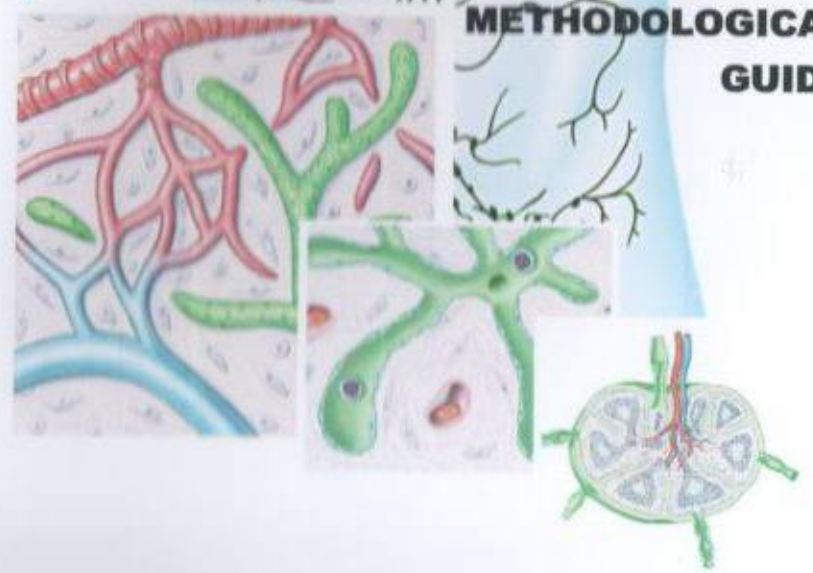


LEARNING GUIDE
THE HUMAN
LYMPH SYSTEM

EDUCATIONAL AND
METHODOLOGICAL
GUIDE



УДК 611

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Рецензенты:

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L 33. Руководство по обучению лимфатической системы человека для студентов по специальности «Лечебное дело» (GM): учебное-методическое пособие/ С.Дж. Дждолдубаев, К.Ш. Сакибаев, Б.К. Кенешбаев, М.К. Нуруев, Саид Али Аббас. Learning Guide the human lymph system: for students of the specialty "General medicine" (GM) (**training manual**) / S.Dzh. Dzholdubayev, K.Sh. Sakibaev, B.K. Keneshbaev, M.K. Nuruev, Syed Ali Abbas Rahat— Ош: Изд-во «Билим», ОшГУ, 2021. — 58с.

Настоящее учебное пособие, предназначено для самостоятельной работы студентов при изучении анатомии лимфатической системы человека. Пособие содержит краткий обзор лим системы человека, а также схематические рисунки по анатомии и топографии лимфатических сосудов и их притоков и анастомозов.

Латинские термины приведены в соответствии с Международной анатомической номенклатурой, принятой Федеративным комитетом по анатомической терминологии (FACT, 1998)

Пособие предназначено для аудиторной и внеаудиторной работы студентов, ординаторов по специальности «Лечебное дело» (GM) медицинских ВУЗов.

Ученым советом международного медицинского факультета Ошского государственного университета.

This textbook is intended for independent work of students in the study of the anatomy of the human lymph system. The manual contains a brief overview of the human venous system, as well as schematic drawings on the anatomy and topography of lymph, branches and anastomoses.

Latin terms are given in accordance with the International anatomical nomenclature adopted by the Federal Committee on anatomical terminology (FACT, 1998)

The workbook is made for classroom and extracurricular work for students and residents of speciality "General medicine" of medical universities.

Approved and recommended for publication by the Academic Council of the international medical faculty of Osh state University.

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LYMPHATIC SYSTEM

The lymphatic system has been known since the time of Hippocrates – "white vessels". Later on this concept was developed by Abu Ali Ibn Sina (Avicenna) but only in 1563, by anatomical dissection, Bartolommeo Eustachio's was able to isolate the thoracic duct on the corpse of a horse.

Anatomists of this period believed that the lymphatic vessels are the veins that deliver white blood to the liver. The study of the lymphatic system began in 1665, F. Ruysch, based on the opening of valves in the lymphatic vessels, concluded that the lymph can flow only in one direction.

In 1745, Luberkyun discovered the beginning of the lymphatic channel-capillaries-in the villi of the intestine. The anatomy of the lymphatic system has been developed in detail by Russian scientists. The largest school of scientists-lymphologists was created by Professor D. A. Zhdanov, who came from the famous school of G. M. Iosifov. The Kiev School of Lymphologists of Professors F. A. Stefanis and M. S. Spirov became world-famous.

Development of the lymphatic system

Evolutionarily, the development of the lymphatic system is closely related to the development of the circulatory system.

1. Aquatic animals, fish – gill breath, two-chamber heart. The lymphatic heart in the form of a pulsating expansion of the lymphatic vessel, driving the lymph into the venous channel. The lymphatic tissue is diffuse. There are several similar lymphatic hearts.

2. Reptiles – gills are replaced by lungs, the number of lymphatic vessels increases, and the number of lymphatic hearts decreases.

3. Birds-further process of disappearance of lymphatic hearts and enlargement of lymphatic vessels.

4. Man in standing position increases the number of valves in the lymphatic system of the extremities. The largest number of lymph nodes is observed-this indicates an increase in the value of the barrier function of the lymphatic system, which limits the spread of pathological processes.

The main processes in the evolution of the lymphatic system are reduced to the disappearance of the lymphatic hearts, as well as to the appearance and increase of the lymph nodes.

With regard to the ontogenetic development of the lymphatic system, most authors recognize the theory that it develops completely independently of the circulatory system and its connection with the venous system is established a second time (pic. 1.). The lymphatic system is laid down in the form of separate rudiments, lymphatic bags, which grow, branch out and form channels-lymphocapillary vessels. In the second month of embryonic development, six lymphatic sacs are laid, from the mesenchyme: 2 of which are located near the jugular veins, 1 – retroperitoneal, at the base of the mesentery, 1 more next to the previous one, cisterna chili and 2 near the iliac veins. From the jugular sacs, the lymphatic system of the head, neck, and upper extremities develops. The