

LBK- Let your body know

Martin A Nelson

MA (Sheff) MBBS (Lon) FRCS (Eng)
Board Certified Physician and Surgeon State of
Maryland, USA.

A guide to self-care. By knowing how your body works you are in the best position to help it to cure itself.

LET your BODY KNOW that you recognise, value, love and care for it.

First Published 2016 Kenya

First Published as an E-book in 2016

Copyright © Martin Nelson 2016

This book is copyright under the Berne Convention

No reproduction without permission

Manuscribit Publishing

LONDON SW7

[SECTION ONE: Background](#)

[1. Introduction](#)

[2. Modern Medicine](#)

[3. Micro-organisms](#)

[a\) Bacteria](#)

b) Viruses

4. History of the NHS

5. Development of the body

6. Ill or Unwell?

7. Good Health

SECTION TWO: Systems

8. The Central Nervous System

9. Pain

10. The Skeleton

11. The Circulation

12. The Blood

13. Bone- Fractures

14. Healing of Soft Tissues

15. Facts about the Body

16. Metabolism

17. The Urinary Tract

18. The Defenders

19. The Five Senses

20. Hearing

21. Sight

[22. Smell](#)

[23. Taste](#)

[24. Touch](#)

[SECTION THREE: Diseases](#)

[25. Allergy](#)

[26. Arthritis](#)

[27. Asthma](#)

[28. Athlete's Foot](#)

[29. Backache](#)

[30. Birthmarks and moles](#)

[31. Blocked Nose](#)

[32. Breast-feeding](#)

[33. Bruises](#)

[34. Burns](#)

[35. Cancer](#)

[36. Constipation](#)

[37. Cough](#)

[38. Cramp](#)

[39. Cuts](#)

[40. Dandruff](#)

[41. Dehydration](#)

[42. Diabetes](#)

[43. Diarrhoea and Vomiting](#)

[44. Dietary Supplements](#)

[45. Eczema](#)

[46. Haemorrhoids or Piles](#)

[47. Heel Pain](#)

[48. Hypertension](#)

[49. Indigestion](#)

[50. Ingrowing Toenail](#)

[51. Insect Bites](#)

[52. Mouth Ulcers](#)

[53. Obesity](#)

[54. Pain](#)

[55. Red Eye](#)

[56. Sore Throat](#)

[57. Vaginitis](#)

[58. Writer's Cramp](#)

[SECTION FOUR: Management](#)

[59. Analgesics](#)

[60. Antibiotics](#)

[61. Prevention](#)

[a\) Accidents](#)

[b\) Illnesses](#)

[62. LBK \(Let Bugger Knit\)](#)

[GLOSSARY](#)

[RESOURCES](#)

SECTION ONE: Background

1. Introduction

Albert Schweitzer 1875-1965

'Within every patient there resides a doctor, and we as physicians are at our best when we put our patients in touch with the doctor inside themselves.'

Only in understanding the miracle that is your body can you begin to work with it to recover from accidents, illnesses and diseases.

This book has evolved as a result of my concern about the way in which we as patients rush to doctors as soon as our bodies behave in a manner we don't understand. We defer to their wisdom and even though it is our body we are discussing, we implicitly trust their knowledge and skill. Despite its undoubted success, Western Medicine often fails to encompass the holistic nature of illness.

Furthermore we have come to expect that every symptom or ailment needs a medicine to get better. We have lost faith in our body's extraordinary ability to heal itself and have come to believe that without a doctor, we cannot be healthy. Having spent over 50 years practicing medicine, I have seen many unnecessary treatments including ill-advised surgery. This is particularly evident in those medical systems based on payment.

‘Remember your health is too important to leave to a doctor. You must take responsibility for it.’

When I learned that, I realised that most of us have very little understanding of the way our bodies work and trust it even less. All we see is the outside surface and are unaware of what lies beneath, the underlying complex dynamic chemical and physical activities, which are working to keep us in good health.

This ignorance in the workings of the body has left us with a mechanistic model of how it functions. Most see it is a machine that needs fuel, that breaks down, that wears out and may need replacement. What this picture fails to show is the remarkable ways in which the body keeps itself healthy and heals itself when ill.

In this brief outline I try to explain in a little detail what is happening in the body and to remind you the reader that we are extraordinary organisms that have the ability in many cases to heal ourselves. But in order for this to occur we need to look after ourselves, to exercise, to eat healthy food have fresh air and time to relax to laugh, to play and find joy in our lives. In doing these things we are celebrating the miracle of our bodies and the world we live in. In the course of this book I will show you examples of the way in which the body achieves this.

2. Modern Medicine

Before the advent of modern medicine with its emphasis on causation based on investigations and treatment based on evidence, patients sought the help of the witchdoctors, shaman and priests. Even today many still rely on their help. They may still have a place in treatment because of the importance of the psyche as a factor in ill health.

Many if not most of the drugs in use today were derived initially from nature.

Aspirin- acetylsalicylic acid comes from the sap of the willow tree.

Digitalis an extract from the Foxglove. It is an important cardiac medication

Morphine and similar powerful analgesics (Painkillers) come from the common Poppy.

Cocaine a local anaesthetic comes from Erythroxylum Coca.

Colchicine an anti gout therapy comes from Colchicum Autumnale.

Ephedrine is used to dry up nasal secretions and comes from *Ephedra Sinica*.

It was only when the scientific method was applied to health that there was a greater understanding of the way in which medicines work. This enabled a mushrooming of knowledge about the chemicals involved and the development of new treatments.

3. Micro-organisms

a) Bacteria

In 1882 a Danish scientist called Hans Christian Gram discovered one of the most important techniques in Bacteriology the science of studying Bacteria and viruses. It was a staining technique, which enabled the doctor to separate the Gram

negative- Non-staining bacteria from the Gram positive staining Bacteria. This gave the doctor the ability to quickly type the probable bacterium long before the time it took to grow and definitively name it. Gram positive organisms are cocci (round-shaped), such as Streptococcus and include the pus forming ones in particular staphylococci which cause boils abscesses etc., The gram negative bacteria are rod-shaped and include E coli, Proteus etc. They tend to infect the urine, the bowel etc.

b) Viruses

Viruses are very small packages of DNA or RNA that can only replicate inside living cells and derive their energy from that host. There are millions of them but only a few affect man and animals. They are responsible for HIV Aids, certain forms of Hepatitis, the common flu etc. There are a number of antiviral agents that can be effective as treatment.

4. History of the NHS

In 1945 at the end of the Second World War, the UK was bankrupt. Over half her wealth had been spent in armament production. She had been supported by the USA with Lend lease but that came to an end. The USA had loaned her over \$4 billion dollars to help us recover and she expected it to be repaid. The pound was made convertible and immediately had to devalue. It went from 4 Dollars to the pound to 2.4 and now it hovers around 1.3 dollar to the pound (pre-Brexit). People were in a desperate state, rationing was continuing and there were enormous shortages of everything. An extensive rebuilding programme was required following the widespread bomb damage.

Despite this, one of the greatest experiments in healthcare was being discussed and introduced. 1948 saw the launch of the National Health Service (NHS). Every man woman and child was entitled to free health care a promise that no other country in the world has made to its people to this day. But with an ageing population and a plethora of new investigation and treatments the cost has swelled and some services have had to be charged such as dentistry and pharmacy.

Staff shortages have prompted the public to complain that the NHS was collapsing. Every day we read about another crisis in the NHS, a long wait to see a GP, long waiting time for a hospital appointment, cancelled operating lists, beds blocked because of a lack of community facilities. There is a cry for more resources for the NHS but that is not the answer.

But perhaps the real solution lies with us. We have got to stop relying on doctors and nurses and learn more about our bodies so we can deal with the thousands of minor conditions that should never be treated in hospital let alone be seen by a doctor.

We in the UK are probably the least capable of any society in the world in dealing with our health as we have enjoyed a free Health service. We have become disconnected from our environment and are no longer in touch with the natural world around us. We have been taught to see our bodies as vehicles which need to be serviced by others.

5. Development of the body

The Zygote

Each of us began as a single cell the zygote, the result of the fusion between our mother's egg and our father's sperm. It contained all the genetic information needed to create an adult human being. All that it required was to be nourished and protected and it would do the rest.

Just stop for a moment and think what you have just read. It would seem to be impossible. How could a single fused cell just visible to the human eye contain all that information yet it does? How does it do it?

It does it by forming cells (pluripotential) that can become almost any cell in the body. These master cells are under the control of enzymes (natural chemicals) produced by the chromosomes the small rod like structures that are carried from one generation to another, holding the information to create the building blocks for the developing child.

Let's consider the rate of growth. The foetus grows inside the womb from the size of a small seed to the size of a melon in approximately 40 weeks. At birth it weighs 3.5 Kg. at six months it doubles its weight to 7 Kg and at a year, it trebles it

to 14 Kg. If you were to grow at that rate, in a year's time you would be three times your present weight, (say 70 Kg->210 Kg)

In this book I will systematically show that we humans have inherited miraculous systems to keep us healthy and that understanding these will help us to avoid the need for medicines and the dangers of over-treatment.

6. Ill or Unwell?

How do we know when we are ill and how can we tell whether it is serious? This is not always an easy question to answer. In general a symptom say pain that came on for no obvious reason, continues and is associated with a feeling of weakness, loss of appetite and loss of weight needs to be attended to. On the other hand a feeling of off colour not feeling well but having no pain, or disturbance of other systems can be allowed to continue as it will probably recover spontaneously without medical intervention.

