INFLUENCE OF TYPES OF DESIGNS OF DENTAL STRUCTURE PREPARATIONS FOR AESTHETIC TREATMENTS WITH CERAMIC LAMINATES – LITERATURE REVIEW

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ABSTRACT

Currently there is a great search for aesthetics in all areas, be it physical or social behavioral. In this way, there was a valorization and a growing demand for Aesthetic Dentistry, which works in an integrated way with other specialties and professionals to transform smiles, returning function, modifying colors, formats, leaving an appearance even more suited to beauty standards. There are several restorative options to establish an aesthetic and harmonic smile that is in the standards of demand and expectation of patients. The porcelain laminates veneers stand out in the current dentistry because they combine high aesthetic appeal and patient satisfaction with the preparation of increasingly less invasive teeth. This concept has been in existence for more than 25 years, and a classification system has been proposed for the types of preparation designs in the dental structure, which benefits both the dentist and the patient, as it assists in multiple aspects of treatment planning and communication. This literature review aims to evaluate the influence of the types of preparation designs most discussed in the literature for porcelain laminates veneers. With this it was possible to conclude that there exist that: the preparation of window type has a lower microleakage index than the other types; The preparation with reduction in the proximal ones has advantage in eliminating the risks of formation of pigmentation along the proximal margins; The feather-type preparation has the advantage of conserving the enamel and maintains the orientation on the natural tooth; Bevel type preparation (with incisal reduction) has the advantage of returning aesthetic and functional characteristics, as it allows the ceramic technician to form an incisal translucency, guaranteeing excellent optical properties in this region; And, finally, the Overlap preparation with Palatine Overgrowth, demonstrates a higher resistance than the other types of preparation, although it tends to present a higher risk of microleakage in the palatal margin. However, in relation to clinical longevity, there were no statistically significant differences between the types of preparation.

INTRODUCTION

Nowadays, clinical procedures are not only aimed at returning the shape and function of dental elements. (SOARES PV et al., 2012) Due mainly to the influence of the media, the search for the perfect image has become important in a modern society that cultivates aesthetics. (TEIXEIRA et al., 2003). For this reason, people increasingly come to dental offices with very high aesthetic requirements, seeking treatments that meet their expectations. This increase in the demand for aesthetic smile solutions contributes to the development of new materials and more conservative dental techniques and with more favorable aesthetic results. (AHMAD, 2008; Menezes MS et al., 2015). With that, Dental Surgeons today can combine aesthetic excellence with minimally invasive treatment. (GÜREL, G., 2007).

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Modern dentistry has always sought the most conservative treatments, to the point of avoiding removing healthy dental structure unnecessarily. (FERRARI, G., 2012) Result of this interest, came the ceramic veneers, which are indirect restorations that have good biomechanical resistance, and can be ultrafine, known as ceramic veneers, or popularly: dental contact lenses, due to the similarity with the eye contact lenses, regarding the similarity in terms of translucency and thickness that can vary between 0.2mm to 0.5mm. They can be made by traditional means in a dental laboratory, or by new technology in CAD / CAM (computer-aided design / computer-aided manufacturing), for greater precision and adjustment (OKIDA, R.C et al., 2016).

Ceramic laminates are ceramic sheets joined using adhesive techniques on the surface of dental elements, and have stood out in relation to traditional treatments, as they are proving to be a good option for aesthetic and conservative treatment, and offer satisfactory solutions to correct changes in color, shape, size, position, symmetry and surface texture. (PEUMANS, M. et al., 2000; FRIEDMAN MJ., 2004) In addition, ceramics have intrinsic characteristics, such as biocompatibility, high resistance to compression and abrasion, color stability, gloss, radiopacity, chemical stability, longevity, low plaque accumulation, thermal expansion coefficient close to that of the dental structure, excellent potential to simulate the appearance of natural teeth and predictability of result, because when well indicated they provide a highly satisfactory treatment, with greater longevity and minimal or no wear of the dental elements. (FRADEANI M. et al., 2005; KINA., 2005; AQUINO APT. Et al., 2009; OKIDA, RC et al., 2016; SOARES PV. Et al., 2016)

