Oral Hygiene

- **Reasons for Wearing Retainers After Treatment**
  Reasons for Wearing Retainers After Treatment Differences Between Removable and Fixed Retention Establishing a Routine to Prevent Tooth Shifting Oral Hygiene Tips for Retainer Care Monitoring Changes After Active Orthodontic Phase Factors That Influence Retention Duration Communicating the Value of Long Term Follow Ups How Retainers Support Jaw Positioning Over Time Signs That Signal the Need for Retainer Adjustments Materials Used in Crafting Effective Retainers Incorporating Retainer Wear Into Daily Habits Assessing Compliance and Its Impact on Stability
- **Basics of Brushing With Braces or Aligners**
  Basics of Brushing With Braces or Aligners Practical Tips for Flossing Around Orthodontic Wires Understanding the Role of Mouthwash in Oral Care Techniques to Prevent White Spots on Enamel Avoiding Common Foods That Damage Orthodontic Appliances Solutions for Managing Gum Irritation and Inflammation Tools That Simplify Cleaning With Orthodontic Hardware Importance of Regular Dental Checkups During Treatment Risk Factors for Plaque Buildup With Braces Adapting Hygiene Routines for Clear Aligner Users Balancing Oral Care With Busy Lifestyles Early Intervention for Minor Issues That Escalate
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Okay, so you got your braces off, finally! That's awesome. All that hard work, all those adjustments, all those rubber bands... totally worth it, right? But here's the thing: your teeth aren't exactly glued in place. They have a sneaky little habit of wanting to drift back to where they were before. Orthodontic care can improve both dental health and self-confidence **Early orthodontic intervention** permanent teeth. Think of it like this: your teeth have a memory. And that's where retainers come in.

Retainers basically act like the memory foam mattress for your teeth. They gently, but firmly, hold your teeth in their newly aligned positions. It's not just about keeping them straight, though. Properly fitted retainers also play a crucial role in supporting your jaw's position over time. See, when your teeth are straightened, it can affect how your jaws fit together. Your orthodontist has worked hard to achieve a bite that's not only pretty but also functional and comfortable.

The retainer helps maintain that achieved bite relationship. If your teeth start to shift, even a tiny bit, it can throw off the alignment of your jaw. This can lead to problems like jaw pain, headaches, and even TMJ disorders (those are no fun, trust me). By consistently wearing your retainer as prescribed, you are essentially reinforcing the new, improved positioning of your teeth and, consequently, supporting the stability of your jaw joint and surrounding muscles. It's like a team effort between your teeth and your jaw, and the retainer is the coach making sure everyone stays in formation. So, don't ditch that retainer! Think of it as an investment in long-term comfort and a healthy bite, not just straight teeth.

Okay, so you've gone through all the braces, the elastics, maybe even some jaw surgery. Your teeth are straight, your bite feels right, and you're finally free... or are you? That's where retainers come in. They're not just an afterthought; they're absolutely crucial for making sure all that hard work actually sticks. Think of them as the unsung heroes of orthodontics, quietly working behind the scenes to maintain the corrected jaw position over time.

See, your teeth and jawbone aren't set in stone. They're constantly being remodeled by your body. After braces, those newly straightened teeth have a tendency to drift back to their old, crooked positions. It's like they have a memory of where they used to be. The surrounding soft tissues, like your gums and ligaments, also need time to adapt to the new alignment.

That's where the retainer steps in. By gently holding your teeth in their corrected positions, retainers give your jawbone and soft tissues the chance to stabilize. They're like a training bra

for your teeth, providing support while everything settles down. Over time, the bone solidifies around the teeth, and the ligaments get used to their new positions, making the corrected jaw position more permanent.

Different types of retainers work in slightly different ways. Removable retainers, like clear aligners or Hawley retainers, allow for some movement while still providing overall support. They're often used for the long-term maintenance phase. Fixed retainers, which are bonded to the back of your teeth, offer more rigid support and are often used immediately after braces to prevent any relapse.

Ultimately, the role of retainers is to act as a bridge between the active orthodontic treatment and the long-term stability of your jaw position. They're not just about keeping your teeth straight; they're about ensuring that your entire bite, including the alignment of your jaw, remains in its corrected and healthy state for years to come. So, listen to your orthodontist, wear your retainer as prescribed, and think of it as an investment in the beautiful and functional smile you've worked so hard to achieve.

* Protecting the investment made in orthodontic treatment.

Okay, so we're talking retainers for kids and how they help guide their jaws over time, right? It's not just about keeping teeth straight after braces. For kids, retainers can actually be part of a bigger plan to nudge the jaw into a better position. Think of it like this: their jaws are still growing and developing, so we have a chance to influence that growth.

Now, the types of retainers they might use aren't just the clear plastic ones you might picture. There are removable retainers, like the Hawley retainer with the wire across the front, which are good for minor adjustments and holding the teeth where they are. Then you've got Essix retainers, those clear aligner-type retainers, which are practically invisible. These are good for compliance if a child is self-conscious.

But for actual jaw positioning, we often see more specialized appliances. A functional appliance, for example, might be used to encourage the lower jaw to grow forward if it's set back too far. These can be removable or fixed, and they work by changing the resting position of the jaw muscles. It's not just about straightening teeth; it's about shaping the jaw growth itself.

Then you have headgear, which you don't see as much anymore but can still be used in certain cases to restrain the growth of the upper jaw if it's growing too fast. It sounds intense, but it's all about balance and getting the upper and lower jaws to match up.

The thing to remember is that choosing the right retainer isn't a one-size-fits-all thing. It really depends on the child's specific needs, their age, and how their jaw is developing. The orthodontist will look at all of that to decide which retainer will be most effective in guiding their jaw into the right position over time. It's a long-term process, but it can make a huge difference in their bite and overall facial development.

* Ensuring the long-term stability of the bite and smile.

So, you've got that retainer, right? The one your orthodontist practically glued to your hand after those braces came off? They told you to wear it religiously, maybe even made you sign a blood oath (okay, maybe not that last part). But life happens. Maybe you skip a night, then another, then suddenly it's playing hide-and-seek in the back of your drawer. What's the big

deal, right? Well, here's the thing.

