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BASIC SKIN PATHOLOGIES AND THE POSSIBILITIES OF THEIR DIAGNOSIS

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The work is devoted to the study of the main skin pathologies and the ability to diagnose them using the modern method of skin research - video dermatoscopy. The main aspects of the analysis of the processing of dermatoscopic images and the prospects for using such systems in medical practice are considered.

Relevance. The skin is a strong, but at the same time fragile protection of the human body, and its health is an indispensable condition for well-being. It is no coincidence that the skin is considered an independent organ that has a complex structure and performs vital functions, the violation of which leads to the corresponding pathological conditions. Their feature is the ability to visualize from the earliest stages, which allows you to immediately begin treatment. On the other hand, these diseases give people severe psychological discomfort, especially when it is not possible to quickly eliminate the symptoms. Therefore, timely diagnosis and adequate therapy can accelerate the treatment of dermatological diseases [1, 2].

Currently, one of the primary methods of examination in the diagnosis of skin diseases is video dermatoscopy. This method allows using special optical devices - video dermatoscopes to conduct a visual assessment of the condition of the skin and to inspect neoplasms with magnification from tens to hundreds of times with different depth of field, for different types of lighting and the use of optical filtering. The

method is non-invasive and allows one to determine the nature and risk of degeneration into a malignant form by the color and form of skin formation [1,3].

It is very important to diagnose skin diseases in the early stages and to understand whether the formations are malignant or not. Each disease needs its own diagnosis.

Therefore, **the aim of the work** is to study the main pathologies of the skin and the ability to diagnose them with devices designed for video dermatoscopy.

Results. There are many pathologies associated with skin diseases. In the course of research, the main groups of diseases were identified. For example, diseases such as dermatitis and dermatoses, which also include psoriasis, are not contagious, but can significantly worsen a person's physical condition. Accordingly, the diagnosis of such pathologies will be different than the diagnosis of melanoma.

It turned out that diseases such as dermatoses and dermatitis can be diagnosed with ScinScope, which is widely used in modern cosmetology and dermatology.

Own research on this device showed that the girl has various skin disorders, such as age spots, caused by UV rays, as well as age-related changes. (see Fig. 1) Dry skin, dehydration associated with the influence of climate.



Figure 1 - Shooting from a SkinScope

SKINSCOPE is a patented system for diagnosing skin with polarized light.

Based on the results of the diagnosis, the cosmetologist will select you home care and develop an individual plan of cosmetic procedures.

The next group of diseases is malignant diseases, which also include melanoma. It was determined that such diseases cannot be diagnosed with conventional devices that are used in cosmetology. Diagnosis of the tumor should be

carried out very carefully, with the study of all the symptoms and risk factors. All spots and moles that may be related to skin cancer, as well as lymph nodes in the inguinal and axillary areas, on the neck and especially near the suspicious focus, should be studied, since they can also be affected by a malignant tumor.

A diagnostic method for self-treatment of a patient with complaints of symptoms characteristic of melanoma is digital dermatoscopy. (see fig. 2)



Figure 2 - Digital dermatoscopy

Based on the range of tasks to be solved, the modern digital dermatoscopy system includes [4,5]:

- optical image acquisition unit - a device consisting of an achromatic or apochromatic (to reduce chromatic aberration) lens optical system, which allows to obtain an enlarged (usually from 10 to 300 times) image. - a digital camera that allows you to register a color optical image on the photodetector array.

- an interface module, which includes hardware and software for transmitting information to the data analysis subsystem. - a data analysis subsystem that is implemented on a graphic workstation and consists of the following modules:

- image pre-processing, which includes methods for suppressing noise components and histogram correction of the brightness and contrast of the input image;

- image descriptions - obtaining geometric and optical characteristics segmented in the previous module of objects. These characteristics are usually color coordinates, as well as the area, perimeter, shape factors of the analyzed objects.

- a module for the formation of a diagnostic solution in which classification is performed according to the characteristic features of the analyzed objects, for which their color and geometric characteristics are most often selected taking into account a priori and additional diagnostic information about the patient. It should be noted that in this module the formation of not a final, but a preliminary diagnostic solution that helps the doctor make a final diagnosis takes place.

Conclusions: In the diagnosis of various skin pathologies, it is advisable to choose those methods that are convenient for each of the diseases. In the tasks of automated processing of video dermatoscopic data, the perception of the field of view is associated with a priori information about the image under study. When developing methods for processing dermatoscopic images, it is advisable to choose methods that facilitate the subsequent stages of data analysis. The main indicators of the effectiveness of the developed methods and systems are high stability and repeatability of recognition of skin objects and the ability to process images in real time. The prospect of work is the development of a complete system for digital video dermatoscopy and its subsequent preliminary clinical trials.

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Тематика: Педагогічні науки

**ДІАГНОСТИКА ГОТОВНОСТІ СТУДЕНТІВ ДО ВИКОРИСТАННЯ
ДИСТАНЦІЙНИХ ТЕХНОЛОГІЙ В УМОВАХ КРЕДИТНО МОДУЛЬНОЇ
СИСТЕМИ ОРГАНІЗАЦІЇ НАВЧАННЯ У ЗАКЛАДАХ ВИЩОЇ ОСВІТИ**

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У сучасному освітньому просторі інформаційні технології – важливий фактор взаємодії викладача й студентів. В умовах стрімкого розвитку суспільства змінюються вимоги до професійної підготовки майбутніх фахівців, зростає потреба в підготовці компетентних фахівців, здатних до саморозвитку й швидкої перекваліфікації. Значні можливості для цього надає впровадження сучасних мережевих технологій, зокрема дистанційного навчання, і компетентнісного підходу в процес професійного навчання [1].

З метою виявлення стану готовності студентів до використання дистанційних технологій в умовах кредитно-модульної системи організації навчання було проведено констатувальний експеримент, що передбачав визначення експериментальної бази дослідження, добір діагностувальних методик і адекватних методів вивчення проблеми.