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## ANTROPOMETRIJSKI PARAMETRI I ESTETIKA U IZRADI FIKSNIH STOMATOLOŠKIH NADOKNADA – 1. Deo

## ANTHROPOMETRIC PARAMETERS AND AESTHETICS IN THE MAKING OF FIXED PROSTHODONTIC RESTAURATIONS - Part 1

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### Sažetak

**Uvod:** Savremene stomatološke procedure, a posebno one u stomatološkoj protetici, vraćaju funkcionalni kapacitet orofacijalnom sistemu i poboljšavaju izgled pacijenta. Savremeni koncept estetske stomatologije je što prirodniji izgled zuba, a uspeh terapije usko je povezan sa poštovanjem antropometrijskih parametara i korektnog odnosa tvrdih i mekih oralnih tkiva. Orofacijalne elemente ne treba posmatrati odvojeno od kompozicije lica jer sa njim čine neodvojivu celinu.

**Cilj rada** bio je analiza parametara orofacijalnog sistema koji utiču na estetiku fiksnih protetičkih nadoknada na osnovu literaturnih podataka i kliničkog iskustva.

**Zaključak:** Lepota osmeha određena je oblikom, bojom i proporcijama gornjih prednjih zuba. Na sklad u kreiranju osmeha bitno ne utiču pojedinačne numeričke vrednosti širine i dužine zuba, već njihov međusobni odnos. Lep osmeh podrazumeva konvergenciju dužinskih osa prednjih zuba u odnosu na središnju liniju zubnog luka, koja progredira od centralnog sekutića do ošnjaka. Pored ovih kriterijuma treba uzeti u obzir i vidljivost sekutića, središnju liniju lica i zubnog luka, interdentalne tačke i kontakte, incizalne slobodne prostore kao i boju zuba kako bi se postigli maksimalni estetski efekti.

**Cljučne reči:** antropometrijski parametri, estetika, protetika

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### Abstract

**Introduction:** Modern dental procedures, especially those in prosthodontics, restore the functional capacity of the orofacial system and improve the patient's appearance. The modern concept of aesthetic dentistry is the most natural appearance of the teeth, and the success of the therapy is closely connected with the respect of anthropometric parameters and the correct ratio of hard and soft oral tissues. Orofacial elements should not be viewed separately from the composition of the face because they form an inseparable whole with it.

**The aim** of this study was to analyze the parameters of the orofacial system that affect the aesthetics of fixed prosthodontic restorations based on literature data and clinical experience.

**Conclusion:** The beauty of a smile is determined by the shape, color and proportions of the upper front teeth. The harmony in creating a smile is not significantly affected by individual numerical values of tooth width and length, but by their mutual relationship. A beautiful smile implies the convergence of the longitudinal axes of the front teeth in relation to the midline of the dental arch, which progresses from the central incisor to the canine. In addition to these criteria, the visibility of the incisors, the midline of the face and dental arch, interdental points and contacts, incisal free spaces as well as the color of the teeth should be taken into account in order to achieve maximum aesthetic effects.

**Keywords:** anthropometric parameters, aesthetics, prosthodontics

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 za stomatologiju Niš. Sva prava zadržana.

## Uvod

Težnja da se nadoknadi gubitak zuba i povрати uloga narušenom orofacijalnom sistemu postoji oduvek. U svojim začetima, stomatologija je za cilj prevashodno imala vraćanje funkcionalnog i strukturnog integriteta tvrdog zubnog tkiva i, shodno tome, kao materijali za restauraciju, upotrebljavani su metali. Tehnološkim razvojem i sintezom novih estetskih materijala, restaurirani zubi vraćali su svoj prvobitni izgled, a stomatologija dobila novu, kozmetičku komponentu. Savremene stomatološke procedure, a posebno one u stomatološkoj protetici, vraćaju funkcionalni kapacitet orofacijalnom sistemu i poboljšavaju izgled pacijenta.

