Study / Facilitation notes
For
Understanding your Health

This section forms part of

The NCEF in Association with the IHF

Fit For Life Lifestyle Management Specialist Module

This Module is accredited by the University of Limerick and carries 15 ECTC Credits

Aim of session: To understand the determinants of health and to recognise key lifestyle factors that may reduce your risk of heart disease

At the end of this section, you will be able to:

1. Describe the overall concept of health and its various meanings

2. Describe the major determinants of health

3. Describe the Stages of Change Model and it's application to behaviour change

4. Understand risk factors for heart disease

5. Describe the lifestyle factors that may reduce the risk of heart disease

6. Describe the effects of smoking and the benefits of cessation

7. Understand blood pressure, the dangers of high blood pressure and the lifestyle changes that can help to manage blood pressure

7. Plan and prepare an informative and interesting 1 hour presentation on 'Understanding Health' for the general public using
(a) Appropriate learning outcomes
(b) A selection of suitable presentation methods
(c) A suitable selection of supporting resources and materials

What is health?
Health is a complete state of physical, mental and social well-being, and not merely the absence of disease or infirmity. It is a resource for everyday life, not the objective of living; it is a positive concept emphasising social and physical resources, as well as physical capacity.

(World Health Organisation 1986)

Major determinants of Health

Diagram 1: The major determinants of health[a].

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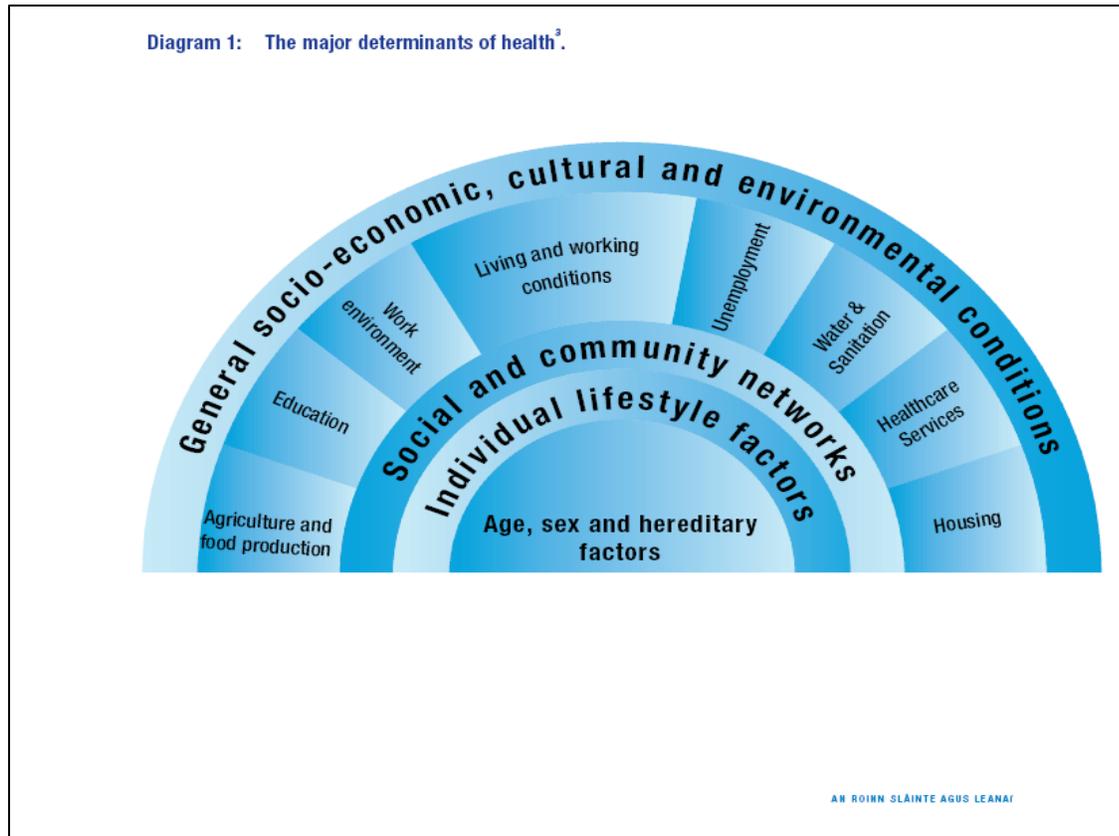
Factors influencing health
- Individual
- Social & community networks
- Socio-economic
- Cultural
- Environmental