Regarding the techniques of preparing the teeth to receive this type of restoration, they can vary from very aggressive reduction to even minimally invasive ones, and also techniques that do not receive any type of preparation. (HELVEY GA, 2009) Thus, the types of preparations for ceramic laminates are subdivided into enamel preparation, dentin preparation and without preparation. However, the authors in general do not present a consensus regarding the laminates and the type of dental preparation, as some always indicate preparation and others do not. Thus, this work aims to make a bibliographical survey on ceramic laminates, with the main focus to clarify this issue.

**Literature revision**

**Historic**

Dental ceramics, also known as dental porcelain, have their word named after the Greek expression keramos, which means clay. The first evidence of its existence was described almost 13,000 years ago, in the excavations of the Nile Valley, in Egypt. In the 17th century, this material arrived in Europe and became known as tableware, but since the 10th century, China had already mastered the technique of ceramic art, but it was only in 1717 that Europeans discovered that Chinese pottery was made from 3 elements, namely: kaolin (Chinese clay), silica (quartz) and feldspar (mixture of aluminum silicates, potassium and sodium), so, in the year 1720, they made porcelain compared to Chinese, which it was thin and translucent, composed of feldspar and calcium oxide as a flux, and the burning was carried out at high temperature. So the Europeans started to produce real pottery. (GOMES, E.A et al., 2008; BONA, AD., 2004)

In dentistry, porcelain was already referred to since the late 1920s as an aesthetic resource, and the first evidence of reports of ceramic laminates was addressed in the 1930s by Dr Charles Pincus, who was considered the precursor of laminated veneers. It performed faceting of the buccal surfaces of the teeth, using adhesive powder for dentures on actors in the film industries, in order to enhance their appearance. However, these thin facets were temporarily cemented, as there was still no adhesive system that would bond them to the teeth, so after filming at the end of the day, they were removed. (BOYER, D.B., 1982; MAGNE E BELSER, 2003; TOUATI et al, 2000; RADZ et al., 2011)

According to RADZ et al., 2011, in the 50's there was an evolution in the concept and application of porcelain veneers, in which leucite is incorporated into the ceramic formulation, improving the resistance issue without intervening in the opacity of the piece. In the same years, the concept of the acid conditioning technique emerged, revealed by BUONOCORE and considered an advance for modern dentistry, together with the evolution of composite resins based on BIS-GMA introduced by BOWEN in the 60s, and in the same period, MCLEAN innovated by introducing feldspar porcelain reinforced by aluminum oxide particles. Subsequent there was the development of dental composites and also in the treatment and adhesion of the ceramic surface, idealized by ROCHEFET in 1973, making possible an effective adhesion, with the formation of a hybrid layer, which is the impregnation of monomer in the dentinal structure, and thus enamel and dentin, accepting adhesive systems, made adhesion a reality. (TOUATI et al, 2000; BENNETI, 2003; BARATIERI et al, 2008) Due to the development of these materials and techniques, that ceramic laminates are a reality today, and their consolidation occurred in 1983 when there was another advance in the dentistry, because in this period HORN starts making porcelain veneers. Thus, CALAMIA AND SIMONSEN, through these innovations, launched the conditioning of the internal surfaces of porcelains with hydrofluoric acid, and HORN claimed the use of a light-curing resinous agent for cementation, being effective in the development of the technique, and later SIMONSEN, CALAMIA and HORN disclosed in his studies that the conditioned porcelain and the fixation resin preceded by a pretreatment with silane, provided an increase in the effectiveness of the adhesion of the piece with the dental structure. (RUFENACHT; 1998; MAGNE and BELSER; 2003; BARATIERI et al, 2008)

With all this progress in Dentistry, it was possible to make very thin veneers, with thickness between 0.3 and 0.5 mm, known as dental contact lenses, and ultraconservative preparations started to be used, with minimal dental wear. (SHETTY et al., 2011) Currently there is the CAD / CAM system, which according to Kelly et al 2011, was the first prototype capable of capturing 3D images, and was introduced in 1987, and can make the production of laminates easier. , with a natural appearance and a better adaptation. In addition, this technology is the one that least depends on the technician's manual ability, and can be made with a large number of available materials, among them: glass ceramics reinforced by leucite, glass ceramics based on
lithium disilicate and zirconium dioxide. (STRUB et al., 2006).

