

**BODYSTAT**  
**BODY COMPOSITION**  
**AND**  
**WELLNESS PROFILE**  
**FOR**

**Sample Report**

**Sample Report**  
ID: 7

10 January 2009

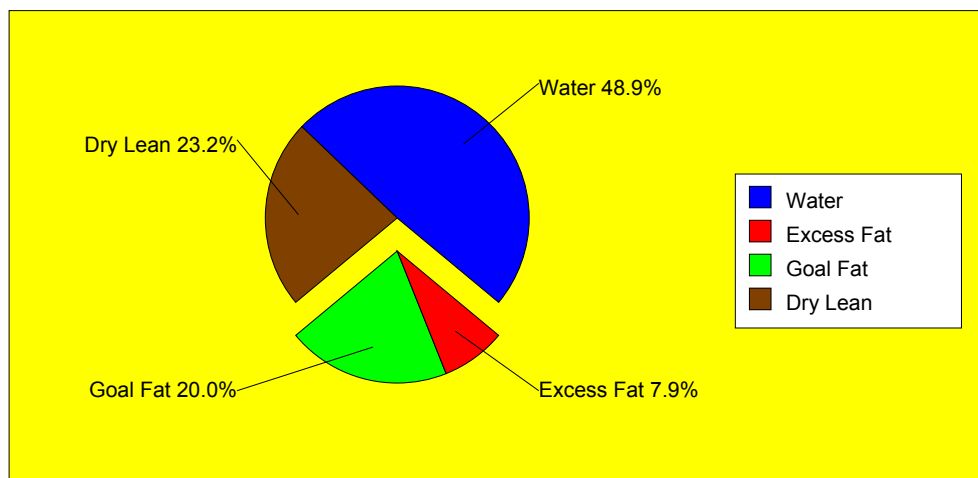
**SEX** Male  
**AGE** 41

**WEIGHT** 92.9 kg  
**HEIGHT** 179 cm  
**IMPEDANCE** 535

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**YOUR PRESENT BODY COMPOSITION STATUS**



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**THE NEED FOR ACCURATE BODY COMPOSITION MEASUREMENT**

The amount of fat in your body is far more important to your physical well being than your actual body weight.

Your bathroom scale won't tell you whether or not your body contains too much fat.

It is quite possible for a well-muscled individual to be classified as overweight based on standard height/weight charts. This could be as a result of his muscularity, since muscle is denser than fat. In reality, he or she could have a low level of fat with excellent body composition (the proportion of muscle to fat in the body).

Conversely, many people who weigh in at the ideal weight may have too much fat on their body, and too little muscle - in effect, a poor body composition.

Therefore, it is important to have a true measurement of your body composition and to maintain a healthy and balanced body status.

## BODY FAT

(stored calories)

<b>Body Fat Status</b>	<b>27.9%</b>	<b>25.9 kg</b>
<b>Normal Range</b>	<b>14 - 20 %</b>	<b>11 - 16 kg</b>

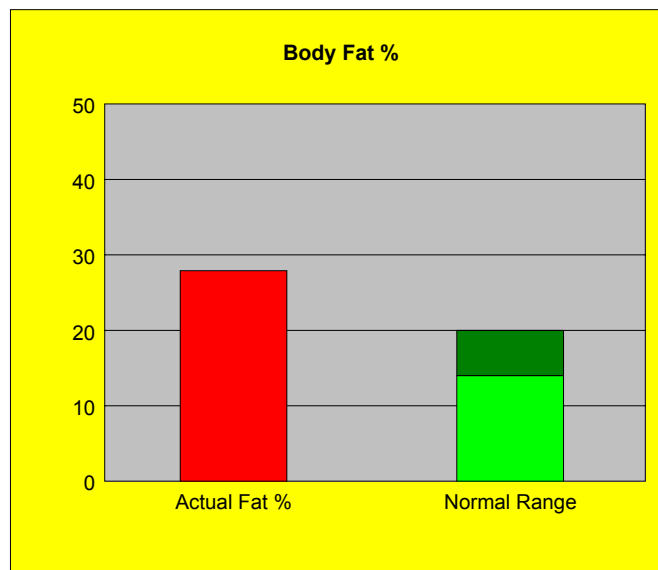
There are two forms of fat tissue:

**Essential fat** (approx 4% for men and 10% for women) serves as a shock absorber and protective shield to the vital organs of the body such as the heart, liver, kidneys, brain and spinal cord. During weight loss this fat is only slightly reduced.

**Subcutaneous fat** stored beneath the skin acts as an insulator to protect the body against excessive heat loss. Any excess calories derived from food intake will be stored here as fat. Obesity is defined as the excessive storage of energy in the form of fat.

Since fat weight and **not** total weight determines health risk, it is clearly advantageous to maintain body fat levels within the recommended normal range. This will reduce the risk of suffering from the many health problems associated with being "over-fat".

