

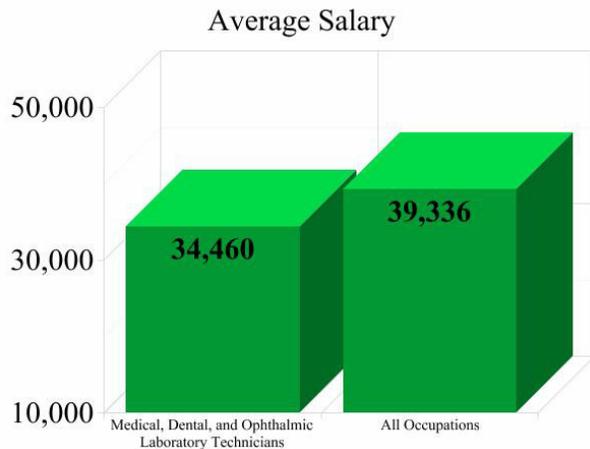
Medical, Dental, & Ophthalmic Lab Techs

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WHAT THEY DO

When patients require a medical device to help them see clearly, chew and speak well, or walk, their healthcare providers send requests to medical, dental, and ophthalmic laboratory technicians. These technicians produce a variety of implements to help patients.

Medical appliance technicians construct, fit, maintain, and repair braces, artificial limbs, joints, arch supports, and other surgical and medical appliances. They follow prescriptions or detailed instructions from podiatrists, orthotists, prosthetists or other healthcare professionals for patients who need them because of a birth defect, disease, accident, or amputation. Podiatrists or orthotists request orthoses—braces, supports, corrective shoes, or other devices; while prosthetists order prostheses—replacement limbs, such as an arm, leg, hand, or foot. Medical appliance technicians who work with these types of devices are called orthotic and prosthetic (O&P) technicians. Other medical appliance technicians work with appliances, such as hearing aids, that help correct other medical problems.



For O&P technicians, creating orthoses and prostheses takes several steps. First, technicians construct or receive a plaster cast of the patient's limb or foot to use as a pattern. Increasingly, technicians are using digital files sent by the prescribing practitioner who uses a scanner and uploads the images using computer software. When fabricating artificial limbs or braces, O&P technicians utilize many different materials including plaster, thermoplastics, carbon fiber, acrylic and epoxy resins. More advanced prosthetic devices are electronic, using information technology. Next, O&P technicians carve, cut, or grind the material using hand or power tools. Then they weld the parts together and use grinding and buffing wheels to smooth and polish the devices. Next, they may cover or pad the devices with leather, felt, plastic, or another material.

Finally, technicians may mix pigments according to formulas to match the patient's skin color and apply the mixture to create a cosmetic cover for the artificial limb.

Dental laboratory technicians fill prescriptions from dentists for crowns, bridges, dentures, and other dental prosthetics. First, dentists send a prescription or work authorization for each item to be manufactured, along with an impression or mold of the patient's mouth or teeth. With new technology, a technician may receive a digital impression rather than a physical mold. Then dental laboratory technicians, also called dental technicians, create a model of the patient's mouth by pouring plaster into the impression and allowing it to set. They place the model on an apparatus that mimics the bite and movement of the patient's jaw. The model serves as the basis of the prosthetic device. Technicians examine the model, noting the size and shape of the adjacent teeth, as well as gaps within the gumline.

In some laboratories, technicians perform all stages of the work, whereas in other labs, each technician does only a few. Dental laboratory technicians can specialize in one of five areas—orthodontic appliances, crowns and bridges, complete dentures, partial dentures, or ceramics. Job titles can reflect specialization in these areas. For example, technicians who make porcelain and acrylic restorations are called dental ceramists.

In small laboratories, technicians usually handle every phase of the operation. In large ones, in which virtually every phase of the operation is automated, technicians may be responsible for operating computerized equipment.

EDUCATION REQUIRED

Although there are no formal education or training requirements to become a medical, dental, or ophthalmic laboratory technician, having a high school diploma is typically the standard requirement for obtaining a job. High school students interested in becoming medical, dental, or ophthalmic laboratory technicians should take courses in mathematics and science. Courses in metal and wood shop, art, drafting, and computers are recommended.

Most medical, dental, and ophthalmic laboratory technicians are hired with a high school diploma and learn their tasks through on-the-job training. They usually begin as helpers and gradually learn new skills as they gain experience. For example, dental laboratory technicians begin by pouring plaster into an impression, and progress to more complex procedures, such as making porcelain crowns and bridges. Ophthalmic laboratory technicians may start by marking or blocking lenses for grinding and move onto grinding, cutting, edging, and beveling lenses as they progress.