That retainer is the unsung hero of your newly straightened teeth. It's not just some plastic mold; it's a carefully crafted device designed to hold your teeth in their perfect positions while your jawbone settles and solidifies around them. Think of it like scaffolding. After a construction project, you need that temporary structure to support everything while the cement dries. Your retainer is the scaffolding for your smile.

When you ditch the retainer, even for short periods, your teeth start to shift. They have a memory, you see. They remember their crooked past and they're only too happy to revisit it. This shifting might be subtle at first. You might not even notice it. But over time, it adds up. Your teeth start to wiggle back towards their old positions, messing up that perfect alignment you worked so hard (and paid so much!) for.

And it's not just about straight teeth. Remember, retainers support jaw positioning. That perfectly aligned bite you achieved with braces is crucial for proper chewing, speaking, and even breathing. When your teeth shift, it throws that whole system out of whack. You might develop jaw pain, headaches, or even problems with your temporomandibular joint (TMJ).

So, what happens when kids don't wear their retainers? They risk undoing all the hard work and expense that went into their orthodontic treatment. They risk their teeth shifting, their bite becoming misaligned, and potentially developing jaw problems down the road. Basically, they're inviting their teeth to a reunion with their old, crooked selves. And nobody wants that. So, listen to your orthodontist, kids. Wear your retainers. Your future smile (and your wallet) will thank you.

* Supporting proper jaw growth and development in younger children.

Okay, so you've just finished orthodontic treatment. Braces are off, teeth are straight – fantastic! But here's the thing: your teeth, and even your jaw, have a bit of a memory. They've been nudged into new positions and without something to hold them there, they'll naturally want to drift back towards where they started. That's where retainers come in, and they're not just about keeping your teeth straight, they also play a role in long-term jaw stability.

Think of retainers as the unsung heroes of a successful orthodontic outcome. They're essentially supporting the work that's been done, acting as a gentle reminder to your teeth and jaw to stay put. The initial period after braces removal is crucial. Typically, you'll be wearing your retainers full-time, or nearly full-time, for several months. This is when the bone and tissues around your teeth are still actively remodeling to solidify their new positions. Think of it like setting concrete – you need to keep it undisturbed while it hardens.

After this initial phase, your orthodontist will likely transition you to wearing your retainers only at night. How long you need to do this varies from person to person, and it's something you really need to discuss with your orthodontist. Some people can eventually wear them just a few nights a week, while others might need to wear them nightly indefinitely to maintain optimal results.

Now, the jaw stability part. While retainers primarily focus on keeping teeth aligned, they indirectly contribute to the overall stability of your bite and jaw. When your teeth are properly aligned, the forces of chewing are distributed more evenly, which reduces stress on the temporomandibular joint (TMJ). Retainers help maintain this proper alignment, preventing your teeth from shifting in ways that could negatively impact your bite and potentially lead to TMJ issues down the road.

It's important to remember that even with diligent retainer wear, subtle shifts can still occur over time. Our bodies are dynamic, and teeth can naturally move slightly throughout life. However, consistent retainer use significantly minimizes these shifts and helps maintain the overall integrity of your orthodontic results and jaw alignment. So, listen to your orthodontist, wear your retainers as prescribed, and consider them a lifelong investment in your smile and jaw health.

*** Avoiding the need for future, potentially more extensive, orthodontic intervention.**

So, you've invested in braces, your kiddo's smile is looking fantastic, and now comes the retainer. Seems simple enough, right? Except getting a child, especially a teenager, to consistently wear something day and night can feel like herding cats. But remember, that retainer isn't just about keeping teeth straight. It plays a vital role in maintaining the jaw's new, improved position that all that orthodontic work achieved. Over time, the bone and tissues around the teeth remodel to support this corrected alignment. The retainer is the key player in that process, acting like a gentle guide to ensure everything settles in properly.

Think of it like this: the braces were the construction crew, building a new foundation. The retainer is the architect, making sure the structure stays put and doesn't shift. Without it, all that hard work could slowly unravel, and the jaw could revert back to its old, less-than-ideal position. This can lead to not only crooked teeth again but also potential jaw pain, clicking, or even difficulty chewing in the long run.

Now, how to actually get your child to cooperate? First, make sure they understand *why* it's so important. Explain it in terms they can relate to – maybe showing them before-and-after photos of their own teeth or explaining how proper jaw alignment can prevent headaches. Next, establish a routine. Link retainer wear with existing habits, like putting it in right after dinner and taking it out before breakfast. Use a bright, colorful retainer case and keep it in a visible spot to serve as a reminder.

Positive reinforcement is your friend. Create a reward system, like a sticker chart or small weekly allowance for consistent wear. And don't be afraid to involve their orthodontist! A quick check-in during appointments can reinforce the importance of retainer wear and provide your child with some external motivation. Finally, lead by example. If you've ever worn a retainer or other dental appliance, share your experiences and empathize with their challenges. Remember, consistency is key. A little effort and encouragement now can save a lot of time, money, and potential discomfort in the future.

* Contributing to overall oral health by preventing crowding and misalignment.

How Retainers Support Jaw Positioning Over Time

Retainers, those unassuming little pieces of plastic and wire, play a crucial role in maintaining the alignment achieved through orthodontic treatment. While braces or aligners do the heavy lifting of shifting teeth, retainers are the unsung heroes that hold everything in place, preventing relapse and, importantly, subtly influencing long-term jaw positioning.

Think of it like this: your teeth are nestled within bone, and that bone is connected to your jaw. When teeth move, the surrounding bone remodels. Retainers help guide this remodeling process, ensuring your teeth settle into their new positions in a way that supports proper jaw alignment. Over time, this consistent pressure, though minimal, encourages the jaw to adapt and maintain its optimal position. It's not about drastically *changing* the jaw's structure, but rather about reinforcing the stability of the teeth within the jaw, which in turn supports proper bite and jaw function. The retainer acts as a constant, gentle reminder to your teeth, preventing them from drifting back toward their old, misaligned positions, which could eventually impact jaw alignment.

However, potential issues can arise. Retainers are not invincible. They can break, warp, or become ill-fitting over time. If you notice your retainer is cracked, feels loose, or is causing discomfort, it's time to pay attention. A broken retainer loses its effectiveness, leaving your

teeth vulnerable to shifting. An ill-fitting retainer can actually *negatively* impact your jaw positioning, potentially leading to discomfort, clicking, or even Temporomandibular Joint (TMJ) issues.