When you consider the complexity of the body's system it is not surprising that we will vary in how we feel from day to day.

If you decide to see the doctor 'GO PREPARED'. Before the consultation, sit down with a piece of paper and write down exactly what you feel is wrong. Give her/him as much detail as possible. The more accurately you can describe your ailment the more likely the doctor will be able to recognise the problem and advise you. Doctors

are not magicians or seers. They rely on what you tell them in arriving at their diagnosis.

7. Good Health

Good health is the aim of us all. Over the years there have been many attempts to define what we mean by good health. The World Health Organisation defines it as 'a state of complete physical, mental and social well being and not merely the absence of disease or infirmity.

In practice it depends on factors over which we have no control as well as those that we can control. Those we cannot control are the longevity and health of our parents, the place where we were born and the conditions of dietary deprivation and violence. Time and again statistics have shown that a long and healthy life is associated with a middle class upbringing in a stable and safe environment.

The factors over which we have control and which are associated with ill health are lifestyle choices. They include an unhealthy diet, smoking, drinking, lack of exercise and the use of addictive drugs. Good health care may be a factor but it is less important than the above.

Can you do anything to improve your health and well-being? The answer is a resounding yes,

- a. Maintain your weight by eating healthily.
- b. Take regular exercise, and
- c. Avoid smoking, drinking and taking drugs.
- d. Do mentally stimulating activities such as reading, writing and sport and where possible be part of a social group.

But what is my ideal weight?

There are many charts, which show ideal weights with age. They depend on measuring weight against height, size of frame etc.

Why is it important to maintain an ideal weight and not become obese you may ask?

Obesity puts an increase strain on all systems of your body and especially the heart. There are many diseases associated with obesity including heart disease, diabetes, gangrene, increased risk of a fall etc.

How do I avoid obesity? Simple! By healthy eating.

The body needs food to provide energy and to facilitate repair and replacement of renewed tissues. It need fluids to maintain its internal stability and as a vehicle for the removal of waste products as urine. To maintain these functions we need to eat a balanced diet of carbohydrates,

proteins and fats together with vitamins and trace elements and drink fluids.

One of the recommendations is to eat five portions of raw fruit or vegetables a day. This combined with the other essentials should provide all you need for a healthy diet. Regular weighing will help to keep any excess weight under control.

Genetically Modified Crops.

The development of GMC has resulted in an explosion of new varieties of foods, better suited to drought and disease. But they have been received with a mixed reception. Despite the fact that scientific modification of crop has been practiced for ages, this new technique has been criticized.

SECTION TWO: Systems

8. The Central Nervous System

The body would be a functionless structure if it wasn't for the complex framework of nerves and connections that comprise the Central Nervous system (CNS).

But if that is not enough we are also blessed with an Autonomic Nervous system(ANS). Put simply the CNS is the voluntary system which acts at our command whereas the ANS is involuntary and runs the routine functions such as breathing, digestion, blood pressure, heart beat etc. These are all functions that continue without any input from us.

The CNS consists of the brain, which is continuous with the spinal cord. It contains millions of neurones (nerve cells) that are connected to each other like a network.

The CNS has an OUT and an IN systems The OUT is the motor system that sends messages to our

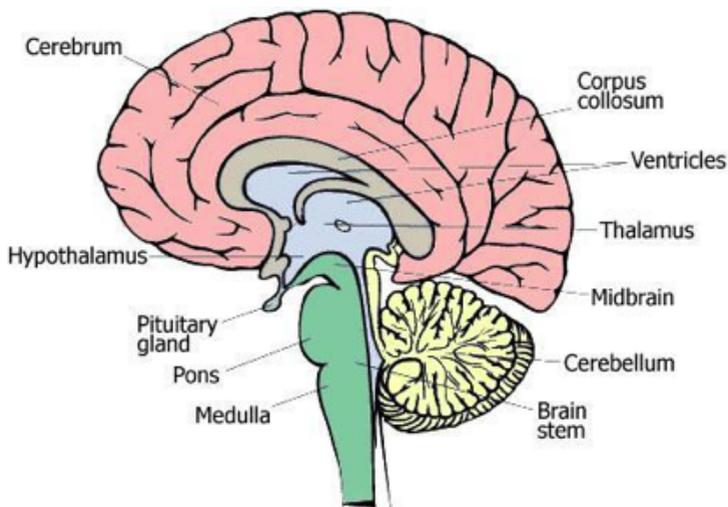
muscles. The IN system conveys the sensory information such as touch, pain, vibration etc. to the brain.

The human brain has evolved over millions of years becoming more and more complex. It comprises three parts, the Forebrain, the Midbrain and the Hindbrain.

The Forebrain, the largest part consists of the Cerebrum, the Thalamus and the limbic system.

The Midbrain consists of the Tectum and Tegmentum.

The Hindbrain consists of the Cerebellum, the Pons and the Medulla



The spinal cord a continuation of the brain is 8-12 mms in diameter and runs down the inside of the vertebral column in the spinal canal. It ends opposite the First Lumbar vertebra and there becomes a leash of nerves called the Cauda Equina.

The ANS as its name implies functions automatically. It carries out its duties via a network of fine nerve fibres that connect the various organs to the Midbrain, that part of the brain that lies below the cerebrum.

9. Pain

Pain is a complex symptom, which is believed to have evolved to protect us from injury. It should not be seen as an enemy but rather as an ally guiding us through the battlefield of life. It is felt as a different sensation depending on the tissue involved and the type of receptor stimulated. Thus a pinprick is sharp and well localised unlike a burn, which is diffuse and burning. Bowel pain is dull and ill localised. Renal colic pain is severe and intermittent.

<https://www.ucl.ac.uk/anaesthesia/StudentsandTrainees/PainPathwaysIntroduction>

10. The Skeleton

The skeleton consists of two main tissues- Bone and Cartilage.

Bone is a very hard tissue consisting of a framework of collagen impregnated with calcium crystals.

Cartilage is a soft amorphous tissue comprising collagen embedded in a ground substance. It forms the lining of joints, the ear cartilages, the intervertebral discs, etc.

Collagen is the most abundant protein in the body comprising up to 30%. It exists in thin fibrils, which form an inner scaffolding for most of the body's tissues including skin, muscle, tendons and bones.

The human skeleton comprises more than two hundred bones, which vary in size from a small coin to the thigh bone (femur) 19 ins (50 cms)

They form the spherical skull, the long bones, the vertebrae and the pelvis.

The long bones are hollow with an outer cortex and an inner cancellous canal, which contains marrow.

The Skull consists of 22 bones of which 8 are in the cranium (Skull), 14 below

The ear has three small bones called stapes, malleus and incus -(stirrup hammer and anvil)

11. The Circulation

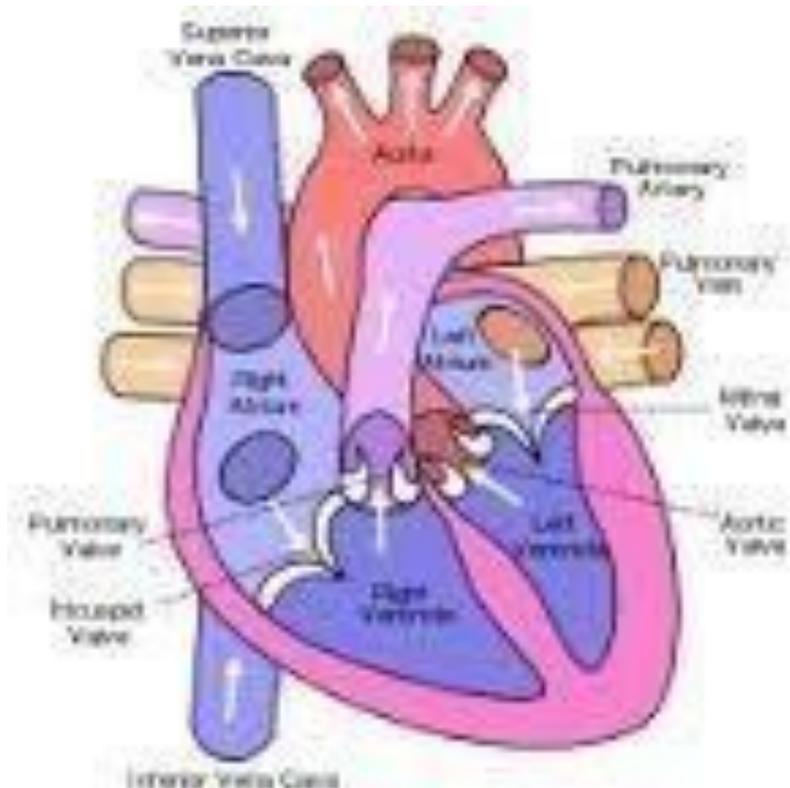
The Circulation consists of the heart and the vascular system. About the size of your fist, the heart weighs 10 Ounces, 300 grams and pumps 1.5 gallons of blood a minute.

The Vascular system is a dual system with arteries taking oxygenated blood to the tissues and the veins bringing deoxygenated blood back to the heart. Blood which has given up its oxygen arrives at the right side of the heart and is then pumped to the lungs where is oxygenated before being pumped out from the left side of the heart into the body via the Aorta the largest artery in the body.

The heart itself has a blood supply through the left and right coronary arteries. It is a blockage of one or both of these that results in a heart attack.