### Značaj estetike u stomatologiji

Gubitak zuba ili njihova destrukcija nedvosmisleno narušavaju izgled pacijenta. Sanacija i nadoknada izgubljenih zuba, remodelacija desni i blistav osmeh čine da se pacijent oseća zadovoljno i motivisano u prevazilaženju realnih i psihičkih prepreka u prihvatanju stomatološke nadoknade. Zanimljivo je to da će pacijent radije kompenzovati funkcionalne smetnje povezane sa loše izrađenim protetskim radom, nego prihvatiti nadoknadu koja mu se ne dopada<sup>1</sup>.

Mediji i moderni svet elektronskih komunikacija, a posebno društvene mreže, lepotu su od poželjne osobine pretvorile u socijalnu potrebu. Zatrpali velikim brojem „retuširanih“, često nerealnih, fotografija, koje su funkcijom bliže propagandnim obećanjima, stomatološki pacijenti postali su zahtevniji. Sa druge strane, ne sme se upasti u zamku generalizacije i kopirati „holivudski osmeh“, karakterističan po krupnim, uniformnim i neprirodno belim zubima. Savremeni koncept estetske stomatologije je što prirodniji izgled zuba, a uspeh terapije usko je povezan sa poštovanjem antropometrijskih parametara i korektnog odnosa tvrdih i mekih oralnih tkiva. Na taj način vraćamo se na stari paradoks naše, pre svega, kreativne struke – ulažemo maksimalne napore da stvorimo delo koje ne treba da se primeti.

Zadatak stomatologa je da povрати lep izgled destruiranih i oštećenih zuba, oblikuje osmeh i sve to uskladi sa fizionomijom lica. Usklađivanjem stomatoloških nadoknada sa preostalim zubima i njihov adekvatan odnos prema potpunom aparatu opravdava očekivanja pacijenata. Orofacijalne elemente ne treba posmatrati odvojeno od kompozicije lica, jer sa njim čine neodvojivu celinu<sup>1,2</sup>.

## Introduction

The desire to compensate for the tooth loss and restore the role of the damaged orofacial system has always existed. In its beginnings, dentistry primarily aimed at restoring the functional and structural integrity of hard dental tissue, and accordingly, metals were used as materials of choice for such restorations. With the technological development and synthesis of new aesthetic materials, the restored teeth returned to their original appearance, and dentistry received a new cosmetic component. Modern dental procedures, especially those in prosthodontics, restore the functional capacity of the orofacial system and improve the patient's appearance.

### The importance of aesthetics in dentistry

Tooth loss or destruction unequivocally impairs the patient's appearance. Rehabilitation and replacement of lost teeth, gum remodeling and a bright smile make the patient feel satisfied and motivated in overcoming real and psychological obstacles in accepting artificial dental compensations. Interestingly, the patient would rather compensate for functional disorders associated with poorly made prosthodontic restorations, than accept compensation that he does not like<sup>1</sup>.

The media and the modern world of electronic communications, and especially social networks, have turned beauty from a desirable feature into a social need. Overwhelmed by a large number of "retouched", often unrealistic, photographs, which are closer in function to propaganda promises, dental patients have become more demanding. On the other hand, we must not fall into the trap of generalization and copy the "Hollywood smile" characteristic of large, uniform and unnaturally white teeth. The modern concept of aesthetic dentistry is the most natural appearance of the teeth, and the success of the therapy is closely connected with the respect of anthropometric parameters and the correct ratio of hard and soft oral tissues. In this way, we return to the old paradox of our, above all, creative profession - we make every effort to create a work that should not be noticed.

The dentist's task is to restore the beautiful appearance of destroyed and damaged teeth, shape a smile and harmonize it all with the physiognomy of the face. By harmonizing the dental restorations with the Orofacijalne elemente should not be viewed separately from the composition of the face because they form an inseparable whole with it<sup>1,2</sup>.