So, when should you consult an orthodontist about retainer concerns? Any sign of damage, discomfort, or a noticeable shift in your teeth warrants a call. Don't wait for the problem to become severe. Early intervention is key to preserving your orthodontic investment and maintaining a healthy, properly aligned jaw. If your retainer feels too tight, too loose, or if you're experiencing jaw pain, clicking, or popping sounds, schedule an appointment. Remember, retainers are designed to be comfortable and unobtrusive. Anything that deviates from that norm should be addressed promptly by a qualified orthodontist. They can assess the situation, adjust or replace your retainer as needed, and ensure your jaw positioning continues to be supported effectively.

About dentistry

- Sub-Millimeter Surgical Dexterity
- Knowledge of human health, disease, pathology, and anatomy
- Communication/Interpersonal Skills
- Analytical Skills
- Critical Thinking
- Empathy/Professionalism
- Private practices
- Primary care clinics
- Hospitals
- Physician
- dental assistant
- dental technician
- dental hygienist
- various dental specialists

Dentistry

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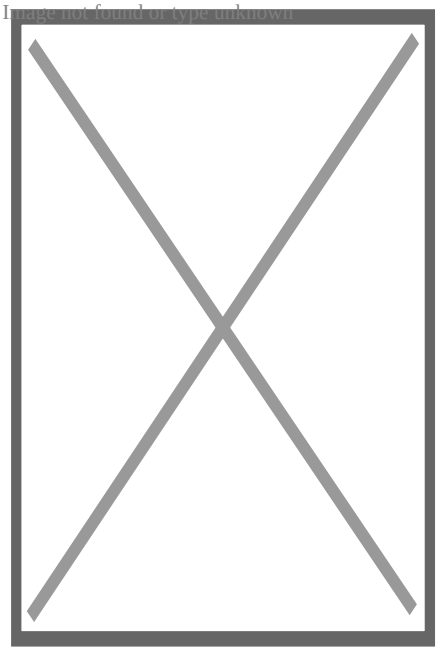

A dentist treats a patient with the help of a dental assistant.

Occupation	
Names	○ Dentist ○ Dental Surgeon ○ Doctor [1][nb 1]
Occupation type	Profession
Activity sectors	Health care, Anatomy, Physiology, Pathology, Medicine, Pharmacology, Surgery
Description	
Competencies	
Education required	Dental Degree
Fields of employment	
Related jobs	

ICD-9-CM 23-24

MeSH D003813

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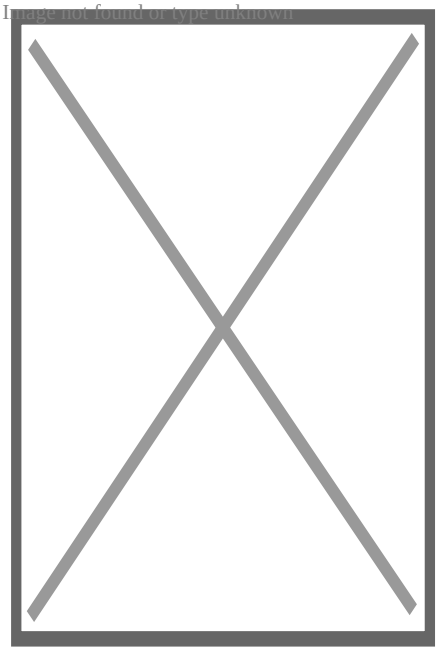

An oral surgeon and dental assistant removing a wisdom tooth

Dentistry, also known as **dental medicine** and **oral medicine**, is the branch of medicine focused on the teeth, gums, and mouth. It consists of the study, diagnosis, prevention, management, and treatment of diseases, disorders, and conditions of the mouth, most commonly focused on dentition (the development and arrangement of teeth) as well as the oral mucosa.[2] Dentistry may also encompass other aspects of the craniofacial complex including the temporomandibular joint. The practitioner is called a dentist.

The history of dentistry is almost as ancient as the history of humanity and civilization, with the earliest evidence dating from 7000 BC to 5500 BC.[3] Dentistry is thought to have been the first specialization in medicine which has gone on to develop its own accredited degree with its own specializations.[4] Dentistry is often also understood to subsume the now largely defunct medical specialty of stomatology (the study of the mouth and its disorders and diseases) for which reason the two terms are used interchangeably in certain regions. However, some specialties such as oral and maxillofacial surgery (facial reconstruction) may require both medical and dental degrees to accomplish. In European history, dentistry is considered to have stemmed from the trade of barber surgeons.[5]

Dental treatments are carried out by a dental team, which often consists of a dentist and dental auxiliaries (such as dental assistants, dental hygienists, dental technicians, and dental therapists). Most dentists either work in private practices (primary care), dental hospitals, or (secondary care) institutions (prisons, armed forces bases, etc.).

The modern movement of evidence-based dentistry calls for the use of high-quality scientific research and evidence to guide decision-making such as in manual tooth

conservation, use of fluoride water treatment and fluoride toothpaste, dealing with oral diseases such as tooth decay and periodontitis, as well as systematic diseases such as osteoporosis, diabetes, celiac disease, cancer, and HIV/AIDS which could also affect the oral cavity. Other practices relevant to evidence-based dentistry include radiology of the mouth to inspect teeth deformity or oral malaises, haematology (study of blood) to avoid bleeding complications during dental surgery, cardiology (due to various severe complications arising from dental surgery with patients with heart disease), etc.

Terminology

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The term dentistry comes from *dentist*, which comes from French *dentiste*, which comes from the French and Latin words for tooth.[6] The term for the associated scientific study of teeth is **odontology** (from Ancient Greek: Ã¡Â½â‚¬??Ã•Â•? romanized: *odoús*, lit. 'tooth') – the study of the structure, development, and abnormalities of the teeth.