The heartbeat is under the control of the autonomic Nervous System. The impulse originates at the Sino-atrial node in the right Atrium and spreads throughout the heart resulting in the

synchronous contraction 60-80 beats a minute at rest rising to 150 beats per minute during exercise.



12. The Blood

We have about 6 quarts (< 6 litres) of blood in our bodies. 2/3rds of it consists of plasma (60%) a

slightly opaque liquid and 1/3 rd. (40%) of specific cells.

It serves two main roles.

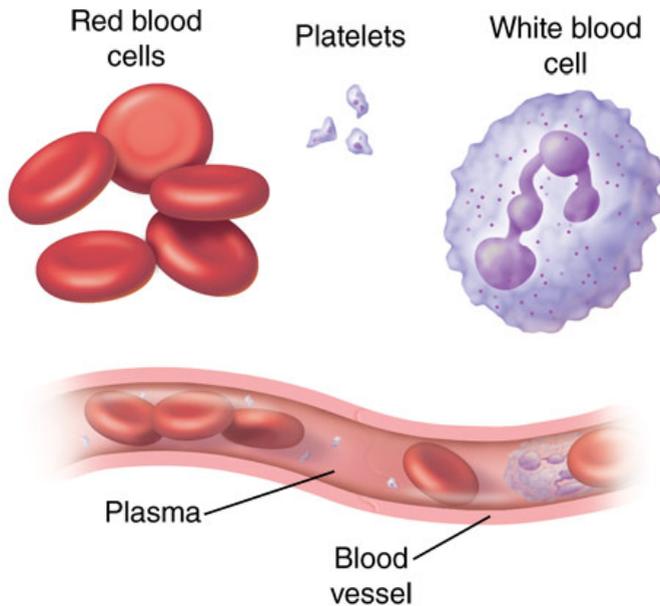
The first is to carry Oxygen to the tissues thereby allowing them to metabolise Glucose and release energy. The second is by contain a number of specialised cells concerned with fighting infection and facilitating healing.

Plasma is the liquid component of blood. It contains a large number of essential components including amino acids, glucose, fatty acids, hormones, antibodies, enzymes etc as well as waste products such as urea.

The cells are divided into red and white.

Red Cells

The red cells (Erythrocytes) contain Haemoglobin an iron (Fe)- containing protein that binds to



Oxygen, and carries it to the tissues where it is released. They have no nucleus and are disc shaped to increases their surface area. They number 4-6 million per cm of blood.

They are produced in the marrow at the rate of 2-3 million every second and live for about 120 days when they are removed from the circulation by the macrophages in the liver, the iron released is then recycled by new Red cells.

Platelets are involved in blood clotting.

White Cells-Leucocytes

These are the defence force of the body. There are four different types:

1 Neutrophils also called Polymorphonuclear cells contain an irregular shaped nucleus with granules in their cytoplasm (Granulocytes). The granules contain enzymes that digest pathogens

2 Monocytes- destroy pathogens

3 Lymphocytes- create Antibodies

4 Eosinophils- respond to allergies, kill bacteria, and destroy cancer cells

5 Basophils contain and release heparin a chemical which stops blood from clotting. They also release antihistamines.

A normal blood report is as follows

Hb 13-18 mgms per ccm (cubic centimeter)

WBCs 4,500- 9,000 per ccm

Neutrophils 2.0-7.0x10⁹ per ccm

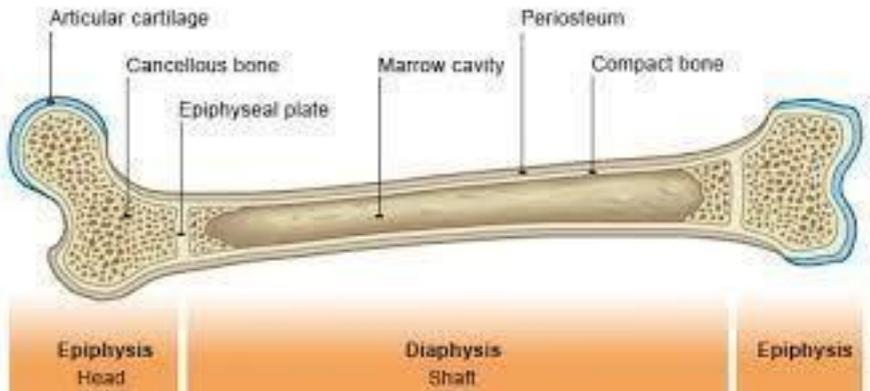
Lymphocytes 1.0-3.0 x10⁹ per ccm

Monocytes	0.2-1.0 x10 ⁹ per ccm
Eosinophils	0.2-0.5 x10 ⁹ per ccm
Basophils	0.02-0.5x10 ⁹ per ccm
Platelets	150,000-400,000 per ccm

13. Bone- Fractures

Bone is a dynamic living tissue made rigid by the incorporation of Calcium crystals onto its collagen framework. It is constantly being remodelled according to the forces applied to it.

It comprises a dense outer cortex and an inner cancellous (open spaces) medullary cavity. It is covered by a thin layer of tissue called the periosteum, which is the source of its blood supply, and osteoblasts line its surface.



Bone has three types of cells
Osteoblasts which make new bone but when dormant are called Bone cells and Osteoclasts, which remove bone.

Bone serves two main functions:

- 1 It forms the skeleton on which the body hangs.
2. It contains the marrow cavity, which is the blood-making factory.

A fracture is a break in the continuity in a bone. It may be complete or incomplete (greenstick).

A Stress fracture is an incomplete break in a bone due to strain.

A fracture may be simple (closed), compound (open) i.e. associated with perforation of the skin or complicated (associated with damage to nerves or major blood vessels).

FRACTURE HEALING occurs in four phases.

1 Inflammatory: When the fracture occurs there is immediate bleeding from the damaged blood vessels seen as swelling and warmth. It is called a haematoma (a blood swelling). It lasts between 3-5 days. It clots and is invaded by fibroblasts from the neighbouring tissues and congeals as a soft callus.

2 Callus Formation: These cells (fibroblasts) lay down cartilage, which begins to solidify limiting movement. At this stage, excess movement could delay or prevent the healing process hence the use

of an external splint or cast. As the fracture site stiffens osteoblasts from the periosteum proliferate and begin to lay down new woven bone as an unorganised early bone (Callus)

3 Consolidation; Over the next 3-6 weeks (depending on the age of the patient and the type of bone), the fracture site is replaced fully by callus which hardens as calcium is laid down in it. An X Ray at this time will show the callus as an enclosing splint bridging the fracture. In time the fracture will become rigid enough to discard the cast and to replace it with a removable splint allowing washing etc.

4 Remodelling. Once the callus has hardened and all movement has ceased, the woven bone is slowly replaced by Lamellar or mature bone, which is laid down according to the lines of stress and is now as strong as the original bone. Remodelling continues for up to six months by which time the healed bone is as good as new.

14. Healing of Soft Tissues

The healing of soft tissues is a spontaneous response to tissue damage. It is a complex process whereby specialised cells undertake the process of resurfacing, rebuilding and restoring the strength of the damaged tissue.

It can be understood as occurring in four separate stages but in practice these stages are continuous.

1. Haemostasis (0-1 day)
2. Inflammation (2-6 days)
3. Proliferation (3-21 days)
4. Maturation (up to a year)

1. Haemostasis: Immediately after the injury has occurred, the local blood vessels constrict under the effect of a number of chemicals, Platelets are mobilised to assist the clotting mechanism and Fibrinogen molecules are converted into Fibrin which forms the clot and bleeding stops.

2. Inflammation: About 1 hour after the injury, swelling is apparent due to the arrival of Mast cells

and leucocytes. Both contain histamine that produces vasodilation and increased vascularity.

3. Proliferation: new epithelial cells form at the edge of the skin wound and at the same time fibroblasts form granulation tissue which fills the defect. This tissue comprises vascular cells and collagen, which begin to stabilise the wound.

4 Maturation: The granulation tissue gradually contracts as fibroblast activity ceases. On the surface the new epithelial cells meet and form the new skin. A scar is formed which is initially vascularised but slowly as the collagen matures become white and avascular. This final process may take up to six months.

15. Facts about the Body

Composition --dry weight of a body is 2-3 Kg (3-7 lbs.)

Weight of individual organs

Skin 24 lbs -10Kgs

Brain 1200 – 1600 g

Your heart - 240 g

Liver 100-1800g

Spleen 200 –226g

Kidney 80-160g

Normal Temperature - 37C or 98.6F

Fluid loss 1L per day in insensible sweat

Urine output 1500 mls a day.

You are 70% water.

You lose 1-2 cms of height during the day which is regained after sleep (the Intervertebral discs of which there are 23 make up $\frac{1}{4}$ of the height of the spine.

You lose up to 5 cms of height by the age of 60

Your nails grow at an average rate of 3 mm (0.12 in) a month The index fingernail grows faster than that of the little finger; and fingernails grow up to four times faster than toenails.

Fingernails require three to six months to regrow completely, and toenails require 12 to 18 months.

You have 5 litres of blood- each ml has 5 million RBCs

Total RBCs in health = 25,000,000,000

The average head has 100,000 hair follicles and loses 100 strands a day

Your heart weighs 6 ounces = 240 grams.

