



# Insulin Dependent Diabetes Trust

## Exercise and your Heart

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- It reduces the risk of Type 2 diabetes and osteoporosis.
- It helps to reduce weight in people that are overweight or obese.
- It can help to relieve stress, make you feel better and it can be enjoyable.

### Facts:

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- The largest gain in health benefits from increasing physical activity levels is in people who are inactive and who start to take regular exercise or physical activity eg walking, cycling, dancing or swimming.

## Exercise and your Heart

Physical activity is good for your heart. This message is one that must have reached almost everyone but is it a message that many of us choose to ignore? Maybe we hear it so often that it just washes over us and we ignore it. It may simply be that for those of us that are couch potatoes, the very thought of 'physical activity' is quite off-putting! Or for many of us with busy lives, just the thought of trying to fit in time for 'exercise' is exhausting!

Maybe it's the words 'exercise' and 'physical activity' that put us off because they conjure up visions of fit, lithe people visiting a rather expensive gym three times a week! Perhaps the messages would be more effective if they excluded the words 'physical activity' and 'exercise' and simply encouraged us to introduce more activity into

our existing lives so we actually achieve greater activity and the health benefits almost without realising it!

According to the British Heart Foundation, although 7 out of 10 adults in the UK do not take enough regular exercise to achieve health benefits to protect their heart 8 out of 10 adults actually think that they are fit.

### **So what are the benefits for you from taking more exercise?**

Physical activity halves the risk of developing coronary heart disease. In people that have already had heart attacks, those who have been physically active are twice as likely to survive the heart attack compared to those people who have not been active.

- Physical activity reduces the risk of having a stroke, helps to lower blood pressure.
- It reduces the risk of Type 2 diabetes and osteoporosis.
- It helps to reduce weight in people that are overweight or obese.
- It helps to improve cholesterol levels, decreasing triglycerides and increasing 'good' cholesterol.
- Exercise decreases insulin resistance and in people with diabetes this may mean less medication.
- It can help to relieve stress, make you feel better and it can be enjoyable.

### **Facts:**

- There is no level of activity that has to be achieved to gain health benefits.
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### **The major risk factors for coronary heart disease are:**

- Smoking

- High blood pressure
- High cholesterol levels
- Lack of exercise

### **Other factors that may affect your risks of having a heart attack:**

- Too much alcohol
- Excessive salt intake
- Obesity

### **The scientific evidence**

A review, published in the Annals of Internal Medicine [April 2002], of 54 clinical trials involving 2,419 previously sedentary adults concluded that regular exercise reduced the systolic blood pressure [the top number] by an average of 4 and diastolic blood pressure [the lower number] by an average of 2.6mm Hg. The results add to the evidence that exercise is important for treating high blood pressure and for preventing it occurring in healthy people.

While the study did not show what level of activity was ideal for lowering blood pressure, results of various types of aerobic exercise at all frequencies were beneficial to people who were previously sedentary – in other words any activity is better than none. The recommendations are that people should have at least 30 minutes of moderate exercise on 5 or more days of the week.

### **The cause of coronary heart disease**

It is caused when the arteries that supply blood to the heart become narrowed due to a gradual build up of fatty tissue [atheroma] within the walls of these arteries – this condition is called atherosclerosis. A heart attack is caused if a blood clot forms over the atheroma.

The development of this fatty tissue, or atheroma, is caused by the cells in the coronary artery walls taking up cholesterol and this is the beginning of the narrowing of the arteries. As we all know, some cholesterol is formed from the fats in the food we eat but it is important to remember that there are two types of cholesterol – the good and

the bad!

**LDL cholesterol** [bad] forms the atheroma

**HDL cholesterol** [good] removes cholesterol from the circulation and appears to have a protective effect on the heart.

So ideally we should have a lower levels of LDL cholesterol and higher levels of HDL.

### **Why is physical activity important for your heart?**

Research indicates the following:

- Physical activity appears to raise HDL [good] cholesterol levels but does not affect LDL cholesterol levels.
- It helps to prevent blood clotting and so reduces the risk of a heart attack.
- It helps to lower blood pressure and also to prevent high blood pressure from developing.
- It helps to reach and maintain a healthy weight.

