

MINISTRY OF HEALTH OF UKRAINE
O.O. BOHOMOLETS NATIONAL MEDICAL UNIVERSITY

SPASTIC PARALYSIS

WORK BOOK

For independent work of students of 5th course
Study discipline "Traumatology and Orthopedics"
direction "Medicine"
specialty "Curative care"
Department of Traumatology and Orthopedics

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Introduction

One of the effective means of organizing an independent work of students on topics of disciplines assigned for independent study is the work of a student with his/her workbook. Work with the workbook should begin with the acquaintance with the key issues on the topic. The next step includes the acquaintance with the list of sources from which the student can find the answers to the posed questions. For more deep study of the problem students can visit professional websites.

Having become acquainted with the theory, the student needs to assess his/her degree of mastering the material. In this regard, he/she resolves the proposed tasks; answers test questions on the topic. Students should pay particular attention in preparing for classes to the required minimum of practical skills to be mastered. In the relevant sections of textbooks, manuals, he must glean the information that he needs for mastering further practical skills.

Arrangement of independent work with the use of workbook is conducted as follows: tutor provides the workbook to a student in digital format (to be downloaded from website of the Department), or in printed version; later the students do the tasks at their extra-curricular time, whereupon the tutor checks and assesses them **at the initial stage of practical classes.**

Criteria for assessing the tasks in the workbook

Each task requires a separate approach when assessing the quality of its implementation under particular criteria. And yet, with a 5-point evaluation ranking for each type of tasks, one should observe the general didactic criteria, namely:

“5” is graded when the student:

1. Executed the work w/o errors and deficiencies.
2. maximum one deficiency.

“4” is graded when the student executed the work in full but made:

1. maximum one gross error and one deficiency.
2. maximum two deficiencies.

“4” is graded when the student executed at least one half of a work correctly or made:

1. maximum two gross errors or one gross and one mild errors and one deficiency.
2. maximum two mild errors or one mild error and three deficiencies.
3. In the lack of errors but when four or five deficiencies are available.

“2” is graded when the student made:

1. number of errors (deficiencies) exceeding the limit when grade “3” could be applied.
2. In case less than half of work is completed.
3. Failed to start the work.

Goal (educational goals):

1. Urgency of the problem of spastic paralysis.
2. To establish the factors contributing to the development of spastic paralysis and cerebral palsy.
3. To substantiate the prevention of spastic paralysis.
4. To analyze the data from clinical, laboratory, MRI, ENMG methods of examining patients with cerebral palsy and spastic paralysis.
5. To correctly formulate a clinical diagnosis and conduct differential diagnosis.
6. To substantiate the tasks and principles of medical and orthopedic treatment of spastic paralysis and cerebral palsy, social rehabilitation.
7. To analyze the clinical manifestations of abnormalities of limb positions in patients with cerebral palsy.
8. To demonstrate ownership of the moral and deontological principles of the medical worker and the principles of professional subordination.

The student should know:

1. Anatomical and functional features of the structure of the hip, knee, and ankle joints.
2. Structure of the central nervous system, efferent pathways, reflex, types of reflexes
3. Characteristics of spastic paralysis.
4. Paralysis and paresis.
5. Clinical characteristics of paralysis and paresis.
6. Anatomic and functional features (AFF) of the nervous system in children, features of myelination of nerve fibers.
7. Classification of cerebral palsy.
8. Symptomatology of cerebral palsy.
9. Characteristic deformities of the lower and upper extremities in cerebral palsy.

10. Principles of conservative and operative treatment of cerebral palsy.

11. Differential diagnosis of flaccid and spastic paralysis.

A student must be able to:

1. Analyze a typical clinical picture of spastic paralysis and cerebral palsy.
2. Assess the strength of muscles and the amount of movement in joints.
3. Distinguish concordant (coordinated) and discordant (uncoordinated) contractions.
4. Distinguish pathological reflexes.
5. To apply orthoses, orthopedic insoles, orthopedic footwear.
6. Prescribe conservative medication for spastic paralysis.
7. Justify the indications for surgical treatment for cerebral palsy.

Main terms of the topic.

Term	Definition
Paralysis, paresis, reflex	Paralysis - complete impairment of motor function due to injury of the first or second motor neuron Paresis - partial impairment of motor function due to damage to the first or second motor neuron. Reflex - the body's response to irritation
Spastic paralysis (paresis)	complete (partial) impairment of motor function, which arises from the damage of the central motor neuron
Cerebral palsy (infantile central paralysis)	Collective term describing a group of diseases that disrupt the movement and balance of the body and posture. Cerebral Palsy occurs as a result of impaired brain development or its damage.
Walk	Rhythmic self-reflex movement of a person in orthostatic position.
Posture	Orthostatic position of the person at which physiological bends of a backbone with symmetrical allocation of a head, trunk, pelvis, extremities are saved.
Contraction	Restriction of movements in the joint: Flat foot Congenital or acquired deformities of the foot, characterized by the smoothing or absence of the arch of the foot. Hollow foot congenital or acquired deformity of the foot, characterized by an increase in the arch
Flat foot	Congenital or acquired foot deformity, characterized by the smoothing or absence of the arch of the foot.
Hollow Foot	congenital or acquired foot deformity, characterized by the increase of an arch

Reference literature.