It beats 100,000 times a day= 35 million a year or more than 2500 million by the time you are 70

16. Metabolism

The blood stream is the body's highway along which flows the blood containing a wide range of cells, chemicals and hormones. It also contains the products of digestion. It is powered by the heart and refreshed by the lungs.

Digestion begins in the mouth with mastication and saliva. Saliva contains enzymes that begin the process of digestion. The bolus of food is swallowed and passes down the oesophagus to the stomach. There it is mixed with the gastric juice, which contains Hydrochloric acid, Pepsin and Rennin. The food remains in the stomach where it is churned to allow the enzymes to continue to reduce the complex foods into basic components. From the stomach the partly digested food goes into the duodenum where it comes into contact with the pancreatic juices. It proceeds into the small intestine where 90% of digestion and absorption of nutrients occurs.

The portal blood system collects the nutrients that have been digested in the bowel (stomach duodenum and small intestines) and takes them to the liver. This is the centre for the breakdown of complex food molecules. It constructs the essential building blocks, glucose, fatty acids amino acids and hormones.

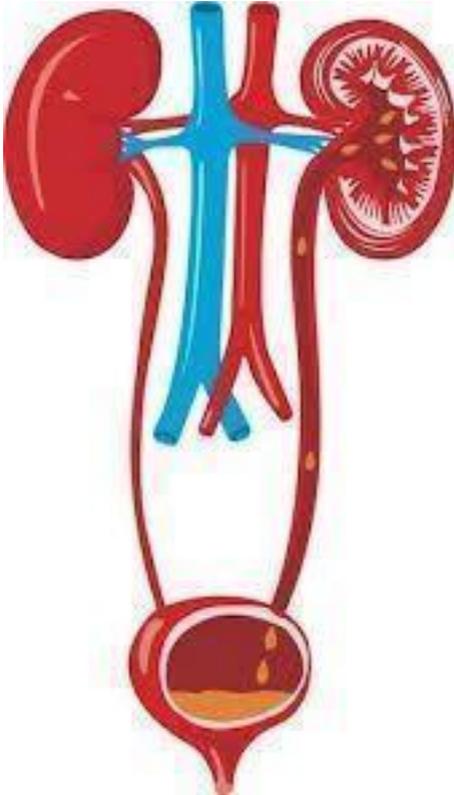
Le Milieur Intérieur

The concentration of sugar and other vital substances in the body fluids is maintained by a sophisticated feedback system. If the blood sugar rises too high it activates the Islets of Langerhans in the pancreas to produce insulin, which lowers the blood sugar. Meanwhile the blood carries the waste products of urea and Creatinine to the kidneys where they are released to the outside as urine. In effect the kidneys cleanse the blood.

These are a few of the hundreds of systems which automatically come into play to maintain the body in what has been called a stable state. *Le milieu intérieur.*

17. The Urinary Tract

The Urinary tract to give it its full name comprises the two kidneys together with their ureters, the bladder and the urethra. The kidneys function to absorb the essential components of the blood and to release the unwanted ones.



Few people know for example: that their kidneys filter 120 –150 litres of blood a day to produce about 2 litres of urine of which 95% is water and 5% waste products such as Urea, Creatinine, Sodium and Potassium:

Renal colic. A sudden severe pain in the side which causes the sufferer to move about trying to

find a position of comfort is due to the presence of calculi or renal stones. They are produced by excessive calcium in the diet or raised blood calcium. They vary in size and when being passed can cause a severe pain.

18. The Defenders

We often forget that in our bodies we have inherited a high-tech fighting machine armed with some of the most sophisticated weapons in the world. Our skin acts as a protective envelope warding off bacteria, viruses and is capable of healing itself. Every time we blink 1 million bacteria are washed into our throats. Half the weight of our dried faeces is dead bacteria.

Our skin is covered with them yet we remain healthy, how? The blood stream contains a wide variety of white cells capable of gobbling up bacteria and contains chemicals, which cause it to clot and thereby stop bleeding. (See Circulatory system). Specific antibodies manufactured by the plasma cells in our blood are produced as a result of exposure to the antigens of the invading cells be it bacterium or virus

Our endocrine system consists of a number of glands producing many powerful hormones that can be activated quickly. They include the thyroid, the Adrenal, the Pituitary, Parathyroids etc.

Hormones include

- 1 Adrenaline:
- 2 Histamine
- 3 Endorphins
- 4 Acetyl Choline
- 5 Thyroid Hormone etc.

ADRENALIN- often referred to as the hormone of Fight and Flight is secreted by the adrenal glands, two small structures sitting on top of the kidneys. It increases blood circulation and the rate of breathing- bringing more oxygen. It mobilises carbohydrate metabolism releasing more glucose for muscle exertion.

HISTAMINE- is an amine (Nitrogen compound) that is produced by the body in response to stress and allergy referred to as the *local immune response*.

ENDORPHINS- are produced by the CNS and the pituitary gland. They act to reduce pain perception.

ACETYLCHOLINE- it is a neurotransmitter facilitating the passage of nerve impulses across synapses (junctions)

THYROID HORMONE: produced by the Thyroid Gland acts to control the rate of metabolism of all the tissues in the body.

19. The Five Senses

We are all familiar with our five senses. We use them all the time usually without thinking twice about them. Without them we would not be able to navigate the world around us. We would be unable to see, to feel, to smell, to hear or to taste. We would be alone unable to communicate as if in solitary confinement. We would not survive long, we would collide into things, eat poisonous foods etc. It would be a very short and unhappy life.

Historically the senses have been seen as distinct and separate from each other, each having well defined anatomical structures and pathways.

HEARING
SIGHT
TOUCH
SMELL
TASTE

But in the early twentieth century Husserl (1889-1976) developed a theory called Phenomenology. It

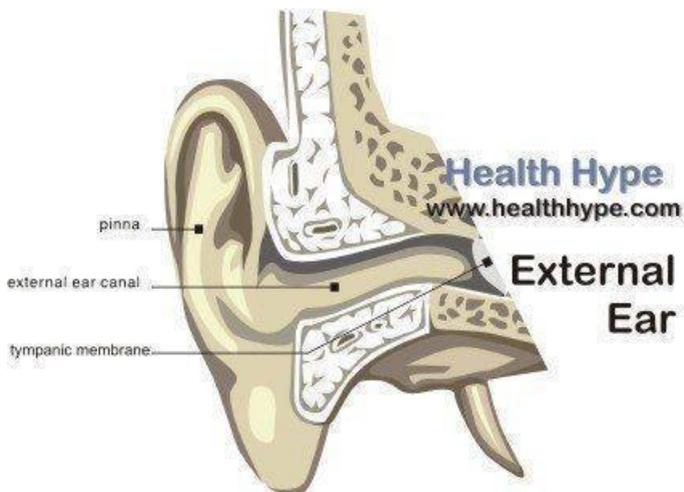
postulated that our five senses are united. Some years later a man Merleau Ponty refined the theory. He pointed out that although the senses may be anatomically distinct; as far as our brains are concerned the information they carry is interrelated and interdependent. We are all familiar with a smell that conjures up a meal and a place, a voice that reminds us of a person, the connections are unlimited. What the scientists are saying is that the information gleaned from our five senses provides us with an integrated communication system, no one being more important than the other. This may explain how when someone loses his sight, his hearing becomes more acute.

20. Hearing

Sound is a vibration of the air and is measured in decibels. When you hear a sound the vibrations of the air enter the ear canal and strike a thin eardrum (Tympanic membrane) placed at its end. From there the vibration enters the middle ear where it is magnified by three interconnecting bones called ossicles (malleus, incus and stapes). The middle ear is connected to the outside by the Eustachian tube. It opens inside the mouth; hence the practice of swallowing when one's ear pop when descending in an aircraft. What we are doing is equalising the pressure between the inner ear and the outside.

The vibrations are then conveyed to the Cochlea where the physical vibrations are converted into nerve impulses, these are conducted by the auditory nerve to the cochlear nucleus in the brain.

Hearing deteriorates with age and as a result of damage caused by loud persistent noise. The practice of listening to loud music on earphones can lead to deafness, which will be prominent.



It is important to keep the external ear clean and protected from strong ultraviolet sunlight, as it is a common site for a rodent ulcer or a carcinoma.

The external canal is a skin-lined tube leading to the external drum. The outer third is protected by earwax a normal material that helps to keep the ear clean. The canal should not be probed by cotton buds. They only serve to push the wax further in and cause a blockage, which may require

syringing. Like many parts of the body it should be left alone. It will look after itself.

21. Sight



The eyes have been described as ‘the window on the world’. They connect us with the outside world and allow us to react with the images we see. They are the receptors of light, which is then focused by the lens onto the retina, a layer of light sensitive cells at the back of the eye. From there the impulses are transmitted to the visual cortex, a

site on the occipital lobes of the brain, which is where they are perceived as images. Common disturbances of the conduction mechanisms include corneal opacity, glaucoma, cataract, retinal detachment and macular degeneration.

Corneal Opacity: The cornea is the thin layer of transparent cells, which form the front of the eye. It is the cornea, which makes us blink if touched. It is exquisitely sensitive to touch and is easily damaged by dust particles, injury burns etc. It heals by forming an opaque scar, which is visible as a white area. Large opacities can lead to severe impairment of vision. Happily a corneal graft, which replaces the opaque area, is a relatively simple procedure that can restore vision. The living graft is obtained from a donated source.

