

# Black's Medical Dictionary

Edited by G. Macpherson

Well-established, authoritative dictionary which is widely respected in the field of medicine.

Comprehensive cover of medical terms, concepts and subjects.

Extensively revised edition incorporating changes in the medical world.

37th edition

**BLACK'S  
MEDICAL  
DICTIONARY**

**Edited by Gordon Macpherson, MB, BS**

Thirty-seventh edition

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## PREFACE

*Black's Medical Dictionary* defines and explains over 5,000 terms relevant to medicine. Many aspects of anatomy, physiology, pathology, and therapeutics are explained, and the volume should prove helpful to anyone whose work or interests are part of or impinge on medical care.

For this, the 37th edition of a book first published in 1906, over 600 new entries have been prepared. In addition, around 350 existing entries have been revised, many with the help of nearly a score of distinguished experts. An appendix summarizing first-aid care has been added. While the dictionary gives an indication of the uses of various groups of drugs, it does not attempt to provide comprehensive lists or accounts of the many pharmaceutical products now available for treatment. Where specific drugs are mentioned the generic or official name is used as given in the *British Pharmacopoeia*.

I am very grateful to the following experts who have contributed to this edition: L. Beeley, FRCP; D. Blair-Fish, PhD; Professor A. W. Craft, FRCP; L. Dillner, FRCS; F. Eben, MRCOG; J. C. W. Edwards, MRCP; R. Goulding, FRCP; S. T. Green, MRCP; P. Groves, MRCPsych.; J. M. Harrington, FRCP; G. Jackson, FRCP; A. Owers, PhD; R. C. L. Page, MRCP; D. Parker, MRCP; C. G. A. Price, MRCP; P. J. Rees, FRCP; S. Rees, MB; H. M. Saxton, FRCR; and I. R. C. Swann, FRCS.

I am particularly indebted to Dr Stella Lowry and Dr Michael Weisz for their considerable and patient help in preparing new entries and revising existing ones.

Although extensively revised, the purpose of the dictionary remains the same: to provide a concise and understandable text on medicine's many aspects.

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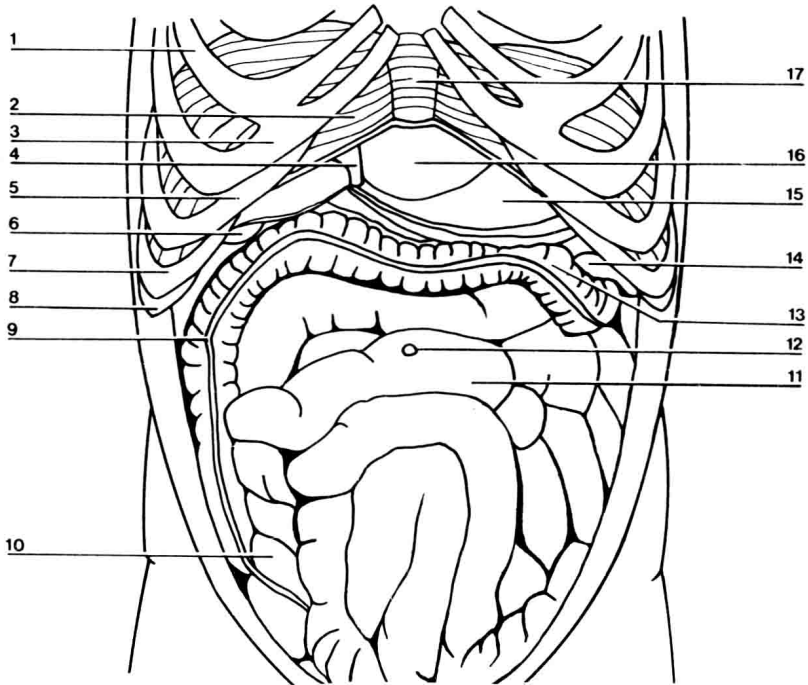
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## A

**ABDOMEN** is the lower part of the trunk. Above, and separated from it by the diaphragm or midriff, lies the thorax or chest, and below lies the pelvis, or basin, generally described as a separate cavity though directly continuous with that of the abdomen. Behind lie the spinal column and lower ribs which come within a few inches of the iliac or haunch bones; at the sides the protection afforded to the contained organs by the iliac bones and down-sloping ribs is still more effective; but in front the whole extent is protected only by soft tissues. The latter consist of the skin, a varying amount of fat, three layers of broad, flat muscle, another layer of fat, and finally the smooth, thin peritoneum which lines the whole cavity. The absence of rigidity allows the necessary distension when food is taken into the stomach, and the various important movements of the organs associated with digestion. The shape of the abdomen varies; in children it may protrude considerably, though if this is too marked it may indicate disease; in healthy young adults it should be either very slightly prominent or slightly indrawn, and should show the outline of the muscular layer,

especially of the pair of muscles running vertically (recti), which are divided into four or five sections by transverse lines; while with advance of age it is quite natural that a certain amount of fat should be deposited on and inside the abdomen.

**Contents:** The principal contents of the abdominal cavity are the digestive organs, i.e. the stomach and intestines, and the associated glands, the liver and pancreas. The position of the stomach is above and to the left when the individual is recumbent, but may be much lower in the erect position. The liver lies above and to the right, lying to a large extent under cover of the ribs, and occupying the hollow of the diaphragm, by which alone both it and the stomach are separated from the lungs and heart. Against the back wall on either side lie the kidneys, protected also to a great extent by the last two ribs; and from the kidneys run the ureters, or urinary ducts, down along the back wall to the bladder in the pelvis. The pancreas lies across the spine between the kidneys, and upon the upper end of each kidney lies a suprarenal gland. High up on the left and partly behind the stomach lies the spleen. The great blood-vessels and nerves, the absorbent vessels and the glands connected with them, lie on the



- 1 6th costal cartilage
- 2 diaphragm
- 3 7th costal cartilage
- 4 falciform ligament
- 5 8th costal cartilage
- 6 gall bladder

- 7 9th costal cartilage
- 8 10th costal cartilage
- 9 right flexure of colon
- 10 caecum
- 11 small intestine
- 12 position of umbilicus

- 13 transverse colon
- 14 left flexure of colon
- 15 stomach
- 16 liver
- 17 xiphoid process

Contents of the abdomen in position.

back wall, and the remainder of the space is taken up by the intestines or bowels (see **INTESTINE**), the large intestine lying in the flanks on either side in front of the kidneys and crossing below the stomach from right to left, while the small intestine hangs from the back wall in coils which fill up the spaces between the other organs. Hanging down from the stomach in front of the bowels is the omentum, or apron, containing a considerable amount of fat, and helping to protect the bowels from cold and injury. In pregnancy the uterus, or womb, as it increases in size, rises up from the pelvis into the abdomen, lifting the coils of the small intestine above it.

