



## **FEATURES OF FIXATION OF ARTIFICIAL CROWNS DURING PROSTHETICS ON DENTAL IMPLANTS "IMPLANT.UZ"**

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<b>Article history:</b>	<b>Abstract:</b>
<b>Received:</b> 6 <sup>th</sup> February 2023 <b>Accepted:</b> 6 <sup>th</sup> March 2023 <b>Published:</b> 10 <sup>th</sup> March 2023	In dentistry, the longcy of the functioning of structures has always been relevant. To understand in what situation, it is better to apply a screw or cement fixation during prosthetics on dental implants. This review article studied articles of various authors, about their research in the field of fixing artificial crowns for dental implants using screw and cement fixation. Each researcher highlights the advantages and disadvantages of each system. When screw fixation requires a x-ray study to make sure the superstructure of the suprastructure to the implant. In case of cement fixation, in addition to x-ray examination, careful removal of cement residues is otherwise needed problems with soft tissues around the implant.

**Keywords:** Screw fixation, cement fixation, artificial dentures, dental implant "Implant.Uz", passive fit.

**INTRODUCTION.** Rola Shadid BDS, studied and compared the use in the clinical practice of a screw and cement compound of the prosthesis and implant, since both methods show in the clinic both the advantages and disadvantages. Clinical experience, frequency of use and structure of disadvantages of cement and screw connection crowns with implants are not systematized. Screw fixation provides a rigid connection of an orthopedic design with an implant or abutment. Cement fixation allows us to get around some limitations. These include: aesthetics, low occlusive stability, the complexity of the manufacture of restorations with passive suction. The author believes that the cement layer absorbs excess occlusive load and optimizes its distribution to the implant and bone. Orthopedic structures on implants with cement fixation on manufacturing technique differ little from various orthopedic structures. Therefore, dental technique does not need to pass special training courses. Tools and materials used for cement fixation are cheaper than for screw. With the discrepancy of the axes of the implants, more than 17 ° restoration is easier to do with cement fixation, because neither in one system does not have angular abutments for screw fixation with the discrepancy of the rotor of the screw more than 17 °. If there is still a screw fixation in such a situation, it will have to make an individual abutment, but it requires high accuracy and good skills. The load deflection by 45 ° from the vertical causes plastic deformations in the brush zone of implant and screws (abutment or transcision), regardless of the method of fixing the crown, as well as in cement during cement fixation and in a metal-ceramic frame - with screw fixation. Many clinical and laboratory manipulations in the manufacture of restorations on implants require high accuracy. Small errors in each step of manufacturing prosthetic, a total lead to significant distortion of the restoration parameters. The change in the finished restoration occurs as a result of the improvement of all deviations that occurred at the stages of its manufacture. If the sum of all deformations is zero, the perfect passive suction is achieved. The absence of passive supplies during helical fixation leads to the best defocations of Po compared to cement fixation. Nr when the bolt lock design has a much smaller cracks that very bad, given the risk of microbial plantation. The presence of these slits is not associated with the use of implants, and for cement fixation slots may appear with resorption of temporary cement. Lewis SG, Lamas D Avera, C. et al. Reviewed the UCLA abutment and found that after the treatment of 46 patients with 118 UCLA abutments 4-year success rates were 95.8%. The most common screws are gold and titanium. Holding occurs due to the resistance of friction arising between the internal thread of the implant and the fastening screw. To understand how the screws can be reliably held, you need to understand why the screws are weakened. When two parts are tightened together with the screw, this node is called a screw connection. The screw is weakened only if the external forces trying

to separate the parts are greater than the force holding them together. Forces trying to disconnect parts are called divided forces. The force holding the details together can be called the clamping force. BINON PP, etc. showed that there is a direct correlation between hexagonal inconsistencies and a weakening of the screw connection. The rotational inconsistency of less than 2 degrees provided the most stable and predictable screw connection. There are two main factors affecting the preservation of the implant screw hard:

- 1) an increase in fixing pressure or forces
- 2) reduction or minimization of sharing forces application to teeth implants:

It is likely possible to connect several implant prostheses with a fully passive suction in the clinical situation. These inconsistencies leave microstrokes, and as a result, the exact interface between the casting and the implant is not achieved. The clinical picture is that the restoration of implants is constantly subjected to local exposure. These forces include the following:

- Excursion contacts
- axial centering contacts
- Corner abutments
- Interproximal contacts
- Console contacts

The goal is to minimize clinical compatible separation forces. Accurate placement of implants and treatment planning are the first important step in maintaining strict implant screws.

According to the results of the study V.N. Olesov and S.I. Dubinsky (the advantages of the screw connection of an artificial crown with an implant according to mathematical modeling).

