

A valuable contribution for the comfort of denture wearers

David Bevan, technical director of Southern Smiles based in Hampshire, discusses why it is best to source products for the copying of dentures straight from the manufacturer

Introduction

With the World Symposium on Denturism and Dental Technology fast approaching, one of the many subjects on the agenda will inevitably be the accurate copying of dentures within the private laboratory. From an aesthetic point of view, it is now becoming increasingly important to test and develop new materials and techniques for technicians to use within their own dental laboratories. Consumers are now demanding more life-like dentures and it is the job of the technician to deliver more comfort for denture wearers.

In the following article, I have attempted to explain the results that can be achieved by following the manufacturer's guidelines. Working in this way, I have found it possible to test and develop new products at source, providing me with the opportunity to research the best methods applicable to the manufacturer's products.

Many of my dental clients often ask questions associated with Eclipse, Ivocap and Flexite systems, but one of the techniques that most dentists are still uncertain about is how to copy a denture successfully. Over the years, I have tried various techniques, including the use of soap boxes, impression trays and commercially manufactured metal copy boxes.

Road test

For over five years, I have used the procedure described below. This is the simplest and most effective system that I have found for accurately copying dentures.

Figure 1

Using a two-part putty with high shore hardness, remove the product from the container. Be sure not to contaminate the putties with each other as this can cause activation within the containers. Once opened, take three or four scoops from each section and carefully mix them together until they achieve a uniform colour.



Figure 1

Figure 2

Following the previous directions, the dentures you wish to copy should be placed into the mixture with a fitting surface up orientation, extending the putty all the way to the peripheries. After approximately eight minutes the materials should be set hard enough to continue. Use a small amount of petroleum jelly as a separating medium. Again mix three or four scoops of each putty and place a small amount into the fitting surface of the dentures. Take great care to ensure that there are no blow holes as this will cause inaccuracy of the final denture copy.



Figure 2

Figure 3

Now that the putty is on the fitting surface, immediately place the rest of the putty on top of the denture. Personally, I like to turn the whole job upside down at this point, moulding continually with my fingers to create a flat surface on both sides of the copy. The two halves of the copy can easily be separated due to the application of petroleum jelly. The denture is ready to be removed and finished.



Figure 3



Figure 4



Figure 5



Figure 6



Figure 7



Figure 8



Figure 9

Figures 4 and 5

As shown above, the material can be shaped and finished using a model trimmer, thus creating a flat surface so that the copy can stand on the anterior portion of the mould.

Sprue holes can also be placed on the two separate halves using a scalpel. This enables the technician to pour wax or acrylic into the mould at the dentist's own preference. It is important to place these sprues correctly at this stage. For example, on the fitting surface, the sprues should be placed just to the periphery and on the occlusal side, they should be cut into the actual copy of the denture. This means it can be easily trimmed at a later time. Notches should then be placed on to the mould so that an elastic band can be put around the whole object to keep it safely together.

Sometimes, I find that there is confusion as to when to use wax and when to use acrylic, or when to use both!

Wax copies

In my experience, when copying a denture that is partial or gum-fitted, it is essential to acquire an impression of the patients' mouth at the same time as you receive

the denture to copy. By performing this procedure you can accurately fit the teeth on to the ridge at the try-in stage using the new model.

Wax and acrylic copies

Wax teeth and acrylic bases make it easier for the technician to set up the teeth. This reduces the grinding of the acrylic, as well as producing a more accurate copy of the mouth. It is important to remember that when pouring acrylic you tend to get some shrinkage around the teeth.

Acrylic copies

Most dentists prefer acrylic copies, mainly using them for special trays and taking bite registrations. This enables them to use green stick on the peripheries. Naturally, if you were to use wax teeth they would melt during the application. One of the main reasons for this is the fact that many dentists like to use hot water to soften the green stick.

Figure 6

To create a wax or wax/acrylic copy, add a small amount of wax a bit at a time on to

the tooth surface, allowing the product to cool between applications in order to reduce shrinkage. Continue this process until the teeth are fully covered.

Figure 7

You should now have two moulds resembling the image above. Place them together using an elastic band and pour acrylic or wax into the sprues. If you use acrylic, let it set and cool before opening the moulds. The premature opening of the moulds before the exothermic reaction has completed will cause the acrylic and wax to separate.

Figure 8

The mould can now be separated. The duplicate denture is ready to be taken out and trimmed accordingly.

Figures 9 and 10

To save time and expense, the ridges of the mould can be cut off with a scalpel and placed into the denture. Suitable retention is then cut into them and they are based in plaster. This enables a model to be produced that will not break when taking the copy on and off the existing model.



Figure 10



Figure 11

Figure 11

In my opinion, it is best practice to cast a further model in plaster, from the existing mould, as a reference when setting up. It helps to make a number of radial incisions around the edge of the mould prior to pouring the plaster. This allows for it to be removed in pieces once the plaster has

set. Additionally, it assists in removing the brittle model from the hard putty without breaking off any teeth.

Summary

Kemsil Precise Putty from the Kemdent product range has enabled me to develop this method of copying dentures. It

provides excellent reproduction for detail, has good high shore hardness and consistent property releases of acrylic and gypsum. The ease of handling makes it an ideal laboratory material with many applications. We also use the product when repairing dentures and to create matrices for additions when required. A distinct advantage of the putty is that there is no messy catalyst. The two parts are of similar consistency, making it very clean and simple to mix. Both parts are mixed to a ratio of 1:1.

For further information regarding the Kemdent product range as discussed in this article, simply visit www.kemdent.co.uk or contact the company on 01793 770 256 to speak to the manufacturer directly.

CPD

Each article is equivalent to one-hour of verifiable CPD. To receive credit, complete the four-question test and either:

- Visit www.fmc.co.uk/cpd to register and complete your answers online. All you need is your subscriber number and GDC number
- Post the completed questionnaire to: Private Laboratory CPD, FMC, 1 Hertford House, Farm Close, Shenley, Hertfordshire, WD7 9AB
- Fax to 01923 851778
- Email to debbie.levy@fmc.co.uk

Question 1.

Which item has the author used over the years in attempting to copy a denture successfully?

- A) Soap boxes
- B) Margarine tubs
- C) Jam jars
- D) Squeezy ketchup bottles

Question 2.

The author has used the procedure described in the article for how many years?

- A) Three
- B) Four
- C) Five
- D) Six

Your name:

Subscriber number:

GDC registration number:

Address:

PL MAY 07/BEVAN

Question 3.

What helps the two halves of the copy to be separated easily when the putty is on the fitting surface?

- A) Petroleum jelly
- B) An articulator
- C) Stainless steel tools
- D) Nail varnish remover

Question 4.

To achieve a comfortable copy denture for the patient, the dentist needs to supply the technician with:

- A) The denture only
- B) An impression of the patient's mouth only
- C) The denture and an impression of the mouth
- D) An impression of the denture