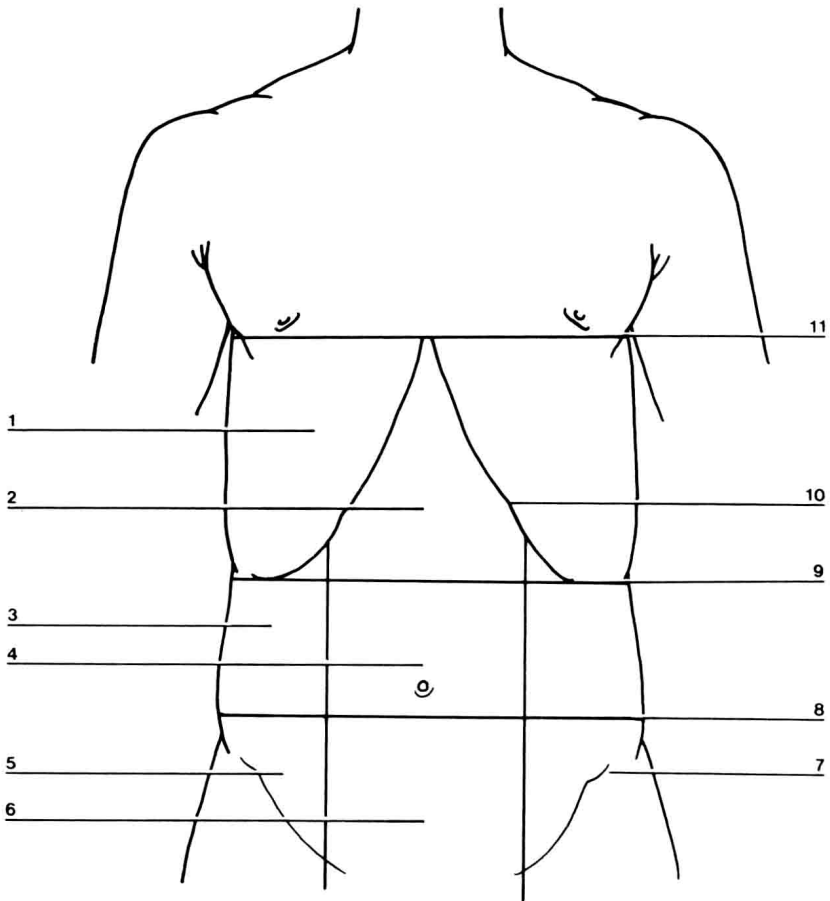
The *pelvis* is that portion of the abdomen which lies within the bony pelvis (see **BONE**), and contains the rectum or end part of the intestine,

the bladder, and, in the male the prostate, in the female the uterus, ovaries, and Fallopian tubes.

**ABDOMEN, DISEASES OF:** (See under **STOMACH, DISEASES OF; INTESTINE, DISEASES OF; DIARRHOEA; LIVER DISEASES; PANCREAS, DISEASES OF; KIDNEYS, DISEASES OF; BLADDER, DISEASES OF; HERNIA; PERITONITIS; APPENDICITIS; TUMOUR.**)

**Symptoms:** The symptoms of various diseases will be found under the above headings, and only some general symptoms of abdominal disease, or symptoms, the meaning of which is not plain, but which nevertheless point to trouble in definite organs, will be mentioned here.

**PAIN:** This is a most important symptom, because the internal organs being devoid of



- 1 hypochondriac region
- 2 epigastrium
- 3 lumbar region
- 4 umbilical region
- 5 iliac region
- 6 hypogastric region

- 7 anterior superior iliac spine
- 8 intertubercular plane
- 9 subcostal plane
- 10 tip of 9th costal cartilage
- 11 xiphisternal plane

Regions of the abdomen.

ordinary sensation, pain in them generally means a considerable interference with structure or function. The *site* of the pain may indicate the organ affected. Thus pain under the ribs on the left, or in the pit of the stomach, generally points to the stomach as being at fault. When it is felt on the right high up, and shoots through to the right shoulder, it indicates trouble connected with the liver or gall-bladder. Pain situated on the right, and low down in the iliac region, may arise from a diseased appendix. On the left, and low down, or at the exit of the bowel, it means some rectal trouble. Finally, pain situated vaguely all over the front of the abdomen, especially round the navel, points to inflammation of the peritoneal lining of the abdomen, or to irregularity in movement of the small intestine.

The *character* of the pain is also important. A dull, aching pain is not generally serious, though, if persistent, it may indicate chronic peritonitis or obstruction. (See PERITONITIS; and INTESTINE, DISEASES OF.) A twisting, griping pain is generally, e.g. in babies, due to spasmodic movements of the small intestine, often produced by errors in diet, and called colic. A straining pain with frequent calls to stool indicates irritation low down in the large bowel. The pains of stomach trouble are of varied nature. (See DYSPEPSIA.) Sudden, colicky, agonizing pain is often due to the passage of a gall-stone, if situated high up on the right, shooting through towards the back, or to the passage of a renal calculus, if shooting from the back down into the groin. Pain of a dull character slightly to the right of the pit of the stomach, especially when it is relieved by taking food, suggests some trouble in the duodenum.

TENDERNESS on pressure is generally a sign of inflammation either of an organ situated beneath the tender spot or of the peritoneum. (See APPENDICITIS; PERITONITIS.)

VOMITING is an important symptom. (See VOMITING.) When due to irritation of the stomach, it usually ceases as the contents of this organ are brought up. If it persists, it may be due to some obstruction in the bowels, or may be of nervous origin, e.g. in sea-sickness, or brain tumour, and have no direct connection with the abdomen.

DIARRHOEA is another important symptom, and may indicate serious trouble. (See DIARRHOEA.)

SWELLING of the abdomen may be so marked as to call the patient's attention to it. This may be due merely to excessive deposit of fat, especially in elderly people – for example, in women at the menopause. (See OBESITY; DIET.) Enlargement, of course, occurs in pregnancy. The abdomen in habitual constipation may become more distended, partly by accumulation of gas, or the enlargement may be due to chronic obstruction of the bowels. (See CONSTIPATION; and INTESTINE, DISEASES OF.) Finally, a collection of fluid may produce the swelling (see OEDEMA; LIVER DISEASES; HEART DISEASES; PERITONITIS), or it may be due to enlargement of a single organ. INDRAWING of the abdomen occurs in wasting diseases, and also to a marked extent in men-

ingitis. (See MENINGITIS.)

DISTENSION OF THE VEINS on the surface of the abdomen indicates some interference with the circulation in the portal vein or in the inferior vena cava.

VISIBLE MOVEMENTS are sometimes seen, due to the bowels or stomach being distended and contracting forcibly in the attempt to drive their contents onwards. They indicate (unless they are visible merely on account of extreme thinness of the abdominal wall) some obstruction in the bowel or stomach. (See PERISTALSIS.)

The differentiation of abdominal diseases is often one of the most difficult problems with which even an expert has to deal, and frequently it is only after a period of observation, lasting in difficult cases perhaps some weeks, that a diagnosis of approximate accuracy can be arrived at. This is partly due to the difficulty or impossibility of feeling the surface and dimensions of the contained organs, e.g. the kidneys, especially in stout people; partly to the vagueness of symptoms set up in organs which are very little sensitive to even extreme changes in their structure; and partly to the readiness with which the organs change their relative positions, and to the great changes in shape and position often brought about by previous disease.