Glaucoma: The pressure within the eye is maintained at an optimum level as a result of the free flow of fluid in and out of the eye. If the outflow becomes blocked and the pressure increases, it can irreversibly damage the retina with loss of sight. The condition usually presents with pain and increased tension within the eye. Urgent medical attention is required.

Cataract: This is an age related condition in which with increasing year, small particles of calcium are laid down in the lens cause blurring of vision and flaring of bright lights. It is a contraindication to night driving. Surgery is required when the visual acuity seriously affects the individual. In the past the treatment was to remove the lens and rely on glasses to correct the vision. Today the lens can be replaced by an artificial one returning the sight to near normal.

Retinal Detachment: The light sensitive layer of cells at the back of the eye may become partially detached either through injury, in association with Diabetes or by chance. Vision is disturbed by the appearance of dark area they wave about. If diagnosed early, the retina can be reattached by laser restoring full vision.

Macular Degeneration is a gradual age related deterioration in the retina at the macula the central area where vision is experienced. To date no treatment is available. If advanced it leads to blindness.

One of the complications of Diabetes is visual deterioration.

Each year thousands of people have their sight damaged due to accidents. The wearing of protective goggles is mandatory where injury is likely

Eye injuries account for a high percentage of eye morbidity. In one year 5,500 patients presented to an A&E department with an eye injury of which 70% occurred at work, 18% leisure and home, 2% sport and 2% assaults.

22. Smell

Smell is the sense with which we identify objects by the molecules they emit. Most objects such as bread, petrol, perfume etc., give off molecules into the air. The molecules enter your nose and are picked up by a patch of specialised nerve cells about the size of a postage stamp situated at the back of your nose. These cells are open to the surface and have cilia- finger like projections that increase their surface area.

The information then travels along axons through the cribriform plate, a perforated sheet of bone at the top of the nose to the olfactory tract, which continues to the orbito-frontal cortex in the brain. There the receptors process the electrical information and identify eau de cologne for example. They link up with all the other senses so that when you smell that perfume you remember the person who was wearing it and the place you were in.

23. Taste

Taste or gustation is the sensation experienced in the mouth when a chemical in a substance stimulates the taste buds located in the mouth mainly on the tongue. The tongue is covered with thousands of papillae each containing many taste buds, it has been estimated that there are 2-5 thousand of these on the surface of the tongue.

There are five basic tastes: sweet, sour, salt, bitter and umami (flavour) these combined with our sense of smell provide the information we need to allow us to identify different tastes. They are supplemented by smell to complete the

identification process. Taste is slowly deteriorates with age.

24. Touch

The Somatosensory system is the name given to the many different receptors that mediate the wide range of sensations, which we use to be able to connect with the world around us. They include, hot and cold, smooth and rough, pressure, tickle, itching, pain and vibration. Signals from these receptors are processed in the primary somatosensory area in the Parietal lobe of the Cerebral cortex.

This huge network of nerve fibres and receptors allows us to monitor the surrounding environment. They provide essential information to allow us to safely navigate the world.

There are unfortunately rare inherited disorders in which this system is faulty. These individuals often have no pain receptors and are liable to serious injury because of that.

SECTION THREE: Diseases

25. Allergy

This is the name given to a number of conditions, which result from a mismatch between the body's defence mechanisms and a foreign substance. The body believes that the substance is alien and responds with an 'Attack reaction' usually mediated through Histamine (vide). The basic disorder is an increased sensitivity of the immune system to something in the environment. In recent years there has been a significant increase in the reporting of allergic responses. So much so that there are now experts who deal solely with so-called allergic conditions.

These conditions include hay fever (sneezing), asthma, atopic dermatitis, eczema, irritable bowel syndrome; the common causes of allergies are dust, certain foods, insect bites, substances such as aspirin, penicillin, zinc etc.

Foods causing allergies include nuts, especially peanuts, Sugars such as Lactose, Eggs, Wheat, etc.

In the case of Lactose Intolerance, the symptoms are similar to irritable bowel syndrome but arise

from the absence of Lactase an enzyme normally present in the gut that metabolises Lactose. In its absence the sugar ferments and results in flatulence, flatus, cramps and diarrhoea. The condition is inherited and is widespread in the adult Japanese population hence the absence of milk products in adult diets.

In the West it can be acquired after taking broad-spectrum antibiotics that sterilise the bowel and inhibit the enzyme lactase. The condition recovers rapidly when milk products are stopped. Some believe that yoghurt a milk product without lactose evolved for that reason. It is produced by allowing the milk to ferment thus converting the lactose into lactic acid.

26. Arthritis

The word 'arthritis' literally means inflammation of a joint. It is used to describe any disorder of a synovial joint from infection to age-related changes

JOINTS

There are three types of joints in the human skeleton:

1. Synovial
- 2 Fibrous
- 3 Cartilaginous

Synovial joints are the ones that we recognise, the hip, the knee the finger joints etc. The adjacent articulating bones are lined by hyaline cartilage and enclosed in a joint membrane, Their stability is maintained by ligaments. They are lubricated by synovial fluid. Very little is needed as hyaline cartilage is more slippery than ice. Therefore

excess joint fluid represents an abnormality. Normal healthy joints have a thin layer of fluid between the bones.

Fibrous joints are lined by fibrous tissue and allow very little movement e.g. Skull sutures -the joints between the skull bones.

Cartilaginous joints are lined by hyaline or fibrous cartilage. They allow a little movement only - examples are the sacroiliac joints and the Intervertebral discs.

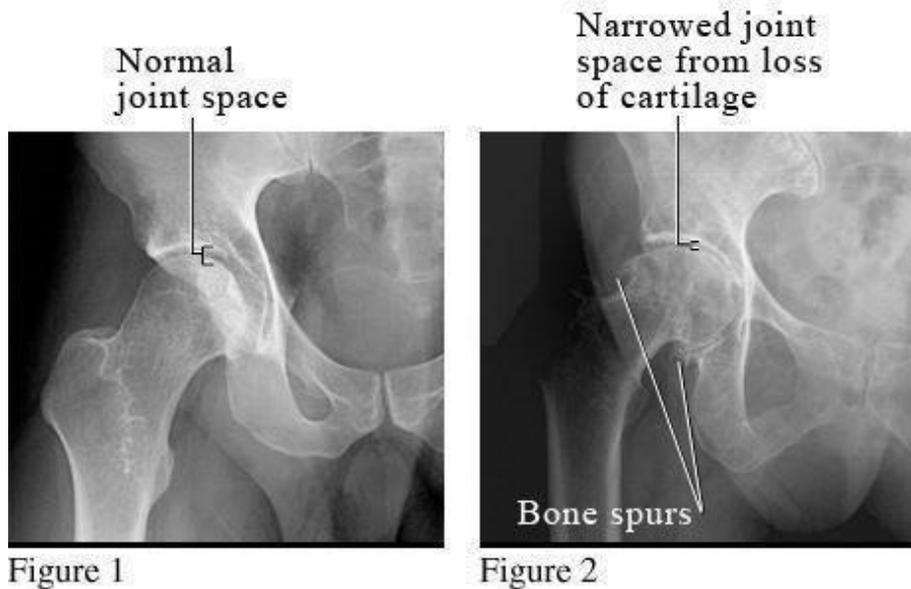
There are three main types of Arthritis:

- 1 Osteoarthritis
- 2 Septic Arthritis
- 3 Inflammatory Arthritis such as Rheumatoid Arthritis

1 Osteoarthritis is the commonest. It mainly affects the larger synovial joints, such as the knee and hip. It may be a consequence of injury or abnormal childhood development following such conditions as CDH, Perthes and Slipped Femoral epiphysis.

It presents with pain, swelling and impaired function such as limited movement, limp etc. The joint may appear deformed as in the knee and movements are painful and restricted.

X-rays show narrowing of the joint space, osteophytes (new bone formation) and cysts. Treatment is based on the degree of disability.



2 Septic Arthritis is an infection of a synovial joint commonly caused by a Staph. It occurs when the joint is penetrated by injury. The joints

commonly involved are the knee and the elbow, although any synovial joint can become infected. Treatment involves aspiration of the joint and identification of the infecting organisms and the introduction of the appropriate antibiotic. Occasional open drainage of the joint may be indicated.

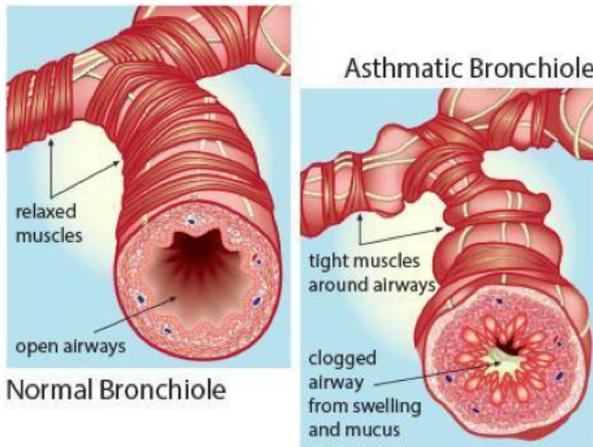
3 Inflammatory Arthritis is an inflammatory synovitis of the joint. There are many forms but the commonest is Rheumatoid Arthritis, less common is Psoriatic Arthropathy and Ankylosing Spondylitis. The causes are unknown but they seem to be related to some sort of autoimmunity that is a process whereby the body reacts against itself.

X-rays show thinning of the bone and narrowing of the joint.