As fats are essential for normal body functions, body fat should *not* be reduced to below the recommended lower limit unless under the supervision of a health care professional.



## **BODY LEAN** *(muscle, water and bone)*

**Body Lean Status**

**67.0 kg**

**Normal Range**

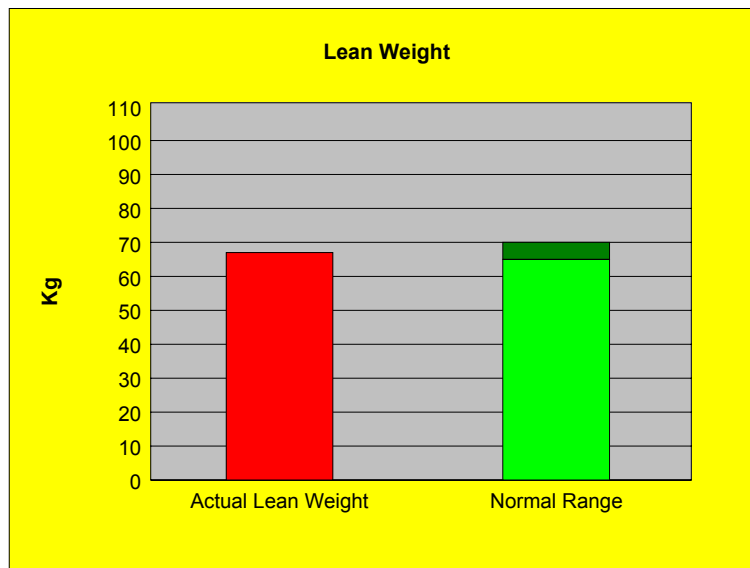
**65 - 70 kg**

Ideally, it is important *not to lose lean weight* as it is mainly this lean muscle tissue that maintains your metabolism, the rate at which your body burns the calories. It is the key to effective weight management. The greater the lean weight, the more the body burns energy at rest and during exercise.

Therefore it is particularly important to maintain and even increase lean weight during weight-reducing exercise/diet programs and during the natural ageing process. Dieting alone, without exercise, will decrease lean weight. Hence there is a need for regular body composition monitoring.

A low lean body tissue weight is generally associated with inactivity and possibly poor nutritional levels.

**NEVER** use the lean weight as your target total body weight.



## TOTAL BODY WEIGHT

**Total Body Weight**

**92.9 kg**

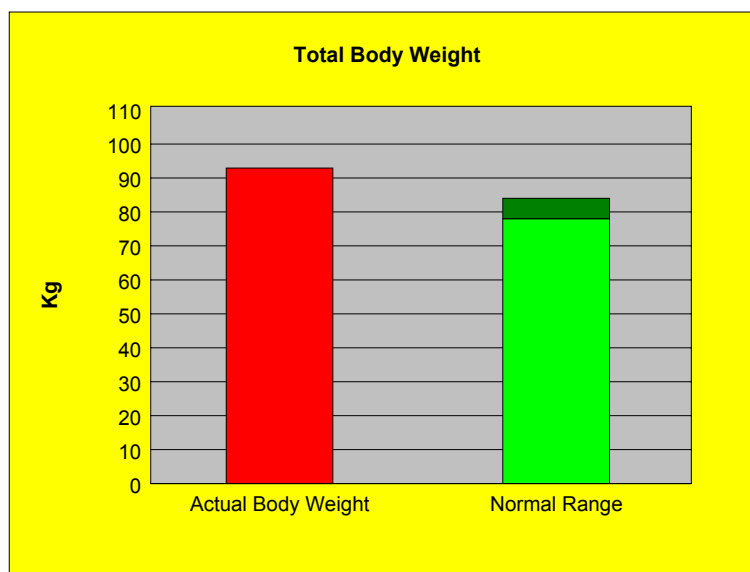
**Normal Range**

**78 - 84 kg**

Total body weight within the recommended range would indicate a healthy body status, provided the correct **LEAN/FAT proportions** are maintained.

Body composition assessment is a better indicator of your true physical condition than body weight since the same volume of muscle tissue and fat tissue do not weigh the same. Body composition defines the **QUALITY** of your weight.

Fat weight - *NOT* total weight - determines health risk.