Dental treatment

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Dentistry usually encompasses practices related to the oral cavity.[7] According to the World Health Organization, oral diseases are major public health problems due to their high incidence and prevalence across the globe, with the disadvantaged affected more than other socio-economic groups.[8]

The majority of dental treatments are carried out to prevent or treat the two most common oral diseases which are dental caries (tooth decay) and periodontal disease (gum disease or pyorrhea). Common treatments involve the restoration of teeth, extraction or surgical removal of teeth, scaling and root planing, endodontic root canal treatment, and cosmetic dentistry[9]

By nature of their general training, dentists, without specialization can carry out the majority of dental treatments such as restorative (fillings, crowns, bridges), prosthetic (dentures), endodontic (root canal) therapy, periodontal (gum) therapy, and extraction of teeth, as well as performing examinations, radiographs (x-rays), and diagnosis. Dentists can also prescribe medications used in the field such as antibiotics, sedatives, and any other drugs used in patient management. Depending on their licensing boards, general dentists may be required to complete additional training to perform sedation, dental implants, etc.

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Irreversible enamel defects caused by an untreated celiac disease. They may be the only clue to its diagnosis, even in absence of gastrointestinal symptoms, but are often confused with fluorosis, tetracycline discoloration, acid reflux or other causes.[10][11][12] The National Institutes of Health include a dental exam in the diagnostic protocol of celiac disease.[10]

Dentists also encourage the prevention of oral diseases through proper hygiene and regular, twice or more yearly, checkups for professional cleaning and evaluation. Oral infections and inflammations may affect overall health and conditions in the oral cavity may be indicative of systemic diseases, such as osteoporosis, diabetes, celiac disease or cancer.[7][10][13][14] Many studies have also shown that gum disease is associated with an increased risk of diabetes, heart disease, and preterm birth. The concept that oral health can affect systemic health and disease is referred to as "oral-systemic health".

Education and licensing

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Main article: Dentistry throughout the world

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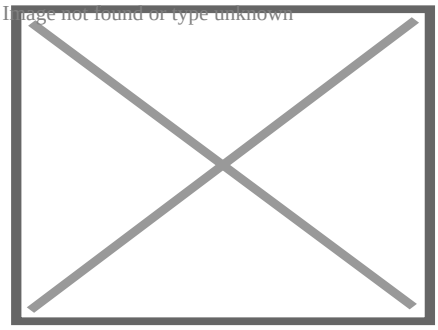
A sagittal cross-section of a molar tooth; 1: crown, 2: root, 3: enamel, 4: dentin and dentin tubules, 5: pulp chamber, 6: blood vessels and nerve, 7: periodontal ligament, 8: apex and periapical region, 9: alveolar bone



Early dental chair in Pioneer West Museum in Shamrock, Texas

John M. Harris started the world's first dental school in Bainbridge, Ohio, and helped to establish dentistry as a health profession. It opened on 21 February 1828, and today is a dental museum.[15] The first dental college, Baltimore College of Dental Surgery, opened in Baltimore, Maryland, US in 1840. The second in the United States was the Ohio College of Dental Surgery, established in Cincinnati, Ohio, in 1845.[16] The Philadelphia College of Dental Surgery followed in 1852.[17] In 1907, Temple University accepted a bid to incorporate the school.

Studies show that dentists that graduated from different countries,[18] or even from different dental schools in one country,[19] may make different clinical decisions for the same clinical condition. For example, dentists that graduated from Israeli dental schools may recommend the removal of asymptomatic impacted third molar (wisdom teeth) more often than dentists that graduated from Latin American or Eastern European dental schools.[20]

In the United Kingdom, the first dental schools, the London School of Dental Surgery and the Metropolitan School of Dental Science, both in London, opened in 1859.[21] The British Dentists Act of 1878 and the 1879 Dentists Register limited the title of "dentist" and "dental surgeon" to qualified and registered practitioners.[22][23] However, others could legally describe themselves as "dental experts" or "dental consultants".[24] The practice of dentistry in the United Kingdom became fully regulated with the 1921 Dentists Act, which required the registration of anyone practising dentistry.[25] The British Dental Association, formed in 1880 with Sir John Tomes as president, played a major role in prosecuting dentists practising illegally.[22] Dentists in the United Kingdom are now regulated by the General Dental Council.

In many countries, dentists usually complete between five and eight years of post-secondary education before practising. Though not mandatory, many dentists choose to complete an internship or residency focusing on specific aspects of dental care after they have received their dental degree. In a few countries, to become a qualified dentist one must usually complete at least four years of postgraduate study;[26] Dental degrees awarded around the world include the Doctor of Dental Surgery (DDS) and Doctor of Dental Medicine (DMD) in North America (US and Canada), and the

Bachelor of Dental Surgery/Baccalaureus Dentalis Chirurgiae (BDS, BDent, BChD, BDSc) in the UK and current and former British Commonwealth countries.

All dentists in the United States undergo at least three years of undergraduate studies, but nearly all complete a bachelor's degree. This schooling is followed by four years of dental school to qualify as a "Doctor of Dental Surgery" (DDS) or "Doctor of Dental Medicine" (DMD). Specialization in dentistry is available in the fields of Anesthesiology, Dental Public Health, Endodontics, Oral Radiology, Oral and Maxillofacial Surgery, Oral Medicine, Orofacial Pain, Pathology, Orthodontics, Pediatric Dentistry (Pedodontics), Periodontics, and Prosthodontics.[27]

Specialties

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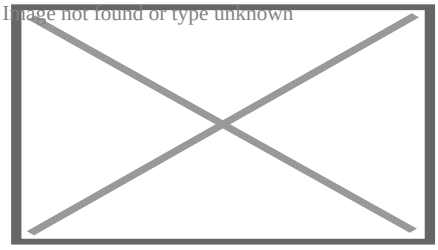
Main article: Specialty (dentistry)



A modern dental clinic in Lappeenranta, Finland

Some dentists undertake further training after their initial degree in order to specialize. Exactly which subjects are recognized by dental registration bodies varies according to location. Examples include:

- Anesthesiology[28] – The specialty of dentistry that deals with the advanced use of general anesthesia, sedation and pain management to facilitate dental procedures.
- Cosmetic dentistry – Focuses on improving the appearance of the mouth, teeth and smile.
- Dental public health – The study of epidemiology and social health policies relevant to oral health.
- Endodontics (also called *endodontology*) – Root canal therapy and study of diseases of the dental pulp and periapical tissues.
- Forensic odontology – The gathering and use of dental evidence in law. This may be performed by any dentist with experience or training in this field. The function of the forensic dentist is primarily documentation and verification of identity.
- Geriatric dentistry or *geriodontics* – The delivery of dental care to older adults involving the diagnosis, prevention, and treatment of problems associated with normal aging and age-related diseases as part of an interdisciplinary team with other health care professionals.