Treatment is directed at combating the autoimmune reaction with anti-inflammatory drugs such as ibuprofen, Indomethacin and steroids.

27. Asthma

Asthma, a potentially debilitating condition is thought to be an allergic response. It presents as a



wheeze with shortness of breath. It occurs in attacks and can in rare cases be fatal. Like many allergic disorders it can be inherited and run in families or be acquired at any time from childhood onwards. The basic pathology is spasm of the muscles in the main air tubes (bronchi) leading to an expiratory obstruction, breathing in is fine, breathing out is difficult.

Asthma may be associated with eczema. Commonly when the asthma is bad the eczema is

better and vice versa. The outlook has been revolutionised by the use of Steroids. Simple measures to minimise dust by damp dusting, avoiding thick carpets and animals, The long haired varieties of cats and dogs are the ones to be avoided.

28. Athlete's Foot

This is a common unpleasant itching infection usually between the toes caused by a fungus. The skin is macerated and reddened and itchy. It is highly contagious and is usually caught by walking barefoot on a changing room floor use by many others.



Treatment is simple. Any anti-fungal preparation obtained from a pharmacy will cure it but it has a tendency to recur and as a result treatment must be continued for at least three- six months even when the lesions appear to be healed.

Avoid walking barefoot on the floor of changing rooms, showers etc and where possible wear a rubber-soled shoe.

29. Backache

The human spine is made up of 29 blocks of bone (vertebrae) of which 24 are separated in front by shock absorbers called discs, and behind by small joints. The last five segments are fused together forming the sacrum..

The spinal canal runs down the spine and contains the spinal cord, which starts at the brain, and sends nerves fanning out to all parts of the body.



Back Strain

Backache and neck ache are common symptoms and occur mainly in the flexible parts of the spine namely the neck (cervical) and the Lumbar (lower regions). It usually presents during the active years from 20 to fifty after which it is less common. It is caused by misuse, as a result of repeated heavy lifting or twisting. It is commoner in certain occupations such as builders, gardeners, miners etc. The pain is intermittent but can be disabling.

While doctors prescribe many treatments including painkillers and rest, the only long-term cure is to change one's job where possible.

Serious causes of back pain and leg pain are uncommon. They are characterised by constant pain unrelated to activity and not relieved by rest. Such pain needs a specialist opinion.

30. Birthmarks and moles

The skin is the largest organ in the body weighing up 8-10 lbs. and covering about 20 sq. feet. It varies in colour from pale pink to dark brown. It often has small blemishes.



Moles-dark pigmented lesions or birthmarks usually brown and flat. Most of these are harmless.



Excess sunlight can convert a harmless mole into a dangerous melanoma. The mole enlarges, often bleeds and the colouring extends beyond the margin. With the increasing practice of holidays abroad where the sunlight is much stronger these conditions become more frequent



We can prevent them from harming us by taking simple measures. Although sunlight is essential for

health and the production of Vitamin D needed by the skeleton. Too much sun can be dangerous.

We should avoid the sun between the hours of 10am and 2pm, always wear a broad brimmed hat and use a sun block 30% or more. Fair skinned people and young children are most at danger. The sun is stronger near the beach and water which reflects the ultraviolet light.

WARNING: If a mole begins to enlarge, bleeds or spreads into the neighbouring skin see a skin doctor as soon as possible.

31. Blocked Nose

The normal nose has two chambers separated by a midline septum. The septum can deviate to one side as a natural or acquired condition and can block that side. More commonly the nose is blocked due to a cold (virus infection.) This causes the lining mucosal cells to swell and narrow the passageway. Inability to breathe through your nose is uncomfortable but not serious and soon recovers as the cold improves. Preparations containing ephedrine cause the mucosa to shrink and can free the blockage. Their overuse can lead to damage to the delicate tissues.

32. Breast-feeding

There has been an enormous amount of publicity stressing the importance of breastfeeding. This is especially important in developing countries where clean water is in short supply. Breast milk provides the newborn with everything it needs for the first three- six months. In particular it contains important antibodies to protect the young one against infection. Ideally it should be continued for at least a year or longer if possible.

The only precaution is to wash the nipple before feeds and for the mother to maintain a higher than usual fluid intake. It is recommended to drink 6-8 glasses of water a day and more in warm climates. A good test is: you are drinking enough if you are peeing every 3-4 hours.

33. Bruises

We all occasionally knock ourselves and a bruise appears. This is caused by the rupture of small blood vessels in the skin. Initially the region is tender and swelling may appear. The skin will become reddish brown in colour. After a while the colour will change to blue or purple. Then it will

lighten gradually becoming paler. The colours represent the gradual breakdown of the haemoglobin in the blood as it is slowly absorbed and are normal. They are not a cause for concern. If you bruise your shoulder, you will see that the bruise is subject to gravity and will slowly move down the arm. This is normal and is not a reason to worry. A bruise requires no treatment.

34. Burns

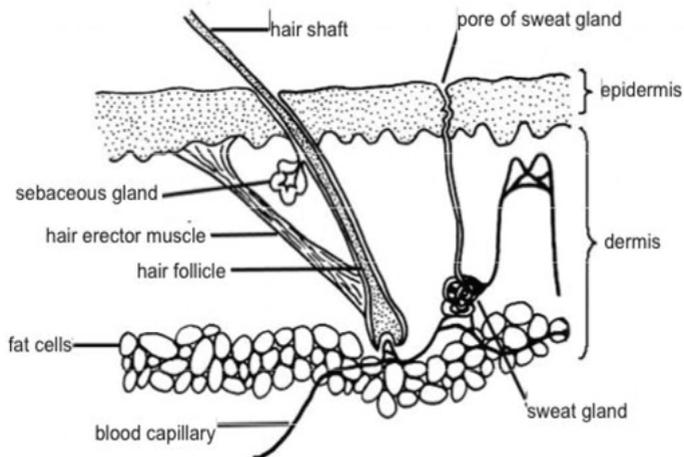


Diagram © body anatomy 101.com

The skin consist of two main layers the epidermis and the dermis. It is a dynamic structure and is continually replaced. When the skin is burnt, one or more layers are damaged..

Burns are classified by degrees.

First Degree is reddening
 Second Degree is blistering and

Third Degree is white and dead looking

We can determine the ability to heal itself by its appearance. If it is reddened and blistered it is a 1st or 2nd burn and can heal itself. If the burnt area is white or black it is 3rd degree or full thickness and will need medical attention.

The immediate treatment of a burn is to submerge the area under cold running water and the sooner the better. Continue the bathing until the stinging has stopped- up to 5-10 minutes then examine the area. If superficial, leave exposed unless it is an area normally covered by clothes in which case a non adhesive dressing is applied. Avoid creams and lotions as they can delay healing. Try to avoid bursting blisters as they protect the damaged area. Small full thickness burns can heal on their own but large areas need specialist attention which may include surgical removal of the burnt area and replacing it with a skin graft.

35. Cancer



Cancer is the major scourge of modern living. It is one of the common causes of death and can occur in almost all the tissues of the body. It can be thought of as a failure of cells to cease growing when they go through the normal process of replacing themselves. Normally when a cell comes to the end of its life, it produces new cells to replace it. If these new cells do not cease growing they become what we call a cancer.

The process of this uncontrolled growth is unclear but we know it can be produced by external

agents such as smoking, (22%), industrial chemicals and infections such as Hepatitis B and C of which 5-10% are inherited. The emphasis of treatment is early detection through screening followed by Chemotherapy, Radiotherapy and Surgery. Recently new methods involving gene therapy are showing promise. This process involves inserting a gene into the cancer cell that will destroy it.

36. Constipation

Constipation is a not uncommon symptom characterized by hard infrequent stools. Defaecation becomes difficult and may be associated with bleeding from a tear of the skin around the anus. Constipation is usually associated with dehydration. The contents of the bowel are fluid until it reaches the large intestine where absorption of water results in the normal stool. If due to insufficient fluid intake or excessive sweating, the body is dehydrated, the large bowel will respond by absorbing extra fluid leaving the motion heavy and dry. A high fibre diet can be helpful as are various preparations such as Dulcolax, which hold water and keep the motion soft.

Be aware however that a change in bowel habit such as recent constipation can indicate a more serious cause and should be discussed with your doctor.

37. Cough

A cough is a spontaneous ejection of air from the lungs. It is part of the normal way in which the lungs get rid of harmful particles that have entered. The linings of the air tubes (bronchi) are covered with fine hair-like projections called cilia which are sensitive and if stimulated activate the cough reflex.

Cough mixtures are of two types

1 To make coughing easier by loosening the phlegm (the mucus that lines the tubes and which becomes thick and sticky in the presence of infection with a virus or bacteria)

2 To suppress the cough- this type should only be used at night if the cough is disturbing sleep and not during the day when you want to expel any phlegm.

38. Cramp

Cramp is a sudden involuntary contraction of a muscle usually the calf but may involve the hamstrings or may affect any muscle. It commonly occurs at night and may wake the person. It often follows unaccustomed exercise or when dehydrated. Some authorities believe it is due to salt depletion. Others recommend Quinine.

The quinine story is an interesting one. In the past Quinine an extract from the bark of a tree was the only treatment for Malaria a disease caused by a parasite injected through the bite of a mosquito. One of the symptoms of Malaria is cramp. Over time people began to believe that quinine would treat cramp- it's known as an 'Old wive's tale" and this myth has continues. Hence quinine in Tonic water, the other ingredient in a 'Gin and T.'