## TOTAL BODY WATER

<b>Total Body Water</b>	<b>48.9%</b>	<b>45.4 lt</b>
<b>Normal Range</b>	<b>55 - 65 %</b>	<b>51 - 60 lt</b>

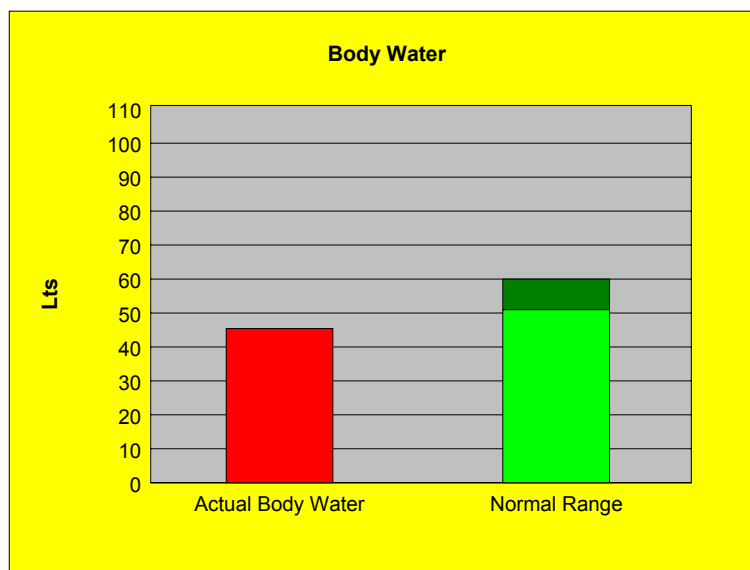
Water, contained in the blood and in and around your body cells, is the most important environmental substance essential to human life and as a nutrient for the body.

Food and oxygen are supplied in a watery solution to the body cells, and waste products leave the cells via this medium. Water therefore keeps your system moving, flushes out impurities, and cools the inner organs, regulating your body temperature.

Water is lost from the body in urine, through the skin as sweat, and as water vapour in the form of small droplets of water in the expired air during each breath. Water loss, however, is the most serious consequence of profuse sweating. Body fluids should therefore be restored often, especially during and after exercise. Weight loss from water loss will not improve, and indeed may worsen your body composition.

It is necessary to drink sufficient water regularly every day (six to eight glasses) to maintain normal hydration levels and good health.

Since most of the body water is contained in the lean body mass, the body water percentage will increase with a loss of fat weight and a gain in lean tissue.



## BASAL METABOLIC RATE (BMR)

**Your Estimated BMR**

**1941 kcal per day**

**Energy Expenditure per kg of Body Mass**

**20.9 kcal/kg**

*Metabolism* is the word used to describe all the processes which use or release energy. The minimum amount of energy required to keep you alive is known as the *basal metabolism*.

For each individual there is a minimum level of energy required to sustain the body's vital functions in the waking state. BMR is therefore the **ESTIMATED** amount of energy your body requires during a 24 hour period to maintain these essential bodily elements, such as body temperature, heart beat, brain and lungs, to function at **REST**.

The millions of cells inside your body need energy to develop and survive. Muscle cells in particular, demand a lot of energy. This energy comes from the food that you eat. Living cells absorb tiny particles of food and extract energy from them to maintain your body's functions. The oxygen that you breathe in helps your cells to extract the essential fuels from the food that you eat.

The greater the BMR per kg of Body Mass, the faster your body will consume the excess calories. Regular exercise may assist in increasing BMR.

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## ESTIMATED AVERAGE (ENERGY) REQUIREMENT (E.A.R.)

**Activity Selected**

**Very low**

**Your Estimated E.A.R.**

**2717 kcal per day**

This is the **ESTIMATED** amount of energy your body requires during a 24 hour period to maintain it at its present body composition status for the activity level selected.

The key to weight control is basically a question of energy balance - input is food intake and output is by way of physical activity.

When you consume only as many calories as your body needs, your weight will usually remain constant. Eat more than your body needs, and you'll put on excess fat. If your energy output is greater than your food intake, you'll burn excess fat.

Increasing your activity level will burn more calories. It may also boost your lean tissue, thereby increasing your need for calories even at rest. Heavier people generally expend more energy to perform the same activity than people who weigh less.

# WAIST-TO-HIP RATIO

**Waist** 130

**Hip** 120

$$\text{Waist : Hip Ratio} = 1.08$$

Your waist to hip circumference ratio is an indication of the distribution of your body fat.

There is now growing evidence that the waist-to-hip girth ratio is significantly associated with coronary heart disease (CHD).

