

UNIT 12.

SCOLIOSIS

Scoliosis is a three-dimensional deformity involving a lateral curvature of the spine with rotation of the vertebrae. In an X-ray it will show as a C-shaped curve or as an S-shaped curve. The deformity mainly occurs in the thoracic and lumbar regions of the spine and mostly progresses during the growth spurt in adolescence. Progressive scoliosis affects more females than males.

Classification of scoliosis

Scoliosis can be classified into two main types: structural and functional (also called non-structural). Functional scoliosis refers to a non-progressive curvature without a fixed rotation. The curvature is related to poor posture, a shorter leg, or muscular imbalance resulting from repeated one-sided activities. The curvature can be reversed by correcting the problem causing the curve. This type of scoliosis is more common than structural scoliosis. Structural scoliosis, on the other hand, refers to a progressive curvature with a fixed rotation. This type of scoliosis is irreversible. There are three main types of structural scoliosis: congenital (caused by abnormal formation of the vertebrae), neuromuscular (caused by disorders that affect the nerves or muscles, e.g., cerebral palsy, muscular dystrophy) and idiopathic (the cause is unknown). Over 80% of scolioses are idiopathic.

Scoliosis can also be classified as mild (less than 20 degrees), moderate (20 to 45 degrees) or severe (45 degrees and more).

Signs of scoliosis

The most common symptoms of scoliosis include uneven hips or shoulders, and one shoulder blade more prominent than the other. Besides, the head may not be centred with the rest of the body, and the body may be leaning to one side.

WORDLIST

adolescence /,ædə'lesʰns/ – okres dorastania

approach /ə'prəʊtʃ/ – metoda, podejście

bracing /'breɪsɪŋ/ – gorsetowanie

computer tomography /kəm'pjʊ:tə təʊ'mɒgrəfi/ (CT) – tomografia komputerowa (TK)

concave /kɒn'keɪv/ – wklęsły

congenital /kən'dʒenɪtʰl/ – wrodzony

conservative /kən'sɜ:vətɪv/ – zachowawczy

convex /kɒn'veks/ – wypukły

curvature /'kɜ:vətʃə/ – wygięcie, skrzywienie

curve /kɜ:v/ – krzywa, krzywizna

degree /di'grɪ:/ – stopień

fixed /fɪkst/ – utrwalony

fuse /fju:z/ – łączyć, zrastać

growth spurt /'grəʊθ 'spɜ:t/ – okres szybkiego wzrostu, gwałtowne wzrastanie, skok wzrostowy

insert /ɪn'sɜ:t/ – włożyć, wstawić

irreversible /,ɪrɪ'vɜ:səbʰl/ – nieodwracalny

lean /li:n/ (lean – leant /lent/ – leant /lent/ or lean – leaned – leaned) – przechylać się

magnetic resonance imaging

/mæg'netɪk 'rez'nəns 'ɪmɪdʒɪŋ/ (MRI) – obrazowanie metodą rezonansu magnetycznego, rezonans magnetyczny (RM)

muscular dystrophy /,mʌskjʊlə 'dɪstrəfi/ (MD) – dystrofia mięśniowa

Diagnosis of scoliosis

Scoliosis is diagnosed on the basis of medical history, physical examination and diagnostic tests such as X-ray, magnetic resonance imaging (MRI) and computer tomography (CT).

Treatment of scoliosis

Treatment depends on the type and severity of the curvature and whether the person has reached skeletal maturity. There are three basic treatment options: observation, bracing and surgery.

Observation is used if the curve is mild and at low risk of progression, or if the person is near skeletal maturity. Bracing is recommended for patients with moderate scoliosis or for patients who have not reached skeletal maturity yet. Surgical intervention is required when the curve is severe. The surgery involves fusing the vertebrae by inserting metal rods (spinal fusion).

Physiotherapy

Conservative scoliosis treatment includes such interventions as exercises, bracing, manipulation, physical therapy and electrical stimulation. Physical exercise approaches used in the treatment of idiopathic scoliosis include the Schroth method and the Dobosiewicz method.