**Indications and Contraindications**

Planning is considered a fundamental step for the elaboration of any type of restorative work, allowing for predictability and allowing possible failures to happen. (GONZALEZ, MR et al., 2011) Thus, before indicating treatments with ceramic laminates, or any other type of intervention, it is essential that the professional establish a correct analysis of the case and formulate a good planning, verifying the real need for the same, because common sense is fundamental, since the conservation of dental tissues is an objective to be followed. (MONDELLI et al., 2003)

According to SOUZA E et al., (2002), the indirect aesthetic facets proved to be favorable when more invasive techniques started to be challenged, due to the high wear of the dental structures for making totals, or another aesthetic procedure that implied a great tissue loss.

According to HIRATA & CARNESI (1999), porcelain veneers are considered an excellent aesthetic treatment option for anterior teeth, due to their characteristic of better mechanical resistance, however, provided that a correct adjustment is made in the excursion movements that influence longevity and preservation.

Some authors define the real indication for ceramic laminates, that is, they are ideal for correcting slight distortions and dental contouring, as well as being able to disguise class III, IV and V restorations, and mask chromatic changes to the crown caused, slight distortions and dental enamel malformation and fluorosis. They are also suitable to correct small morphological changes such as conoid teeth, diastemas and microdontia, when dental elements are resistant to whitening or when there is a need to increase the incisal length, the buccal volume, the alteration of the dental alignment, the restoration of disocclusion guides, in the dental position, replacement of composite resin restorations, abrasion, erosion and even pigmentation masking. (STRASSLER 2007; MAZARO et al. 2009; SOARES et. Al. 2014; GUREL et al. 2007; MEZZALIRA, 2011; ANDRADE and ROMANINI, 2004; BOTTINO et al., 2009)

Citing the indications is as important as mentioning the contraindications, but they should not be treated as a definitive form, but as limitations of each case. KINA, et al., (2007) establishes some restrictions for the use of ceramic veneers, such as: Teeth exposed to high occlusal load, parafunctional habits such as bruxism, severe dental crowding, wide restorations, great coronary destruction, severe color change, presence of periodontal disease and high caries activity.

For HIRATA and CARNESI (1999), the final cost of the work is also considered as a contraindication for laminates, since the laboratory part and the need for more clinical sessions can burden the procedure, and can become financially unfeasible for the patient.

TOUATI et al. (2000) and BARATIERI et al. (2001), contraindicate the porcelain veneers, in cases of preparations that tend to wear the dental structure excessively, not allowing the preservation of at least 50% of the enamel. In endodontic teeth, with enough elimination of coronary tissue, they are also not indicated for this. (KINA S, 2005)

In his work, SMALES (2004) followed 50 patients for 7 years, installing 110 ceramic laminates, of which there were only 6 failures, and such failures and detaches occurred due to fatigue and occlusal stress, together with the incorrect selection of patients and the failures that occurred during the clinical procedure. Therefore, correct diagnosis and planning for the selection of the most appropriate technique for each case, taking into account the indications and contraindications, is of utmost importance, and it is also interesting to avoid trivializing these procedures.