**Treatment:** Details of treatment are given under the headings of the various diseases. On the whole, people are rather too much given to regarding abdominal symptoms as trivial and amenable to home treatment. In many cases incurable dyspepsia would have been got rid of in its early stages if its symptoms had not been neglected, and patients with acute obstruction of the bowels may die because a dose of castor oil was taken when a doctor should have been consulted. In this connection one may say that whenever the three symptoms of (a) abdominal pain, (b) vomiting or retching, and (c) stoppage of the bowels for a day or two, or stoppage followed by a little diarrhoea, have occurred together, the case demands skilled medical attention. If severe abdominal pain is directly traceable to some dietetic indiscretion, the offending material should be got rid of speedily by an emetic, if it is still in the stomach (see EMETICS); or by a purgative if the symptoms are referable to the bowels (see PURGATIVES). If the pain is griping in character, e.g. in babies, relief is often given by pressure; thus nurses often lay their charges stomach downwards across the arm, or adults get some relief by lying face downwards on a pillow. (See COLIC; LEAD-POISONING.) The application of heat, in the form of a hot-water bottle, may also give relief. When the pain is agonizing, stronger remedies are necessary. (See COLIC.)

**ABDUCENT NERVE** is the sixth nerve rising from the brain and controls the external rectus muscle of the eye, which turns the eye outwards. It is particularly liable to be paralysed in diseases of the nervous system, thus leading to an inward squint.



**ABDUCT** means to move a part of the body – for example, a limb – away from the mid line.

**ABLATION** means the removal of any part of the body by a surgical operation.

**ABORTIFACIENT** is a drug which causes artificial abortion.

**ABORTION** is defined as the expulsion of a fetus showing no signs of life before the 28th week of pregnancy.

**SPONTANEOUS ABORTION**, often called miscarriage, may occur at any time before 28 weeks, although it is commonest in the first 12 weeks of pregnancy. Of all diagnosed pregnancies 15–20 per cent end in spontaneous abortion.

The upper limit in the United Kingdom definition has recently been reduced to 24 weeks' gestation to take account of the fact that viability of a fetus is possible from 24 weeks' gestation onwards.

Spontaneous abortions occurring in early pregnancy (q.v.) are thought to be particularly associated with fetal defects such as chromosomal abnormalities. They have also been attributed to a lack of progesterone secretion during the developing pregnancy, abnormalities of the shape of the uterine cavity, and maternal disorders such as diabetes mellitus, thyroid disease and problems with the immune system. An incomplete response of the maternal immune system to pregnancy seems of particular importance in women who suffer recurrent miscarriages, defined as three or more spontaneous abortions.

Factors such as increased maternal age, a high number of previous pregnancies and smoking predispose to spontaneous abortion.

Ultrasound scans have altered the management of abortions. These make it possible to distinguish between threatened miscarriages, where the women have experienced some vaginal bleeding, but the fetus is alive; inevitable abortion, where the neck of the womb has started to open up; incomplete abortion, where part of the fetus or placenta is retained; and complete abortions. Whereas bed rest may be useful in treating threatened abortions, an inevitable or incomplete abortion will normally require the evacuation of the uterus and a complete miscarriage should require no treatment at all.

Evacuation of the uterus involves administering a general anaesthetic, gentle dilatation of the neck of the womb (cervix), and removal of the remaining products of the pregnancy.

Maternal factors are thought to account more often for late abortions. These include an inappropriately early opening of the neck of the womb (cervical incompetence), structural abnormalities and infections of the uterus.

Ultrasound scan is important to assess the condition of the intrauterine fetus. If the fetus appears normal uterine contractions may be suppressed with drugs.

In cases of cervical incompetence, it may be possible to close the cervical canal with a suture, which is removed at 38 weeks' gestation. **THERAPEUTIC ABORTION** Before this can take place, two doctors must agree that the continuation of the pregnancy would involve risk, greater than if the pregnancy were terminated, of injury to the physical or mental health of the mother or any existing child(ren). The new legislation introduced in 1990 states that at the time of abortion the pregnancy should not have exceeded the 24th week.

There is no time limit on therapeutic abortion where the termination is done to save the mother's life, there is substantial risk of serious fetal handicap, or of grave permanent injury to the health of the mother.

About 175,000 terminations are performed on residents in England and Wales, fewer than 500 were done over 20 weeks' gestation.

The mortality from therapeutic abortion is less than 1 per 100,000 women and, provided it is performed skilfully before 12 weeks of pregnancy, it is not associated with any reduction in fertility, increased rates of spontaneous abortion or preterm birth in subsequent pregnancies.

**Methods of abortion:** up to about 12 weeks into the pregnancy therapeutic abortion is performed by removing the contents of the uterus by suction under general anaesthetic after dilatation of the cervix.

In the future surgery may be avoided by using the drug mifepristone (RU 486), which causes abortion in about 85 per cent of cases.

Termination after 14 weeks usually requires induction of labourlike pains with **PROSTAGLANDINS** (q.v.).

**ABO SYSTEM** (see **BLOOD GROUPS**).

**ABRASION** means the rubbing off of the surface of the skin or of a mucous membrane due to some mechanical injury. Such injuries, though slight in themselves, are apt to allow entrance of dirt containing organisms and so to lead to an abscess or some severer form of inflammation.

**Treatment:** The most effective form of treatment consists in the thorough and immediate cleansing of the wound with soap and water. An antiseptic such as 1 per cent cetrimide can then be applied, and a sterile dry dressing.

**DENTAL ABRASION** is a form of trauma in which the teeth are worn away. This may be by bruxism or excessive use of the toothbrush, particularly if an abrasive toothpaste is used. It usually occurs at the junction of the crown and root of the tooth and is worst on the upper left teeth in a right-handed person.

**ABREACTION:** An emotional release caused by the recall of past unpleasant experiences. This is normally the result of psychoanalytical treatment in which psychotherapy, certain drugs,

or hypnosis are used to effect the abreaction. The technique is used in the treatment of anxiety, hysteria, or other neurotic states.

**ABRUPTIO PLACENTA** Placental bleeding after the 28th week of pregnancy which may result in complete or partial detachment of the placenta from the wall of the womb.

**ABSCESS** is a localized collection of pus. A minute abscess is known as a pustule (see PUSTULE), a diffused production of pus is known as cellulitis or erysipelas (see ERYSIPELAS). An abscess may be acute or chronic. An acute abscess is one which develops rapidly within the course of a few days or hours. It is characterized by a definite set of symptoms.

**Causes:** The direct cause is various bacteria. In a few cases the presence of foreign bodies, such as bullets or splinters, or contact with poisonous plants, such as poison ivy, may produce abscesses, but these foreign bodies may remain for life buried in the tissues without causing any trouble provided they are not contaminated with bacteria or other micro-organisms.

The micro-organisms most frequently found are *staphylococci*, and next to these *streptococci*, though the latter cause more virulent abscesses. Other abscess-forming organisms are *Pseudomonas pyocyanea* and *Escherichia coli*, which lives always in the bowels, and under certain conditions wanders into the surrounding tissues and produces abscesses.

