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**PHOTOPROTOCOL IN DENTISTRY*****Chakkanov Fakhritdin Khusanovich****Assistant Department of orthopedic dentistry, Samarkand State Medical University, Samarkand,  
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**ABOUT ARTICLE****Key words:** Photoprotocol, effective visual, professional image.**Received:** 03.10.2024**Accepted:** 08.10.2024**Published:** 13.10.2024**Abstract:** Photoprotocol is one of the imaging methods in dentistry, during which a series of photographs of the clinical situation with which the patient turned to the doctor and the stages of treatment are created. The method allows you to visually assess the effectiveness of treatment in the “was — became” format.

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**INTRODUCTION**

Photoprotocol is one of the imaging methods in dentistry, during which a series of photographs of the clinical situation with which the patient turned to the doctor and the stages of treatment are created. The method allows you to visually assess the effectiveness of treatment in the “was — became” format.

The only effective visual aid in dentistry is dental photography. Real images are used to explain difficult moments to the patient, to monitor the progress of treatment, evaluate the result and visualize expectations. Different photography techniques are used for different purposes. The professional image perfectly shows the condition of the enamel and soft tissues, which allows you to correctly diagnose all dental problems in the patient, plan treatment correctly, correct and control the process.

Dental photography is a diagnostic series of images of the face and oral cavity of patients, performed according to a strict protocol. Purpose: to record the initial clinical picture, the treatment process, the result of the work done. The use of dental photography provides significant advantages to both the doctor and the patient.

Visualization using high-quality photos is an important tool for full-fledged diagnosis, preparation of a treatment plan and communication with the patient. If you've been wanting to master dental photography for a long time and don't know where to start, don't worry: it's not as difficult as it seems. Let's look at the main points that will help bring your dental practice to a new level.



### **Advantages of working with photography**

Good photographic equipment is not cheap and it is not easy to decide on additional expenses. But the advantages of such an acquisition still outweigh and really help in the work.

1. Transparency of communication with the patient. A visual demonstration provides an opportunity to explain the problem in an accessible way, discuss its solution and eliminate misunderstandings. The patient will see the whole process for himself, will be able to compare the situation "before" and "after" and will not ask questions why the treatment cost a certain amount.

2. Compiling your own archive of works. The photo archive will complement the patient's card and allow you to thoroughly monitor the condition of his oral cavity. It will also be useful for analyzing your own development as a specialist and working out the shortcomings.

And archival photos of similar cases will help to show the patient what results can be achieved and convince him of the need for the treatment plan you recommend.

3. Productive communication with the dental technician. For example, in the matter of choosing the color of the structure during prosthetics. The human eye is not always able to detect small differences in semitones, besides, everyone's color perception is different. Properly configured, high-precision lenses perfectly read colors and eliminate the risk of color blunders due to the human factor.

4. The opportunity to share cases with colleagues. You probably subscribe to thematic dental communities on social networks or take part in conferences. Discussions of clinical cases are more effective and interesting precisely when demonstrating a high-quality picture. Besides, it's easier to show than to explain everything in words.

5. Self-promotion. If you are promoting a clinic or your personal brand, high-quality content is what you need to gain an audience. Promotional images from the photobank are unlikely to convince anyone, but an example of a successful solution to a specific problem will become an honest tool for attracting new customers.

So, we have identified the advantages. Now let's go directly to the hardware.

### **Equipment selection**

A good single-lens reflex camera (SLR) is suitable for the technical equipment of the dental office. The use of digital compacts degrades the image quality and does not transmit the necessary information. The SLR camera is much faster and provides:

excellent picture quality;

optimal use of light;

clear parameter setting;

comfortable shooting at a short distance.

**The choice of brand is not important.** Take what you like, but give preference to a well-known manufacturer: Nikon, Canon, Sigma, Sony. A crop camera will be quite enough: for example, look at the Nikon D90, D7100 and D3400, Canon 70D, 60D, EOS 350D and similar.

In dental photography, the lens for macro photography plays an important role – the most important structural part of the camera, which ensures high-quality image transfer to the matrix. Maximum comfort in operation will be provided by a lens with a focal length of 100 mm and internal focusing. An example of suitable models is Nikon AF-S 105 mm f/2.8 VR Micro, Sigma AF 105 mm f/2.8 EX DG OS HSM MACRO.

The next element you can't do without is a flash. The best option is considered to be an annular one, which is mounted directly on the lens and gives shadowless even illumination. Dual flashes are also popular, which capture texture and topography better.



It is worth looking at the following models: Sigma EM-140 DG Macro, Canon Macro Ring Lite MR-14 EX, Raylab R-10TTL, Nikon Speedlight Commander Kit R1C1, Remote Kit R1.

If you decide not to buy a separate flash, but to use a regular one, buy a diffuser: it will help to avoid the appearance of highlights and dark areas. A good choice would be the Kit Macro Canon dental macro attachment.

Don't forget to purchase accessories right away: spare batteries, a memory card, and an accessory bag. You will also need retractors, contrastors, side and occlusion mirrors.

### **How to take a picture.**

We recommend that you first set the following basic settings, which can then be adjusted for yourself already in the process:

aperture – f8 for face photography, f13-16 – for lips and teeth, f22-29 – for the oral cavity;

ISO (light sensitivity) – 100 or 200;

Shutter speed – 1/160;

The white balance is automatic or "flash".

The most common angles are:

face in profile and full-face, with and without a smile;

close-up smile;

front teeth with retractor;

left and right buccal segments;

occlusal surfaces of the upper and lower arches;

upper and lower incisors for lumen with contrast.

Taking pictures of the oral cavity is a rather complicated process for those who have no experience in photography. Here are some tips that will help you do everything perfectly.

1. When taking macro photos, set the camera and lens settings to manual mode. In this case, it is better not to use autofocus.
2. Place the contrast in the area of the first or second molars at a sufficient distance from the photographed teeth. This will avoid the appearance of light spots on the contrast due to the reflection of the teeth.
3. In order for the direct and blurred image of the photographed teeth not to fall into the composition of the image, the occlusal mirror should practically lie on the teeth of the opposite jaw. This principle is also relevant for intraoral photography with a side mirror.
4. If the mirror fogs up during shooting, heat it with a stream of warm water and ask the patient to hold his breath for a short time.
5. When working with an occlusive mirror, the nose should not get into the frame. To do this, the front teeth along the axis should be at the edge of the image, and the dental arch should evenly occupy the entire field of the image.

6. Before taking a photo, dry your teeth and gums with air to minimize the presence of saliva.

7. To register dental fluorescence and restoration, set the camera's light sensitivity to maximum and turn off the flash.



Digital photography is carried out, as a rule, both before and during, and even after the end of treatment. It captures details that are inaccessible even to an experienced doctor. This practice allows us to consider all the nuances, and not only the teeth, but the complex personality of a person as a well-coordinated organism, to harmonize it.

Thanks to the photo protocol, the patient receives not just a healthy tooth or even several. His smile is "fitted" by the doctor into his face, facial expressions, figure, character – there is a kind of correction of appearance in general, starting with dental treatment, including rejuvenation and correction of posture, and ending with a significant improvement in the quality of life.

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