

## Physical Fitness

The human body is made up mainly of bone, muscle and fat. Some 639 different muscles account for about 45% of the body weight. Each of these muscles has four distinct and measurable qualities which are of interest to us:

- 1) it can produce force which can be measured as *strength of muscle*;
- 2) it can store energy which permits it to work for extended periods of time independent of circulation – this is generally referred to as *muscular endurance*;
- 3) it can shorten at varying rates. This is called *speed of contraction*.
- 4) it can be stretched. This is called the *elasticity of muscle*.

The combination of these four qualities of muscle is referred to as *muscular power*.

If muscles are to function efficiently, they must be supplied with energy fuel. This is accomplished by the blood which carries the energy fuel from lungs and digestive system to the muscles. The capacity to supply energy to the working muscles is called *organic power*.

The capacity and efficiency with which your body can function depends on the degree of development of both your muscular and organic power through regular exercise. However, the level to which you can develop these powers is influenced by such factors as the type of body you have, the food you eat, presence or absence of disease, rest and sleep. You are physically fit only when you have adequately developed your muscular and organic power to perform with the highest possible efficiency.

Heredity and health determine the top limits to which your physical capacity can be developed. This is known as your *potential physical capacity*. This potential capacity varies from individual to individual. Most of us, for example, could train for a lifetime and never come close to running a four-minute mile simply because we weren't 'built' for it. The top level at which you can perform physically right now is called your *acquired capacity* because it has been acquired or developed through physical activity in your daily routines.

Your body, like a car, functions most efficiently well below its acquired capacity. A car, for example, driven at its top speed, say, 110 miles per hour uses more petrol per mile than when it is driven around 50-60 miles per hour. Your body functions in the same way, in that the ratio of work performed to energy used is better when it functions well below acquired capacity.

### Exercise 1

Answer the following questions:

1. According to the passage, the human body is made up of three main components. What are they?
2. How much of the body weight is made up of muscles – half, more than a half, or less than a half?
3. What qualities of muscles does the writer describe?
4. What is the name for the combination of these qualities?
5. What does blood do for the muscles?
6. According to the text, the level to which you can develop your muscular and organic powers depends on several things. Which of the following: what sort of body you have; what you eat; how old you are; your work; whether you are ill; the condition of your heart.
7. Can you explain simply what the author means by 'potential physical capacity' and 'acquired capacity'?
8. In what way, according to the text, is the human body like a car?

## **Exercise 2**

Do the sentences below mean the same as the text?

1. The human body is made only of bone, muscle and fat.
2. The body contains some 639 muscles.
3. Some of our muscles are strong, some have endurance, some can work fast and some are elastic.
4. All muscles can stretch.
5. Organic power is the ability of the heart, lungs and digestive system, all together, to supply energy to the muscles through the blood.
6. Exercise can develop both organic and muscular power.
7. Not everybody can get up to the same level of physical performance.
8. Most of us couldn't run a mile in four minutes because we're not fit enough.