## *Estetika u stomatološkoj protetici*

Najbolji estetski rezultati nakon gubitka zuba postižu se fiksnim protetičkim radovima, zahvaljujući širokom spektru materijala odličnih mehaničkih i hemijskih svojstava, koji verno nadograđuju zubna tkiva, dajući im neophodnu tvrdoću i čvrstinu i skladan i prirodan izgled. Indikaciono polje fiksne protetike obuhvata pacijente sa nedostatkom zuba, destrukcijom zubnog tkiva, poremećajima u okluzo-artikulacionoj šemi, kao i one nezadovoljne bojom, oblikom i položajem zuba.

Izrada estetski prihvatljive fiksne protetičke nadoknade zahteva interdisciplinarni pristup različitih specijalističkih grana stomatologije. Iz tih razloga, parametri koji je determinišu moraju da budu jasno definisani, a odnose se na oblik, veličinu i boju veštačkih krunica i njihov odnos prema fizionomiji lica i obliku alveolarnih grebena. Poseban akcenat treba staviti na odnos fiksnih protetičkih radova i mekih oralnih tkiva, odnosno, prilagoditi ih ili preoblikovati te strukture u cilju dobijanja morfološkog i funkcionalnog sklada.

**Cilj** rada bila je analiza parametara orofacijalnog sistema, koji utiču na estetiku fiksnih protetičkih nadoknada, na osnovu literaturnih podataka i kliničkog iskustva. Upoznavanje osnovnih antropometrijskih smernica ima za svrhu bolju morfološku rekonstrukciju zubnog luka i poboljšanje estetskog učinka fiksnog protetičkog rada.

### *Oblik i veličina zuba*

Lepota osmeha određena je oblikom, bojom i proporcijama gornjih prednjih zuba. Na sklad u kreiranju osmeha bitno ne utiču pojedinačne numeričke vrednosti širine i dužine zuba, već njihov međusobni odnos<sup>1,2</sup>. Taj odnos zavisi od rasne pripadnosti i pola pacijenta, a u Tabeli 1 prikazane su srednje vrednosti za belu rasu<sup>3</sup>.

## *Aesthetics in prosthodontics*

The best aesthetic results after tooth loss are achieved with fixed prosthodontic restorations thanks to a wide range of materials with excellent mechanical and chemical properties, which faithfully mimic dental tissues, giving them the necessary hardness and strength and a harmonious and natural look. The indication field of fixed prosthodontics includes patients with missing teeth, destruction of tooth tissue, disorders in the occlusal-articulation scheme, as well as those dissatisfied with the color, shape and position of the teeth.

The development of an aesthetically acceptable fixed prosthodontic restoration requires an interdisciplinary approach of various specialist branches of dentistry. For these reasons, the parameters that determine it must be clearly defined, and they refer to the shape, size and color of artificial crowns and their relationship to the physiognomy of the face and the shape of the alveolar ridges. Special emphasis should be placed on the relationship between fixed prosthodontic restorations and soft oral tissues, that is, to adapt them in this way, or to reshape these structures in order to obtain morphological and functional harmony.

**The aim** of this study was to analyze the parameters of the orofacial system that affect the aesthetics of fixed prosthodontic restorations based on literature data and clinical experience. The introduction of basic anthropometric guidelines aims at better morphological reconstruction of the dental arch and improvement of the aesthetic effect of fixed prosthodontic restorations.

### *Tooth shape and size*

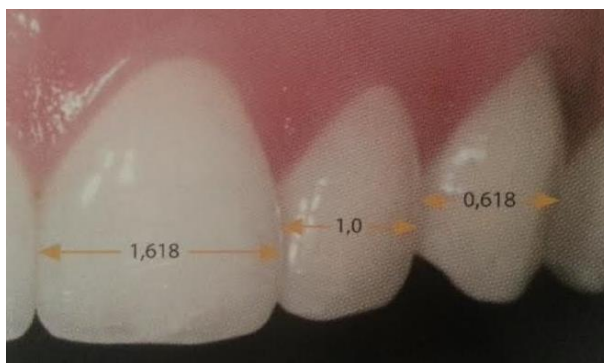
The beauty of a smile is determined by the shape, color and proportions of the upper front teeth. The harmony in creating a smile is not significantly affected by individual numerical values of tooth width and length, but by their mutual relationship<sup>1,2</sup>. This relationship depends on the race and gender of the patient, and Table 1 shows the mean values for Caucasians<sup>3</sup>.