**Advantages and Disadvantages**

Ceramic laminates have a wide advantage when it comes to planning for teeth with a change in shape and without a change in color, because this way you can use technique without preparation, conserving the tooth structure to the maximum. (Javahe, D, 2007)

According to SOARES P.V et al (2015), direct restorations in composite resins have undergone a great evolution in recent years, but have great flaws when used as extensive restorations. They also show high color instability over the years, and have a failure rate of 2.9% per year. With all the advances in ceramic materials, especially those that were reinforced by crystalline phases, they have become a formidable alternative for indirect aesthetic restorations. Some of the main advantages for treatment with ceramic laminates are: color stability; high strength and durability; excellent surface smoothness; abrasion resistance; low accumulation of bacterial plaque; Thermal expansion coefficient; rigidity; optical properties similar to dental enamel, in addition to providing minimal removal of dental tissue; maintenance of tooth vitality and aesthetic harmony; low failure rates, between 0 and 5%, in 1 to 5 years.

When comparing the qualities of direct aesthetic restoration of composite resins with ceramic indirect ones, it is noted that the latter have an advantage over color stability over a longer period of time, high wear resistance, greater mechanical resistance to fracture, providing clinical longevity. (SOARES P.V et al 2012; CARDOSO P.C et al., 2011)

Some authors have emphasized as disadvantages, the dependence on specialized laboratories and qualified technicians, fragility in handling, possibilities of minimal repair after cementation prevent the color change after the application of ceramic and glaze in the refractory lining. (JAVAHERI D, 2007; MONDELLI RFL, et al., 2003; TOUATI ET AL., 2000; BARATIERI ET AL., 2001)

**Types of Preparations for Ceramic Laminates**

Dental preparation is considered to be a reduction of the dental structure, which may be minimal or extensive, in order to receive a prosthetic restoration. Some principles are suggested by most authors, aiming to consist of: maximum preservation
of dental structures; obtaining retention and stability; promotion of necessary space that guarantees structural resistance to the piece, providing marginal integrity of the prepared element, in addition to preserving the periodontium. (KINA, et al., 2004)

For HO C.C.K and GOBLER B (2011) the objectives of tooth preparation are

- Provide sufficient thickness for the porcelain, to the point of offering resistance to fracture;
- Provide a margin, so that the ceramist has a definitive finishing line, avoiding steps on the gingival margin, which can lead to plaque accumulation;
- Keep the preparation in the enamel whenever possible;
- Provide a preparation with a good finish, which is smooth and free of sharp internal line angles, which can cause stress concentration within the ceramic;
- To allow an adequate settlement of the facet in all its extension, and a perfect adjustment of the margins, through a defined preparation line.

For MAGNE et al. (1999) adhesive cementation on dental enamel tends to be better in more conservative preparations that preserve the enamel, making the joint more rigid, similar to the natural tooth in relation to flexion. However, cracks and microleakage can occur in a clinical situation in the mouth, under occlusal forces, especially when the preparation line passes through the enamel-dentin union, and invades a large extent in dentin, generating more complex adhesion problems, inducing flexion on the structure of the tooth. To allow an adequate settlement of the facet in all its extension, and a perfect adjustment of the margins, through a defined preparation line.

For PEUMANS et al. (2000), the bond between porcelain and enamel is superior compared to dentin adhesion, therefore, even with the evolution and improvement in the adhesion capacity of current adhesive systems, caution is necessary to maintain the preparation completely in enamel.

Minimum preparations are previously known as minimally invasive preparations, and only occur when wear remains at the enamel level, unlike preparations for conventional veneers that have dentin level overextension (SOARES PV et., 2015) Some authors , as well as CASTELNUOVO, et al., (2000) states that even with a thin border, showing a certain risk of fracture during cementation, the conservative preparations associated with the adhesive and ceramic laminate become resistant to the chewing forces, thus conferring , resistance, longevity and clinical predictability for indirect minimally invasive restorations.

According to Gonzalez M.R et al., (2011) there are 3 different types of techniques to perform the preparations, they are: free hand, wear guide with orientation groove and dimple. The orientation groove technique is a marking performed with rounded end-cone drills with the desired depth. The third technique, on the other hand, uses spherical drills of small diameter that are used to demarcate various points of the preparation, establishing the wear limit. These last 2 techniques are the ones that approach the real wear and tear of the dental structure to be prepared.

