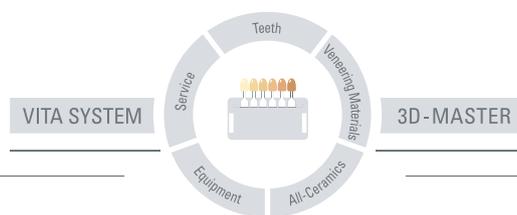


What Makes a Complete Denture Beautiful?

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VITA



Complete upper and lower denture with individual gingiva

"Even a complete denture has the right to be beautiful!"

Viktor Fürgut (dental technician), Germany

Key words: Individuality, idealized anteriors, pink aesthetics, processing in wax, colouration of the denture base acrylic.

In his article published in the March edition of the international ZAHNTECHNIK MAGAZIN, the author had described the working methods he uses for the individual setup of anterior and posterior teeth according to nature's principles. Complete denture specialist Viktor Fürgut shows in the following article how the "pink aesthetics" can be designed with a natural appearance when manufacturing complete dentures in accordance with the concept of Biological Prosthetics.

With a little love of detail it is quite straightforward to make a complete denture which is virtually invisible as such. As soon as the mouth is opened, the first detail becomes evident – the anterior teeth. For this reason great care should be taken with regard to the individual anterior design. If the anteriors have an artificial or unnatural appearance, it will hardly be possible to obtain an "invisible" prosthesis.

Denture teeth can be individualized in such a way that even an expert will not be able to distinguish these with absolute certainty from their natural counterparts. While

shade characterisation of the anteriors may not always be required in every case, a natural effect, however, is always desired. With idealized anteriors set up harmoniously in relation to the tooth axes and parallel to the incisal edges of the upper and lower jaw teeth, it is possible to achieve an exceedingly lifelike and harmonious effect. There is no 'one solution fits all' when it comes to the second detail, the artificial gingiva – i.e. the "pink aesthetics" – although prefabricated materials and instructions have been around on the dental market for quite some time.



Fig. 1: Patient oriented – a natural and likeable appearance



Fig. 2: The posteriors are set up according to nature's occlusal surface relief...



Fig. 3: ... and according to the functional principles of natural dentition



Fig. 4: Lifelike design of the artificial gingiva



Fig. 5: Natural gingiva

What makes a Complete Denture beautiful?

1. Natural-looking anteriors set up individually to suit the particular patient (fig. 1).
2. Gingival design which shows the anteriors three-dimensionally (i.e. with spatial depth, showing not only the labial facet).
3. Posteriors with a natural occlusal surface relief, and set up in functional terms according to the principles of natural dentition (Biological Prosthetics, BLP) (figs. 2 and 3).
4. The artificial gingiva should be a close reproduction of nature in shade, shape and surface structure (figs. 4 and 5).

In the following article I would like to present my method of working as well as the possible outcomes. Perhaps you will be inspired by the images of the finished prostheses, just as I was once inspired many years ago by photographs of the work of master dental technician Jürg Stuck. As he once said on a training course visit: "If you devote yourself seriously to something, this cannot but result in success – including on a personal level". Delighted patients, satisfied dentists and a growing client base are just a few of the benefits that came my way as a result of this insight.

Materials

Manufacturers of acrylic resin denture base materials offer a great variety of different acrylic resin materials. The processing and handling of these varies accordingly. I have found the opaque acrylic resin denture base material by Candulor to be particularly well-suited for my way of working. The processing time is suitable and the various basic and intensive shades are easy to process.



Fig. 6: The transition from tooth crown to tooth cervix must be clearly visible



Fig. 7: The wax is formed using a suitable instrument



Figs. 8 and 9: The gingival margin is positioned in the lower third of the tooth



To achieve a natural appearance of the artificial gingiva, and display every tooth to its best advantage three-dimensionally with spatial depth when designing the artificial gingiva, the PHYSIODENS anterior by VITA Zahnfabrik is unequalled. The painstaking, time-consuming correction procedures required with customary anterior teeth are no longer necessary with PHYSIODENS.

Particular advantages:

- The sagittal elongation and the volume permit in-depth interdental modelling of the gingiva without resulting in unsightly 'black triangles'. This gives every individual tooth a three-dimensional appearance (spatial depth).
- The individual incisal edge of the upper and lower anteriors results in a very lifelike and natural appearance even when the teeth are not set up with an overlap.
- The tooth form has been designed for technical reasons to close the interdental spaces. With the corresponding gingival modelling, only the natural, anatomical aspect of the tooth mold remains visible.

- The distinctive surface structure design produces a particularly brilliant effect. The rest is provided by the typically excellent material quality of the VITA teeth.

The aesthetic design of the labial portions of the gingiva (including the first molars) is of particular importance for achieving a natural effect of complete dentures in situ. If the pink aesthetics are left out of the equation, the patient will still be revealed as a denture wearer even despite the most attractive teeth and tooth positioning.