39. Cuts

We all occasionally cut ourselves. When this occurs the wound will bleed. Wash it in running water and then apply pressure. If possible raise the part above the heart. After 4-5 minutes the bleeding will stop and then you can examine the wound. If the edges are together simply put on a plaster or a bandage to protect it. Keep it dry for about 48 hours after which time the wound will have sealed itself. If the edges are separated and can be gently brought together then take a strip of a plaster dressing and place it across the line of the wound drawing the two sides together. Clean cuts require no antiseptic or antibiotic. Avoid the use of creams as they may delay healing.

If more severe and deeper, the wound may need to be treated by a doctor/surgeon

We all occasionally cut ourselves. When this occurs the wound will bleed. Wash it in running.

40. Dandruff

41. Dehydration

Dehydration is a common often unrecognised disorder particularly in hot climates where it may have very serious consequences. This is particularly so in the young child under 2 years of age. Her small body is easily dehydrated and she will not show any outward signs unless they are looked for. These include lethargy, a dry nappy, dry lips, sunken eyes and loose skin. These are late signs and the child needs to be dehydrated urgently.

If the child is not vomiting and can take water by mouth, it should be given in small amounts until the child begins to pass urine. This will be dark at first but will become lighter as the hydration is completed.

Unfortunately dehydration is often associated with vomiting and diarrhoea. (See specific section) This is a very serious combination and urgent

medical attention is required. The hospital doctor will set up an IV and rehydrate the child. The child may have to stay in hospital for a day or so until the condition is stabilised.

42. Diabetes

In the healthy body the correct level of glucose (sugar) in the blood is maintained despite a variable intake of carbohydrates. This is achieved by producing Insulin, which traps the excess sugar in the liver. In Diabetes the body is unable to produce Insulin or does not produce enough to control the blood sugar. Diabetes is thus a disorder of sugar metabolism.

There are two main types:

1 Type I is Inherited. It is a failure to produce Insulin.

2 Type II is acquired and is a condition in which the body does not produce enough Insulin to maintain the optimal blood sugar, often caused by

excessive intake of carbohydrates over a long period.

Symptoms

1. Thirst
2. Frequency of micturition including nocturia.
3. Weight loss despite hunger and a good food intake.
4. Frequent infections- boils, sties, abscesses etc

Findings

- 1 Raised Blood glucose
2. Ketosis- a sweet smelling breath

Investigations

Analysis of the urine for sugar
Fasting Blood sugar taken after overnight starving.

Treatment

This is a lifelong process and needs to be supervised by a specialist Diabetic clinic

43. Diarrhoea and Vomiting

Diarrhoea may occur on its own or be associated with vomiting. It is a serious disorder particularly in children between the ages of 6 months and 2 years in whom the Rotovirus is the commonest cause. Although it is a self limiting disease, it is particularly serious in tropical countries where severe dehydration if untreated rapidly leads to death. When available vaccination is recommended and given in two doses at 2 and 3 months of age.

In the older age and in adults, Diarrhoea and Vomiting is usually due to food poisoning. It is a self limiting condition and responds well to rehydration. Occasional medicine such as Loperamide an anti-spasmodic may be required. Patients with other condition such as renal or cardiac complaints may take longer to recover. Care in food preparation, hand washing and good hygiene will minimise its incidence.

44. Dietary Supplements

We are all familiar with the importance of eating a balanced diet of proteins, carbohydrates, fats, vitamins and trace elements. So it is tempting to believe the plethora of advertisements encouraging us to take supplements. These are essential substances that are said to be absent from the processed food that many of us eat. The Adverts create an atmosphere of fear warning us that our health will be compromised if we do not add daily supplements to our diet. The success of these fear tactics can be seen by the enormous amount of these items that we buy.

But what is the evidence? It is based on the sound knowledge that we need these substances but then makes the unsubstantiated assumption that they are lacking in the modern diet. The companies protect themselves by exclusions

clauses in their advertising material carefully stating in in very small print that there is no scientific evidence for their claims.

The FDA states:-

that Dietary supplements are NOT intended to treat, diagnose, cure or alleviate the effects of disease.

Using Supplements improperly can be harmful.

Some supplements can have unwanted effects before during and after surgery.

45. Eczema

Eczema is a disorder of the skin associated with itching causing the sufferer to scratch leaving the skin inflamed, reddened, and the surface broken. It occurs principally at skin crease such as behind the knee and the front of the elbow. When severe the skin may weep as the disorder is associated with an increased collection of serum under the surface.

Treatment.

The liberal use of moisturisers together with a high fluid intake is recommended. Secondary infection may occur. In severe case topical steroids may be required.

Prevention

Sufferers should avoid house dust, thick carpets and man made fibres. Long-haired domestic animals may aggravate the condition. Some foods such as nuts may aggravate it.

46. Haemorrhoids or Piles

There are two types, Internal and External

They occur at the anus or back passage, which is the end of the alimentary canal. It is protected by a sphincter - circular muscle to prevent leakage and it is liberally supplied with blood vessels. The wall has three large veins, which drain blood from the area.

47. Heel Pain

Heel pain is also called calcaneal bursitis. It is a pain felt under the heel on weight bearing. Its cause is unknown. Occasionally it comes on after heavy landing on the heel. It is thought to be due to inflammation of the tissues. It can be quite severe but tends to be self limiting and recovers after 3-6 months. It may occur alone or in association with other joint problems



Treatment: A soft foam pad inset in the heel of the shoe can be very helpful in relieving the pain. Occasionally surgery is required.

48. Hypertension

Hypertension or High Blood Pressure is a disorder that can have very serious consequences, including an increased risk of heart attack and stroke. In most cases the cause is unknown.

Blood pressure is recorded by two numbers the systolic and the diastolic.

The Systolic measures the pressure in the arteries resulting from the contraction of the left ventricle of the heart.

The Diastolic represents the pressure produced by the recoil of the walls of the main arteries reflecting their elasticity.

The normal range is 120/70, which rises with age to 140/90. It is measured in mmHg of Mercury. If it is above that, you have a greater chance of having a heart attack or stroke.

The good news is that you can reduce your BP by simple measures.

1. Reduce the salt in your diet,
2. Eat healthily,
3. Take regular exercise,

4. Reduce alcohol intake,
5. Maintain your optimum weight.

If despite these measures the BP remains high, medication may be required.

49. Indigestion

Indigestion is a disorder of digestion in the upper bowel- the stomach or duodenum (the next part of the bowel). It is a pain of variable severity felt in the middle of the abdomen below the ribcage. It usually comes on after food and is relieved by alkalis such as milk or antacids (medicines that neutralise the stomach acid). It is aggravated by spicy foods such as chilli and curries.

It is sometimes a symptom of stress, a condition that is associated with excessive production of gastric acid in the stomach.

50. Ingrowing Toenail

Ingrowing Toenail (IGTN) refers to a painful condition usually affecting the big toe in which the nail grows into the side of the toe causing infection.



The condition occurs more commonly in deeply set nails. It can be prevented by always cutting the nail transversely and not curved. Once present it usually requires resection of the side of the nail to allow the infection to heal. When healed, the

growing nail must be prevented from growing into the tissues otherwise the condition will recur.

51. Insect Bites

There are a wide range of insect bites each causing a different symptom and requiring different treatment. The summary under References is useful in helping the sufferer to identify and solve the problem.

52. Mouth Ulcers

Mouth ulcers are painful round or oval breaks in the mucosa of the mouth They are caused by trauma such as accidentally biting the inside of the cheek. They are harmless and heal quickly if strong spices are avoided.

53. Obesity

In primitive times when man lived in caves and hunted wild animals, he would often go for days without eating. In order to protect his system nature developed a material called fat which could be stored when food was available and mobilised and converted into energy when food was absent.

Modern man is no longer faced with the absence of food so the need to store fat no longer exists. On the contrary for most people food is available in excess and so the modern disease of Obesity has developed. Simply put it is the tendency to lay down fat when food intake is excessive and not balanced by energy output.

Briefly a sedentary male aged 30 needs 2400 Calories per day and up to 3000 if active. Females need 25% less on average. Intake lessens with age.

Regular intake above this will lead to the storage of fat which is laid down under the skin, around the heart and intestines and within blood vessels. It is associated with an increased incidence of Type 2 Diabetes, heart disease and stroke.

54. Pain

Pain is a complex symptom, which is believed to have evolved to protect us from injury. It should not be seen as an enemy but rather as an ally guiding us through the battlefield of life. It is felt as a different sensation depending on the tissue involved and the type of receptor stimulated. Thus a pinprick is sharp and well localised unlike a burn, which is diffuse and burning. Bowel pain is dull and ill localised. Renal colic pain is severe and intermittent.

55. Red Eye

Red eye or conjunctivitis is an inflammation of the conjunctiva- the lining layers of the eye. It is usually one sided and is caused by accidental rubbing of the eye or by a foreign body such as a fleck of dust which injures the tissue. It is usually painless and is often noticed by others . Eye drops containing an antibiotic are instilled



There is an easy way to put eye drops into the eye. In front of a mirror gently pull the lower lid down until there is a space, then drop the liquid into that space.

56. Sore Throat

The throat is the passage at the back of the mouth bounded by the palate above, the tongue below and the tonsillar area on each side.