### **Physical activity and diabetes**

Facts:

- Men that have diabetes are 2 to 3 times more likely to develop coronary heart than men without diabetes.
- Women with diabetes are 4 to 5 times more likely to develop it than women without diabetes
- In people that already have diabetes, physical activity can reduce the amount of medications needed or reduce the insulin dose.
- Moderate, rhythmic exercise seems to reduce the risk of people developing Type 2 diabetes in middle age.

### **Types of activity**

There are two main types of exercise:

Aerobic activity – this type of exercise benefits your heart. It is any activity that is rhythmic and repetitive eg walking, swimming, cycling, dancing which increase the body's demand for oxygen so making the

heart and lungs work harder and more efficiently.

Isometric exercise - this increases muscle tension without moving a joint eg pushing against a wall. Isometric exercise does not help the heart and circulation. It should be avoided by people with heart disease or high blood pressure because it can increase blood pressure so putting the heart under stress.

### **Is it safe to start exercising?**

- If you already have had a heart attack or any other heart condition such as angina or you have high blood pressure, you should always discuss with your doctor how much and what sort of exercise you should do. There are certain heart conditions where exercise may not be advisable.
- Always stop exercising if you get any pain or feel dizzy, sick or unwell. If the symptoms don't go away or come back later, see your doctor.
- It is unsafe to exercise when you have a viral infection such as a sore throat.
- It is always sensible to gradually build up your physical activity in terms of both the time spent and the intensity. A sudden increase in exercise, especially vigorous exercise can be dangerous especially in middle aged people.

### **Exercise for people taking insulin or one of the tablets which can cause low blood glucose levels [hypoglycaemia]**

Keeping fit is recommended for people with diabetes including those being treated with insulin. However injected insulin cannot mimic the response of a healthy pancreas to exercise. This may mean that a fitness programme initially worsens glucose control until the insulin user learns how their body responds to exercise and the amount of carbohydrate and insulin that will be needed.

People being treated with insulin often underestimate the impact of exercise on their blood glucose levels. Regular moderate intensity

exercise such as brisk walking or swimming is easier to manage than high intensity endurance exercise such as marathon running.

If you have diabetes which is treated with insulin or one of the drugs for Type 2 diabetes that can cause low blood glucose levels [hypoglycaemia], it is important to eat sufficient carbohydrates before, during and after exercise to avoid hypoglycaemia.

- Eating a meal of slow-acting carbohydrates about an hour before exercising will keep your blood sugars steady during exercise. Examples: porridge, cereal or multi-grain bread.
- Eating fast-acting carbohydrate immediately after exercise will help to prevent hypoglycaemia and will help to re-stock the liver stores of glycogen which the body turns into glucose when needed. Examples: a piece of fruit, fruit juice or biscuits.
- Regular blood glucose monitoring is important when exercising to avoid both high and low blood sugars.

Hypoglycaemia can occur 12 – 14 hours, or even longer after exercise. This is because the body uses up any circulating glucose to try to replace the glycogen stores in the liver. In addition, exercise increases the sensitivity of the body tissues to insulin, especially the muscles.

### **Tips about exercising**

- If you are not used to exercising, start slowly and build up gradually.
- Discuss with your doctor or diabetes healthcare team, the best exercise for you.
- Don't give up easily. If you get into the habit of exercising several times a week for 3 months, you are likely to continue and still be taking some exercise a year later.
- Walking or exercising with a spouse, partner or friend is more likely to be continued than doing it alone.
- Fitness can be part of a weight loss programme and just walking a few miles over a week can help.
- Exercise makes you feel better, breathe more easily and generally

feel better about yourself.

- Moderate intensity exercise like brisk walking, cycling or swimming is better at lowering fat levels in the blood and increasing insulin sensitivity than low intensity exercise like walking, housework or gardening.
- Moderate to high intensity exercise four times a week has the most beneficial effect on the heart.
- Wear comfortable, well fitting shoes or trainers.

### **IDDT publishes a range of leaflets some of which may be of particular interest in relation to exercise:**

- Weight and Diet
- Carbohydrates
- Hypoglycaemia

To obtain these leaflets or for a copy of IDDT's publication list contact

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