- Oral and maxillofacial pathology – The study, diagnosis, and sometimes the treatment of oral and maxillofacial related diseases.
- Oral and maxillofacial radiology – The study and radiologic interpretation of oral and maxillofacial diseases.
- Oral and maxillofacial surgery (also called *oral surgery*) – Extractions, implants, and surgery of the jaws, mouth and face.[nb 2]
- Oral biology – Research in dental and craniofacial biology
- Oral Implantology – The art and science of replacing extracted teeth with dental implants.
- Oral medicine – The clinical evaluation and diagnosis of oral mucosal diseases
- Orthodontics and dentofacial orthopedics – The straightening of teeth and modification of midface and mandibular growth.
- Pediatric dentistry (also called *pedodontics*) – Dentistry for children
- Periodontology (also called *periodontics*) – The study and treatment of diseases of the periodontium (non-surgical and surgical) as well as placement and maintenance of dental implants
- Prosthodontics (also called *prosthetic dentistry*) – Dentures, bridges and the restoration of implants.
    - Some prosthodontists super-specialize in maxillofacial prosthetics, which is the discipline originally concerned with the rehabilitation of patients with congenital facial and oral defects such as cleft lip and palate or patients born with an underdeveloped ear (microtia). Today, most maxillofacial prosthodontists return function and esthetics to patients with acquired defects secondary to surgical removal of head and neck tumors, or secondary to trauma from war or motor vehicle accidents.
- Special needs dentistry (also called *special care dentistry*) – Dentistry for those with developmental and acquired disabilities.
- Sports dentistry – the branch of sports medicine dealing with prevention and treatment of dental injuries and oral diseases associated with sports and exercise.[29] The sports dentist works as an individual consultant or as a member of the Sports Medicine Team.
- Veterinary dentistry – The field of dentistry applied to the care of animals. It is a specialty of veterinary medicine.[30][31]

History

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See also: History of dental treatments

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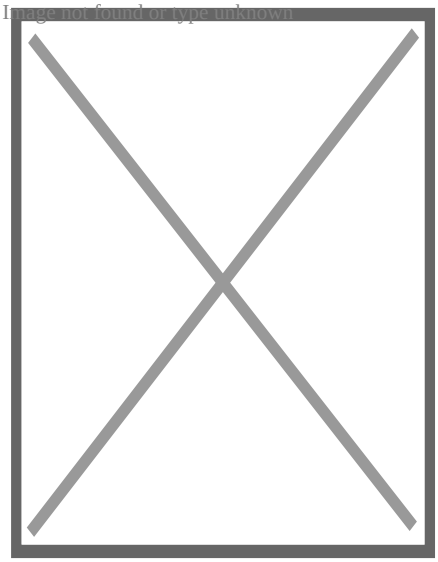

A wealthy patient falling over because of having a tooth extracted with such vigour by a fashionable dentist, c. 1790. History of Dentistry.

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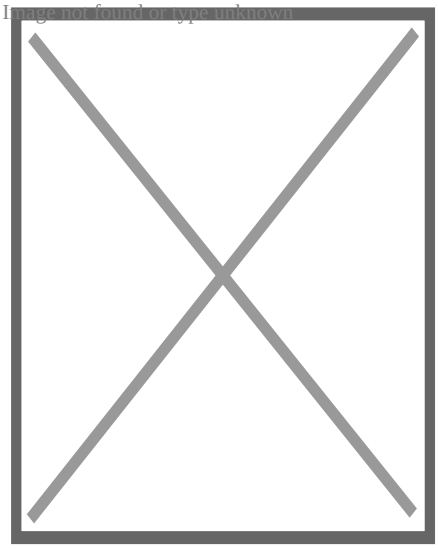


Farmer at the dentist, Johann Liss, c. 1616–17

Tooth decay was low in pre-agricultural societies, but the advent of farming society about 10,000 years ago correlated with an increase in tooth decay (cavities).[32] An infected tooth from Italy partially cleaned with flint tools, between 13,820 and 14,160 years old, represents the oldest known dentistry,[33] although a 2017 study suggests that 130,000 years ago the Neanderthals already used rudimentary dentistry tools.[34] In Italy evidence dated to the Paleolithic, around 13,000 years ago, points to bitumen used to fill a tooth[35] and in Neolithic Slovenia, 6500 years ago, beeswax was used to close a fracture in a tooth.[36] The Indus valley has yielded evidence of dentistry being practised as far back as 7000 BC, during the Stone Age.[37] The Neolithic site of Mehrgarh (now in Pakistan's south western province of Balochistan) indicates that this form of dentistry involved curing tooth related disorders with bow drills operated,

perhaps, by skilled bead-crafters.[3] The reconstruction of this ancient form of dentistry showed that the methods used were reliable and effective.[38] The earliest dental filling, made of beeswax, was discovered in Slovenia and dates from 6500 years ago.[39] Dentistry was practised in prehistoric Malta, as evidenced by a skull which had a dental abscess lanced from the root of a tooth dating back to around 2500 BC.[40]

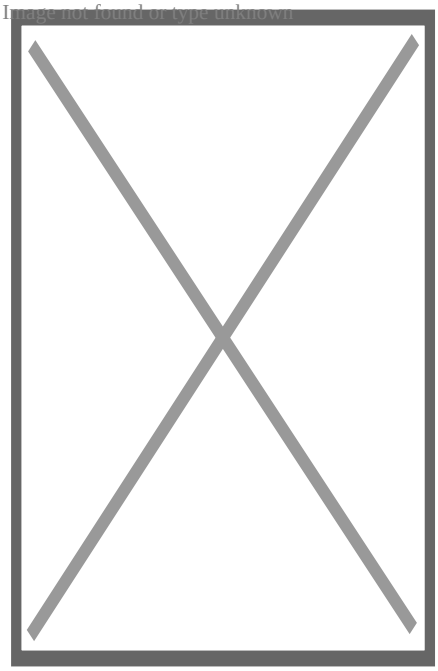
An ancient Sumerian text describes a "tooth worm" as the cause of dental caries.[41] Evidence of this belief has also been found in ancient India, Egypt, Japan, and China. The legend of the worm is also found in the *Homeric Hymns*,[42] and as late as the 14th century AD the surgeon Guy de Chauliac still promoted the belief that worms cause tooth decay.[43]

