

ORTHOPAEDICS

The branch of medicine that mostly deals with the musculoskeletal system is known as orthopaedics.

The speciality of orthopaedics as a branch of medicine is relatively young. In 1741 Nicholas Andry, the Professor of Medicine in Paris published a book Orthopaedics, or the Art of Preventing and Correcting Deformities in Children and coined the term from the words "orthos" (straight or free from deformities) and "pais" (child). He expressed the view that most deformities in adults have their origin in childhood.

The science includes all ages and consists of the prevention, investigation, diagnosis and treatment **of disorders and injuries of the musculoskeletal system** by medical, surgical and psychical means and, in addition, the study of musculoskeletal physiology, pathology and other related basic science.

Musculoskeletal deformities are manifested by an abnormal form or shape the affected limb or trunk. A deformity may be **congenital** (present time of the time of birth) or it may **be acquired during post-natal life**. It is necessary to consider the type and causes of the deformity in various musculoskeletal structures and think of their correction together with the possible prevention.

In the diagnosis of the musculoskeletal disorders and injuries, the doctor should conduct the investigation in the following order:

1. Taking history (e.g. symptoms),
2. Physical examination (e.g. signs),
3. Radiographic examination (X-ray signs),
4. Laboratory examination (of various body fluids as well as of a specimen; or biopsy of the diseased tissue).

Congenital abnormalities are defined as those defects in development of the body form or function that are present at the time of birth. They may be caused by a variety of factors including genetic defects, environmental Influences and a combination of the two (infection - rubella). They may be **localised** (as in a single club-foot) or **generalised** (fragile bones). All localised congenital abnormalities of the skeleton are a sort of manifestation of one or more of the various types of disturbances in its normal growth and development. For example a bone may fail to form entirely (aplasia), or it may fail to grow to a normal size (hypoplasia), or its growth may be abnormal (dysplasia), or it may overgrow (hypertrophy or local gigantism). Extra parts of the skeleton (duplications) may also be formed such as extra digits. A disorder of the skeletal system affects muscles and joints in the area.

Disorders of Joints

The most prevalent disorder of the joints is arthritis, an inflammatory process that can result in disability. The effects of joint disease and injury are similar: pain and decreased mobility. **Rheumatoid arthritis** is a severe inflammation that is now considered to be **an autoimmune disease**: the patients develop abnormal antibody reactions in which the body's immune system attacks its own tissues. It begins with painful, swollen joints, then fever, a decrease in appetite, weight loss and fatigue follow. Joint cartilage is destroyed and scar tissue develops within the joint cavity. The result is joint stiffness and complete immobility (or various deformities).

Diagnosis of the disease is made from the blood samples that will show abnormal protein levels and there is also an increase in sedimentation rate of erythrocytes. The patients need complete rest and anti-inflammatory drugs (mainly aspirin).

Rheumatoid spondylitis is an inflammation of joints between the spinal vertebrae. It usually begins with low back pain and then joints of the hip, shoulder, neck and ribs can become involved. Arthritis of this type is seen mostly in men under 30 and causes complete ankylosis (immobility) of the vertebral joints.

Osteo-arthritis is the name for degeneration of joints that occurs with ageing or because of strain or injury. It seldom causes crippling deformities, but pain and stiffness never subside. Treatment of the disease is aspirin for relief of pain and local heat to improve joint mobility. A surgical incision into a joint (to treat arthritis) is called an arthrotomy.

Disorders of Bones

The most common disorders of bones are fractures, infections and tumours.

A fracture is a break of the bone. Fractures are classified as **simple, compound and complicated**. A **simple fracture** is closed without any break in the skin. A **compound fracture** is open, there is a break in the skin with one or both ends of the broken bone protruding through the skin and **complicated** fractures are those in which the broken ends are out of **alignment** or in which there is damage to one or both ends; these are **displaced, comminuted** (broken in several places) or **impacted** (the two broken ends have been jammed into each other and the affected limb is shortened in length) fractures. They are always serious because there is much soft tissue damaged - muscles, nerves, blood vessels are torn and the patient usually goes into shock. Another serious type of fracture, which occurs most often in elderly people due to osteoporosis (demineralised bone), is a fracture of the hip.

Every fracture requires reduction (replacement of bone ends in correct **alignment**), which depends of its specific type. The reduction may be either closed (by external manipulation) or open (surgical fixation with a plate, nail, pin, screw or wire). **After reduction the bone is immobilized with a cast, traction or both.**

Infection can reach a bone through a compound fracture or a wound or through the blood stream, travelling from another site of infection. One of the most serious infections of a bone is known as **osteomyelitis**. The first symptoms are pain, temperature and nausea, and then the redness, oedema and death of the bone tissue if a quick surgical incision is not made to drain the site. The most common bacteria are streptococci and staphylococci so antibiotics and bed-rest are also needed, but the healing is usually slow.

Bones can also be the primary site of a **tumour** or some malignant cells can metastasise to a bone from another site, the treatment is a surgical removal with amputation of a limb, if the tumour, is large followed by chemotherapy and radiation.

Amputation is a removal of a part of the body, which is replaced by prosthesis.

VOCABULARY

acquire [ə'kwaɪə]	získat
adhesion [əd'hi:ʒn]	srůst sousedních tkání
alignment [ə'lainment]	seskupení
attach [ə'tæʃ]	přípevnit
cast [ka:st]	sádrový odlitek
chondroma [kɒn'drəʊmə]	nádor z chrupavčité tkáně
congenital [kən'dʒenɪtl]	vrozený
club-foot [klʌb-fu:t]	koňská noha

disturbance [dis'tɜ:bəns]	porucha
entirely [ɪn'taɪəli]	naprosto, úplně
fail [feɪl]	selhat, nemít úspěch
fatigue [fə'ti:g]	únava
fracture [fræktʃə]	zlomenina
comminuted fracture [kɒmɪnju:tɪd]	roztříštěná zlomenina
compound fracture [kəmpaʊnd]	otevřená zlomenina
displaced fracture [dɪs'pleɪsɪd]	dislokovaná zlomenina
generalised fracture [dʒenərəlaɪzɪd]	celková zlomenina
impacted fracture [ɪm'pæktɪd]	vkliněná zlomenina
fragile [frædʒaɪl]	křehký, lomivý
implant [ɪm'plɑ:nt]	vsazení, štěp
investigation [ɪnvestɪ'geɪʃn]	zkoumání, vyšetření
jam [dʒæm]	stlačit
kyphosis [kɪ'fəʊsɪs]	vybočení páteře
mobile [məʊbaɪl]	pohyblivý
orthopaedics [ɔ:θəʊ'pi:dɪks]	ortopedie
osteogenesis [ɒstiə'dʒenɪsɪs]	vývoj kosti
osteoma [ɒsti'əʊmə]	kostní nádor
osteomyelitis [ɒstiəʊ'maɪə'lɑɪtɪs]	zánět kosti a kostní dřeně
prevalence [prevələns]	výskyt
prosthesis [prɒθɪsɪs]	protéza
protrude [prə'tru:d]	vyčnívat dopředu
scoliosis [skɒli'əʊsɪs]	vybočení páteře
splint [splɪnt]	dlaha
stiffness [stɪfnəs]	ztuhnutí, ztuhlost
subside [səb'saɪd]	pominout, přestat
tear, tore, torn [teə, to:n]	trhat
traction [trækʃn]	trakce, tah