Many factors combine together to affect the health of individuals and communities. Whether people are healthy or not, is determined by their circumstances and environment. To a large extent, factors such as where we live, the state of our environment, genetics, our income and education level, and our relationships with friends and family all have considerable impacts on health, whereas the more commonly considered factors such as access and use of health care services often have less of an impact.

The determinants of health include:

- the social and economic environment,
- the physical environment, and

- the person's individual characteristics and behaviours.

The context of people's lives determine their health, and so blaming individuals for having poor health or crediting them for good health is inappropriate. Individuals are unlikely to be able to directly control many of the determinants of health. These determinants—or things that make people healthy or not—include the above factors, and many others:

- Income and social status - higher income and social status are linked to better health. The greater the gap between the richest and poorest people, the greater the differences in health.
- Education – low education levels are linked with poor health, more stress and lower self-confidence.
- Physical environment – safe water and clean air, healthy workplaces, safe houses, communities and roads all contribute to good health. Employment and working conditions – people in employment are healthier, particularly those who have more control over their working conditions
- Social support networks – greater support from families, friends and communities is linked to better health. Culture - customs and traditions, and the beliefs of the family and community all affect health.
- Genetics - inheritance plays a part in determining lifespan, healthiness and the likelihood of developing certain illnesses. Personal behaviour and coping skills – balanced eating, keeping active, smoking, drinking, and how we deal with life's stresses and challenges all affect health.
- Health services - access and use of services that prevent and treat disease influences health
- Gender - Men and women suffer from different types of diseases at different ages.

World Health Organisation
More information available at http://www.who.int/hia/evidence/doh/en/index.html

Stages of change-Prochaska & DiClemente 1992
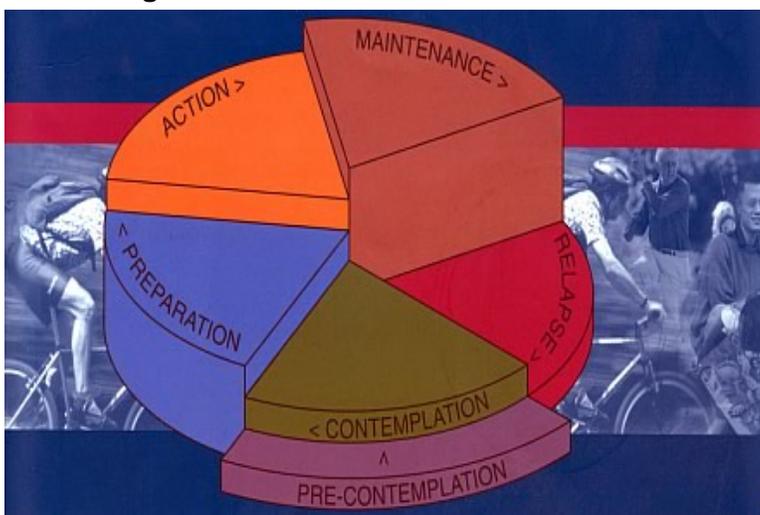
Stages of change

- *Precontemplation*- Not active & *no intention* of becoming active in the next six months
- *Contemplation*- Not active *but thinking* about becoming active in the next six months
- *Preparation*-*Plan* to start physical activity in the next 30 days
- *Action*- doing regular physical activity regularly but only in the *last six months*
- *Maintenance*-*Maintained* regular physical activity for more than six months
- *Relapse*- transition to an *earlier stage*