Recipes for the treatment of toothache, infections and loose teeth are spread throughout the Ebers Papyrus, Kahun Papyri, Brugsch Papyrus, and Hearst papyrus of Ancient Egypt.[44] The Edwin Smith Papyrus, written in the 17th century BC but which may reflect previous manuscripts from as early as 3000 BC, discusses the treatment of dislocated or fractured jaws.[44][45] In the 18th century BC, the Code of Hammurabi referenced dental extraction twice as it related to punishment.[46] Examination of the remains of some ancient Egyptians and Greco-Romans reveals early attempts at dental prosthetics.[47] However, it is possible the prosthetics were prepared after death for aesthetic reasons.[44]

Ancient Greek scholars Hippocrates and Aristotle wrote about dentistry, including the eruption pattern of teeth, treating decayed teeth and gum disease, extracting teeth with forceps, and using wires to stabilize loose teeth and fractured jaws.[48] Use of dental appliances, bridges and dentures was applied by the Etruscans in northern Italy, from as early as 700 BC, of human or other animal teeth fastened together with gold bands.[49][50][51] The Romans had likely borrowed this technique by the 5th century BC.[50][52] The Phoenicians crafted dentures during the 6th–4th century BC, fashioning them from gold wire and incorporating two ivory teeth.[53] In ancient Egypt, Hesy-Ra is the first named "dentist" (greatest of the teeth). The Egyptians bound replacement teeth together with gold wire. Roman medical writer Cornelius Celsus wrote extensively of oral diseases as well as dental treatments such as narcotic-containing emollients and astringents.[54] The earliest dental amalgams were first documented in a Tang dynasty medical text written by the Chinese physician Su Kung in 659, and appeared in Germany in 1528.[55][56]

During the Islamic Golden Age Dentistry was discussed in several famous books of medicine such as The Canon in medicine written by Avicenna and Al-Tasreef by Al-Zahrawi who is considered the greatest surgeon of the Middle Ages,[57] Avicenna said that jaw fracture should be reduced according to the occlusal guidance of the teeth; this principle is still valid in modern times. Al-Zahrawi invented over 200 surgical tools that resemble the modern kind.[58]

Historically, dental extractions have been used to treat a variety of illnesses. During the Middle Ages and throughout the 19th century, dentistry was not a profession in itself, and often dental procedures were performed by barbers or general physicians. Barbers usually limited their practice to extracting teeth which alleviated pain and associated chronic tooth infection. Instruments used for dental extractions date back several centuries. In the 14th century, Guy de Chauliac most probably invented the dental pelican[59] (resembling a pelican's beak) which was used to perform dental extractions up until the late 18th century. The pelican was replaced by the dental key[60] which, in turn, was replaced by modern forceps in the 19th century.[61]



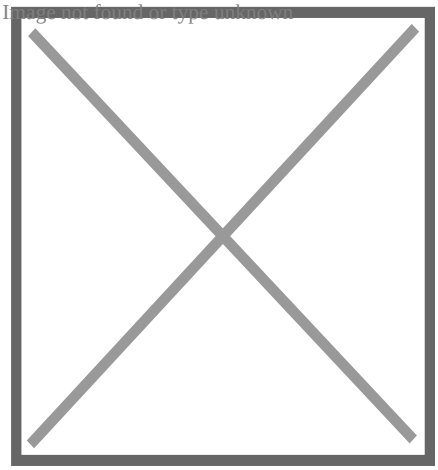
Dental needle-nose pliers designed by Fauchard in the late 17th century to use in prosthodontics

The first book focused solely on dentistry was the "Artzney Buchlein" in 1530,[48] and the first dental textbook written in English was called "Operator for the Teeth" by Charles Allen in 1685.[23]

In the United Kingdom, there was no formal qualification for the providers of dental treatment until 1859 and it was only in 1921 that the practice of dentistry was limited to those who were professionally qualified. The Royal Commission on the National Health Service in 1979 reported that there were then more than twice as many registered dentists per 10,000 population in the UK than there were in 1921.[62]

Modern dentistry

[edit]

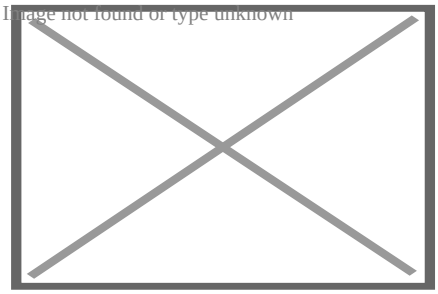


A microscopic device used in dental analysis, c. 1907

It was between 1650 and 1800 that the science of modern dentistry developed. The English physician Thomas Browne in his *A Letter to a Friend* (c. 1656 pub. 1690) made an early dental observation with characteristic humour:

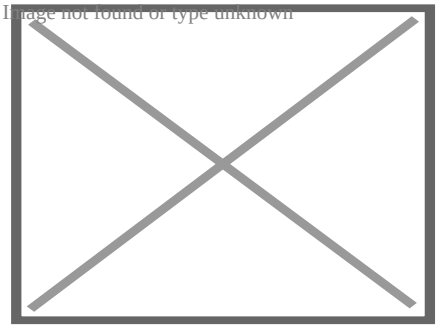
> The Egyptian Mummies that I have seen, have had their Mouths open, and somewhat gaping, which affordeth a good opportunity to view and observe their Teeth, wherein 'tis not easie to find any wanting or decayed: and therefore in Egypt, where one Man practised but one Operation, or the Diseases but of single Parts, it must needs be a barren Profession to confine unto that of drawing of Teeth, and little better than to have been Tooth-drawer unto King Pyrrhus, who had but two in his Head.