The length of time spent in on-the-job training varies for each of these occupations. For example, medical appliance technicians usually receive long-term training, while ophthalmic laboratory technicians usually spend less time in training. The length of the training period also varies by the laboratory where the technician is employed, since each laboratory operates differently.

Medical, Dental, & Ophthalmic Lab Techs - Continued

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OTHER USEFUL SKILLS

A high degree of manual dexterity, good vision, and the ability to recognize very fine color shadings and variations in shape are necessary for medical, dental, and ophthalmic laboratory technicians. An artistic aptitude for detailed work also is important. Computer skills are valuable for technicians using automated systems.

HOW TO ADVANCE

Certification may increase chances of advancement. Voluntary certification for orthotic and prosthetic technicians is available through the American Board for Certification in Orthotics and Prosthetics (ABC). Applicants are eligible for an exam after completing a program accredited by NCOPE or obtaining 2 years of experience as a technician under the direct supervision of an ABC-certified practitioner. After successfully passing the appropriate exam, technicians receive the Registered Orthotic Technician, Registered Prosthetic Technician, or Registered Prosthetic-Orthotic Technician credential.

With additional formal education, medical appliance technicians who make orthotics and prostheses can advance to become orthotists or prosthetists—practitioners who work with patients who need braces, prostheses, or related devices and help to determine the specifications for those devices.

Dental laboratory technicians may obtain the Certified Dental Technician designation from the National Board for Certification in Dental Laboratory Technology, an independent board established by the National Association of Dental Laboratories. Certification, which is voluntary except in three States, can be obtained in five specialty areas: crowns and bridges, ceramics, partial dentures, complete dentures, and orthodontic appliances. To qualify for the CDT credential, technicians must meet educational requirements and pass two written exams and one practical exam.

WORK ENVIRONMENT

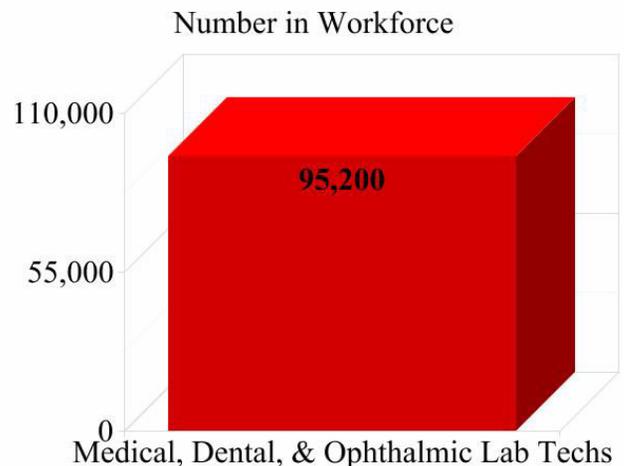
Medical, dental, and ophthalmic laboratory technicians generally work in clean, well-lighted, and well-ventilated laboratories. They have limited contact with the public. Most salaried laboratory technicians work 40 hours a week, but a few work part time. At times, technicians wear goggles to protect their eyes, gloves to handle hot objects, or masks to avoid inhaling dust. They may spend a great deal of time standing.

Dental technicians usually have their own workbenches, which can be equipped with Bunsen burners, grinding and polishing equipment, and hand instruments, such as wax spatulas and wax carvers. Some dental technicians have computer-aided milling equipment to assist them with creating artificial teeth.

JOB GROWTH

Overall employment for these occupations is expected to grow 14 percent from 2008 to 2018, which is faster than the average for all occupations. Medical appliance technicians will grow at 11 percent, about as fast as the average for all occupations, because of the increasing prevalence of the two leading causes of limb loss—diabetes and cardiovascular disease—and because of the increasing rate of obesity. The demand for orthotic devices, such as braces and orthopedic footwear, will increase as more people will need these support devices. In addition, advances in technology may spur demand for prostheses that allow for greater movement.

Employment of dental laboratory technicians is expected to grow 14 percent, which is faster than the average for all occupations. During the last few years, increased demand has arisen from an aging public that is growing increasingly interested in cosmetic prostheses. For example, many dental laboratories are filling orders for composite fillings that are the same shade of white as natural teeth to replace older, less attractive fillings. Additionally, the growing and aging population will require more dental products fabricated by dental technicians, such as bridges and crowns, since more people are retaining their original teeth. This job growth will be limited, however, by productivity gains stemming from continual technological advancements in laboratories.



Ophthalmic laboratory technicians are expected to experience employment growth of 15 percent, faster than the average for all occupations. Demographic trends make it likely that many more Americans will need vision care in the years ahead. Not only will the population grow, but also the proportion of middle-aged and older adults is projected to increase rapidly. Middle age is a time when many people use corrective lenses for the first time, and the need for vision care continues to increase with age. However, the increasing use of automated machinery will temper job growth for ophthalmic laboratory technicians.