Movement through the stages of change
Processes of change- Activities used by people in their attempts to change
Decisional balance- pros and cons of changing
Self-efficacy- an individual's self confidence to change

Uses of the model
It provides a framework for understanding the process of how people change
It recognises that people in different stages of change need different types of intervention to help them progress. The model also acknowledges the difficulties that many people experience in attempting to change their exercise and physical activity habits. It recognises that people will differ from each other in their readiness for becoming more active, as you may enter or exit the model at any stage.

Physical Activity- To assess stage
I am not physically active, and I do not intend to become active in the next 6 months ☐
I am not physically active,but I intend to become more active in the next six months ☐
I am not physically active,but I intend to become more active in the next month   ☐
I have been physically active for less than six months   ☐
I have been physically active for more than the past six months   ☐

I have been physically active for more than six months and am confident that I can continue ☐

Advice the FFL Specialist may offer individuals at different stages of the process of change

Pre-contemplation
- Encourage thinking about change
- Accept that the individual is not yet ready to make a decision
- Discuss feelings and perception of physical activity (PA) / lack of PA
- Give feedback about the risks of the current behaviour (loss of muscle strength, flexibility, risk of disease)
- Roll with any resistance the individual may have

Contemplation

- Assure the individual that making the change is worthwhile
- Get them to weigh up the pros and cons
- Get them to decrease barriers to PA
- Strengthen their self-esteem/ self-confidence for change
- Help them identify ways to overcome barriers
- Help to make a definite commitment to change

Preparation

- Help them to create a new self image as someone involved in PA
- Help them to make a commitment to PA
- Ask them to identify the different ways to get active, at home and at work
- Ask them to involve the support of others- work colleagues, friends, family
- Help them to determine the best course of action
- Get them to make an action plan- sign a commitment

Action

- Tell them to reward themselves in positive ways- new clothes, health spa
- Get them to think of additional ways of getting active
- Get them to record each time PA is done- diary or record cards
- Get them to reaffirm their commitment to PA and to implement a plan

Maintenance

- Help the individual to identify strategies to prevent relapse
- Encourage them to try new activities
- Encourage them to get active with friends and colleagues
- Get them to reward themselves for being acitve

Relapse
- Reassure them that relapse is part of the process
- Tell them that experienced gained will be of benefit in the next attempt

Heart Health

What is heart disease?
Diseases of the heart and blood vessel system within the heart
Most common cause is narrowing or blockage of the coronary arteries

What is cardiovascular disease (CVD)?
The blood vessels, arteries, veins & heart constitute the Cardiovascular system.
   CVD: diseases of the *heart, arteries* and *veins* that supply oxygen to vital organs such as the brain and heart i.e. stroke, heart disease

Coronary Heart disease: occurs when the coronary arteries become narrowed by a gradual build up of fatty pieces or plaque within the arteries called atherosclerosis.

Types of Heart disease

Arteriosclerosis: This is the hardening of the arteries due to conditions that cause the arterial walls to become thick, hard and non-elastic.

Atherosclerosis: It is one form of arteriosclerosis. It is characterised by deposits of fat, cholesterol, and cellular waste products accumulating on the inner lining of arterial walls. These deposits are known as plaque or atheroma. This results in narrowing of the blood channel, making it easier for blood clots (thrombus) to form and eventually results in complete blockage of blood flow to vital tissues such as the heart or the brain.

What injures the lining of arteries? High blood cholesterol levels, high dietary fat intake, high blood pressure, nicotine, reaction to perceived stress.

Atherosclerosis is a slow, progressive disease that begins in childhood and manifests itself later in life.

Angina: For many people the first sign of heart disease is angina. Angina is a feeling of pain, discomfort, pressure, heaviness or tightness in your chest, neck or arms. In some people the pain may only affect the arm, neck, stomach or jaw. Angina occurs when the heart muscle does not get enough blood as a result of narrowing to the coronary arteries.