The presence of micro-organisms is not sufficient to produce suppuration (see IMMUNITY; and INFECTION); streptococci can often be found on the skin and in the skin glands of perfectly healthy individuals. Given the proper micro-organisms in the tissues, whether they will produce abscesses or not depends upon the virulence of the organism at the time, and the resisting power of the individual. They enter the body generally by a wound, but may also come through the mucous membrane of the intestine; they may also pass through the mucous membranes of the nose, mouth, respiratory and urinary passages, and cause local abscesses, or even through the skin's minute lubricating glands.

When bacteria have gained access, for example, to a wound, they rapidly multiply, and, by the formation of poisonous substances, irritate the surrounding tissues, and so produce local dilatation of the blood-vessels, slowing of the blood-stream, and exudation of blood corpuscles and fluid. The leucocytes, or white corpuscles of the blood, collect around the invaded area, apparently under some attracting influence of the bacteria (chemotaxis), and destroy the latter either by actually devouring and digesting them (see PHAGOCYTOSIS), or by forming some substances which cause their death. These white corpuscles undergo a granular fatty degeneration, and in turn die, and form the white constituent of the pus (pus corpuscles). Meanwhile, the area where these changes

have been taking place has been cut off from communication with the rest of the body by plugging of the blood and lymphatic vessels around it. The tissues of the affected area die and are digested by the action of the white corpuscles, and the cavity so produced is distended by fluid and by the white corpuscles which flock to it in increasing numbers till all bacteria have disappeared. The abscess is shut off from healthy tissue by what is known as the abscess wall. The bacteria may find their way along a vessel to some little distance, where the same process takes place, and these secondary abscess cavities may coalesce with the original one.

**Symptoms:** The classic symptoms of inflammation are redness, warmth, swelling, pain and fever. When the cavity containing fluid has been formed, a sign, known as fluctuation, can be made out. The lymphatic glands in the neighbourhood may be swollen and tender in an attempt to stop the bacteria spreading to other parts of the body. Immediately the abscess is opened, or bursts, the pain disappears, the temperature falls rapidly to normal, the elasticity of the tissues around the cavity diminishes its bulk, and the healing of the small space left proceeds rapidly. If, however, the abscess discharges into an internal cavity, such as the bowel or bladder, it may heal very slowly, and the reabsorption of its poisonous products may cause general ill-health. When an abscess is deep-seated, an important sign for diagnosis is provided by examination of the blood. (See LEUCOCYTOSIS.)

**Treatment:** As soon as there is evidence that pus has formed, we can relieve pain, stop unnecessary destruction of tissue, and shorten the process by opening the abscess. Previous to this, an injection of penicillin, or some other antibiotic to which the causative micro-organism is sensitive, is given.

Abscesses can occur in any tissue in the body – for example, bones, brain, kidneys, lungs and appendix – but the principles of treatment are broadly the same: use of an antibiotic and, where appropriate, surgery.

A chronic abscess is one which takes weeks or months for its development. In some cases it is tuberculous, being caused by *Mycobacterium tuberculosis*, but other organisms such as the fungus actinomycosis or the staphylococcus bacteria may be the cause.

**ABSORPTION:** Uptake by the body tissues of fluids or other substances. For example, food is absorbed from the digestive tract into the blood and lymph systems.

**ABSTRACT:** This is a dry powder produced by extracting the active principles from a crude drug with strong alcohol, mixing with sugar of milk, and drying. Abstracts are standardized so as to be twice the strength of the crude drug.

**ACANTHOSIS NIGRICANS**, is a darkly pigmented verrucous skin change, usually around the neck and axilla. It may be inherited but is most commonly acquired and is associated with adenocarcinoma, usually of the stomach (see **CANCER**), and certain hormonal disorders such as the polycystic ovary (q.v.), Addison's disease (q.v.) and Cushing's syndrome (q.v.).

**ACARDIA**: The congenital absence of the heart.

**ACARUS**: The group of animal parasites which includes *Sarcoptes scabiei*, the cause of the skin disease known as Itch, or Scabies. This parasite used to be known as *Acarus scabiei*. (See **SCABIES**.)

**ACCIDENT PREVENTION IN THE HOME**: Every year 5,500 people are killed in accidents in British homes, a further 2.2 million need hospital treatment and 900,000 consult their GPs. Domestic accidents in England and Wales cost the health service about £300 million a year. Many of these accidents happen to children or old people, and many of them are preventable.

Children's accidents can often be predicted by their stage of development. Small babies are most at risk of being dropped or having hot drinks spilled on them. As they learn to roll, crawl, and walk they are at risk of falls. As they become more inquisitive they are prone to poisoning from medicines and household chemicals. Older children are at risk from road traffic accidents. Boys are twice as likely to have accidents as girls, and children from deprived backgrounds are at particular risk. Sensible precautions will prevent many accidents. Small babies should not be left unattended on raised surfaces, and manufacturers' instructions should be followed when using all nursery equipment. Hot drinks should not be consumed anywhere near a baby or where a small child is running about. Heavy and dangerous objects should be moved out of children's reach, and parents should remember that children are quite capable of using toys as 'mounting blocks' to reach high shelves. All medicines and chemicals should be locked up. Bath water should be run from the cold tap first to ensure that a child does not get into a scalding running bath, and no child should be left unattended in a bath. Windows, especially on upper floors, should be fitted with locks that restrict the amount by which they can be opened, and stairgates can prevent many falls. By law all children's nightwear must be flameproof, but this does not remove the need for fireguards and care with naked flames and matches. Further information about preventing children's accidents can be obtained from the Child Accident Prevention Trust, 28 Portland Place, London W1N 4DE (071-636 2545).

Old people may be frail and have impaired eyesight, hearing, and mobility that increase their risk of an accident. Special precautions,

similar to those for children, may be needed for people suffering from dementia, but more general rules include ensuring adequate lighting (especially on stairwells), removing unnecessary furniture and other obstacles from main thoroughfares in the home, removing loose mats from hard floors, and wearing well-fitting shoes. Specific help like walking aids, grab rails, and bath aids may help some people.

Many aspects of home safety apply to people of all ages. Domestic fires account for three-quarters of the deaths and injuries in fires in Britain. Wiring should be checked every five years, and electrical equipment should be installed and maintained according to the manufacturers' instructions. Architectural glass is a major health hazard. Toughened glass is best as it breaks into cuboid pieces. Such safety glass should be used for domestic glazing (at least at low levels). Further information about accidents at home can be obtained from the Royal Society for the Prevention of Accidents, Cannon House, The Priory, Queensway, Birmingham B4 6BS (021-200 2461).

Although many, if not all, accidents are potentially preventable, they continue to occur. Information on basic first aid can be found in **APPENDIX: BASIC FIRST AID**.

**ACCOMMODATION**: The process by which the refractive power of the lens of the eye is increased by constriction of the ciliary muscle, producing an increased thickness and curvature of the lens. Rays of light from an object further than 6 metres away are parallel on reaching the eye. These rays are brought to a focus on the retina mainly by the cornea. If the eye is now directed at an object closer than 6 metres away, the rays of light from this near object will be diverging by the time they reach the eye. In order to focus these diverging beams of light, the refracting power of the lens must increase. In other words the lens must accommodate.