Hirata and Carmel (1999) affirm that it is possible to achieve control of the preparation, through a clinical protocol, in this way the first wear is carried out in planes and enamel level with a depth of 0.3; 0.5; 0.7 mm being used in that ascending order. The first wear occurs at the cervical level with 0.3 mm, then establishes 0.5 mm in the middle third and finally the last reduction will be used in the incisal third of 0.7 mm. The spherical diamond tips allow a good delimitation of the end of the preparation, and the living angles must be rounded and always check the patient's bite.

BARATIERI L.N et al (2010) establishes a clinical sequence that facilitates the preparation of the preparation, which alleviates the failure rate. Thus, they establish that obtaining silicone guides contribute to the verification of wear, which can be performed both in the mouth and in the study models, thus avoiding excessive wear of the dental tissue. Professionals can also make use of diagnostic waxing, allowing them to observe the size, shape, alignment and texture of future facets; There fore, the first step is to restore the original anatomy, by adding a composite. That done, it is necessary to make 2 silicone guides, one cut longitudinally, in the center of the tooth, and the other sliced transversely, at different crown height, which will allow to evaluate the amount of space obtained in the preparation. If the tooth has no color change, a 1011 drill, with a smaller diameter, is used to make a preparation with a thickness of 0.3 to 0.7mm, otherwise, if the tooth has a color change, drills are necessary 1014 or 1016, as the thickness must rotate around 1.0mm of ceramic to mask the substrate. These spherical drills, preparation begins in the cervical region, extending to the proximal surfaces and the region of the incisal edge; With a 2135 truncated conical tip with a rounded end, the manufacture of a central flute in 3 planes begins, with depth depending on the same factors mentioned; With the same tip it makes the wear extending the margins, both mesial and distal from the tooth, at this point it is possible to use the silicone guides to check the uniformity of the vestibular reduction. From that moment on, the margin of the cervical end must be carefully extended towards the gingival sulcus, the end must be at the level of the gingival margin, or it may remain slightly intrasulcular, and for that, retractor wire or suitable instruments for removal are used. gingival; The next step is the incisal reduction, which is indicated in most cases for aesthetic and functional reasons, thus reducing the incisal edge by 1.5 to 2.0mm. This measure will allow the technician to replicate the optical aspect of the incisal third of the restoration. Thus, the same truncated cone bit is positioned parallel to the slight incisal inclination towards the palate, inserted in all its thickness, some channels are made in this direction, and will be joined later and the wear extends to the proximal faces. Next, it is important to establish a slight separation between the proximal margins, as it will facilitate the molding and cementation process of the facet; Finally, after finishing the preparation, abrasive discs and rubber tips are used to refine the preparation, smoothing the internal angles in the region of the longitudinal edges.
WALLS, A.W.G, *et al.,* (2002) establishes some types of dental preparation designs for ceramic veneers, namely:

Window type preparation: it is limited only to the wear of the vestibular surface, it does not include reduction of the incisal edge. It has the advantage of keeping the natural enamel on the incisal edge, that is, it retains more tooth structure, but it has the disadvantage that the enamel on the incisal edge is more friable, and it becomes difficult to hide the incisal interface;

Feather type preparation (without incisal reduction): the laminate is brought up to the height of the incisal edge of the tooth, but the edge is not reduced. It has the advantage of conserving the tooth enamel, and maintains the orientation on the natural tooth, and it has the disadvantage that porcelain is friable in the protrusion;

Preparation Bevel or Butt Joint (with Incisal coverage): preparation that involves the buccal surface and extends to the incisal edge, including a small reduction in the palatal vestibule. It takes advantage in the control over the incisive aesthetics and has an easy cementation, and as a disadvantage, the greater wear of the enamel;

Overlap preparation (Palatine Overpass): preparation that involves the buccal surface, the incisal edge and the palatal surface with a chamfer. As an advantage, it avoids the buccal displacement of the part, however it presents the disadvantage of a greater wear of the dental structure, as well as presenting some difficulty in inserting the part.