Angina may be triggered by too much or too strenuous activity or stress and can go away or ease with rest or relaxation. These narrowed arteries are able to bring enough blood to the heart muscle when you are resting but not enough during exercise or stress.

Heart attack

A heart attack occurs when the coronary arteries supplying blood and oxygen to the heart muscle become blocked as a result of a build up of plaque or fatty material. The plaque eventually breaks off and a clot forms in the artery, which blocks the blood supply. If the blood supply is cut off for more than a few minutes, muscle cells get permanently injured and die.

Heart disease statistics in Ireland
(source central statistics office 2007),

Deaths from CVD and heart disease are ↓

CVD stats
1980- 51%
1990-46%
1997-43%
2000-39%
2004-37%
2005-36%
2006- 35%

Structure and Function of the Heart

Coronary Artery System

Causes of Heart Disease
•Narrowing of Coronary Arteries
•Blockage of Coronary Arteries- *Caused by Fatty Material*
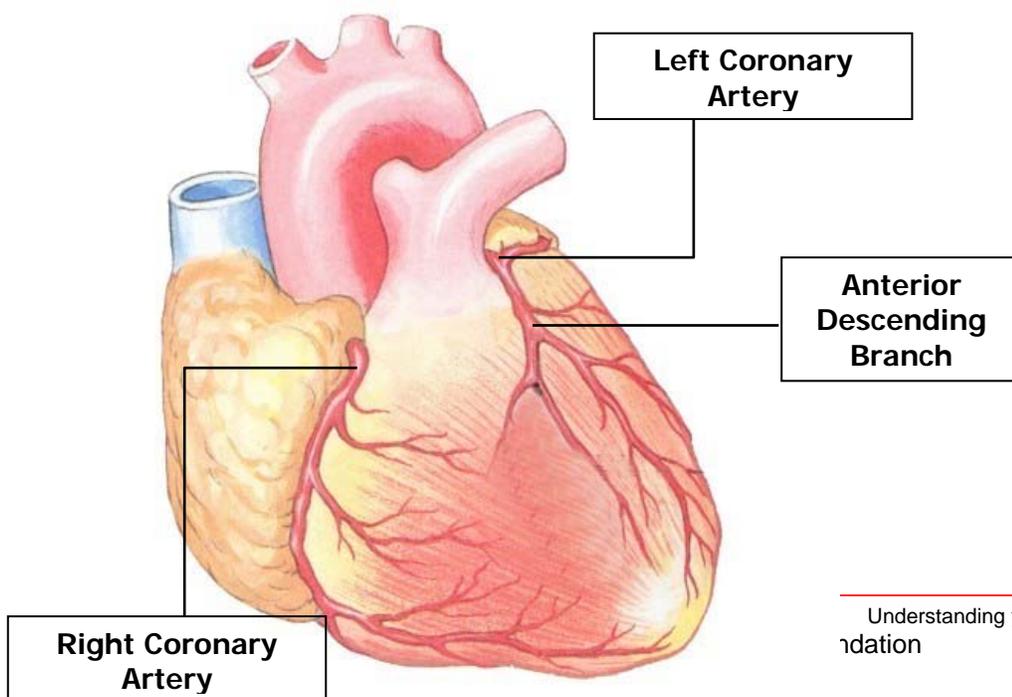
Left Coronary Artery