With age the lens loses its elasticity and thus becomes less spherical when tension in the zonule relaxes. This results in an increased long

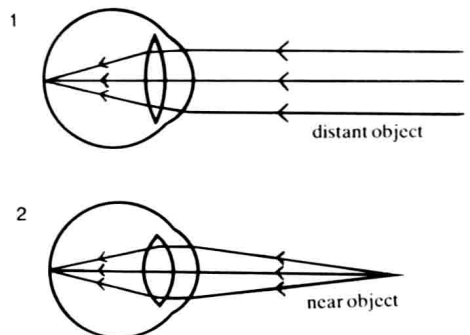


Diagram of eye in relaxed state (1) viewing a distant object and in an accommodated state;

(2) with increased convexity of the lens for viewing a near object.

sightedness with age (*presbyopia*) requiring reading glasses for correction. (See AGE, NATURAL CHANGES IN.)

**ACEBUTOLOL** (see ADRENERGIC RECEPTORS).

**ACETABULUM** is the cup-shaped socket on the pelvis in which rests the head of the femur or thigh-bone, the two forming the hip joint. (See HIP JOINT.)

**ACETAZOLAMIDE** is a drug which acts by inhibiting the enzyme carbonic anhydrase. This enzyme is of great importance in the production of acid and alkaline secretions in the body. Acetazolamide has proved of value in the treatment of glaucoma. There is some evidence that it is of value in the prevention of altitude sickness (q.v.).

**ACETIC ACID**, also called pyroligneous acid, is prepared by the distillation of wood and subsequent separation from tar. It is also synthesized from acetylene. In the pure form it is solid, being then known as glacial acetic acid. It is the active principle of vinegar, which is prepared from wine by the action of a particular ferment discovered by Pasteur. This grows on the surface of the vine, taking from the air oxygen which it gives up to the alcohol of the wine, so producing acetic acid. Weak acetic acid has all the actions of vinegar, and is less expensive. Strong acetic acid is a caustic and irritant poison.

**Uses:** In strong solution acetic acid is used to destroy warts or raise blisters. In cases of excessive sweating the weak acid is of value, because, sponged over the skin, it checks perspiration and produces a sense of coolness.

**ACETONE** is a chemical substance found in the urine in conditions of starvation, in diabetes mellitus, in prolonged vomiting, and in acute fevers – especially in children. With it occur in the urine beta-hydroxybutyric and acetoacetic acids, particularly in severe cases of diabetes. A large quantity of these acids and of acetone in the urine in diabetes indicates approaching coma. (See also ACIDOSIS.)

**ACETYLCHOLINE** is one of the substances which mediates the transmission of nerve impulses from one nerve to another, or from a nerve to the organ it acts on such as muscles. Its predominant role is in the parasympathetic nervous system (q.v.), but it also plays an important part in the transmission of nerve impulses in the brain. Acetylcholine is rapidly destroyed by cholinesterase, an enzyme present in the blood.

**ACETYLCYSTEINE** is a drug that is used in the treatment of fibrocystic disease of the pancreas (q.v.) and paracetamol poisoning (q.v.).

**ACETYLSALICYLIC ACID** (see ASPIRIN).

**ACHALASIA** is another term for spasm, but indicates not so much an active spasm of muscle as a failure to relax.

**ACHALASIA OF THE CARDIA** is a condition in which there is a failure to relax of the muscle fibres round the opening of the gullet, or oesophagus, into the stomach. (See OESOPHAGUS, DISEASES OF.)

**ACHILLES TENDON:** A thick tendon that joins the calf muscles to the heel bone (calcaneus) and pulls up that bone. Named after the mythical Greek hero Achilles, who was reputedly vulnerable to his enemies only in his heel, the tendon is prone to rupture in middle-aged people playing vigorous sports such as squash or tennis.

**ACHLORHYDRIA** means an absence of hydrochloric acid from the stomach juice; it occurs in about 4 per cent of healthy people and in several conditions, including pernicious anaemia, carcinoma of the stomach and gastritis.

**ACHONDROPLASIA** is a form of dwarfing in which the arms and legs are abnormally short. It is a dominant hereditary condition, and the commonest form of dwarfism. It affects both sexes and, whilst many are stillborn or die soon after birth, those who survive have normal intelligence and a normal expectation of life and good health.

**ACHYLIA GASTRICA** means the complete absence of ferments and of hydrochloric acid from the gastric juice; in this condition the food is passed from the stomach in a state of incomplete digestion.

**ACID BASE BALANCE:** The balance between the acid and alkaline elements present in the blood and body fluids. The normal hydrogen ion concentration of the plasma is a constant pH 7.4, and the lungs and kidneys have a crucial function in maintaining this figure. Changes in pH value will cause acidosis or alkalosis.

**ACIDOSIS** is a condition in which there is either (i) a production in the body of two abnormal acids – beta-hydroxybutyric and acetoacetic acids, or (ii) a diminution in the alkali reserve of the blood.

**Causes:** The condition is usually due to faulty metabolism of fat which results in the production of beta-hydroxybutyric and acetoacetic acids. It occurs in diabetes mellitus when this is either untreated or inadequately treated, starvation, persistent vomiting, and delayed anaesthetic vomiting. It also occurs in the terminal stages of glomerulonephritis when it is due to

failure of the kidneys. A milder form of it may occur in severe fevers, particularly in children. (See also ACETONE.)

**Symptoms:** General lassitude, vomiting, thirst, restlessness, and the presence of acetone in the urine form the earliest manifestations of the condition. In diabetes a state of coma may ensue and the disease end fatally.

**Treatment:** The underlying condition must always be treated: e.g. if the acidosis is due to diabetes mellitus insulin must be given. For the acidosis, alkalis should be given; e.g. bicarbonate of soda, either by mouth, or by injection if there is persistent vomiting or if the patient is unconscious. Glucose should also be given, and adequate fluids.

**ACINUS** is the name applied to each of the minute sacs of which secreting glands are composed, and which usually cluster round the branches of the gland-duct like grapes on their stem. (See GLANDS.)

**ACNE:** A skin complaint common in adolescence. It arises from sebaceous glands associated with hair follicles, especially on the face, chest, and neck. There is increased sebum production, with the development of black-heads. Proliferation of bacteria in the ducts of the sebaceous glands leads to inflammation. Adolescent acne usually clears with time. Topical treatment with benzoyl peroxide (q.v.) or salicylic acid may help. Vitamin A creams and ultraviolet light are sometimes useful, and severe cases may benefit from oral antibiotics such as oxytetracycline. Very severe acne may respond to a three-month course of 13-cis-retinoic acid, but this is teratogenic and can cause liver problems. It can only be prescribed in hospital.

**ACNE ROSACEA** (see ROSACEA).

**ACOUSTIC NEUROMA:** A slowly growing benign tumour in the auditory canal arising from the acoustic cranial nerve. The neuroma may cause facial numbness, hearing loss, unsteady balance, headache, and tinnitus. It can usually be removed surgically.

**ACRIFLAVINE** is an aniline derivative. It is an orange-red crystalline powder, readily soluble in water, which gives a rich yellow colour to substances brought into contact with it, and in a solution of 1 in 1000 of water, possesses strong antiseptic powers.

**ACROCYANOSIS** is a condition, occurring especially in young women, in which there is persistent blueness of hands, feet, nose and ears.