Inflammation of the throat is usually due to a virus or a bacillus and is felt as soreness, difficulty in swallowing and a feeling of unwell.

When examined the throat looks red and in a child the tonsil may be inflamed and small beads of white fluid (pus) may be seen.

In children the tonsils can be seen as oval pitted almond shaped tissues on either side of the throat. As adulthood is reached the tonsil withers and is no longer a visible structure.

Treatment depends of the severity of the symptoms. If the patient is otherwise well, a simple gargle with salt water is soothing. If

the patient is ill with a temperature, an antibiotic such as penicillin may be required

57. Vaginitis

Itching of the vagina is a common symptom due to infections such as Monilia

-a yeast and Trichomonas-a protozoa . They are usually sexually transmitted'

Monilia is recognised by a white cheesy discharge whereas Trichomonas appears as a bubbly fluid with a fishy smell.

Specific treatment for each can be obtained at the pharmacy.

58. Writer's Cramp

This is an unusual but debilitating condition usually affecting the dominant hand. The Index and middle fingers go into spasm drawing them down towards the palm and interfering with grip. The cause is unknown

A variety of physical treatments including

stretching, ultrasound etc. has been ineffective.

If the condition interferes with writing change the position of your pencil or pen. Move it from between your thumb and index fingers to your index and middle. This simple measure usually resolves the problem.

SECTION FOUR: Management

59. Analgesics

Pain is a protective symptom that warns us that something is wrong. Endorphins are the body's natural painkillers that are activated by exercise. They are chemicals that are released during exercise and suppress the feeling of pain centrally.

The underlying principle of using painkillers is to suppress the pain until the condition has healed. Their indiscriminate use however may prolong a condition by impeding healing.

Painkillers are chemicals that reduce the severity of pain. They are classified as Mild, Moderate and Strong. The latter should only be prescribed by a doctor and should not be but are in some countries available over the counter. Most medicines have two names. The one originally chosen by the originator and the second or generic developed by drug manufacturers after the original patent has run out.

Examples of mild painkillers include Aspirin (Acetyl Salicylate), Panadol (Paracetamol) and (Brufen) ibuprofen. Each has its good and bad side.

Moderate Analgesics include Diclofenac, Codeine

Strong analgesic mainly belong to the opiate family and include Pethidine, Morphine and Cocaine- all of which are strongly addictive if used in excess.

60. Antibiotics

The miracle of Antibiotics began in 1929 in a laboratory at St Mary's Hospital London. Alexander Fleming a researcher noticed and reported that a mould called *Penicillium Notatum* was killing a culture of bacteria that he was studying. But it was left to Florey and Chain at Oxford ten years later to extract the active ingredient and to show that it was safe in humans and could kill bacteria causing human infection. It was the year before the Second World War and its development saved countless lives.

Since then there has been a search for newer and stronger agents to combat infection. But nature never gives up easily so that with the newer

antibiotics came resistant bacteria. Antibiotic resistant diseases are now the scourges of the medical profession. What we have learned is that the indiscriminate prescribing of antibiotics has led to a progressive inability to combat serious infections and today patients are dying from these agents.

The answer is to restrict the use of Antibiotics to those conditions where nothing else will work so that sore throats, colds, minor skin infection and many other conditions should not be treated with them. Over the counter prescribing of antibiotics has been a major factor in accelerating this problem.

61. Prevention

a) Accidents

Almost all the incidents that are labelled accidents are avoidable.

In 2015, 1700 people were killed and 22 ,000 were injured on the roads in the UK.

During the same time, home accidents caused 6000 deaths of which 62 were children.

Two million children were injured seriously enough to attend A&E depts. of which 75000 were admitted to hospital.

Every day 13 children are burned or scalded.

The cost of these home injuries is £45 billion

During the same period 142 died as a result of work related accidents and 610 thousand self-reported work related injuries resulting in almost 5 million working days lost

The overall cost to the industry was £2.8 billion

b) Illnesses

In 2015 there were 530 thousand deaths due to the following:

Heart Disease and Stroke, Cancer, Dementia, Diabetes, Lung Disease

Many of these can be prevented by individual lifestyle and public programmes of clean air, clean water, safety belts, road safety etc

62. LBK (*Let Bugger Knit*)

Most older Orthopaedic surgeons from the UK will be familiar with this phrase. The occasion when it was first used was on a Grand Round conducted by the late Sir Frank Holdsworth a fiery Yorkshireman at St James' Hospital Leeds sometime in the 1970's.

The medical staff had assembled in their white coats when Sir Frank in a smart dark suit entered the ward. The Ward Sister in her starched uniform greeted him. The tradition was to visit each patient and discuss his or her management. The most junior doctor present would be asked to open the discussion.

The patient was a middle-aged man with an ununited fracture of the leg (Tibia).

Sir Frank began to ask each doctor in turn what treatment he would recommend.

The first doctor suggested 'Bone grafting'.

The second, 'Apply a Plaster cast and wait'

The third suggested 'Plate and screws'.

The fourth suggested 'Internal rodding.'

The fifth suggested 'External fixator and so on.'

As the successive opinions were voiced the patient became increasingly agitated. Suddenly he put up his hand and said,

‘Sir Frank, may I say something?’

‘Yes of course,’ replied Sir Frank. ‘What would you like to say?’

In a broad Yorkshire accent the patient turned to the assembled doctors and said,

‘*LET BUGGER KNIT*’ which translated means, LEAVE IT ALONE TO HEAL ON ITS OWN.

That phrase has become part of the folklore of Orthopaedic surgery.

It could be paraphrased as *-when in doubt trust nature.*

That wisdom is the message that this book conveys.

GLOSSARY

WORD	MEANING
Bacteria	Single celled micro-organisms
Callus	Primitive bone laid down at the site of a fracture, later to be remodelled
Cartilage	a tissue consisting of bundles of collagen fibres
Collagen	Specialised complex of amino

	acids forming fibrils
Bone grafting	a surgical operation to help a fracture to heal
Catalyst	A chemical that speeds up a reaction but remains unchanged
Cauda Equina	Leash of nerves arising from the lower end of the cord
Central Nervous System (CNS)	The complex system of nerve cells which control the body
Cell (Latin = small room)	It is the basic structural, functional, and biological unit of all known living organisms. They are the smallest unit of life that can replicate independently and are often called the building blocks of life
Chemotherapy	Treatment using chemicals to kill unwanted cells eg Cancer
Chromosomes	Thread like structures inside the nucleus of the cell consisting of a protein and a single molecule of DNA
DNA	A single molecule of Deoxyribonucleic acid contains unique instructions for each living creature
Enzyme	Biological chemicals that act as catalysts
Eschar	Scab -dead skin cells and

	clotted blood skin covering a healing wound
Fibrin	A protein constituent of the clot
Foetus	Prenatal being
Granulocytes	Little sacs containing enzymes that digest microorganisms
Haemostasis	The process/es causing bleeding to stop
Haematoma	Collection of blood lying in the tissues
Hepatitis	Inflammation of the Liver
Inflammation	A process in a tissue in which cells collect to combat infection
Intervertebral disc	The shock absorbers situated between each vertebra
Leucocyte	A white cell
Monocyte	Mononuclear white cell
Neurone	Nerve cell found in the brain and spinal cord
Neutrophil	A type of white blood cell, a granulocyte that is filled with microscopic granules,.
Osmoreceptors	Cells which are sensitive to changes in the body fluid's concentration
Oxygen	A gas in the inspired air which is used by the body to

	produce energy
Platelets	Small non nuclear cells found in the blood they number 150,000-300,00 per ml of blood
Pluri-potential	The potential to become any cell
Radiotherapy	Treatment using radioactive rays to kill unwanted cells eg cancer
Psyche	The mind
RBC's	Red Blood cells that carry oxygen in the blood
Sino-atrial node	Site on the surface of the Right Atrium from which the contraction of the heart begins
Stroke	Weakness or paralysis of one side of the body due to a cerebrovascular episode
Thrombin	A complex protein in the blood
Tibia	The main bone in the lower leg
Vertebra	The blocks of bone that comprises the spine in a mammalian
Virus	A virus is a small infectious agent that replicates only inside the living cell

Zygote	The basic cell from which all animals develop
--------	---

RESOURCES

Body Organ measurements	http://www.adducation.info/mankind-nature-general-knowledge/human-organs/
Burns	http://www.healthline.com/health/burns#Overview
Calorie Requirements	http://www.cnpp.usda.gov/sites/default/files/usda_food_patterns/EstimatedCalorieNeedsPerDayTable.pdf
Drugs from Plants	http://www.rain-tree.com/plantdrugs.htm#.Vs1KGIx96a
Height Loss	http://radiopaedia.org/articles/intervertebral-disc

Insect Bites	http://www.nhs.uk/conditions/Bites-insect/Pages/Introduction.aspx
Internal Constancy	http://www.universalis.fr/encyclopedie/claude-bernard-concept-de-milieu-interieur/#
Natural Medicine	http://naturaldatabase.therapeuticresearch.com/home.aspx?cs=&s=ND
Pain	https://www.ucl.ac.uk/anaesthesia/StudentsandTrainees/PainPathwaysIntroduction
Painkillers	http://www.medicine.ox.ac.uk/bandolier/booth/painpag/acutrev/analgesics/leagtab.html
Scientific Method	https://en.wikipedia.org/wiki/Scientific_method
Supplements	http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm050803.htm
Uk National Health Services	http://www.nhs.uk