

Chapter 1

Dental Laboratory Technology and Technicians

Dental laboratory technology is the art and science of fabricating corrective devices and replacements for natural teeth. The patient's dentists plan the treatment and place the restoration or corrective device in the patient's mouth and the laboratory technician, following the written orders or prescription of the dentist, constructs the restoration or device. The technician meets a great challenge which is to catch and remake both the perfection and the imperfection of natural teeth.

The first successful commercial dental lab was established in 1887 when a Boston dentist began creating dental appliances for other dentists. Before long, he began to train apprentices and the dental laboratory technician was born.

What is a dental technician or dental lab technician? A dental technician is an essential member of the dental team, who provides back-clinic support to the dentist. After receiving the written work order and the mold of the patient's teeth, the dental technician, following the order and using the mold, constructs a wax model of the teeth, from which he produces any required fixed prosthesis, including crowns and bridges, or prosthetic teeth, and later makes any necessary modifications to these appliances as directed by the dentist. The dental technician has to be a skillful and reliable assistant whom dentists and orthodontists work closely with. However, dental technicians do not scrape plaque or put fingers into patients' mouth. They do not contact any patients unless unusual situations that require a visual inspection of the patient's teeth.

The dental technician's work is basically solitary, painstaking, and frustrating because he or she might have to grind and shape the molds more than three or four times in order to create accurate and useful molds that will exactly fit patients. Therefore, certain professional skills, good eyes, and good hands are definitely necessary to serve dental technicians well in this challenging and demanding profession. Nevertheless, the technician may be filled with joyfulness and excitement and display the sense of achievement when he or she sees the masterpiece that he or she has accomplished.

Several years ago, many technicians were trained on the job for a couple of years before they became individual practitioners because formal major that was required attracted no attention and emphasis. Recently, about 4 colleges or universities in Taiwan have offered dental technician programs accredited by the Ministry of Education. During these four or five academic years at those colleges or universities, students must specialize in these areas, such as orthodontics, crowns, and bridges. These licensing exams offered by the government were not approved by the Legislative Yuan until January 9th, 2009.

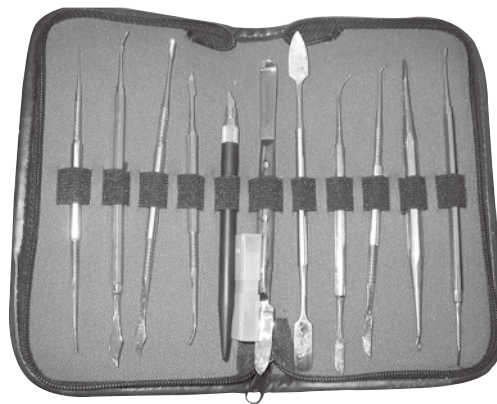
As a dental laboratory technology student, you'll learn all the technical skills necessary to work with molds, metals, and other materials to create customized fixtures for the perfect fit. Though you may never see the patients who wear your creations, they'll be grinning ear to ear thanks to your efforts.

Chapter 2

Dental Laboratory Equipments

A Chinese proverb goes, “Sharper tools, better works.” In the dental medicine, human beings are in the predominant position, which means dentists are the core of the dental treatment system together with equipment suppliers, nurses, dental technicians to form a complete medical unit in order to offer service to the public. Throughout Taiwan, professional dentists provide dental services such as artificial implants, children’s dental departments, dental braces, fixed or mobile dentures, and dentistry for the challenged. Nurses working in the dental department provide dentists with needed help in order to save both dentists’ and patients’ time. The dental technicians receive dentist’s written orders and mold, and then conduct their mission in the lab making the dentures, crowns, bridges and dental braces. They may have to work on the same product repeatedly for several times. The suppliers provide dentists and dental technicians with equipment needed in the labs or clinics. The equipment that can be seen in the lab is as follows:

1. Wax instrument: A tool for making wax pattern (Figure 2-1).



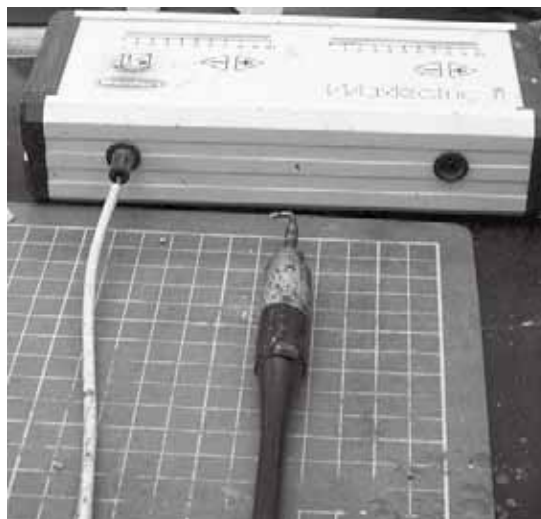
▲ Figure 2-1 Wax instrument

2. Electric wax heater: An electric heater used for melting wax (Figure 2-2).



▲ Figure 2-2 Electric wax heater

3. Electric instrument: The instrument is used to melt wax and do wax-up through electricity-heating (Figure 2-3).



▲ Figure 2-3 Electric instrument

4. Alcohol torch: An alcohol torch with flame used for flattening the surface of the wax pattern by heating (Figure 2-4).
5. Gas torch: A heat source for soldering silver into appliances (Figure 2-5).



▲ Figure 2-4 Alcohol torch



▲ Figure 2-5 Gas torch

6. Surveyor: An instrument used for measuring the undercut area during the designing and processing the partial denture (Figure 2-6).



▲ Figure 2-6 Surveyor

7. Vacuum mixer: An equipment for mixing, stirring, and degassing investment (Figure 2-7).



(a)



(b)

▲ Figure 2-7 Vacuum mixer

8. Vibrator: An instrument which helps increase flowing rate of investment material while doing investing (Figure 2-8).



▲ Figure 2-8 Vibrator

9. Trimmer: A tool used for trimming the plaster mold (Figure 2-9).
10. Ring & Crucible: The ring and crucible put together are used to do investing (Figure 2-10).



▲ Figure 2-9 Trimmer



▲ Figure 2-10 Ring & Crucible

11. Sand blaster: An equipment for clearing attachments or oxide on the surface of the casting (Figure 2-11).



(a)



(b)

▲ Figure 2-11 Sand blaster

12. Dust collector: A machine for cleaning and collecting dust generating in the working environment (Figure 2-12).



(a)



(b)

▲ Figure 2-12 Dust collector

13. Air turbine: A rapid spinning grinding tool which is driven by high-pressure air (Figure 2-13).



▲ Figure 2-13 Air turbine

14. Micro motor: A spinning power-driven tool for grinding and processing products in the dental lab (Figure 2-14).



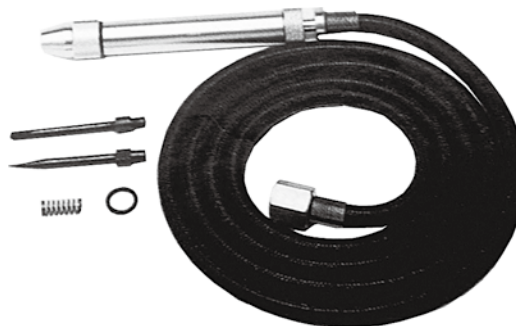
▲ Figure 2-14 Micro motor

15. Wells quick chuck lathe: It's a quick chucking screw for exchanging any tools to keep work going (Figure 2-15).



▲ Figure 2-15 Wells quick chuck lathe

16. Air cutter (pneumatic chisel): A kind of chisel for cutting plaster or investment in a way of pressing air (Figure 2-16).



▲ Figure 2-16 Air cutter

17. Laser welding machine: It's a machine which is used in welding through focusing laser (Figure 2-17).



▲ Figure 2-17 Laser welding machine

18. Agar duplicator: The equipment is used to maintain the temperature of the agar material during working (Figure 2-18).



▲ Figure 2-18 Agar duplicator