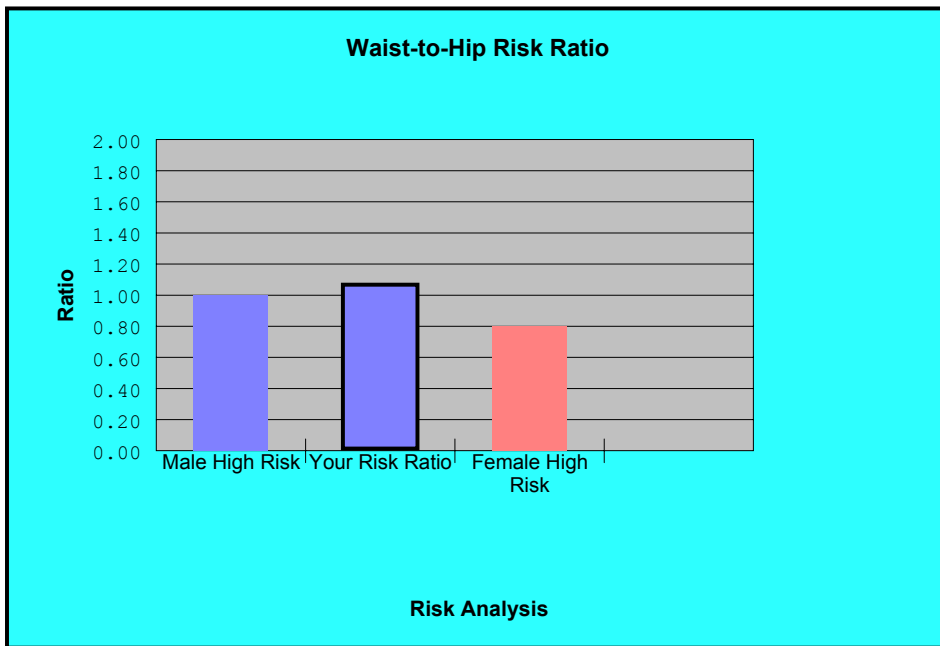
Where the waist circumference equals or exceeds the hip circumference, the risk of CHD increases significantly.

The ratio therefore distinguishes between fatness in the upper trunk (waist and abdomen areas) and fatness in the lower trunk (hip and buttocks).

Too much fat in the upper trunk area produces a high ratio.

Individuals with high levels of both overall body fat and upper trunk area, are at highest risk of CHD.

The risk of CHD for women is generally much lower, at least until after menopause, compared to men.



**HIGH risk ratio for MALES  
and for FEMALES**

**1.00 and higher  
0.80 and higher**

## BODY MASS INDEX (BMI)

### BODY MASS INDEX

29.0

A BMI of: Below 18	=	Very Underweight
18 - 20	=	Underweight
<u>20 - 25</u>	=	<u>Healthy Weight Range</u>
25 - 30	=	Overweight
30 +	=	Excessively Overweight

BMI was originally established as a measure of weight status for healthy adults aged 20 to 65 years.

**BMI** is calculated as **WEIGHT** in **KILOGRAMS** divided by **HEIGHT** in **METRES** squared. In the absence of a direct measure of body fat, it is an index based on weight and height.

BMI is limited in predicting body fat for a given individual for a number of reasons:

- \* A large framed person heavy in muscle in relation to height can have a BMI in the excessively overweight range and yet not be overfat.
- \* Similarly, BMI will categorize individuals with a small frame mass relative to their height as being underweight.
- \* Individuals with short legs for their height have higher BMI.

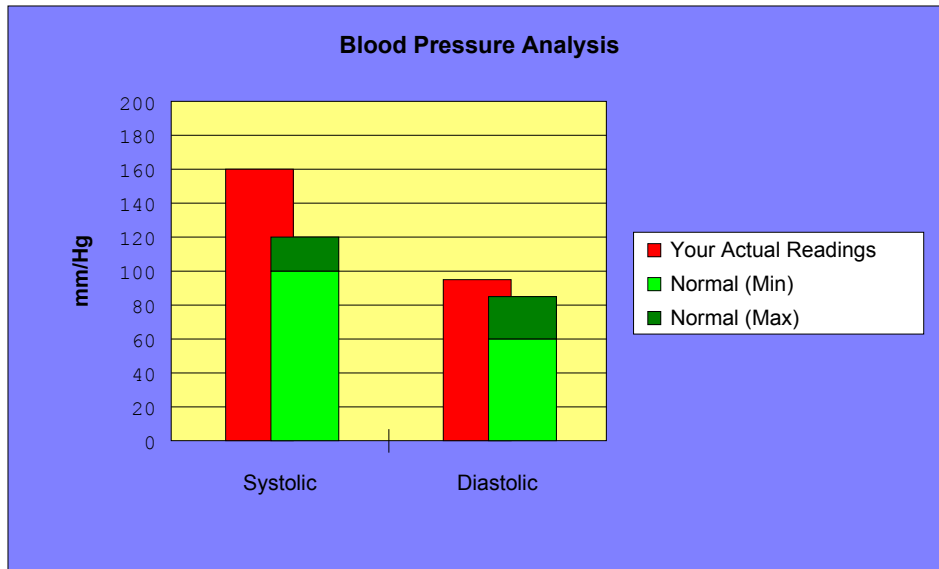
BMI is itself NOT a direct measure of fatness. It is only a generalised measure of proportional weight.

With the advancement of technology and the development of the principles of **Bio-Impedance Analysis (BIA)**, **BODYSTAT** can measure body fat levels in individuals undergoing weight loss or gain with greater accuracy and precision than the use of BMI.

