

## Using Digital Technology for Complete Dentures

*Currently no uniform* method is used for selecting and prescribing denture teeth and associated materials for complete denture prosthetic restorations. Methods and modalities vary greatly depending on the level of education, comfort, and experience of the dentists, auxiliaries, and laboratory technicians. However, these steps are pivotal to the communication and design of a denture, affecting the therapeutic and esthetic outcomes. When the patient's facial proportions are correctly measured, the appropriate denture teeth moulds can be selected.

Varying levels of communication skills and style can further challenge these steps in smile restoration design. As the professional overseer of the process, the dental professional has great control over the performance and esthetic results of the dental restoration. However, the therapeutic process is not easily communicable to the patient, and communication of his or her vision to the laboratory technician, who is very often at a remote site, can be complicated. In the conventional process, the dental professional takes mechanical measurements of the patient's facial and oral dimensions

using tools or samples. While dimensional tools (gauges, alammeters, papillameters) add a level of numerical accuracy, they are not used uniformly. Therefore, results can vary. Because this process is rather cumbersome and technique-sensitive, it is common to find prescriptions that state a restoration type, request a commercial dental shade designation, and are accompanied by the patient's intraoral impression.

### **TruRx™—DIGITAL DENTURE SOLUTIONS**

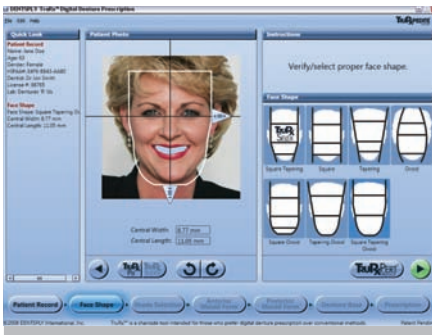
A new, integrated approach to tooth mould selection and denture prescription, the TruRx™ Digital Denture Prescription software (DENTSPLY Prosthetics, York, PA), shows great promise in improving process ease-of-use and clinical outcomes. TruRx™ is a chairside, digital prescription tool that facilitates the denture consultation while addressing key therapeutic considerations, helping to make the denture process easy, consistent, and profitable for dental professionals. TruRx guides the dental professional and the patient through the key denture considerations, in the following interactive screens:



**Figure 1** The patient record screen contains a quick look at the patient's, dentist's, and laboratory's information.



**Figure 2** With the patient's photograph uploaded, this screen allows the user to select the facial shape.



**Figure 3** The TruRx Selex default face shape recommendation is square tapering, but can easily be overridden by the dental professional upon patient comparison.

*Patient Record:* on this screen pertinent information regarding the patient, practice, and designated dental laboratory are entered (Figure 1).

*Face Shape:* Import the patient photograph (taken using the TruRx Index and Cosmetix tools) into this screen. The TruRx calibration tools are multi-purpose. The Index tool drives facial dimension calculations. The Cosmetix serves to color-balance the photograph, while providing lip support and the landing spot for final smile simulation (Figure 2).



**Figure 4** The software selects the width and height of the central anterior and places appropriate tooth sets in the patient's photograph.

Using the central line/chin and eye-line/temple marker adjustment bars, the dental professional interacts with the software program which then calculates and provides measurements for the vertical and horizontal facial dimensions. The TruRx Selex default face shape recommendation is square tapering, but can easily be overridden by the dental professional upon patient comparison (Figure 3).

*Shade Selection:* While shade is selected conventionally, chairside, with the patient



**Figure 5** The user can select an arrangement pattern.



**Figure 6** On the posterior form screen, the user picks one of the ridge forms; non-anatomical, semi-anatomical, or anatomical.



**Figure 7** This screen provides the user an opportunity to choose the denture base material, the base plate, and resin shade.



**Figure 8** The TruRx Digital Denture Prescription can be printed, e-mailed to the laboratory, and saved to the patient's record.

using a DENTSPLY IPN shade guide, the TruRx program allows for on-screen relative shade comparisons of up to three different shades. The final patient selection is entered into the software through a drop-down menu (Figure 4).

**Anterior Mould Form:** Based on the patient's measurements and selected face shape and tooth shade, TruRx provides a recommendation for anterior mould form. The software then places the appropriate set in the photograph of the patient, enabling the patient and the dental team to evaluate the smile (Figure 4). Once the patient buys in on the cosmetic result, the user can select an arrange-

ment pattern (basic, softened, vigorous, etc) (Figure 5).

**Posterior Mould Form:** The patient's residual ridge form is evaluated (non-anatomical, semi-anatomical, or anatomical) and indicated (Figure 6). These choices then drive posterior mould form selection, along with occlusion scheme (bilateral balanced, lingualized, etc) (Figure 6).

**Denture Base:** The final stage of the denture consultation is to select the denture base material and shade. Like the tooth shade selection, denture base shades should be chosen from an actual DENTSPLY Lucitone 199® or Eclipse® shade guide (Figure 7).

*Prescription:* Once the denture consultation is complete, TruRx provides a summary prescription that can be saved to the patient record, printed out, or e-mailed to the dental laboratory. Notes can be added to annotate the prescription as needed (Figure 8).

For a time-savings but thorough denture consultation, TruRx also offers a TruRxpedite™ Mode, which consolidates the process into four main screens: Patient Record, Face Shape, Anterior Mould Form, and Prescription. In TruRxpedite mode, the program uses the manufacturer's default settings for Anterior Arrangement; Posterior Mould Form and Occlusion; and Denture Base Material and Shade. However, all options may be modified at the judgment of the dental professional, as is appropriate in clinical treatment.

## CONCLUSION

The unique strengths of the TruRx Digital Denture Prescription software lie in built-in intelligence to select suitable dental restoration options interactively with a patient and view the results live with them. This process facilitates dental professional/patient and dental professional/laboratory communications, while simplifying the denture consultation process,

enabling it to be delegated to an auxiliary. The win for patients, dentists, and laboratories is improved information, selection accuracy, efficiencies, esthetic outcomes, and overall satisfaction.

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## DISCLOSURE

This article was written by David R. Avery, AAS, CDT. Mr. Avery is a consultant for DENTSPLY International.

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