The minimum storage margin (0.99) with the occurrence of irreversible plastic deformations and partial destruction is characteristic of the cement layer at the edge of the artificial crown. The movement of structural materials under load did not exceed 4 microns. A significant increase in stresses and displacements in all zones of the crown on the implant is registered under the application of the load application at an angle of 45 ° to an occlusal surface. When screw fixation, the smallest margin of strength (0.96-1.00) with the development of plastic deformation is marked in the transcision conclusion screw and implant in the brush zone of contact with the abutment, as well as in the metal frame of the crown along the support abutment. With cement fixation of the crown and the inclined direction of the load is exhausted by the margin of the strength of the coalioneer cement (0.67), which leads to its cracking and ransomment. The limiting reserves of strength comparable with the screw fixation are marked in the same zones: in the brush zone of the abutment screw, implant. When inclined load significantly increases the displacement of the design materials (from 4-8 microns in implants up to 113 µm in abutment and 154 microns in the crown).

The team of the Department of Hospital and Faculty Orthopaedic Dentistry of the Tashkent State Institute of Dentistry has created a domestic dental implant. The dental implant "Implant.uz" is made in two-stage and one-stage form. The execution of the implant in one-stage and two-stage form expands the range of implants depending on the medical indication and desire of the patient. Microscopic examination of the bone tissue of the jaws at 1, 3, 6 months after the implantation on the implant-bone boarder showed that the bone tissue adheres firmly to the metal surface of the implants and no extraneous inclusions, impositions and cavities are detected in the contact zones. Based on the results of this engineering and design development a patent for the useful model "Dental implant" FAP 00819 (2013) was received by the Intellectual Property Agency of the Republic of Uzbekistan.

The "Dental implant" was tested in experimental conditions on animals and passed the tests by the results of morphological, toxicological and microbiological studies( Mun T.O.,2017) and then in clinical practice it is expected to find out the effect of the domestic implant on the tissues and organs of the oral cavity.

The pectural size of the upper premolars is 9 mm, and the first and second molars are 11 mm. The width of the occlusal surfaces of the above-mentioned teeth is about 4.5 mm for premolars and from 5 to 6 mm for molars. The screw head has a diameter of about 3 mm and, it means that it requires a hole in the abutment at least 3 mm. These 3 mm are 50% of the width of the occlusal surface of the molars and more than 50% of the width of the occlusal surface of the premolars. The part of the occlusive surface that the screw hole occupies is extremely important to create proper occlusion, especially if we are talking about the molars. Due to the fact that the screw hole occupies such a significant and important part of the occlusal surface of the restoration surface, the creation of ideal occlusal contacts may be impossible. To solve this problem, the screw hole is closed with a composite material. However, according to Rola Shadid and Nasrin Sadaqa, the obtained occlusal contacts will not remain stable for a long period of time due to the wear of the composite, especially when the composite material is opposed to ceramic restoration. With cement fixation, you can create ideal occlusive contacts that will remain stable for a considerable period of time.

Aesthetic considerations can affect the choice of orthopedic parts and the method of fixation. Holes for screws are extremely unaesthetic. But this problem is limited only by lower premolars and molars. Modern opaque composite materials can disguise the gray spots of screw holes, but cannot hide them completely. It is obvious that such a problem does not exist for restorations with cement fixation. When screw fixation before the final tightening of the screw, an X-ray is required to confirm the correctness of the suspicion of the suprastructure to the implant. With cement fixation, except X- ray, careful removal of cement residues is required, as it affects the condition of the tissue around the implant. Yu-Hwa Pan rated cement strength. Cements were divided into 7 groups: final cements included zinc phosphate cement, Advance, All-Bond 2, Panavia F and Durelon, while temporary cements included Temp Bond and Improv. They came to the conclusion that the polymer cements All-Bond 2 and Panavia F have a statistically reliably higher value for loads

compared with other 5 types of cement. Waerhaug's study showed that the roughness of the enforcement part of the tooth cement contributes to the deposition of the plaque in the govary groove. Similarly, cement residues cause perimplentitis with all its signs: swelling, soreness, deepening of periodontal pockets, bleeding (or separation of exudate) during probing, radiographic signs of bone loss around the implant. With the help of microscopy, more pronounced abutment displacements relative to the implant were confirmed by inclined loading of the crown during cement fixation, leading to an increase in the fit of the fit microdistrict, and the remains of cement on the edge of the cemented crowns were revealed, which provokes the development of inflammatory complications in comparison with the screw fixation. More convenient, safe and reliable view is the screw type of fixation. This is due to the fact that if some problem arises with the implant (periodic replacement of orthopedic parts; attenuation or fracture of the screw; the fracture of the abutment; modifications of the prosthesis after the implant loss; re-surgical operation), then the filling material can be drilled over the screw, and the screw Slide and, thus, remove the crown. This is especially important in the case of prosthetics with extended structures consisting of several artificial crowns (i.e., bridges), which are fixed on several implants. Lack of opportunity to easily remove the restoration is the main disadvantage of cement fixation.

**CONCLUSIONS:** Disadvantages and advantages of cement and screw fixation during prosthetics on implants are shown. Knowledge of the possibilities and disadvantages of cement and screw fixation will help the dentist to choose the best option for each clinical situation.

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