General:

1. Голка Г.С., Бур'янов О.А. Климовицький В.Г. «Травматологія та ортопедія» (Національний підручник). Вінниця, Нова Книга, 2015 рік.
2. Скляренко Є.Т. Травматологія та ортопедія. - К.: Здоров'я, 2005 328с.
3. Васюк В.Л., Бур'янов О.А., Ковльчук П.Є. та ін Алгоритми діагностики і лікування та клінічні задачі з травматології та ортопедії (навчальний посібник Чернівці, 2014.-268).
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5. Бур'янов О.А., Скляренко Є.Т., Волошин О.І., Задніченко М.О., Кваша В.П., Грек В.П. Травматологія та ортопедія. Посібник для практичних занять. Київ. Книга- плюс.
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Auxiliary:

1. Олекса А.П. Травматологія та ортопедія.-К.: Вища школа, 1999.-511с.
2. Трубников В.Ф. Заболевания и повреждения опорно-двигательного аппарата. - К.: Здоровье, 1984. - 328с.

Tasks for independent work.

To be answered in written.

Variant 1

Task 1.

The peculiarities of formation of contractures in cerebral palsy:

1. Impaired balance between muscle antagonists

Task 2.

What are the risk factors for cerebral palsy:

1. Prenatal;
2. Intratinal;
3. Postnatal;

Task 3.

Movement disorders in patients with cerebral palsy:

1. Paresis;
2. Paralysis;

3. Disturbance of coordination;
4. Violent movements.
5. Convulsive seizures

Task 4.

Forms of cerebral palsy:

1. spastic hemiplegia (hemiparesis)
2. Spastic diplegia;
3. tetraparazy (tetraplegia)
4. hyperkinetic form;
5. atactic form;
6. atonic-asthenic form;
7. mixed form

Task 5.

According to the severity of manifestations the following degrees of cerebral palsy are distinguished:

1. light;
2. mild;
3. severe.

Task 6.

The purpose of surgical treatment of cerebral palsy:

1. Improvement of the static and dynamic function by correcting deformations, contractures, subluxations, dislocations;
2. Prevention of secondary complications;
3. Cosmetic correction;

Test questions.

1. Which paths of CNS are afferent?

- A. cortex-spinal posterior
- B. spin-thalamic
- C. cortex-spinal front and side
- D. Rubra-spinal

2. What are the forms of cerebral palsy?

- A. Abortive, neurotic, residual

- B. Pre paralytic, paralytic, residual
- C. Hyperkinetic, atactic.
- D. All the above

3. The lesion of which structures is accompanied by the development of spastic paralysis

- A. motor neuron of the pre-central anterior;
- B. alpha-large motor neurons of the anterior horn of the spinal cord
- C. The lesion of the white matter of the spinal cord
- D. peripheral ;
- E. pseudounipolar neuron of the spinal cord
- F. black substances of red nuclear;
- G. The nucleus of the cranial nerves.

4. Clinically spastic paralysis is different from flaccid one:

- A. atactic movements;
- B. hypotrophy;
- C. hypertrophy;
- D. pathologic reflexes;
- E. Disorders of walk and posture.

5. The syndrome of three "A" is characteristic for paralysis:

- A. central
- B. spastic
- C. flaccid

Variant 2

Task 1.

What is the main typical pathological process that underlies cerebral palsy?

- 1. Hypoxia

Task 2.

What are the risk factors for cerebral palsy:

- 1. Pre-natal ;
- 2. Intra-natal;
- 3. Post-natal;

Task 3.

Movement disorders of patients with cerebral palsy:

1. Parezy;
2. Paralysis;
3. Disturbance of coordination;
4. Forced movements.
5. Convulsive seizures

Task 4.

There are following forms of cerebral palsy:

1. spastic hemiplegia (hemiparesis)
2. spastic diplegia;
3. tetraparesis (tetraplegia)
4. hyperkinetic form;
5. atactic form;
6. atonic-asthenic form;
7. mixed form

Task 5.

According to the severity of manifestations the following degrees of cerebral palsy are distinguished:

1. light;
2. mild;
3. severe.

Task 6.

The purpose of surgical treatment of cerebral palsy:

1. Improvement of the static and dynamic function by correcting deformations, contractures, subluxations, dislocations;
2. Prevention of secondary complications;
3. Cosmetic correction.

Task 6.

The purpose of surgical treatment of cerebral palsy:

1. Prevention of pathological positions in the space, movements, prevention of contraction development;
2. Development of correct dynamic movement stereotypes

Test questions.

1. Which CNS pathways are efferent?

- A. cortical-spinal cord posterior
- B. spin-thalamic
- C. cortical-spinal cord lateral
- D. Rec nuclea cerebrospinal
- E. All answers are correct 9

2. What are the forms of cerebral palsy?

- A. Abortive, neurotic, residual
- B. Pre paralytic, paralytic, residual
- C. Hyperkinetic, atactic.
- D. All the above

3. The lesion of which structures is accompanied by the development of spastic paralysis:

- A. lesion of neurons of posterior central gyrus;
- B. alpha-large motor neurons of the anterior horn of the spinal cord
- C. lesions of lateral cords of the spinal cord
- D. peripheral;
- E. pseudo-unipolar neuron of the spinal cord
- F. Nuclei of thalamus;
- G. Nucleus of cranial nerves.

4. Clinically spastic paralysis is different from flaccid one:

- A. Lower Paraparesis;
- B. Muscle hypotrophy;
- C. Muscle hypertension,
- D. Hyposthesis or anesthesia;
- E. Disorder of walk and posture.

5. Which paralysis is characterized by the syndrome of three "A" (atrophy, areflexia, atony):

- A. Mixed
- B. Spastic
- C. Flaccid