**Tabela 1:** Proporcionalni odnos širine i dužine zuba (%) kod evropeidne (kavkazoidne) rase<sup>3</sup>  
**Table 1:** Proportional ratio of tooth width and length (%) in Caucasian race<sup>3</sup>

Odnos širine i dužine zuba % / Relationship between teeth width and length %	Muškarci / Male	Žene / Female
Centralni sekutić / Central incisor	85	86
Lateralni sekutić / Lateral incisor	76	79
Očnjak / Canine	77	81

Analogno plastičnoj hirurgiji, u odnosu širine prednjih zuba postoji „zlatna“ proporcija, koja obezbeđuje maksimalni estetski učinak<sup>4,5</sup>. Sažeto govoreći, prednji zub estetski je lep ako njegova širina iznosi 60% veličine mezijalnog susednog zuba. Dakle, ako je širina lateralnog sekutića 1 cm, centralni sekutić širi je 1,6 puta, a očnjak 0,6 puta uži (Slika 1). Nedostatak ovog pravila je ograničavanje na širinu zuba, bez sagledavanja njegove dužine i okoline<sup>6</sup>.

Analogous to plastic surgery, there is a "golden" proportion in the ratio of the width of the front teeth, which provides the maximum aesthetic effect<sup>4,5</sup>. In short, an anterior tooth is aesthetically beautiful if its width is 60% of the size of its mesial adjacent tooth. Thus, if the width of the lateral incisor is 1cm, the central incisor is 1.6 times wider and the canine 0.6 times narrower (Figure 1). The disadvantage of this rule is that it is limited to the width of the tooth, without considering its length and surroundings<sup>6</sup>.



**Slika 1:** Zlatna proporcija primenjena na gornje prednje zube<sup>4</sup>  
**Figure 1:** Golden proportion applied to the upper front teeth<sup>4</sup>

Prema Willamsu, oblik centralnog sekutića odgovara obliku lica, te se oni mogu grubo klasifikovati na trouglaste, ovoidne i četvrtaste<sup>7</sup>. Oblik lica određuje se zamišljanjem dve linije koje prolaze 2,5 cm ispred tragusa i kroz ugao mandibule. Ukoliko su one međusobno paralelne, lice je četvrtasto, ako divergiraju prema bradi – ovalno, a ako konvergiraju – trouglasto<sup>7</sup>.

Uzimajući u obzir razlike u fizionomiji muškog i ženskog lica i tela, postoji praksa da se ženama modeluju fiksne restauracije „mekih“ formi, odnosno ovalniji i zaobljeniji zubi, dok su prvi izbor oblika zuba za muškarce četvrtasti zubi, koji odražavaju čvrstoću i snagu<sup>8</sup>.

According to Willams, the shape of the central incisor corresponds to the shape of the face, and they can be roughly classified into triangular, ovoid and square<sup>7</sup>. The shape of the face is determined by imagining two lines that pass 2.5cm in front of the tragus and through the corner of the mandible. If they are parallel to each other, the face is square, if they diverge towards the chin, they are oval, and if they converge, they are triangular<sup>7</sup>.

Taking into account the differences in the physiognomy of the male and female face and body, there is a practice of modeling fixed restorations of "soft" shapes, i.e. more oval and rounded teeth for women, while the first choice of tooth shape for men are square teeth that reflect strength and power<sup>8</sup>.

### ***Vidljivost sekutića (incizalna dužina)***

Incizalna dužina označava vidljivost sekutića pri različitim kretanjama gornje usne. Ona je promenljiv parametar, koji zavisi od starosti, pola, kao i od dužine, položaja i pokretljivosti gornje usne<sup>1</sup>.