**ACRODYNIA** (see ERYTHROEDEMA).

**ACROMEGALY** is a disorder caused by the increased secretion of growth hormone by an adenoma of the anterior pituitary gland. It results in excessive body growth of both the skeletal and the soft tissues. If it occurs in adolescence before the bony epiphyses have fused the result is gigantism. If it occurs in adult life the skeletal overgrowth is confined to the hands, feet, cranial sinuses and jaw. Most of the features are due to overgrowth of the cartilage of the nose and ear and the soft tissues which increase the thickness of the skin and lips. Viscera such as the thyroid and liver are also affected. The overgrowth of the soft tissues occurs so gradually that the patient and spouse are often unaware of the change. It is only relatives who have not seen the patient for many months or years who are aware of the striking change in physical appearance.

The local effects of the tumour commonly cause headache and, less frequently, impairment of vision, particularly of the temporal field of vision, as a result of pressure on the nerves to the eye. The tumour may damage the other pituitary cells giving rise to gonadal, thyroid or adrenocortical insufficiency. The diagnosis is confirmed by measuring the level of growth hormone in the serum and by an X-ray of the skull which usually shows enlargement of the pituitary fossa. The treatment consists of removal or irradiation of the pituitary adenoma. This may have to be done via a craniotomy if the tumour is large but can often be done by an approach through the nose and sphenoid sinus. Deep X-ray therapy to the pituitary fossa is also effective treatment but it may take several years for irradiation to achieve its maximum effect. Drugs, such as bromocriptine, which are dopamine agonists, lower growth hormone levels in acromegaly and are particularly useful as an adjunct to radiotherapy.

**ACROMION** is the part of the scapula, or shoulder blade, forming the tip of the shoulder and giving its squareness to the latter. It projects forward from the scapula, and, with the clavicle or collar-bone in front, forms a protecting arch of bone over the shoulder joint.

**ACROPARAESTHESIA** is a disorder occurring predominantly in middle-aged women in which there is numbness and tingling of the fingers.

**ACTH** is the commonly used abbreviation for corticotrophin (q.v.).

**ACTINOMYCIN D** is an antibiotic isolated from *Streptomyces antibioticus* and *Streptomyces chrysomallus*; it has an inhibitory action on neoplastic cells (see CYTOTOXIC).

**ACTINOMYCOSIS** is an acute or chronic suppurative disease affecting cattle in which it



is known as **Woody Tongue**, and sometimes found in man.

**Causes:** The direct cause is the ray-fungus or actinomyces known as *Actinomyces israeli*, which occurs as a commensal (q.v.) in the mouth. In certain circumstances still rather obscure, but one of which is undoubtedly trauma, such as a fractured jaw or extraction of a tooth, the *A. israeli* becomes active. It then causes hard swellings, abscesses and ulcers, in the pus of which the fungus is found in little yellow balls of a size which can just be made out by the naked eye. These little balls are found to consist of masses of thread-like material matted together, and of club-shaped bodies radiating from a common centre, hence the name of ray-fungus. It used to be thought that the human infection arose from the chewing of straw or grain, or was caught from cattle, but this is now known not to be the case. In over 50 per cent of cases the disease occurs in or about the mouth; in 20 per cent it occurs in the abdomen, and in 15 per cent in the thorax.

**Symptoms:** These are general bad health, the presence of hard fibrous masses about the mouth or tongue, or in other organs, and the development sooner or later in these masses of abscesses which after bursting form sinuses or ulcers that will not heal.

**Treatment:** The outlook has been changed completely since the introduction of the antibiotics. The best results are usually obtained with large doses of penicillin, but in some cases chlortetracycline is more effective. Surgical treatment may be required, as in the draining of abscesses.

**ACUPUNCTURE** is a traditional Chinese method of healing by inserting thin needles into certain areas beneath the skin and rotating them. Its rationale is that disease is a manifestation of a disturbance of Yin and Yang energy in the body, and that acupuncture brings this energy back into balance by what is described as 'the judicious stimulation or depression of the flow of energy in the various meridians'. What is still unclear to western doctors is why needling, which is the essence of acupuncture, should have the effect it is claimed to have. One theory is that the technique stimulates deep sensory nerves, promoting the production of pain-relieving endorphins (q.v.). Of its efficacy in skilled Chinese hands, however, there can be no question, and in China the technique is an alternative to anaesthesia for some operations.

**ACUTE:** An adjective to describe a disease of short duration that starts quickly and has severe symptoms. It may also refer to a symptom, for example, severe pain. An **ACUTE ABDOMEN** is a serious disorder of the abdomen requiring urgent treatment, usually surgery. **ACUTE HEART FAILURE** is the sudden stopping or defect in the action of the heart. **ACUTE LEUKAEMIA** is a rapid growth in the numbers of white blood cells which is fatal if untreated.

**ACYCLOVIR** is an antiviral drug that is particularly useful in infections by herpes virus.

**ADACTYLY:** Absence of the digits.

**ADDICTION:** A vague term that may describe habitual cravings for tobacco or caffeine products to the physical and psychological dependence of a person on powerful substances such as morphine or heroin (see **DRUG ADDICTION**).

**ADDISON'S DISEASE:** The cause of Addison's disease is a deficiency of the adrenocortical hormones cortisol, aldosterone and androgens due to destruction of the adrenal cortex. It occurs in about 1:25,000 of the population. Although the destruction of the adrenal cortex in Addison's original description was due to tuberculosis, a much more common cause today is auto-immune damage. Rare causes of Addison's disease include metastases from carcinoma, usually of the bronchus, granulomata and haemochromatosis.

**Symptoms:** The clinical symptoms depend on the severity of the underlying disease process. The patient usually complains of anorexia, nausea and loss of weight. The skin becomes pigmented due to the increased production of ACTH (q.v.). Faintness, especially on standing, is due to postural hypotension secondary to aldosterone deficiency. Women lose their axillary hair and both sexes are liable to develop mental symptoms such as depression. **Diagnosis** depends on demonstrating impaired serum levels of cortisol and inability of these levels to rise after an injection of ACTH.

**Treatment** consists in replacement of the deficient hormones and this enable patients to lead a completely normal life and to enjoy a normal life expectancy.

**ADENINE ARABINOSIDE** is an anti-viral agent that is proving of value in the treatment of certain forms of herpes. (See **HERPES SIMPLEX**; and **EYE, DISEASE AND INJURIES**.)

**ADENITIS** means inflammation of a gland. (See **LYMPHATICS**.)

**ADENO-** is a prefix denoting relation to a gland or glands.

**ADENOCARCINOMA:** A malignant growth of glandular tissue. This tissue is widespread throughout the body's organs and the tumours may occur, for example, in the stomach, ovaries, and uterus. Adenocarcinomas may be subdivided into those that arise from mucous or serous secreting glandular tissue.

**ADENOIDS** (see **NOSE, DISEASES OF**).

**ADENOMA** means a benign tumour composed of glandular tissue. It may arise in any part of the body in which glandular tissue occurs: e.g. the thyroid gland. It must be differentiated from an adenocarcinoma, which is a malignant tumour composed of glandular tissue. (See TUMOUR.)

**ADENOVIRUSES** are a group of viruses which cause infections of the upper respiratory tract resembling the common cold, and often referred to as febrile catarrh.

