Increase in private denture aesthetics
Most technicians now employ creative manual skills to produce impressive aesthetic results for the private marketplace. However, the types of materials that are used in these processes are important to the end result. This article explains their uses and demonstrates some of the techniques that leading dental technician Roy Davies has explored for many years. In the author’s own words: ‘There is now as much importance in creating life-like aesthetic prosthetics as there is in delivering perfect porcelain restorations in dentistry.’

Denture patients
Why is it that denture wearers have become second-rate patients? And, more importantly, what is meant by this? Standard dentures are normally set up in a uniform manner, which to be fair is how we have all been taught. Gum work can be smooth and featureless, and this is why denture wearers have come to expect basic standards; but in today’s private market, patients are starting to look for better results.

Traditionally, private patients are more likely to be offered an upgrade of a tooth or perhaps contouring of the gum, which can look like corrugated iron. The more fortunate patient might receive a high impact acrylic and a clear palate. Most patients all want true-to-life dentures that look and feel real, and give them back the confidence to smile again. There are stories about people who have spent thousands of pounds on implants to support their dentures, but again most hide their smiles behind their hands to cover their false teeth.

So what is the answer for a denture-wearing patient? Realism – and we’re not just talking about tooth arrangement but moreover gum imitation, especially with features found in natural gingival, such as muscle attachments and root detail. It is also worth paying attention to characterising the colouring of the gum so that it simulates living tissue. By performing this process correctly, the patient can be provided with a ‘true-to-life’ prosthesis of which they can be proud.

As a result of several discussions with frustrated technicians regarding realistic gum characterisation, the following

Smooth and featureless wax-up
Characterised wax-up
Asymmetrical wax-up
Interdental spacing
Textured gum effect
processes may help in creating better aesthetic denture results.

**Tooth selection**
Choosing the correct size of teeth for the denture is very important. To ensure best results, consult with the patient, if at all possible, to find out their views. They should be able to tell you how their teeth used to look by showing images from old photograph albums. In the case of partial denture wearers, you must see the patient first to match the artificial teeth to the colour variation of their own natural teeth.

Visually you will also be able to ascertain whether the prosthesis will complement the patients’ natural teeth and facial features. When choosing an artificial tooth, look for features that you would expect to see in natural teeth; almost life-like, with good characterisation such as strong surface detail, enamel striation, composite filling, and natural translucency and fluorescence.

**Successful gum characterisation and staining**
To achieve really good stain effects you will need to put a great deal of effort into the wax-up by using colour stains to highlight different areas of detail.

This process is illustrated in the following pictures on this page. The first photograph shows a traditional wax-up – smooth and featureless. The second photograph illustrates a little more detail such as muscle attachments between the centrals and the 3 and 4 regions.

To create further realistic features use some of the following processes as described:
- Root carving – vary the length to create an asymmetrical effect
- Try to form natural spacing between the teeth so that they appear more individual
- Vary the length of the gingival margin, exposing the root in places to simulate receding gingival. Finally, using a soft sponge create a textured gum effect.

**Processing the denture**
Prior to processing, use a silicone material to mask the detailed wax-up. This protects the case, which in turn prevents any plaster adhering to the denture and ruining all the detail that has been put in.

To achieve really good results, take a small amount of silicone, and starting from the molars on one side work around to the molars on the opposite area, spreading the material evenly over the wax-up. Work the material into the wax-up,
concentrating on the detail as if you were topping. Cover all the wax-up from the sulcus right up to the incisal edge of the teeth as shown in the photographs. Keep adding material until you have built up a layer of 2mm to 3mm thickness. You will now be ready to create peaks in the silicone to aid plaster retention in the flask.

When the silicone has fully hardened, use a scalpel to make a vertical cut at the last molar on each side. At this point, make a horizontal cut 2mm in size from the edge of the teeth, all the way around from the posterior teeth on one side to those on the opposite.

If this process is not performed, a feathered edge that may lift when packing will be left. This will also allow the teeth to be securely locked in the plaster. Invest the denture to be finished in the flask by taking the plaster up the edge of the silicone. Do not bury the silicone. The case can now be topped in the usual way.

**Applying tinting stains**

After boiling out the wax, apply plaster separator taking care not to leave any residue on the silicone, which may find voids in the acrylic.

Following this process, add the stain powders are ready to be added. This method is compatible with all denture base materials and injection moulding techniques, but it’s worth purchasing a product that will provide consistent results. The following colour sequence is a good basic guide:

1. Start with shade A (red pink), and sprinkle interproximally between the teeth. Highlight the fraenum and muscle attachments. Apply the powder in the first instance followed by drops of monomer with a syringe
2. Shade H (ivory) – use this over roots to simulate root highlights
3. Continue with shade E (purple pink), sprinkle around the border of the denture. This will provide some depth and colour variation to the buccal surface
4. Mask all the detail you have highlighted with the ‘F’ shade (pink). If you want to simulate darker skin tones, use the shade ‘B’ (brown) to mask the detail
5. You will also need to consider that different denture base colours will give you varied results; pack and process in the recommended way

6. When you come to de-flask the denture, peel away the silicone and you will be left with a completely clean denture, with very little trimming required. Full staining effects do not reveal themselves until final polishing is complete.

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