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## BLOOD PRESSURE (BP) At rest

<b>SYSTOLIC</b>	<u>Actual</u> <b>160 mm/Hg</b>	<u>Normal</u> <b>100 - 120 mm/Hg</b>
<b>DIASTOLIC</b>	<b>95 mm/Hg</b>	<b>60 - 85 mm/Hg</b>



Blood pressure, at rest, represents the pressure forces exerted by the blood against the walls of the arteries.

**SYSTOLIC** pressure is the **HIGHEST** pressure generated by the muscles of the heart to move blood through the arteries.

**DIASTOLIC** pressure is the **LOWEST** pressure reached in the arteries. As the heart relaxes before the next heart beat, the pressure decreases.

The **general rule** is, the lower the BP, the lower the risk of blood pressure contributing to **Coronary Heart Disease (CHD)**.

**SYSTOLIC BP** may increase due to the hardening or narrowing of the artery walls caused by deposits of minerals and fatty materials within the walls. This may arise from a poor diet and lack of exercise.

If your body is subjected to stress or hypertension for long periods of time, the **DIASTOLIC** pressure may be elevated above 100 mm/Hg. This can eventually lead to **heart failure**, where the heart is unable to maintain its pumping ability, or a **stroke**, a condition in which brittle vessels burst and cut off the blood supply to vital organs in the body.

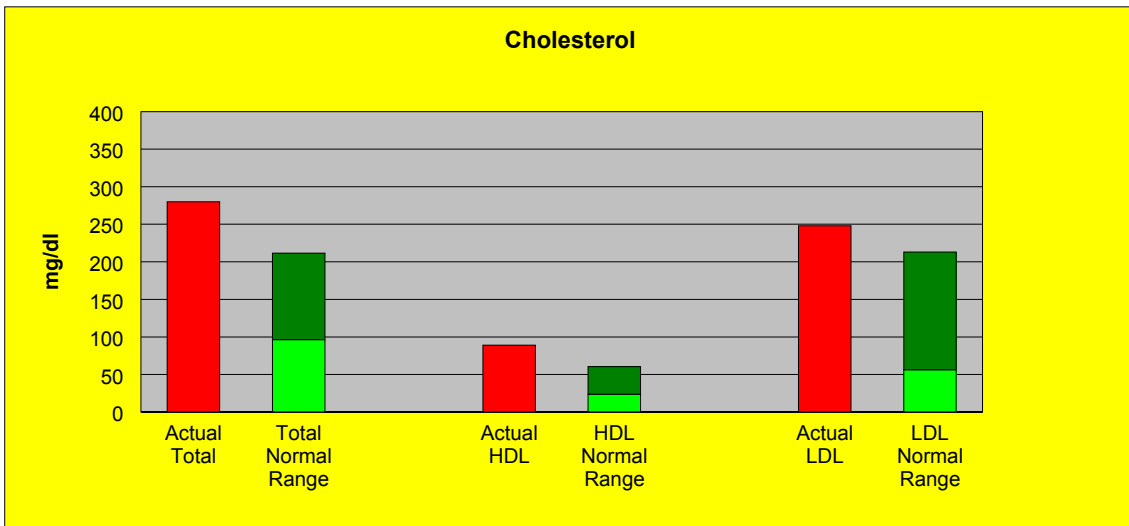
Stress and hypertension may be directly controlled in the following ways:

- \* lose any **excess** or unnecessary **body fat**,
- \* **stop smoking** if you are a smoker,
- \* **limit alcohol** consumption,
- \* **reduce salt** intake.

Both systolic and diastolic pressure may be significantly lowered with a regular program of **exercise**. Have your blood pressure checked regularly, as it can change without symptoms. This is especially true if you have a family history of high blood pressure or strokes.

## CHOLESTEROL

	Actual	Normal
<b>TOTAL</b>	<b>280 mg/dl</b>	<b>96.2 - 211.5 mg/dl</b>
<b>HDL</b>	<b>89 mg/dl</b>	<b>23.5 - 60.4 mg/dl</b>
<b>LDL</b>	<b>248 mg/dl</b>	<b>56.2 - 213.1 mg/dl</b>
<b>RATIO (Total/HDL)</b>	<b>3.1</b>	<b>3.5 - 4.1</b>



Cholesterol is a fat-like substance in the blood necessary for the many functions in the body. The body manufactures all of the cholesterol that it needs, chiefly in the liver.

However, an excessive amount, derived from a diet high in cholesterol and other fats, and physical inactivity, may increase the risk of **Coronary Heart Disease (CHD)**.

The fatty substance can be deposited on the artery walls and cause the arteries to become narrow thus impeding the flow of the blood supply in the body. This causes an increase in blood pressure levels. In severe cases a stroke (stoppage) may develop.