According to ZLATANOVSKAI K, *et al.,* (2016) in addition to these 4 types of preparation designs, it also mentions Preparation with Proximal coverings, which covers the entire vestibular face and has a subextension on the proximal faces.
For LACY AM (2002) the shape of the prepared tooth influences the clinical success of the laminates, especially when it comes to the location of the proximal margins, because if they remain slightly vestibular to the point of proximal contact, there may be a possibility in the future of formation of pigmentation along that margin. Therefore, the author recommends a preparation with proximal coverings, extending the proximal margin to the palate, because thus, if spots occur, they will not be seen, making the aesthetics more favorable.

According to the study carried out by CASTELNUOVO (2000), the types of preparation designs can influence the directions of insertion of the piece for cementation, which may vary in the vestibule / palate, or incision / cervical direction. The Overlap preparation type with palatal overlap only admits the incision / cervical direction.

ZLATANOVSKAI K, et al., (2016) demonstrated in a comparative study between these last three preparation designs, using fifteen extracted central incisors, and intact ones with similar dimensions. The teeth were randomly divided into the 3 preparation groups, and restored with ceramic laminates, after which the elements were overloaded to the point of failure, performed by a machine. The fracture resistance test was performed at a constant speed of 0.5 mm / min. The force was applied at an angle of 45 ° to the long axis of the tooth. The fatigue failure for each specimen was recorded and the data were analyzed statistically. Thus, in relation to the maximum load, laminates with Palatine Overpass showed greater fracture resistance (122.0 ± 8.8 N) compared to Preparations with proximal coverings (107.4 ± 6.8 N) and Preparation with Incisal coverage (100.6 ± 8.0 N). The T test for the media showed that there was a statistically significant difference in fracture resistance between the three preparation projects (p <0.05). Therefore, the study allowed to conclude that the different types of preparation have a significant effect on the fracture load for composite veneers, and the Palatine Overpass significantly increases the fracture resistance compared to the two types of preparation evaluated.

SMALES and ETEMADI (2004) performed an experiment involving the 4 types of preparation. In it, the authors installed 110 facets of feldspar porcelain on the anterior teeth of 50 patients, 46 of which were covered, and 64 without incisal coverage. During the first 4 years, they noticed that there were no failures. Continuing at 5.6.7 years, the percentage of success changed from 100% to 95.8% for facets with porcelain cover of the incisal edge and 85.5% for those without coverings. Six of the nine failures occurred due to porcelain fracture in laminates without incisal coverage. Although there was a trend towards better long-term survival of laminates with incisional porcelain coverings, the authors declare that the difference was not statistically significant. HEKIMOGLU et al. (2004) carried out a study to evaluate microleakage with different preparation designs for ceramic laminates. They used 40 extracted upper central incisors, which were divided into 2 groups, and ceramic laminates were installed. The cervical margin of the two groups was placed 1 mm from the cemento-enamel junction. In the first group, preparation in Windows was used, and in the second group, overlapping palatine preparation was used. The autoradiographic method was used to determine the microleakage, and thus, the authors found that in the two types of preparation, the cervical microleakage was of a similar degree, but the preparation with Palatine Overpass showed greater microleakage than in the window-type laminates. In conclusion, they concluded that in preventing marginal microleakage, the window-type preparation is more appropriate than the preparation with palatal overlap.

