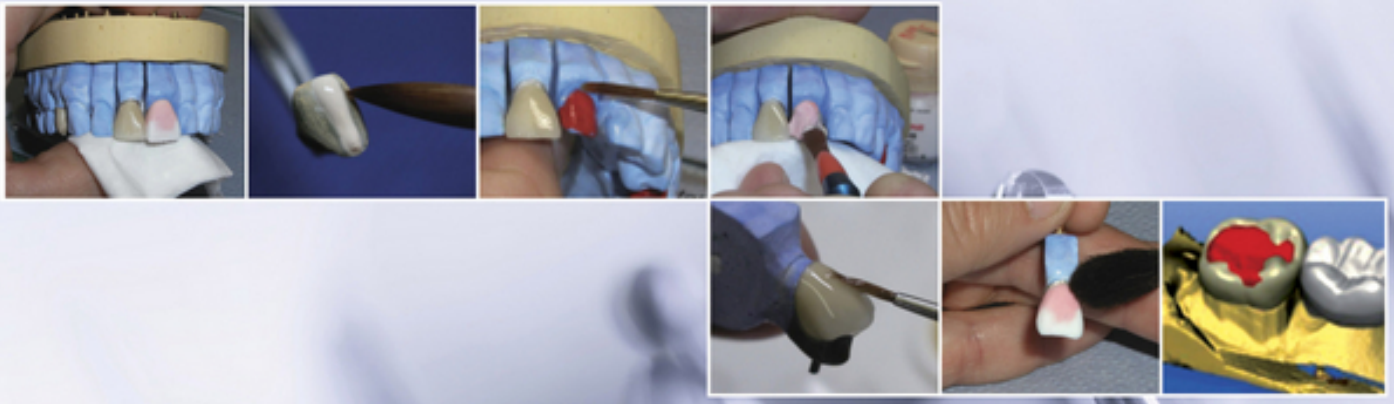
BASICS OF DENTAL TECHNOLOGY

A STEP BY STEP APPROACH | 2ND EDITION



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Basics of Dental Technology

A Step by Step Approach

Second edition

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Basics of Dental Technology is accompanied by a companion website:

www.wiley.com/go/johnson/basicsdentaltechnology

The website includes:

- Multiple choice questions
- Downloadable images

Chapter 1
INTRODUCTION

1.1 Introduction

This book has been designed for use in the dental laboratory as a guide for the novice dental technician. Described in the manner of a ‘cook book’, the procedures in this handbook have been designed to be followed step by step. Presented in sections ordered by specialty, each procedure has been completed in a dental laboratory, with photographs illustrating all the important steps of each procedure. The work shown in this book has not been edited or tweaked, but is presented as the instructions given in this book were followed, to ensure that the outcomes are achievable by anyone following the guides (perhaps with a little practice!).

1.2 How to use this book

This book is designed for the student of dental technology for use on the bench in the dental laboratory. The construction of many dental prostheses and appliances requires progression through a series of stages, often from impression through to the finished product. You can use this book to work through each procedure step by step.

The graphic at the beginning of the sections will help you to see where any given procedure fits into the production process. An example of this is shown on the right.

For each procedure you will find a brief **introduction**, a list of the tools and **equipment required**, guidance on **working safely** and an illustrated step-by-step **basic procedure**.

In addition, the **hints and tips** sections give techniques to expand or refine the process, and the **extended information** sections give an insight into the scientific and clinical aspects that can enhance your understanding of the topic.

1.3 Equipment and instruments

The equipment listed below is commonly found in a dental laboratory, and with which any technician should be familiar.

Plaster bowl, spatula and knife (Figure 1.3.1)

Figure 1.3.1

Common to all plaster rooms, these items are used for mixing, shaping and trimming plaster of Paris, Kaffir and die stone materials. Cleanliness of these items is important to prevent rapid setting of materials.

Wax knives and carvers

These instruments are commonly used in the laboratory for a number of procedures. You should purchase your own good-quality knives and carvers.

Small wax knife: Most commonly used in the fabrication of crowns for placing and carving inlay wax. You may see technicians using two, a cold and a hot knife, to save time (Figure 1.3.2, instrument on the left).