**ADHESION:** This means the uniting together of structures which should normally be separate and freely movable. It is the result of acute or chronic inflammation. The medium by which the attachment takes place may at first be fibrin (q.v.) as a result of acute inflammation, but later is, in every case, fibrous tissue either in masses or in bands.

**Causes:** The most important adhesions are those taking place in serous and joint cavities. When one of these structures becomes inflamed there is a great exudation of fluid into the cavity. From this fluid a solid material separates and becomes deposited upon the smooth surface of the cavity. This solid 'fibrin' should, in the course of recovery, be reabsorbed; but, if the inflammation is very severe, or if there is repeated attacks of it, this absorption does not completely take place, the two layers of fibrin on the opposing surfaces of the cavity stick together, and the united mass is 'organized' into the less absorbable fibrous tissue (see FIBROUS TISSUE). As a result there is restricted movement in the parts concerned; thus in the case of a joint there is ankylosis (see JOINTS DISEASES OF); if the inflammation has been pleurisy the lung becomes adherent to the chest wall; if peritonitis, bands are formed between stomach, bowels, and other abdominal organs. **Symptoms:** It is generally difficult to tell, except from the history of an inflammatory attack and from the presence of disordered function of internal organs, that adhesions are present (see PLEURISY; PERITONITIS). Sometimes adhesions between loops of bowels may be very serious and cause obstruction, if an old-standing and rigid fibrous band becomes twisted round a loop of bowel (see INTESTINE, DISEASES OF).

**Treatment:** While the adhesions are still *fibrinous* one expects complete absorption if the inflammation is speedily subdued. If the adhesions are *fibrous*, and show their presence by interference with the function of the organs concerned, one can seldom expect their complete absorption.

Sometimes, e.g. when obstruction of the bowels is due to an adhesion, an immediate operation is necessary, and the adhesion is then divided. Adhesions causing limitation of movement in joints can often be broken down by means of manipulation.

**ADIPOSE TISSUE** or **FAT** is a loose variety of fibrous tissue, in the meshes of which lie cells,

each of which is distended by several small drops, or one large drop, of fat. This tissue replaces fibrous tissue when the amount of food taken is in excess of the bodily requirements. (See DIET; OBESITY.)

**ADIPOSIS DOLOROSA**, also known as Dercum's disease, is a condition in which painful masses of fat develop under the skin. It is commoner in women than in men.

**ADOPTION** (see CHILD ADOPTION).

**ADRENAL GLANDS**, also known as SUPRARENAL GLANDS, are two organs situated one upon the upper end of each kidney. Each measure about 5 cm (2 inches) in length from above downwards, rather less than that from side to side; and each is about 6 mm (¼ inch) thick. The two together weigh about 7 grams. **Structure:** Each suprarenal gland has an enveloping layer of fibrous tissue. Within this the gland shows two distinct parts: an outer, firm, deep-yellow, *cortical* layer, and a central, soft, dark-brown, *medullary* portion. The cortical part consists of columns of cells running from the surface inwards, whilst in the medullary portion the cells are arranged irregularly and separated from one another by large capillary blood-vessels. Both the blood vessels and the nerves of the suprarenal glands are large and numerous, considering the small size of the organ.

**Functions:** It has long been known that removal of the suprarenal glands in animals is speedily followed by great muscular prostration and death in a few days. In human beings, disease of the suprarenal glands is apt to bring on Addison's disease, in which the chief symptoms are increasing weakness and bronzing of the skin. The medulla of the glands produces a substance – adrenaline – the effects of which closely resemble those brought about by activity of the sympathetic nervous system: dilated pupils, hair standing on end, quickening and strengthening of the heart-beat, immobilization of the gut, increased output of sugar from the liver into the blood-stream. From the cortex of the gland are produced a series of hormones which play a vital, though as yet incompletely elucidated, rôle in the metabolism of the body. Some (such as aldosterone) control the electrolyte balance of the body, others are concerned in carbohydrate metabolism, whilst others again are concerned with sex physiology. Cortisone is the most important hormone of the adrenal cortex and is essential for life. (See ADRENALINE; ADDISON'S DISEASE; CORTISONE.)

**ADRENALINE** is the secretion of the adrenal medulla. (See ADRENAL GLANDS.) In the United States Pharmacopoeia it is known as epinephrine. It is also prepared synthetically. When injected it produces the same effect as stimulation of the sympathetic nervous system (q.v.). Among its important effects are raising

of the blood pressure, increasing the amount of glucose in the blood, and constricting the smaller blood-vessels.

It is applied directly to wounds on gauze or lint to check haemorrhage. Injected along with some local anaesthetic it permits painless, bloodless operations to be performed on the eye, nose, etc. It is injected hypodermically to relieve asthma, and to stimulate the heart in collapsed conditions. It is also injected as an antidote in the condition of hypoglycaemia, when too large a dose of insulin has been given.

**ADRENERGIC RECEPTORS** are the sites in the body on which adrenaline (q.v.) and comparable stimulants of the sympathetic system (q.v.) act. Drugs which have an adrenaline-like action are described as being adrenergic. There are four different types of adrenergic receptors, known as  $\alpha_1$ ,  $\alpha_2$ ,  $\beta_1$ , and  $\beta_2$ , respectively. Stimulation of  $\alpha$  receptors leads to constriction of the bronchi, constriction of the blood vessels with consequent rise in blood-pressure, and dilatation of the pupils of the eyes. Stimulation of  $\beta_1$  receptors quickens the rate and output of the heart, whilst stimulation of  $\beta_2$  receptors dilates the bronchi.

For long it had been realized that in certain cases of asthma adrenaline had not the usual beneficial effect of dilating the bronchi during an attack; rather it made the asthma worse. This was due to its acting on both the  $\alpha$  and  $\beta$  adrenergic receptors. A derivative, isoprenaline, was therefore produced which acted only on the  $\beta$  receptors. This had an excellent effect in dilating the bronchi, but unfortunately also affected the heart, speeding it up and increasing its output – an undesirable effect which meant that isoprenaline, still a valuable drug in the treatment of asthma, has to be used with great care. In due course drugs were produced, such as salbutamol, which act predominantly on the  $\beta_2$  adrenergic receptors in the bronchi and have relatively little effect on the heart.

The converse of this story was the search for what became known as beta-adrenoceptor-blocking drugs, or beta-adrenergic-blocking drugs. The theoretical argument was that if such drugs could be synthesized, they could be of value in taking the strain off the heart – for example: stress  $\rightarrow$  stimulation of the output of adrenaline  $\rightarrow$  stimulation of the heart  $\rightarrow$  increased work for the heart. A drug that could prevent this train of events would be of value, for example, in the treatment of angina pectoris (q.v.). Now there is a series of beta-adrenergic-blocking drugs of use not only in angina pectoris, but also in various other heart conditions such as disorders of rhythm, as well as high blood-pressure. They are also proving of value in the treatment of anxiety states by preventing disturbing features such as palpitations. An unexpected dividend is that some of them at least appear to be of help in the treatment of migraine.