The Schroth method involves specific exercises and breathing techniques to correct the curve. Typically, in a habitual scoliotic posture the muscles become imbalanced. Patients learn exercises that correct muscle asymmetry, that is, stretch the muscles on the concave side and strengthen and shorten the muscles on the convex side of the curve. It is accompanied by rotational breathing, which involves taking air to the concave side of the trunk and, in result, rotating the ribs into a more physiological position. The approach aims to stop the progression of the curvature, improve posture, partially reverse the curve, relieve pain and prevent or delay corrective spinal surgery.

The Dobosiewicz method (DoboMed) involves active three-dimensional correction of the curve through mobilisation towards the normal position of the spine in symmetrical positions of the pelvis and the shoulder girdle. Then, active stabilisation of the corrected position is performed to establish correct postural habits. The approach stops the progression of the curve and improves respiratory function. It is used as a single therapy or together with bracing.

muscular imbalance /,mʌskjʊləɹ
,ɪm'bi:ələn's/ – dysbalans
mięśniowy

progress /prəʊ'gres/ – postępować,
rozwijać, nasilać, pogłębiać
progression /prəʊ'greʃn/ – postęp,
nasilanie, pogłębianie

progressive /prəʊ'gresɪv/ – postępujący
prominent /'prɒmɪnənt/ – wystający,
uwypuklony

reverse /rɪ'vɜ:s/ – odwracać
rod /rɒd/ – wszczep, implant, pręt

scoliosis /,skɒli'əʊsɪs/ (pl. scolioses
,skɒli'əʊsi:z/) – skolioza
severity /sɪ'veəri/ – stopień, nasilenie,
ciężkość

skeletal maturity /'skelɪtʰl mə'tʃʊərəti/
– dojrzałość kostna

spinal fusion /'spainʰl 'fju:ʒn/ –
usztywnienie zabiegowe
kręgosłupa, operacyjna
stabilizacja kręgosłupa

three-dimensional /,θri:daɪ'menʃnəl/
– trójwymiarowy, trójwymiarowy

uneven /ʌn'i:vən/ – nierówny

EXERCISES**I. Answer the questions.**

1. What is scoliosis?
2. How does structural scoliosis differ from functional scoliosis?
3. What does the term "idiopathic" mean?
4. What are the signs of scoliosis?
5. What are the treatment options for patients with scoliosis?
6. How can physiotherapy help people with scoliosis?

II. Decide whether the following sentences are true or false. Correct the false ones.

1. Scoliosis is an anterior curvature of the thoracic region of the spine.
2. A mild scoliosis does not require any treatment.
3. Scoliosis mostly occurs in the cervical and thoracic regions of the spine.
4. The majority of scolioses have no known cause.
5. Scoliosis is more commonly diagnosed in girls than in boys.
6. A scoliosis treatment method depends, among others, on the degree of the curvature.

III. Complete the sentences by selecting the appropriate words from the list. Change the verb forms if necessary.

bracing, congenital, develop, fuse, insert, maturity, progressive, prominent, irreversible

1. Humans take longer to reach than most other animals.
2. The bones of the skull are not properly at birth.
3. When John was 17, he died of heart disease.
4. Alzheimer's disease is a(n) degeneration of the brain.
5. He took a small key from his pocket and slowly it into the lock.

IV. Find the words in the text which mean the following:

1. A type of radiation used by doctors to examine the bones or structures inside the body –
2. The use of devices that provide support to the muscles or immobilise a body region, for example cervical collars and lumbar corsets –
3. The period in human development between childhood and adulthood –
4. A period of rapid and intense gain in height and weight –
5. Medical treatment involving cutting the body open in order to remove, replace or repair a diseased or damaged organ –

V. Match the words to make word partnerships.

- | | |
|----------------|------------------------|
| 1. uneven | a) fusion |
| 2. mild/severe | b) curvature |
| 3. spinal | c) spurt |
| 4. skeletal | d) region of the spine |
| 5. growth | e) scoliosis |
| 6. lateral | f) maturity |
| 7. thoracic | g) shoulders/hips |