In-depth gingival modelling

After wax application (and) the wax setup, the teeth are cut free around the cervix in such a way that the transition from the tooth crown to the cervix becomes slightly visible (fig. 6). The tooth neck should not be too greatly exposed, as this would be more of a disadvantage for both the aesthetics and the bond to the denture base acrylic. Since each individual tooth should have a three-dimensional effect, not only the labial facet should be visible. The gingiva must be modeled in depth, as this enables the anatomical tooth mould to be shown to its best advantage to achieve a lifelike effect. Using a suitable instrument, the wax is given a lifelike contour (fig. 7). Photographs/images of natural gingiva should be available at the workplace in order to serve as a guideline for modelling the artificial gingiva.



Fig. 10: Wax flakes are blown off with compressed air



Fig. 11: The modellation before processing with a spirit burner...



Fig. 12: ... and after: this results in a precisely smoothed interdental modellation which...



Fig. 13: ... once modelled in dental acrylic, should no longer be processed with cutters in this area

Two things are essential here: firstly, the interdental spaces must be modeled precisely, and secondly, no wax residue must remain on the tooth surface.

The gingival margin is positioned in the lower third of the tooth (figs. 8 and 9). The wax flakes can be best removed using compressed air. Brushes or toothbrushes are not suitable for this purpose (fig. 10).

The wax modellation is now smoothed with a spirit flame (fig. 11).

The interdental papillae must be rounded (fig. 12), as once these have been modeled in acrylic resin, this area may no longer be processed with cutters (fig. 13). Sharp corners, edges or deep interdental grooves in can neither be polished, nor kept clean by the patient.

Denture processing

After completing the modellation, the setup can be placed in a traditional pressing flask. In order to obtain precise interdental modellation also in acrylic resin, it is necessary to use a silicone which produces a very accurate impression (see fig. 14.).

After boiling out the wax, the teeth are deflasked and sandblasted basally, lingually and approximally (figs. 15 to 18). After the insulation (alginate insulation) is dry, it

is now possible to begin packing the acrylic resin. For the area of the attached gingiva, the base shade no. 2 is mixed with some of the white and yellow.

After being left to swell for a short time until it has reached a viscous consistency, the material is then positioned in the labial area in such a way that the cervical area of the tooth is covered by approximately 3 mm (fig. 19).

A color mix is made with the basic shade 3 and the intensive shades pink, red, brown and some of the blue (figs. 20 to 21) and likewise placed in the labial area. After swelling of the base shade 34 (for the remainder of the denture base), this is placed into the flask as for the usual packing technique and – without trial packing – pressed at approx. 2.2 bar (figs. 22 and 23).

After polymerization (fig. 24), the prosthesis is labially trimmed in such a way as to look as natural as possible; it is, once again, recommended to follow nature's example and use photographs of natural dentition as a guide.

Denture Finishing

The design of the interdental papillae, the lip tendons and a slightly structured surface (stippling) will result in a very natural appearance after polishing. Polishing



Figs. 14 and 15: The modellation is invested in a conventional pressing flask



Figs. 16 and 17: After boiling out the wax, the teeth are deflasked and sandblasted basally, lingually and approximally



Fig. 18: Once the insulation is dry, packing can begin



Fig. 19: After a short swelling time, the cervical area is covered by approx. 3 mm



Fig. 20: The basic shade 3 and the intensive shades pink, red, brown and blue are stirred together to form a color mix...



Fig. 21: ... which is likewise placed in the labial area



Fig. 22: After mixing the basic shade 34 and leaving it to swell



Fig. 23: ... the rest of the denture base is packed



Fig. 24: The maxillary prosthesis immediately after deflasking



Fig. 25: After polishing

must be carried out with great care and accuracy, so as not to damage the carefully prepared surface structure and the surface of the teeth (fig. 25).

It is hardly possible to carry out a controlled labial polishing with the polishing brushes on the polishing machine; the danger of damaging the tooth surfaces and the delicate surface structure of the gingiva is too great. For this reason I prefer to polish the labial area using the handpiece and a suitable polishing brush.

Teeth that are modeled on nature, and an individual gingival design closely resembling that of natural gingiva in its modelling and shading give the prosthesis a "real" and harmonious appearance (fig. 26). The result is what counts, no matter which materials are actually used and processed. Anyone who has already tried to copy natural gingiva will know that it can vary greatly in its contour and shading. Our goal should be to keep on getting closer and closer to nature. The technique presented here was developed and perfected in such a way that it can be easily integrated into the everyday procedures of the laboratory. To this purpose, it is important to keep the expenditure of time and equipment at a reasonable level. Our patients appreciate us for this, and are also prepared to recompense us for the extra work that this entails. ■



Fig. 26: VITA PHYSIODENS with individual gingival design

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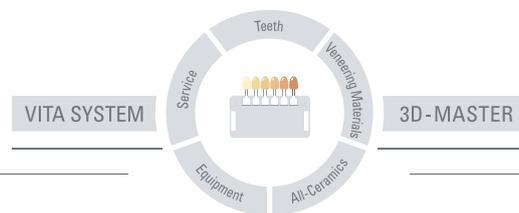
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