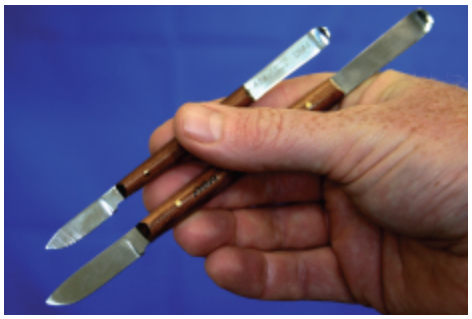

Figure 1.3.2

Large wax knife: Used for melting, placing and carving modelling wax in the production of dentures. Again, it is common to see two knives being used, a cold and a hot knife (Figure 1.3.2, instrument on the right).

LeCron carver: This carver is popular for the carving of inlay wax in the production of crowns. It is used cold, but some techniques use it slightly warm, but not hot (Figure 1.3.3, instrument on the far right).

Figure 1.3.3

Ash 5: This carver is used cold to shape modelling wax in the production of dentures (Figure 1.3.3, instrument in the centre).

Hylin carver: This carver is popular for the carving of inlay wax in the production of crowns. It is used cold (Figure 1.3.3, instrument on the far left).

PKT (PK Thomas): A set of instruments (examples of two shown) designed to aid the precise positioning of molten wax in the production of crowns (Figure 1.3.4).

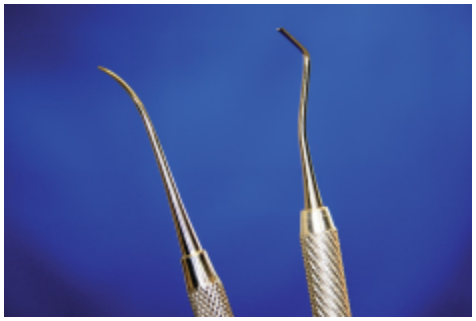

Figure 1.3.4

Other hand instruments

Ceramic brushes: Available in a range of sizes similarly to artists' brushes (Figure 1.3.5), with sizes from 0 to 20 with 0 being the smallest and 20 the largest. These brushes are made from sable and should be treated with care. A size 6 brush is popular for the placement of ceramics in the production of crowns. Smaller brushes are useful for staining, and a larger brush for condensing ceramic.

Figure 1.3.5

Ceramic spatulas: These instruments (Figure 1.3.6) are used for mixing, placing and carving of ceramic powders. They are produced from a material that will not contaminate the ceramic with metal particles that may cause discoloration.

Figure 1.3.6

Micromotors: Modern micromotors (Figure 1.3.7) are very advanced in terms of engineering, control and quality. They are powered by low voltage electricity and usually controlled via a foot or knee controller, allowing the speed to be set anywhere between 5000 and 40 000 rpm. The chuck is opened and closed by twisting the handpiece to secure or remove a bur.

Figure 1.3.7

Burs

There is a huge range of burs currently on the market and manufacturers devote several pages of their catalogues to them. Below is a brief outline of the main types.

Tungsten carbide (TC): These are very popular burs used for many applications within the laboratory from trimming plaster to acrylic and metal. They are available in a large selection of shapes and sizes (Figure 1.3.8). The most useful are the plaster trimmers, flame-shaped for trimming acrylic and small round (often called rosehead) burs for accessing small areas.

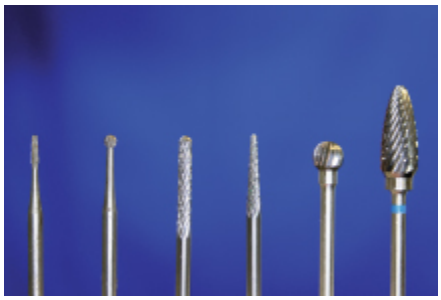

Figure 1.3.8

Steel burs: As above, but not as hard wearing (and cheaper).

Stone burs: Abrasive stone burs are available in different grades, shapes, sizes and materials. The shapes range from cones to points to discs (Figure 1.3.9) and