In a study published by STAPPERT C.F.J et al., (2005), they evaluated the influence of the preparation design on the longevity of ceramic laminates performed on upper central incisors, submitted to a cyclic loading and a thermal cycle in a mastication simulator. Sixty-four upper central incisors were divided into 4 groups (n=16). Group A or NP, the teeth remained healthy, without preparation, being the control group; Group B or WP, preparation was performed in window; Group C or IOP were prepared with a 2mm incisal reduction without palatal chamfer; Group D or CVP, the teeth were prepared with a complete 3mm incisal reduction design and 2mm palatal extension. After the experiment with the 4 groups, they noticed that the failure was defined by mass fracture of a sample, and the subcritical crack patterns were observed. The resistant specimens were loaded on a universal test machine until fracture. The results showed that there were 3 samples from group A fractured, 1 sample in each of groups B and D, and 2 samples from group C fractured during fatigue. After 1.5 million cycles, the highest crack rates were observed in the laminates of group D, and originated in the palatal concavity, which extends to the vestibular surface. However, the authors concluded that there were no significant differences in longevity and failure load between natural teeth and teeth restored with ceramic veneers. Thus, the teeth restored with the 3 types of laminates, presented resistance to fracture similar to group A of the unprepared incisors.
on preparations without incisal reduction. The result they obtained in relation to the failure rate consisted of 4%, that is, 6 of the 7 facets that failed were partially cemented in dentin and not only in enamel tissue. Thus, they concluded that the increased risk of failure occurs when the facets are cemented over dentin.

Regarding the types of preparation with and without incisal reduction, there is a certain controversy regarding this subject among the authors. Thus, in their study HAHN et al. (2000) selected 36 mandibular incisors and randomly distributed in 3 groups. (n = 12). In the first group, preparation was performed only on the vestibular surface; In the second group, an incisal reduction was performed with a lingual chamfer; The third group did not receive teeth. The laminates were manufactured with IPS Empress ceramics and cemented into the elements. After 120 days, the elements were loaded incisively to the point of failure. As a result, group 2 showed less resistance to fracture. When prepared only in the vestibular, the restored teeth have the same strength as the unprepared teeth. However, taking into account the strength of the bite that is described in the literature for the incisors, both preparation designs justify its clinical use. Despite this, the authors recommended that only for aesthetic or functional reasons that preparations with incisal reduction should be performed.

In his study, NISHIMORI L.E. and BELOTI AM (2006) analyzed the types of preparation for making ceramic laminates, emphasizing the strength of the laminated tooth / veneer set, and thus evaluating the thickness for reduction in the vestibular as well as the preparation of the Palatine Soprepasso (Overlap). The authors used 40 artificial teeth, which were divided into 4 groups with each type of preparation. Group 1: Preparation with 1.0mm wear on the buccal surface; 1.5 mm incisal reduction, without palatal overlap or overlap. Group 2: Preparation with 1.0 mm wear on the buccal surface, 1.5 mm incisal reduction, with palatal overlap or 1.0 mm overlap below the reduction. Group 3: Preparation with 0.7mm wear on the buccal surface, 1.5mm incisal reduction, without palatal overlap or overlap. Group 4: Preparation with 0.7mm wear on the buccal surface, 1.5mm incisal reduction, with palatal overlap or 1.0mm overlap below the reduction. Continuing, the manufacture of laminates was carried out using the IPS Empress system, and after cemented, the tooth / veneer set underwent mechanical tests in a universal mechanical testing machine. After the tests, the authors concluded that the G3 group obtained a lower rupture stress value compared to the G2 group, meaning that the lower wear associated with the absence of palatal overlap impaired the mechanical resistance of the facets of that group. In relation to the other groups, they observed that the presence of vestibular wear with a greater thickness (1.0mm), or else, the existence of overlap or palatal overlap, are compensated, in some way between themselves, because their different combinations present statistically significant values. that is: G4 is equal to G1. However, they conclude that the wear of the vestibular face, which is greater in thickness and the presence of overlap at the incisal edge, acting together, significantly contributed to increase the mechanical resistance of the ceramic facets.