Pri blago otvorenim ustima, kod mladih osoba, vidljivo je prosečno 3,5 mm gornjih zuba, dok su donji zubi jedva vidljivi. Starenjem se vidljivost inciziva smanjuje, što je uzrokovano opuštanjem mimičnih mišića gornje usne i trošenjem incizalnog brida tokom vremena. U donjem zubnom luku, vidljivost zuba povećava se zbog smanjenog tonusa mišića donje usne.

Incizalnu dužinu moguće je korigovati kliničkim produženjem krune u incizalnom ili gingivalnom smeru. Pri tome je potrebno voditi računa o izgovaranju pojedinih glasova, kao i vertikalnom i horizontalnom preklopu sekutića.

### ***Položaj zuba***

Lep osmeh podrazumeva konvergenciju dužinskih osa prednjih zuba u odnosu na središnju liniju zubnog luka, koja progredira od centralnog sekutića do očnjaka<sup>9</sup>. Odstupanje samo jednog zuba može bitno da remeti sklad i simetriju osmeha (Slika 2). Uzdužna osa gornjih centralnih sekutića je, gledajući u odnosu na središnju liniju, lagano zakošena distalno i svojim incizalnim bridovima dodiruje orijentacionu okluzalnu ravan. U vestibulo-oralnom smeru, vestibularna površina položena je okomito ili lagano vestibularno. Lateralni sekutići svojom uzdužnom osom još više naginju distalno i njihovi incizalni bridovi nalaze se oko 0,5 mm do 1 mm od okluzalne linije.

Očnjaci su postavljeni još više distalno, posmatrano sa prednje strane, zbog svog lingvalnog nagiba, u odnosu na incizalne bridove. Posmatrajući sa bočne strane, očnjaci i premolari prate vertikalnu dužinsku osu i dodiruju okluzalnu liniju.

### ***Incisal length***

The incisal length indicates the visibility of the incisor at different movements of the upper lip. It is a variable parameter that depends on age, gender, as well as the length, position and mobility of the upper lip<sup>1</sup>.

With a slightly open mouth in young people, an average of 3.5 mm of the upper teeth is visible, while the lower teeth are barely visible. As you age, the visibility of the incisor decreases, which is caused by the relaxation of the mimic muscles of the upper lip and the wear of the incisal edge over time. In the lower dental arch, the visibility of the teeth increases due to the reduced muscle tone of the lower lip.

The incisal length can be corrected by clinically extending the crown in the incisal or gingival direction. It is necessary to take into account the pronunciation of individual voices, as well as the vertical and horizontal overlap of the incisors.

### ***Tooth position***

A beautiful smile implies the convergence of the longitudinal axes of the front teeth in relation to the midline of the dental arch, which progresses from the central incisor to the canine<sup>9</sup>. The deviation of just one tooth can significantly disrupt the harmony and symmetry of the smile (Figure 2). The longitudinal axis of the upper central incisors, looking relative to the midline, is slightly obliquely distal and touches the orientation occlusal plane with its incisal edges. In the vestibulo-oral direction, the vestibular surface is laid vertically or slightly vestibularly. The lateral incisors with their longitudinal axis incline even more distally and their incisal edges are located about 0.5 to 1 mm from the occlusal line.

The canines are placed even more distally observed from the front due to their lingual inclination in relation to the incisal edges. Observed from the side, the canines and premolars follow the vertical longitudinal axis and touch the occlusal line.



**Slika 2:** Konvergencija dužinskih osa prednjih zuba u odnosu na središnju liniju zubnog luka<sup>4</sup>  
**Figure 2:** Convergence of the longitudinal axes of the anterior teeth relative to the midline of the dental arch<sup>4</sup>

### ***Središnja linija lica i zubnog luka***

Središnja linija lica predstavlja početnu tačku svake estetske analize<sup>10</sup>. Definiše se kao zamišljena vertikalna linija, koja deli lice na dve simetrične polovine. U 70% slučajeva, poklapa se sa središnjom linijom zubnog luka, koja se najčešće nalazi u nivou incizalne papile ili gornjeg vestibularnog frenuluma<sup>11</sup>. Blaga odstupanja ne utiču nužno na izgled pacijenta, te fiksnim protetičkim radom nije neophodno da se isprave.