A favourable body composition result (ie. low body fat) does not necessarily mean that the cholesterol level will be normal. A **LOW** total cholesterol level is desirable.

However, the distribution of cholesterol between the two types of lipoproteins, is a more powerful predictor of **CHD**.

**HDL** (High Density Lipoproteins) contains the largest quantity of protein and least amount of cholesterol. It acts as a scavenger and transports excessive cholesterol from the artery walls to the liver, where it is broken down and excreted. A **HIGH** level of **HDL** is therefore advantageous and may be increased through physical exercise.

**LDL** (Low Density Lipoproteins with elevated levels of cholesterol) transport cholesterol in the opposite direction from the liver to the artery walls. High levels have an adverse effect and promote the deposition of cholesterol on the walls of the arteries. A **LOW** level of **LDL** is desirable and may be lowered by eating foods low in fat and cholesterol.

The **RATIO** between **TOTAL** cholesterol and **HDL** should be as **LOW** as possible.

A combination of regular exercise and sensible dietary habits may achieve this desired result.

## HEART RATE

**Your RESTING HEART RATE is 95 beats per minute**

Generally, the lower the heart beat rate at rest, the healthier the heart and the better condition you are in.

The resting heart rate declines as you become fitter and is an easy way to measure progress when embarking on an exercise program. When exercising, the main criteria is to get your heart and lungs working a little harder, but not so hard you have to stop.

Monitoring your heart rate therefore, is widely accepted as a good practice for measuring the intensity of your workout level during running, swimming, cycling, and other aerobic activities.

Ideally, exercise should raise your heart rate to a certain level, called the **TARGET HEART RATE**, and keep it there for a minimum of twenty minutes in order to burn excess fat and contribute significantly to cardiovascular fitness. By so doing you will achieve the maximum health benefits for your body.

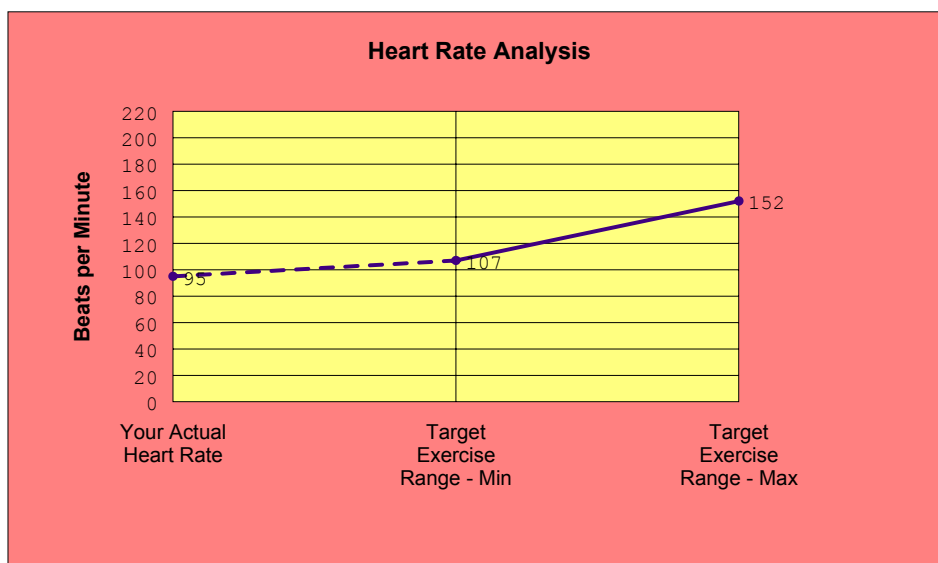
Your heart rate during exercise will increase and should, in normal circumstances, be maintained within the target range of **60% - 85%** of your **MAXIMUM HEART RATE (MHR)** continuously during the exercise program. As a general rule, MHR is approximately 220 beats per minute minus the person's age.

**At your age of 41, your MAXIMUM HEART RATE is 179 (220-41).**

Hence you should maintain your heart rate between the **TARGET RANGE** of **107** and **152** during exercise for maximum effectiveness. You should never choose a workout that will push your heart rate up to its total maximum rate of 179. This may be too strenuous on the heart.

Exercising regularly will eventually improve the efficiency of your cardiovascular system - heart, lung and circulation - translating into a variety of mental and physical benefits.

**Your TARGET HEART RANGE during exercise should be between 107 and 152 beats per minute**



## AEROBIC CAPACITY (VO<sub>2</sub>Max)

**Aerobic Capacity**

**40** mlsO<sub>2</sub>/kg/min.

**Your Fitness Rating**

**Good** (range 37 - 45)

Aerobic capacity, or maximum oxygen uptake (**VO<sub>2</sub>Max**), is a measure of your stamina, endurance or cardiorespiratory fitness. In general, the higher your aerobic capacity the fitter you are.