Anterior Descending Branch

Right Coronary Artery

**Effects of Heart
Disease**
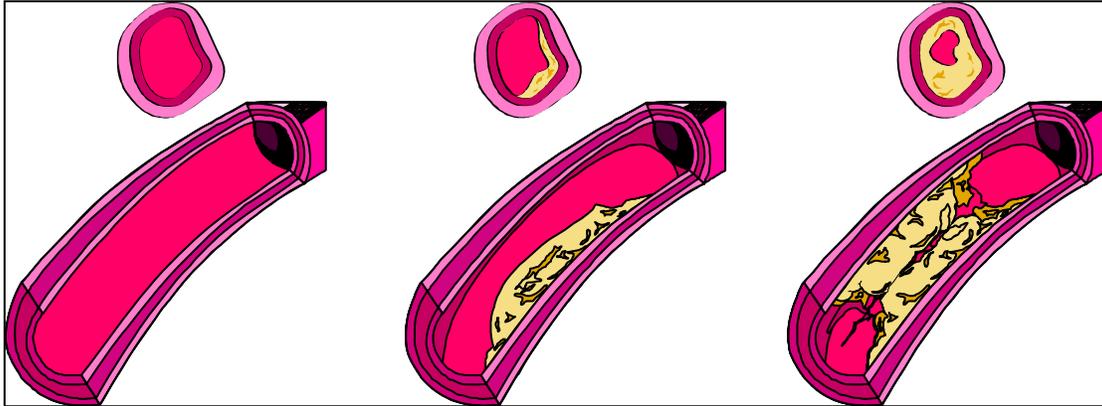
Deposits build up – blocking the artery and affecting flow of blood to the heart muscle

Factors

Risk factors for **heart disease** can be divided into 2 categories, those we can influence or modify and factors that we cannot influence or modify. The table below places these risk factors into each category.

Factors we cannot influence	Factors we can influence
Gender	Smoking
Age	High blood Pressure
Family History	High Cholesterol
	Diabetes
Race	Overweight
	Lack of Physical Activity
	Stress

Heart Health Quiz

Place a tick (✔) in the box next to the answer you think is correct

1. Cholesterol is made in the liver (blood cholesterol) but sometimes there is an increase in blood cholesterol. What causes this?
   Answer: The liver makes cholesterol from saturated fats

2. Very little cholesterol is found in foods. However, there are some foods that contain cholesterol, can you name any?
   Answer: Eggs, liver, kidneys and seafoods such as prawns

3. Can you name the main types of blood cholesterol?
   Answer: HDL (high density lipoprotein) and LDL (Low density lipoprotein) –see cholesterol leaflet for more information

4. Can you name any chemicals in a cigarette?
   Answer: See smoking leaflet. Components of the cigarette appear to damage the lining of the coronary arteries and this leads to atherosclerosis

5. How does nicotine affect the heart?
   Answer: Nicotine stimulates the body to produce adrenaline which makes the heart beat faster and raises the blood pressure, causing the heart to work harder. Nicotine also has an effect on the sticky particles in the blood called platelets. This makes the blood more likely to clot.

6. Low tar cigarettes are better for your health?
   True   False
   Answer: It is the tar in the cigarettes that cause cancer. However, if a cigarette is necessarily low in tar it does not mean that it has less nicotine and carbon monoxide. So low tar cigarettes can be just as harmful to your heart as regular cigarettes. Also, people who smoke low tar cigarettes tend to compensate by taking more puffs and inhaling more deeply.

7. Within one year of quitting smoking the risk of heart attack is halved
   True   False
   Answer: True

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8. People with high blood pressure normally feel ill?
   Answer: High blood pressure rarely makes people feel ill. It can cause headaches in a small number of people, but only if their blood pressure is very high. Problems with sight , breathlessness and nose bleeds can sometimes be a sign of high blood pressure. The only way of knowing if you have high blood pressure is to have it measured.

9. People with higher blood pressure run a higher risk of having a stroke (which damages your brain) or a heart attack.

   True   False
   Answer: True. Blood pressure is more common in older people than younger people. Among people in their 60s, about 6 out of 10 have high blood pressure, and among people in their 70s, 7 out of 10 people have it.

10. How much physical activity is recommended for health benefits?

    20 minutes daily _
    At least 30 minutes 5 days a week _
    At least 60 minutes most days of the week? _

    Answer: at least 30 minutes of moderate intensity physical activity 5 days a week

11. Physical activity includes gardening and housework?
    True _ False _
    Answer: True. Moderate-intensity activities, such as brisk walking, stair climbing, yard work, housework, dancing, and home exercises can have both health benefits. If you are inactive, the key is to get started. Activities need to be for l0 minutes or longer to get the health benefits.

12. According to the Slán (Lifestyle) survey 2007 approximately what % of people in Ireland are not doing any physical activity?

    40% _ 50% _ 60% _ 70% _

    Answer: Over 50% of Irish people are not doing any physical activity. Most Irish people are very busy but not very active. Every Irish adult should make a habit of getting at least 30 minutes of moderate levels of physical activity five days week. This includes walking, gardening, and walking up stairs. If you are inactive now, begin by doing a few minutes of activity each day. If you only do some activity every once in a while, try to work something into your routine everyday.

13. Physical inactivity carries the same health risk as smoking, high blood pressure, high cholesterol?
    True _ False _
    Answer: True. Heart disease is almost twice as likely to develop in inactive people. Being physically inactive is a risk factor for heart disease along with

cigarette smoking, high blood pressure, high blood cholesterol, and being overweight. The more risk factors you have, the greater your chance for heart disease. Regular physical activity (even mild to moderate exercise) can reduce this risk.

Smoking and Health

Smoking is one of the main risk factors for heart disease. Smokers have more atheroma (fatty material) in their arteries than non-smokers. Smoking causes permanent damage to the arteries.

Why is smoking so harmful to the heart?
- Affects clotting factors in the blood- increasing the risk of heart attack
- Increases carbon monoxide in blood
- Increases heart rate and blood pressure and the need for oxygen
- Increases adrenaline and nor adrenaline - increasing electrical disturbances in heart
- Affects tone of the blood vessels –constricted vessels
- Increases LDL (bad) cholesterol and reduces HDL (good) cholesterol.
- Increases risk of heart attacks and strokes in women using Oral Contraceptive Pill

Dangers of smoking
Smokers have more atheroma in their arteries than non-smokers. Smoking causes permanent damage to arteries. Smoking is dangerous to health and specifically to the heart for the following reasons;

Passive smoking or Environmental Tobacco smoke
Passive smoking or environmental tobacco smoke (ETS) is breathing in other people's smoke. ETS is a Group A Carcinogen like asbestos and benzene. The composition of tobacco smoke, which contains over 4,000 chemicals makes passive smoking so hazardous. When non -smokers share a space with someone who is smoking they are exposed to Environmental Tobacco Smoke (ETS) otherwise known as passive smoking. ETS is now a proven health hazard for non-smokers.

ETS is made up of mainstream and side stream smoke. Mainstream smoke, which is the smoke inhaled and then exhaled by the smoker into the environment.
Side stream smoke, which is the smoke that comes from the burning tip of the cigarette and is far more dangerous than the mainstream smoke, as it contains higher concentrations of harmful chemicals.It is not only visible smoke that poses a problem but also the invisible gases, which we may not even realise we are breathing in.

Effects of passive smoking
- Causes an increase in lung cancer by 25%
- Causes an increase in heart disease by 25%-30%
- Doubles risk of stroke
- Causes respiratory symptoms-cough, phlegm, shortness of breath, chest colds
- Increases the frequency of asthma
- Can cause a low birth weight in babies

There are 4,200 chemicals in tobacco smoke

• **Nicotine -** One of the **most addictive substances known** to man, a powerful and fast-acting medical and non-medical **poison**. This is the chemical which causes addiction.

• **Carbon monoxide -** An odourless, tasteless and **poisonous gas**, rapidly **fatal** in large amounts - it's the same gas that comes out of **car exhausts** and is the main gas in cigarette smoke, formed when the cigarette is lit.

• **Tar -** Particulate matter **drawn into lungs** when you inhale on a lighted cigarette. Once inhaled, smoke condenses and about **70 per cent** of the tar in the smoke is **deposited** in the smoker's lungs.

• **Acetone -** Fragrant volatile liquid ketone, used as a **solvent**, for example, nail polish remover - found in cigarette smoke.

• **Formalin -** A colourless liquid, **highly poisonous**, used to preserve dead bodies - also found in cigarette smoke. Known to cause **cancer**, respiratory, skin and gastrointestinal problems.

• **Ammonia -** Used as a flavouring, frees nicotine from tobacco turning it into a gas, found in **dry cleaning fluids and toilet cleaning substances**

Benefits of Stopping Smoking

Time Elapsed	Benefits
20 Minutes	Blood pressure and pulse rate return to normal. Circulation improves in hands & feet, making them warmer.
8 Hours	Oxygen levels in the blood return to normal and your carbon monoxide level will fall
24 Hours	The chance of you suffering a heart attack and stroke begin to fall
48 Hours	Nicotine is no longer detectable in the body. The ability to taste and smell is improved.
72 Hours	Breathing becomes easier as the bronchial tubes relax. Energy levels increase.
3-9 Months	Coughs, wheezing and breathing problems improve as lung functions are increased by up to 10%
5 Years	Risk of heart attack falls to about half that of a smoker
10 Years	Risk of lung cancer falls to about half that of a smoker. Risk of heart attack falls to the same as someone who has never smoked.

Quitting

Most smokers want to stop smoking. Stopping smoking provides many benefits, both immediate and long-term, no matter what age. Smoking cessation services are available throughout the country for those wishing to quit; smoking cessation officers employed by the Health Service Executive run group sessions and one to one counselling sessions, while the National Smokers' Quitline (Tel: 1850 201 203) provides advice and support on quitting.

Both the Irish heart Foundation and the Health Service Executive (HSE) have produced booklets on quitting smoking which are available for order or download at

IHF Booklet: http://www.irishheart.ie/iopen24/defaultarticle.php?cArticlePath=7_21

HSE Booklet: http://www.healthpromotion.ie/order_publications/index.php

Information Websites

Action on Smoking and Health (ASH)
Irish Cancer Society
Office of Tobacco Control
Health Promotion

For more information on smoking cessation refer to the booklet on your CD

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Blood Pressure

Blood Pressure: is the force applied against the walls of the arteries as the heart pumps blood through the body. This is measured in millimetres of mercury (mm Hg). Blood pressure changes constantly due to activity, temperature, diet, emotional stress, posture, physical state, and medication/drugs.- delete this sentence and replace with the following text

While it's normal for blood pressure to rise and fall during each day, when it stays abnormally high for some months or longer, it is called high blood pressure. High blood pressure, together with other factors, can cause the blood vessels to lose their elasticity and encourage the build up of fatty deposits. This in turn can cause narrowing and blockage of the arteries leading to heart attacks, stroke and kidney damage.

Blood pressure reading

The normal level of blood pressure is usually 120 (systolic) over 80 (diastolic). If an individual's blood pressure is higher than 140 over 90 then this needs to be discussed with their family doctor.

Causes of Blood Pressure

There is usually more than one cause. The main factors approximately in order of importance, which influence blood pressure are:

- Your age - as you age, blood vessels lose their elasticity and therefore do not do their job as well. As a result, risk factors, arising from an unhealthy lifestyle, have a greater effect and high blood pressure develops much faster.

- Your family history - if members of your family have high blood pressure, you have a higher risk of getting it too, which is linked to your genes.

- Your diet - an unbalanced diet high in salt and low in fruit and vegetables can lead to high blood pressure. Foods high in salt retain water, creating too much fluid in the body. Following the Food Pyramid guidelines will help to keep your blood pressure at a healthy level.