The French surgeon Pierre Fauchard became known as the "father of modern dentistry". Despite the limitations of the primitive surgical instruments during the late 17th and early 18th century, Fauchard was a highly skilled surgeon who made remarkable improvisations of dental instruments, often adapting tools from watchmakers, jewelers and even barbers, that he thought could be used in dentistry. He introduced dental fillings as treatment for dental cavities. He asserted that sugar-derived acids like tartaric acid were responsible for dental decay, and also suggested that tumors surrounding the teeth and in the gums could appear in the later stages of tooth decay.[63][64]



Panoramic radiograph of historic dental implants, made 1978

Fauchard was the pioneer of dental prosthesis, and he invented many methods to replace lost teeth. He suggested that substitutes could be made from carved blocks of ivory or bone. He also introduced dental braces, although they were initially made of gold, he discovered that the teeth position could be corrected as the teeth would follow the pattern of the wires. Waxed linen or silk threads were usually employed to fasten the braces. His contributions to the world of dental science consist primarily of his 1728 publication Le chirurgien dentiste or The Surgeon Dentist. The French text included "basic oral anatomy and function, dental construction, and various operative and restorative techniques, and effectively separated dentistry from the wider category of surgery".[63][64]



A modern dentist's chair

After Fauchard, the study of dentistry rapidly expanded. Two important books, *Natural History of Human Teeth* (1771) and *Practical Treatise on the Diseases of the Teeth* (1778), were published by British surgeon John Hunter. In 1763, he entered into a period of collaboration with the London-based dentist James Spence. He began to theorise about the possibility of tooth transplants from one person to another. He realised that the chances of a successful tooth transplant (initially, at least) would be improved if the donor tooth was as fresh as possible and was matched for size with the recipient. These principles are still used in the transplantation of internal organs. Hunter conducted a series of pioneering operations, in which he attempted a tooth transplant. Although the donated teeth never properly bonded with the recipients' gums, one of Hunter's patients stated that he had three which lasted for six years, a remarkable achievement for the period.[65]

Major advances in science were made in the 19th century, and dentistry evolved from a trade to a profession. The profession came under government regulation by the end of the 19th century. In the UK, the Dentist Act was passed in 1878 and the British Dental Association formed in 1879. In the same year, Francis Brodie Imlach was the first ever dentist to be elected President of the Royal College of Surgeons (Edinburgh), raising dentistry onto a par with clinical surgery for the first time.[66]

Hazards in modern dentistry

[edit]
Main article: Occupational hazards in dentistry

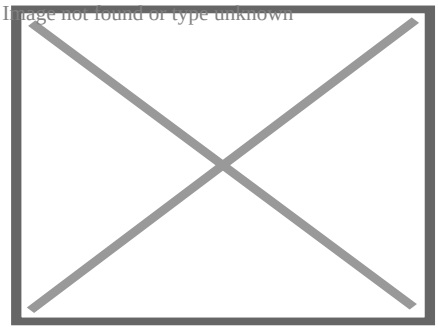
Long term occupational noise exposure can contribute to permanent hearing loss, which is referred to as noise-induced hearing loss (NIHL) and tinnitus. Noise exposure can cause excessive stimulation of the hearing mechanism, which damages the delicate structures of the inner ear.[67] NIHL can occur when an individual is exposed to sound levels above 90 dBA according to the Occupational Safety and Health Administration (OSHA). Regulations state that the permissible noise exposure levels for individuals is 90 dBA.[68] For the National Institute for Occupational Safety and Health (NIOSH), exposure limits are set to 85 dBA. Exposures below 85 dBA are not considered to be hazardous. Time limits are placed on how long an individual can stay in an environment above 85 dBA before it causes hearing loss. OSHA places that limitation at 8 hours for 85 dBA. The exposure time becomes shorter as the dBA level increases.

Within the field of dentistry, a variety of cleaning tools are used including piezoelectric and sonic scalers, and ultrasonic scalers and cleaners.[69] While a majority of the tools do not exceed 75 dBA,[70] prolonged exposure over many years can lead to hearing loss or complaints of tinnitus.[71] Few dentists have reported using personal hearing protective devices,[72][73] which could offset any potential hearing loss or tinnitus.

Evidence-based dentistry

[edit]
Main article: Evidence-based dentistry

There is a movement in modern dentistry to place a greater emphasis on high-quality scientific evidence in decision-making. Evidence-based dentistry (EBD) uses current scientific evidence to guide decisions. It is an approach to oral health that requires the application and examination of relevant scientific data related to the patient's oral and medical health. Along with the dentist's professional skill and expertise, EBD allows dentists to stay up to date on the latest procedures and patients to receive improved treatment. A new paradigm for medical education designed to incorporate current research into education and practice was developed to help practitioners provide the best care for their patients.[74] It was first introduced by Gordon Guyatt and the Evidence-Based Medicine Working Group at McMaster University in Ontario, Canada in the 1990s. It is part of the larger movement toward evidence-based medicine and other evidence-based practices, especially since a major part of dentistry involves dealing with oral and systemic diseases. Other issues relevant to the dental field in terms of evidence-based research and evidence-based practice include population oral health, dental clinical practice, tooth morphology etc.



A dental chair at the University of Michigan School of Dentistry

Ethical and medicolegal issues

[edit]

Dentistry is unique in that it requires dental students to have competence-based clinical skills that can only be acquired through supervised specialized laboratory training and direct patient care.[75] This necessitates the need for a scientific and professional basis of care with a foundation of extensive research-based education.[76] According to some experts, the accreditation of dental schools can enhance the quality and professionalism of dental education.[77][78]

See also

[edit]

- icon Medicine portal
- Dental aerosol
- Dental instrument

- Dental public health
- Domestic healthcare:
  - Dentistry in ancient Rome
  - Dentistry in Canada
  - Dentistry in the Philippines
  - Dentistry in Israel
  - Dentistry in the United Kingdom
  - Dentistry in the United States
- Eco-friendly dentistry
- Geriatric dentistry
- List of dental organizations
- Pediatric dentistry
- Sustainable dentistry
- Veterinary dentistry

Notes

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1. **^** Whether Dentists are referred to as "Doctor" is subject to geographic variation. For example, they are called "Doctor" in the US. In the UK, dentists have traditionally been referred to as "Mister" as they identified themselves with barber surgeons more than physicians (as do surgeons in the UK, see Surgeon#Titles). However more UK dentists now refer to themselves as "Doctor", although this was considered to be potentially misleading by the British public in a single report (see Costley and Fawcett 2010).
2. **^** The scope of oral and maxillofacial surgery is variable. In some countries, both a medical and dental degree is required for training, and the scope includes head and neck oncology and craniofacial deformity.