VO<sub>2</sub>Max is the maximum amount of oxygen that the body can take in, transport and use. It is an indication of the ability of the lungs, cardiovascular and muscular systems to convert oxygen into energy. It is commonly expressed in millilitres of oxygen per kilogram of body weight per minute (**mlsO<sub>2</sub>/kg/min**) and is affected by age, gender, body dimensions and body composition.

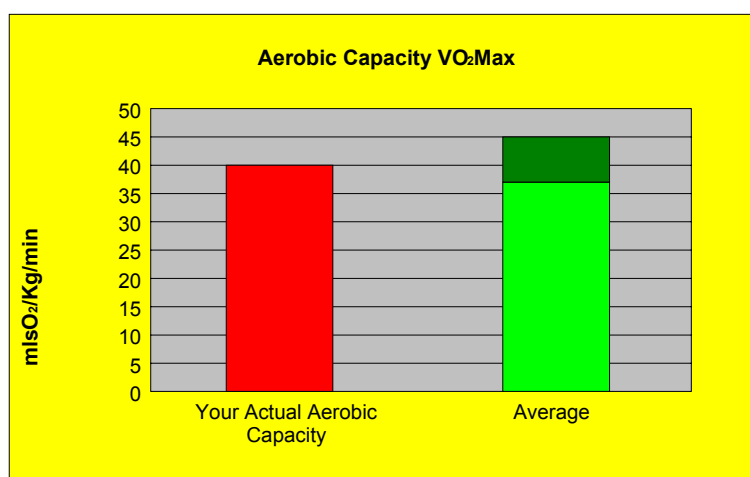
Cardiorespiratory fitness is considered to be a measure of health-related fitness because:

- \* numerous research studies have shown that low levels of aerobic fitness are strongly associated with premature deaths, particularly from cardiovascular diseases, and
- \* better aerobic fitness is linked to higher levels of habitual physical activity, which is associated with many health benefits.

VO<sub>2</sub>Max may be measured directly by an exhaustive treadmill or cycle ergometry test. While this **direct measurement** is the most accurate way of determining cardiorespiratory fitness, it is a complex, time consuming and expensive procedure and requires a willing subject capable of **working to maximum**.

However, VO<sub>2</sub>Max can be **predicted** with reasonable accuracy by measuring heart rate either during or after **submaximal exercise**. From tables that have been developed the heart rate response can be converted into an aerobic capacity score related to age and sex. Your score has been graded as **Good** compared to internationally accepted norms.

Aerobic capacity is a most important measure of health-related fitness. Its careful assessment can create awareness and knowledge about the importance of regular exercise for your health and well-being and help to provide you with encouragement to lead a healthier and more active lifestyle.



Reference: Chester Step Test. K. Sykes (1995) UK.

## FLEXIBILITY

**Flexibility**

**20.1 cm**

**Normal Range**

**38.9 - 44.5 cm**

Flexibility refers to the ability to move the joint through its full range of motion.

Being supple helps you avoid injury and makes you less likely to have aches and strains.

Inactivity and disuse can lead to shortening of muscles and tendons that surround the joints. The connective soft tissue (cartilage, ligaments and tendons) become stiffer and more rigid which reduces joint flexibility.

Stretching exercises tend to lengthen the muscles and tendons and make them more flexible, thus reducing the risk of injuries during exercise and the effects of muscle soreness and joint stiffness.



## GRIP STRENGTH

**Grip Strength**  
**Average**

**26.0 kg**  
**50.0 kg**

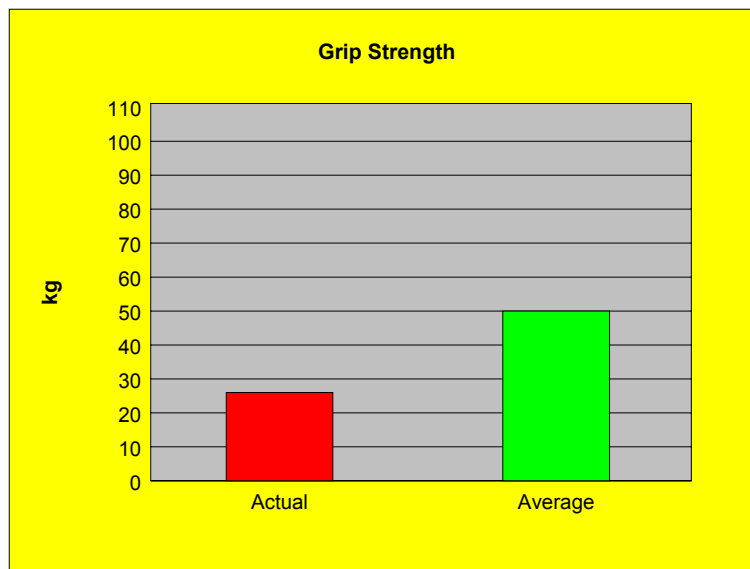
Strength is an important component of fitness and can best be described as the ability to overcome inertia. Extra muscle power is often needed for lifting, carrying, pulling and pushing, to both take strain and avoid injury.