- If you are overweight - blood pressure is closely linked to body weight. Too many calories will increase body weight and an increase in blood pressure usually follows. Even losing a small amount of excess weight, say 10%, can help lower blood pressure.

- Your levels of activity - Regular physical activity helps keep your weight at a healthy level and prevents weight gain. If you need to lose weight physical activity should be part of a weight-loss plan, thereby reducing your risk of raised blood pressure. Being physically active and taking regular exercise increases the size of the blood vessels, improves blood flow and helps keep your cholesterol at a healthy level.

- If you drink alcohol to excess - binge drinking raises blood pressure levels. If you cut back to moderate drinking, it should help reduce your blood pressure Also, alcoholic drinks are high in calories and may contribute to unwanted weight gain.

- If you smoke - nicotine in tobacco smoke causes blood vessels to narrow and carbon monoxide in tobacco smoke can cause further damage.

- If you have diabetes - people who do not have diabetesnaturally produce nitric oxide, a small molecule that helps to keep blood pressure at normal levels. If you have diabetes, this molecule is not produced properly, which raises the risk of high blood pressure.

- If you are stressed - long-term stress may increase your blood pressure as it may speed up your heart rate and over time damage your blood vessels.

Physical activity and blood pressure

- Regular physical activity – can help lower blood pressure by between 4 and 9 mmHG
- Best type of activity -aerobic (works heart and lungs) such as brisk walking, cycling or dancing
- Blood pressure rises during weightlifting or weight training exercises so if you have high blood pressure it is best to avoid this type
- Always check with your GP

The higher the blood pressure - the greater risk of stroke, heart attack and heart failure.
Increased by
◎   - alcohol
◎   -overweight
◎   - physical inactivity
◎   - diet high in salt and low in potassium,

Physical Activity:
All adults need moderate intensity aerobic activity for a minimum of 30 minutes on 5 days a week or vigorous intensity aerobic activity for a minimum of 20 minutes on three days a week, or a combination of both e.g. 2 days x 30 minutes brisk walking and 2 days x 20 minutes jogging (American Heart Association, 2007).

Moderate intensity means there is an increase in heart rate and breathing. The person will feel warmer all over, just like after a brisk walk.

Vigorous intensity means there is an even bigger increase in breathing and heart rate. Jogging cycling uphill and swimming continuous laps are all vigorous intensity activities

Minutes of activity can be accumulated over two to three shorter sessions or done in one single session. Either way an individual still gets the same health benefits. If breaking up activity over the day, any one session needs to be for 10 minutes or longer to get health benefits.

To lose weight at least 60 minutes of moderate intensity physical activity is recommended.

Stress & Heart Disease
•High blood pressure
•Clotting in the arteries
•Atherosclerosis
•Less healthy behaviours
•Work related stress

Alcohol
The Department of Health and Children advises that up to 14 standard drinks a week for women and up to 21 standard drinks a week for men is considered low risk. It is important that they are spread out over the week and not saved for one session or big night out.

1 standard drink consists of 10 grams of alcohol, which roughly equates to one half pint of beer, stout or lager or a small glass of wine or a pub measure of spirits such as whihttp://www.healthpromotion.ie/order_publications/?category=2skey, vodka gin etc.

Heavy drinking of alcohol can lead to the following problems

- Alcohol dependence or alcoholism
- Sexual difficulties, including impotence
- Cirrhosis of the liver and alcoholic fatty liver
- Pancreatitis
- Stomach disorders, such as ulcers
- Mood changes
- In extreme cases, alcoholic poisoning, coma, brain damage and death
- An increased risk of certain types of cancer, especially of the aero digestive tract and breast cancer

More information on alcohol and health is available at on the HSE Health promotion website at http://www.healthinfo.ie/alcohol (An Internet Connection is required)

The Health Service executive has produced a booklet for individuals thinking of cutting down on their alcohol intake. It is available to order free or download on their website at http://www.healthpromotion.ie/order_publications

This booklet is also on your CD