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Dentistry

Specialties

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- Oral and maxillofacial radiology
- Oral and maxillofacial surgery
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- Pediatric dentistry
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- Tooth polishing
- Tooth bleaching
- Socket preservation
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- British Dental Health Foundation
- British Orthodontic Society
- Canadian Association of Orthodontists
- Dental Technologists Association
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See also

- Index of oral health and dental articles
- Outline of dentistry and oral health
- Dental fear
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- Dental material
- History of dental treatments
  - Ancient Rome
- Infant oral mutilation
- Mouth assessment
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Cleft lip and cleft palate

Related specialities

- Advance practice nursing
- Audiology
- Dentistry
- Dietetics
- Genetics
- Oral and maxillofacial surgery
- Orthodontics
- Orthodontic technology
- Otolaryngology
- Pediatrics
- Pediatric dentistry
- Physician
- Plastic surgery
- Psychiatry
- Psychology
- Respiratory therapy
- Social work
- Speech and language therapy

Related syndromes

- Hearing loss with craniofacial syndromes
- Pierre Robin syndrome
- Popliteal pterygium syndrome
- Van der Woude syndrome

National and international organisations	○ Cleft Lip and Palate Association ○ Craniofacial Society of Great Britain and Ireland ○ Interplast ○ North Thames Regional Cleft Lip and Palate Service ○ Operation Smile ○ Overseas Plastic Surgery Appeal ○ Shriners Hospitals for Children ○ Smile Train ○ Transforming Faces Worldwide ○ Smile Angel Foundation (China)

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Dental schools

American dental schools	○ UAB ○ Arizona ○ Augusta (DCG) ○ Boston U (Goldman) ○ California (UCLA, UCSF) ○ Case Western Reserve ○ Colorado ○ Columbia ○ Connecticut ○ Creighton ○ Detroit Mercy ○ East Carolina ○ Florida ○ Harvard ○ Howard ○ Illinois–Chicago ○ Indiana ○ Iowa ○ Kentucky ○ Lake Erie ○ Loma Linda ○ Louisville ○ LSU Health–New Orleans ○ Marquette ○ Maryland–Baltimore ○ Meharry ○ Michigan ○ Midwestern ○ Minnesota ○ Mississippi ○ Missouri–Kansas City ○ Nebraska–Medical Center ○ Nevada–Las Vegas ○ New England ○ NYU ○ SUNY (Buffalo, Stony Brook) ○ North Carolina ○ Nova ○ Ohio State ○ Oklahoma ○ Oregon ○ Pacific (Dugoni) ○ Penn ○ Pitt ○ Puerto Rico ○ Rochester ○ Pacific Northwest ○ Rutgers

Defunct American dental schools	○ Emory ○ Fairleigh Dickinson ○ Georgetown ○ Harris ○ Loyola ○ Northwestern ○ Ohio College ○ Oral Roberts ○ Pennsylvania College ○ Wash U
Canadian dental schools	○ Alberta ○ British Columbia ○ Dalhousie ○ Laval ○ Manitoba ○ McGill ○ Montréal ○ Saskatchewan ○ Toronto ○ Western
British dental schools	○ Aberdeen ○ Barts and The London School of Medicine and Dentistry ○ Glasgow ○ Guy's, King's & St Thomas's ○ Liverpool ○ Newcastle ○ Peninsula College of Medicine and Dentistry ○ UCL Eastman Dental Institute
Australian and New Zealand dental schools	○ Sydney ○ Melbourne ○ Adelaide ○ Charles Sturt University ○ Griffith University ○ James Cook ○ La Trobe ○ Queensland ○ Western Australia ○ University of Otago

South Korean dental schools	○ Chonbuk ○ Chonnam ○ Chosun ○ Dankook ○ Gangneung-Wonju ○ Kyung Hee ○ Kyungpook ○ Pusan ○ Seoul ○ Wonkwang ○ Yonsei

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Medicine

Specialties	**Surgery**	○ Cardiac surgery
		○ Cardiothoracic surgery
		○ Endocrine surgery
		○ Eye surgery
		○ General surgery
		  ○ Colorectal surgery
		  ○ Digestive system surgery
		○ Neurosurgery
		○ Oral and maxillofacial surgery
		○ Orthopedic surgery
		○ Hand surgery
		○ Otolaryngology
		  ○ ENT
		○ Pediatric surgery
		○ Plastic surgery
		○ Reproductive surgery
		○ Surgical oncology
		○ Transplant surgery
		○ Trauma surgery
		○ Urology
		  ○ Andrology
		○ Vascular surgery

	Internal medicine	○ Allergy / Immunology ○ Angiology ○ Cardiology ○ Endocrinology ○ Gastroenterology ○ Hepatology ○ Geriatrics ○ Hematology ○ Hospital medicine ○ Infectious diseases ○ Nephrology ○ Oncology ○ Pulmonology ○ Rheumatology
	Obstetrics and gynaecology	○ Gynaecology ○ Gynecologic oncology ○ Maternal–fetal medicine ○ Obstetrics ○ Reproductive endocrinology and infertility ○ Urogynecology

		○ Radiology
		  ○ Interventional radiology
		  ○ Neuroradiology
		  ○ Nuclear medicine
		○ Pathology

Medical education	○ Medical school ○ Bachelor of Medicine, Bachelor of Surgery ○ Bachelor of Medical Sciences ○ Master of Medicine ○ Master of Surgery ○ Doctor of Medicine ○ Doctor of Osteopathic Medicine ○ MD–PhD ○ Medical Scientist Training Program
Related topics	○ Alternative medicine ○ Allied health ○ Molecular oncology ○ Nanomedicine ○ Personalized medicine ○ Public health ○ Rural health ○ Therapy ○ Traditional medicine ○ Veterinary medicine ○ Physician ○ Chief physician ○ History of medicine

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