The first beta-blocker in therapeutic use and probably still the best known is propranolol. Many other beta-blockers are now available and in general they are all equally effective. There are, however, minor differences which may affect the choice in treating an individual patient. Some drugs have intrinsic sympathomimetic activity, a manifestation of the ability of these drugs to stimulate as well as to block adrenergic receptors. Oxprenolol, pindolol and acebutolol are members of this group and they therefore tend to cause less slowing of the pulse and less coldness of the extremities than the other beta-blockers. Some beta-blockers are lipid soluble and as a result pass the blood brain barrier with ease. They may therefore cause central effects such as sleep disturbances and nightmares. Water-soluble beta-blockers tend not to cross the blood brain barrier and are less likely to have these side-effects. Examples of the water soluble beta-blockers are atenolol, nadolol and sotalol. Being water soluble they are excreted by the kidneys and may therefore accumulate in patients with renal impairment.

Some beta-blockers tend to have less effect on the  $\beta_2$  or bronchial receptors and are therefore called cardio-selective. This is not completely true as if given in larger doses  $\beta_2$  effects will also occur. Nevertheless metoprolol, atenolol and acebutolol are relatively cardio-selective and have less effect on airways resistance. Despite this, the precaution of avoiding beta-blockers in patients with obstructive airways disease also applies to the so-called selective drugs. Nevertheless the beta-adrenoceptor blocking drugs are most useful in the treatment of hypertension, angina pectoris, secondary prevention of myocardial infarction, migraine, anxiety states, essential tremor, thyrotoxicosis and glaucoma when used topically.

**ADRENOCORTICOTROPHIC HORMONE (ACTH)** A hormone which is released into the body during stress. Made and stored in the anterior pituitary gland, ACTH regulates the production of Corticosteroid hormones from the Adrenal Gland. ACTH is vital for the growth and maintenance of the adrenal cortical cells. Its production is in part controlled by the amount of hydrocortisone in the blood and also by the hypothalamus. The hormone is used to test adrenal function and treat conditions such as asthma.

**ADRENOGENITAL SYNDROME:** An inherited condition, the adrenogenital syndrome or congenital adrenal hyperplasia is an uncommon disorder affecting about one baby in 7,500. The condition is present from birth and the victim suffers from various enzyme defects as well as a block on the production of hydrocortisone and aldosterone by the adrenal gland. In girls the syndrome produces virilization of the genital tract, which may become enlarged. The metabolism of salt and water is disturbed causing dehydration, low blood



pressure, and loss of weight. Enlargement of the adrenal glands occurs and the affected individual may also develop excessive pigmentation in the skin. Treatment requires replacement of the missing hormones and, if started early, may lead to normal sexual development.

**ADULT RESPIRATORY DISTRESS SYNDROME (ARDS):** A form of acute respiratory failure in which a variety of different disorders give rise to pulmonary injury by what is thought to be a common pathway. It has a high mortality (about 70 per cent).

The exact aetiology is unknown, but it is thought that, whatever the stimulus, activation of neutrophils (which may then be sequestered in the lungs) releases cytotoxic substances – substances that damage or kill cells – such as oxygen-free radicals and proteases which damage the alveolar capillary membranes. Once this is damaged protein-rich oedema fluid leaks into the alveoli and interstitial spaces. Surfactant (q.v.) is also lost. This impairs gas exchange and gives rise to the clinical and pathological picture of acute respiratory failure.

The typical patient with ARDS has rapidly worsening hypoxaemia (lack of oxygen in the blood), often requiring mechanical ventilation, which contrasts with the relative lack of physical signs. There are all the signs of respiratory failure (see TACHYPNOEA, TACHYCARDIA, CYANOSIS, etc.), though the chest may be clear apart from a few crackles. Radiographs show bilateral, patchy, peripheral shadowing sparing the cardio and costophrenic angles. Blood gases will show a low PaO<sub>2</sub> (concentration of oxygen in pulmonary arterial blood) and usually a high PaCO<sub>2</sub> (concentration of carbon dioxide in pulmonary arterial blood). The lungs are ‘stiff’ – they are less effective because of the loss of surfactant and the non-cardiogenic pulmonary oedema. The causes of ARDS may be broadly divided into the following:

**MICROBIOLOGICAL** – pulmonary, distant, or generalized infection by bacteria, fungi, or viruses. **ACTIVATION OF HOST DEFENCE** – massive transfusion, transfusion reaction, cardiopulmonary bypass, etc., may cause activation of neutrophils (q.v.) via complement pathways.

**CHEMICAL** – this includes drugs, inhaled toxic gases and smoke, and metabolic disorders like uraemia (q.v.) and pancreatitis (see pancreas, diseases of).

**PHYSICAL** – trauma to the lung, gastric aspiration, aspiration of water, etc. The principles of management are supportive, with treatment of the underlying condition if that is possible. Oxygenation is improved by increasing inspired oxygen concentration and mechanical ventilation of the lungs. Attempts are made to reduce the formation of pulmonary oedema by careful management of fluid balance. Secondary infections are treated if they arise, as are the possible complications of prolonged ventilation with low lung compliance (e.g., pneumothorax (q.v.)). There is some evidence that giving surfactant through a nebulizer or aerosol

may help to improve lung effectiveness and reduce oedema. There is little evidence that steroids are of use. Some experimental evidence supports the use of free radical scavengers and antioxidants, but these are not commonly used. In severe cases extracorporeal gas exchange has been advocated as a supportive measure until the lungs have healed enough for adequate gas exchange. (See also RESPIRATION DISTRESS SYNDROME AND HYALINE MEMBRANE DISEASE.)

**ADVERSE REACTIONS TO DRUGS:** There are a number of ways in which post-marketing studies permit the detection of adverse drug reactions. In the past techniques such as individual case reports, the Committee on the Safety of Medicines’ yellow card system, monitoring national mortality statistics and case control studies have successfully identified adverse drug reactions. The most useful method, when it is feasible, is the Cohort investigation. This requires that a cohort of patients starting treatment with a particular drug should be identified and the cohort should be sufficiently large to allow rarer adverse reactions to be detected. The system must look at adverse events and not merely suspected adverse reactions suffered by patients from the time of starting treatment to the end of the enquiry.

**AEDES AEGYPTI** is the scientific name of the mosquito which conveys to man (by biting) the viruses of yellow fever and of dengue or ‘breakbone fever’. (See DENGUE; and YELLOW FEVER.)

**AEGOPHONY** is the bleating or punchinello tone given to the voice as heard by auscultation, when there is a small amount of fluid in the pleural cavity.

**AERODONTALGIA** is the relatively rare form of dental pain occasionally felt in restored or non-vital teeth by those who fly. It is thought that it is caused by expansion of gas entrapped in the pulp canal of the tooth, resulting from the change in altitude.

**AEROPHAGY** means air-swallowing, and is the name applied to a habit which some persons, especially when suffering from dyspepsia, contract of swallowing mouthfuls of air. This at first gives relief to the discomfort and pain of indigestion, but later prolongs and aggravates it. The resulting breathlessness can be relieved to some extent by taking peppermint water or chloroform water in doses of a tablespoonful, but the chief necessity is to overcome the habit of swallowing air.

**AEROSOL** (see INHALANTS).

**AESTHESIOMETER** is an instrument for measuring the sensation of touch in a person.