There is currently a lack of clinical consensus on the types of preparation designs to be used. Therefore, SHETTY et al. (2011) carried out a review of the literature with a focus on assessing the longevity of ceramic laminates for the different types of preparation designs, with follow-up for 2 to 10 years. Through the analyzes, the authors reported that the window type preparation is more conservative and resists greater axial tension. They also conclude that the preparation with incisal coverage presents greater longevity in the long term, as they present a uniform distribution of stresses in relation to the protrusion movement, thus inserting a mechanical resistance to fracture. And in relation to the incisal reduction in the chamfer, it presents a greater tension of traction that extends through the palate. As for teeth that receive laminates without preparation, the study points to a high failure rate with detachment and fracture, and the reason attributed to this was that the stress concentration is less intense within the restoration installed in the prepared teeth. In addition, surface preparation increases the bond strength as the surface area increases and removes the apismatic layer that is resistant to acid corrosion. Thus, those responsible for this work, defend that the preparation with incisal overlap is indicated for healthy teeth and with sufficient thickness; and that overlap preparation is only preferred for worn and fractured teeth. For MAGNE et al., (2013) there must be a certain care with unprepared laminates, because despite showing a simple technique, there is the possibility of fractures and compromising the emergence profile of the laminate, since the dental structure does not it is prepared, allowing the margins to remain more voluminous. Thus, the authors established the minimally invasive preparation technique as the gold standard, limited to the enamel dental structure for ceramic laminates.

**DISCUSSION**

Today's beauty standards encourage patients to seek dental care for aesthetic quality and harmonious smiles. It is the responsibility of dentists, the responsibility to understand the wishes and expectations of patients, to develop a treatment plan that fits their indications. Among the various restorations for aesthetic purposes, ceramic laminates stand out for presenting color stability; high strength and durability; excellent surface smoothness; abrasion resistance; low accumulation of bacterial plaque; Thermal expansion coefficient; rigidity; optical properties similar to dental enamel. The detailed planning associated with a correct selection of materials and the exchange of information with the prosthetic, become factors that contribute to the clinical success of indirect aesthetic restorations, and the evident satisfaction of both patients and professionals. (SOARES P.V. et al 2014; CARDOSO P.C et al., 2011)

Certain authors argue that some aspects are decisive for providing longevity to ceramic laminates, such as: maintaining the enamel preparation, removing corners and sharp angles, maintaining a correct settlement for the laminates, and extending the preparation of the proximal margin for the palate in order to avoid pigmentation that impairs aesthetics. (HIRATA and CARNIEL 1999; LACY A.M. 2002, BARATIERI L.N. et al., 2010). Studies such as DUMFART and SCHAFFER (2000) evaluated 191 facets, which presented a failure rate of 4%, with 7 failures, 6 failures had partially cemented in dentin and not only in enamel. Thus, the authors claim the preference of enamel preparation. Thus, BARATIERI LN et al., (2010) and HIRATA AND CARNIEL (1999) established a wear measurement that varies from 0.3 to 0.5 mm
CONCLUSION

Thus, according to the literature review, it can be concluded that

The window type preparation, with vestibular reduction and without incisal reduction, has the advantage of a lower risk of microleakage. The preparation with reduction in the proximals, has the advantage of eliminating the risks of pigmentation formation along the proximal margins;

The feather type preparation (without incisal reduction), preserves the enamel structure and maintains the orientation on the natural tooth, however the porcelain can become friable in the protruding movements;

The bevel type preparation (with incisal reduction) has the advantage of returning aesthetic and functional characteristics, as it allows the ceramic technician to form an incisal translucency, guaranteeing excellent optical properties in this region;

The Overlap type preparation (with palatal overlap) demonstrates greater resistance than the other types of preparation, although it tends to present a greater risk of microleakage in the palatal margin, due to the direction of insertion of the laminate in the cementation, with the possibility of bubbles.

However, in relation to clinical longevity, studies have not shown significant statistics between types of preparation.

Most authors agree with the importance of preparing teeth for indirect restoration with ceramic veneers, and that it is limited to enamel, as the preparation of the surface increases the bonding strength as the surface area increases and removes the aprismatic layer that it is resistant to acid corrosion, thus allowing a better adhesion of the cement. The preparation must not include any living internal angle, and must allow a correct laying of the ceramic laminates.

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How to cite this article:

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