Istraživanja su pokazala to da se gornja i donja središnja linija zuba ne poklapaju u 75% slučajeva, što, sa stanovišta lepog, i nije od velikog značaja, s obzirom na to da donji zubi nisu preterano vidljivi. Znači, donja središnja linija zubnog luka ne treba da bude determinanta pri određivanju središnje linije zubnog luka u gornjoj vilici.

Nemaju svi pacijenti simetrično lice. Bez obzira na odstupanja brade ili nosa od središnje linije lica, pacijenti mogu izgledati prijatno. Veći problem predstavljaju dijasteme između centralnih sekutića, koje je potrebno korigovati ortodontskom terapijom ili veštačkim krunicama, sa rizikom da one budu predimenzionirane.

### ***Interdentalne kontaktne tačke i površine***

Interdentalne kontaktne tačke i površine označavaju mesta dodira dva susedna zuba. Postoji tačno pravilo koje označava odnos između prednjih susednih zuba, a radi se o pravilu 50:40:30<sup>13</sup>(Slika 3).

Idealna zona dodira gornjih centralnih sekutića trebalo bi da iznosi 50% njihove dužine, zatim 40% dužine gornjih centralnih

### ***The midline of the face and dental arch***

The midline of the face is the starting point of any aesthetic analysis<sup>10</sup>. It is defined as an imaginary vertical line that divides a face into two symmetrical halves. In 70% of cases, it coincides with the midline of the dental arch, which is most often located at the level of the incisal papilla or upper vestibular frenulum<sup>11</sup>. Mild deviations do not necessarily affect the patient's appearance, and they do not necessarily have to be corrected by fixed prosthetic work.

Studies have shown that the upper and lower middle lines of the teeth do not match in 75% of cases, which is not of great importance from the point of view of general beauty, considering that the lower teeth are not overly visible. Thus, the lower midline of the dental arch should not be a determinant in determining the midline of the dental arch in the upper jaw.

Not all patients have a symmetrical face. Regardless of the deviation of the chin or nose from the midline of the face, patients can look comfortable. A bigger problem is the diastemas between the central incisors, which need to be corrected with orthodontic therapy or artificial crowns, with the risk of them being oversized.

### ***Interdental contact points and surfaces***

Interdental contact points and surfaces mark the points of contact of two adjacent teeth. There is an exact rule that marks the relationship between the front adjacent teeth, and it is the 50:40:30 rule<sup>13</sup>(Figure 3).

The ideal contact zone of the upper central incisors should be 50% of their length, then 40% of the length of the upper central



sekutića predstavlja idealnu zonu dodira između bočnih i centralnih sekutića, dok bi kontaktna površina između lateralnih sekutića i očnjaka trebala da iznosi 30% dužine centralnih sekutića. Interdentalna papila trebalo bi da zauzima slobodni interdentalni prostor. To nije slučaj kada su kontakte površine pomerene apikalno.

incisors represents the ideal contact zone between the lateral and central incisors, while the contact area between the lateral incisors and canines should be 30% of the length of the central incisors. The interdental papilla should occupy free interdental space. This is not the case when the surface contacts are shifted apically.



**Slika 3:** Pravilo 50:40:30<sup>4</sup>

**Figure 3:** Rule 50:40:30<sup>4</sup>

### ***Incizalni slobodni prostori***

Incizalni slobodni prostori predstavljaju tamna područja između incizalnih bridova gornjih prednjih zuba, a postaju uočljivi tek pri otvaranju usta<sup>13</sup> (Slika 4). Njihova veličina i oblik, pre svega, zavise od oblika svakog pojedinačnog zuba, zatim od međusobnog razmaka susednih zuba, ali i od nekih patoloških promena, prilikom kojih se oni smanjuju, kao na primer pri patološkoj abraziji ili pak povećavaju – u slučaju hipodontije nekog zuba. Ovi prostori najmanji su između centralnih sekutića, a najveći između lateralnih sekutića i očnjaka. Najčešće su trouglastog oblika.