There is a progressive decline in strength for most muscle groups due to a loss of total muscle protein brought about by inactivity, ageing, or both.

Strength and muscle tone can be improved as a result of a carefully designed progressive exercise program.

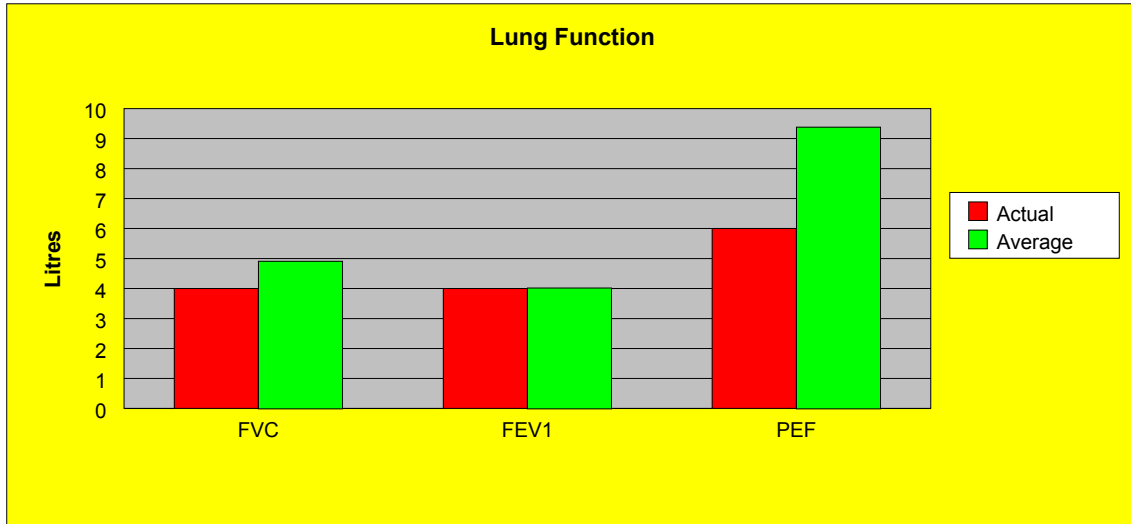
Research shows clearly that older adults can increase muscular strength and endurance with regular overload, strength-type training.

Grip Strength is a simple way of measuring overall bodily strength.



## LUNG FUNCTION

<b>Forced Vital Capacity (FVC)</b>	<u>Actual</u> <b>4.0 litres</b>	<u>Average</u> <b>4.9 litres</b>
<b>Forced Expiratory Volume (FEV<sub>1</sub>)</b>	<b>4.0 litres</b>	<b>4.0 litres</b>
<b>Maximum Peak Expiratory Flow Rate (PEF)</b>	<b>6.0 litres/second</b>	<b>9.4 litres/second</b>



Breathing tests detect abnormalities of the structure and function of the lungs and respiratory system.

Both the amount of air you expel and the rapidity with which you expel it can be measured. This is dependent upon:

1. The resistance offered by the respiratory passages to air flow - narrower airways make the air flow more difficult.
2. The resistance offered by the lung tissues and chest - the stiffer the tissues, the harder the ventilation.

If the volume of air you expel is less than expected, it may indicate lung disease or damage from smoking, emphysema, asthma or bronchitis. These problems can restrict the amount of air you are able to exhale. This area of fitness can be changed to some extent as a result of training.

**FVC** is the largest volume of air that can be derived by a maximal forced exhalation after full inspiration. It is the total amount of air that can be forced out until no more can be expelled. It is in effect a measure of the **SIZE** of your lungs. This measurement has a lower value in subjects with emphysema because of exaggerated airway compression.

**FEV<sub>1</sub>** is the amount of air you can expel from our lungs in the first second. It is in effect a measure of the **STRENGTH** of your lungs. Because of airway obstruction expiration takes longer than normal therefore the volume of exhaled air is smaller.

**PEF** is the fastest flow rate that can be sustained for 10ms during a maximal expiration after full inspiration. It is in effect a measure of the **POWER** of your lungs. It reflects changes in airway diameter and its main use is in the diagnosis and monitoring trends of bronchial asthma to see if improvements are made.

Reference values to determine the Average value are for men and women of European descent, non-smokers, without previous disease, aged 25 -70 years derived from a height range of 1.55 to 1.95 m in men and 1.45 to 1.80 m in women.

## CONSULTANT'S COMMENTS

Type in any comments here!

Your next appointment is scheduled for:

Date:

Time: