherwise you will be tempted to push your self too far too quickly. Try to achieve a little each time.
3. Listen to your early body pains and don't make the mistake of exercising beyond these early warnings signs.
4. Be aware of possible signs of heart problems such as sudden light-headedness, cold sweat, fainting or pain or pressure in the chest or the left arm or shoulder. Should any one of these signs occur, stop exercising and call your doctor.
5. For out door activities, take appropriate precautions for example on humid days, exercise during cooler/less humid part of the day such as early morning or late evening, after the sun has gone down.
6. In hot weather, Exercise less than normal for a week until you become adapted to the heat. Drink lot of fluids particularly water and consume adequate salt if need be. Usually additional salt should not be needed unless you are doing vigorous exercises. Watch out for signs of heat stroke in form of dizziness, weakness, light-headedness and excessive dryness and sweating or development of fever in which case medical attention should be sought.
7. Wear light, loose fitting preferably cotton clothings. One should avoid rubber, elastic, plastic and other artificial materials for clothes. Such clothing will make you sweat more and can also produce dangerously high body temperatures resulting in heat strokes. On cold days wear one layer less of clothing than what you would wear if you are out side but not exercising. It is also better to wear several layers of clothing rather than one heavy piece so that you can remove a layer if you feel too warm. Use old gloves or cotton socks to protect your hands/feet.

8. Wear a head gear. Since almost 40% of the body heat is lost through neck and head. On rainy days one should wear proper footgear to avoid slipping and tripping on slippery surfaces.
9. Other Handy Tips:
 - a) If you have eaten a meal, avoid strenuous exercises for 2 hours and wait 20 minutes before walking. If you have exercised, wait about 20 minutes before eating.
 - b) Hard or Uneven surfaces such as cement are more likely to cause injuries. Soft surfaces and grassy tracks are better for running and should be used.
 - c) While jogging one should land on heels rather than the balls of the feet. This will minimize the strain on the feet and the lower legs.
 - d) Joggers or walkers should also watch for traffic on the road and wear reflective surfaces. You should face the on coming traffic and don't assume that drivers will notice you on the roadway.
 - e) While bicycling, always wear a helmet and use wheel mounted reflectors at night. Also ride in the direction of traffic and try avoiding busy streets.

How do I keep going and be compliant with the exercise programme

1. Set your sight on short term goals rather than long term goals. For example if your long term goal is to walk one mile then your short term goal can be to walk the first quarter mile or if your long term goal is to loose 10 Kgs of weight then focus on the emergent goal of loosing the first 2-3 Kgs. With short goals you will be less likely to push your self either too hard or too long. Also always keep referring to where you

started because when you compare it to where you are now, you will see the progress you have made.

2. Try to join a group or include a friend or family member in your routine because each one would then act as an incentive and encouragement for the other one and compliance with the exercise programme will increase.

What is the thumb rule for improving ones physical fitness ?

Programme designs to improve physical fitness are based on the FIT formula.

F = frequency (days per week or how often)

I = Intensity (How hard ? for example easy, moderate or vigorous exercise or percentage of target heart rate i.e. 50-75% of the maximum heart rate).

T = Time (for how long and for how many days in a week).

For health benefits to the heart and the lungs minimum level of exercise required is moderate activity for at least 30 minutes a day for at least 4 days a week with a view to achieving 50-75% of the maximum heart rate. Again its important to stress that it is not only how vigorous you exercise but also how regularly you exercise. However, no level of exercise is a waste and low intensity activities like walking, gardening, house work, dancing etc. have some benefits though not as much as moderate level exercise.

These benefit of low level exercise may be:

- a) Releases tensions
- b) Improves the sleep patterns
- c) Improves personality and self confidence
- d) Reduces anxiety and depression

e) Increases muscle strength

f) In older people, it helps delay or prevent chronic illnesses.

The benefits of exercise can therefore never be over emphasized or over estimated.

Regular moderate physical activity can help improve the way you look, feel and work.

Last, but not the least, do not procrastinate and leave it for tomorrow. Go for it and

“Walk for your Heart” right today and infact right now !