Slobodni incizalni prostori mogu uticati na percepciju dužine i širine incizalnih bridova. Promena oblika incizalnog brida može uticati na iluziju sužavanja ili širenja zuba.

Ako se mezio-incizalni i disto-incizalni uglovi zaoble jače nego što je potrebno, zubi će se samo činiti dužim.

Izrazito naglašeni incizalni prostori stvaraju utisak smanjenja prednjeg segmenta, dok se njihovim izbegavanjem simulira ravna linija, koja daje utisak povećanja frontalnog fiksnog protetičkog rada.

### ***Incisal free spaces***

Incisal free spaces represent dark areas between the incisal edges of the upper front teeth, and they become noticeable only when the mouth is opened<sup>13</sup> (Figure 4). Their size and shape depend primarily on the shape of each individual tooth, then on the spacing of adjacent teeth, but also on some pathological changes in which they decrease, such as pathological abrasion, or increase - in the case of hypodontia of a tooth. They are the smallest between the central incisors and the largest between the lateral incisors and the canines. They are usually triangular in shape. Free incisal spaces can affect the perception of the length and width of the incisal edges. Changing the shape of the incisal edge can affect the illusion of narrowing or widening of the teeth.

If the mesio-incisal and dysto-incisal angles become more rounded than necessary, the teeth will only appear longer.

Distinctly emphasized incisal spaces create the impression of reduction of the anterior segment, while their avoidance simulates a straight line that gives the impression of an increase in frontal fixed prosthetic work.



**Slika 4:** Slobodni incizalni prostori<sup>4</sup>  
**Figure 4:** Free incisal spaces<sup>4</sup>

### ***Boja zuba***

Boja je subjektivna senzacija, koja se prenosi aktiviranjem receptora na očnoj mrežnjači. Pri tome, boja predmeta zavisi od njegove sposobnosti da reflektuje svetlost, koja pada na njega<sup>1,14</sup>.

Boja, transparentcija, zamućenje i fluorescencija zuba nisu konstantne. Prilikom biranja boje, važno je uzeti u obzir samu ličnost, karakter i životni stil pacijenta. Izbor boje zuba kompleksna je tematika, kojoj treba posvetiti posebnu pažnju, pa su za postizanje optimalnog terapijskog učinka potrebne dodatne obuke terapeuta<sup>2,14</sup>.

### ***Zaključak***

Estetika je, pre svega u domenu stomatološke protetike, jedan od osnovnih izazova moderne stomatologije. Upotrebom dostupnih antropometrijskih podataka otvara se mogućnost preciznijeg planiranja i izrade fiksnih protetskih restauracijavisoke estetske vrednosti. Dostupnost ovih podataka omogućio je i razvoj sofisticiranih softverskih algoritama koji se koriste kao pomoćni alati u stomatološkoj tehnici i samoj stomatološkoj praksi.

### ***Tooth color***

Color is a subjective sensation that is transmitted by activating receptors on the retina. In doing so, the color of an object depends on its ability to reflect light falling on it<sup>1,14</sup>.

Tooth color, transparency, turbidity and fluorescence are not constant. When choosing a color, it is important to take into account the personality, character and lifestyle of the patient. The choice of tooth color is a complex topic that needs special attention, so additional training of therapists is needed to achieve the optimal therapeutic effect<sup>2,14</sup>.

### ***Conclusion***

Aesthetics is, primarily in the field of prosthodontics, one of the main challenges of modern dentistry. The use of available anthropometric data opens the possibility for more precise planning and production of fixed prosthetic restorations of high aesthetic value. The availability of this data has also enabled the development of sophisticated software algorithms that are used as tools in dental laboratories and dental practice as well.



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