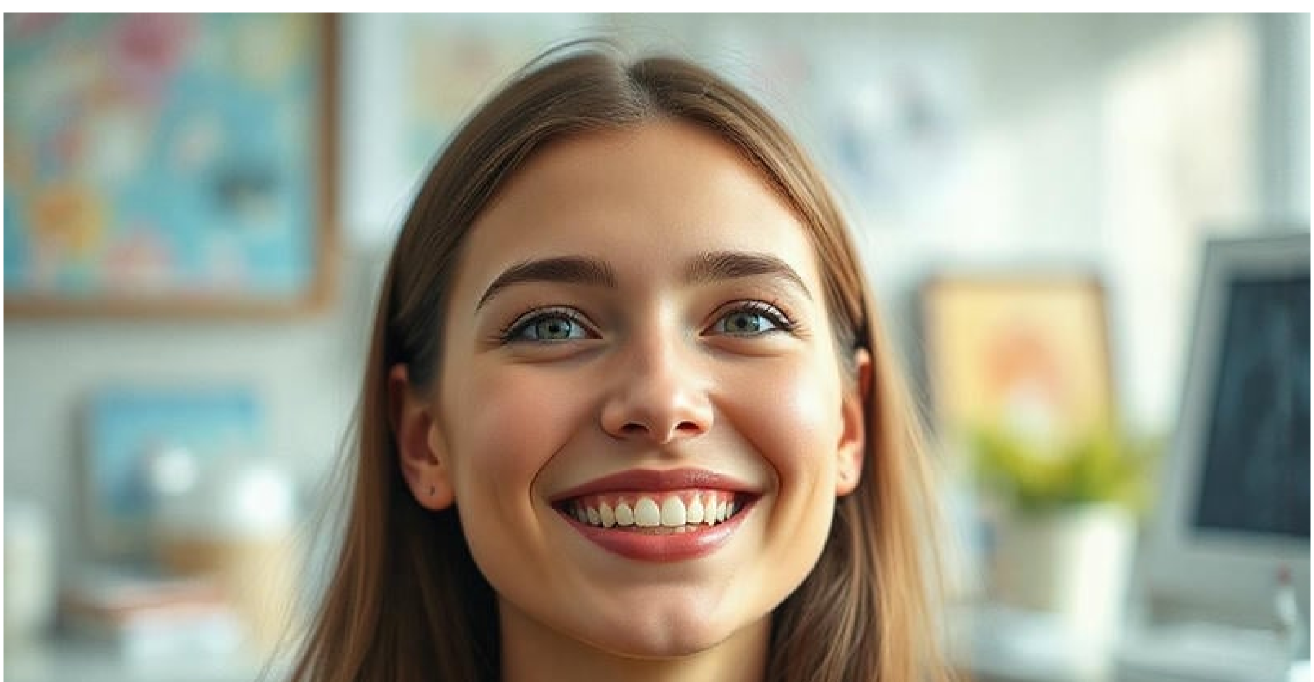
Accelerated Orthodontics

- **Innovative Approaches to Shorten Treatment Time**
  Innovative Approaches to Shorten Treatment Time The Role of Vibration Devices in Faster Tooth Movement Micro Osteoperforation and Its Effects on Treatment 3D Printing Techniques for Customized Appliances Benefits of Digital Impressions in Modern Orthodontics AI Assisted Treatment Planning for Precise Outcomes Remote Monitoring and Virtual Consultations Incorporating New Tools for Patient Compliance Practical Considerations of Accelerated Techniques Research Trends Shaping Future Orthodontic Practices Combining Traditional Methods With Cutting Edge Solutions Adapting to Technological Shifts in Orthodontic Care
- **Indications for Surgical Alignment of the Jaw**
  Indications for Surgical Alignment of the Jaw Steps in Preparing for Orthognathic Procedures Collaboration Between Orthodontists and Surgeons Recovery Factors That Affect Surgical Outcomes Managing Expectations During Corrective Jaw Treatment Potential Complications of Complex Jaw Adjustments Importance of Skeletal Analysis Before Surgery Combined Orthodontic and Surgical Treatment Timelines Role of Virtual Surgical Planning in Jaw Corrections Functional Improvements After Orthognathic Intervention Support and Care for Post Surgical Recovery Evaluating Long Term Benefits of Jaw Realignment
- **About Us**



Early Intervention with Invisalign First for Kids

Early Intervention with Invisalign First for Kids

The integration of artificial intelligence (AI) in orthodontic diagnosis and treatment planning has revolutionized the field, offering unprecedented precision and efficiency. AI algorithms are capable of analyzing a range of dental images, including 3D X-rays and intraoral photographs, to identify underlying conditions such as malocclusions and tooth demineralization. This advanced diagnostic capability is particularly significant for children, as it allows for the detection of issues at an age when interventions can be most effective.

In the realm of treatment planning, AI plays a crucial role by enabling orthodontists to create highly personalized plans. By analyzing extensive patient data, including medical history and previous treatment outcomes, AI algorithms can simulate various treatment outcomes. This predictive analytics allows both orthodontists and patients to visualize potential results, ensuring that treatment plans are tailored to each individual's unique needs and optimized for the best possible outcome.

Orthodontic expanders can create more space in the mouth for teeth **Kids' dental alignment services** malocclusion.

Furthermore, AI-driven 3D modelling has transformed treatment planning by providing detailed representations of a patient's dental anatomy. This technology allows for precise analysis and diagnosis of issues like misalignments and overcrowding, enabling practitioners to make more informed decisions about the direction and impact of treatment. The integration of cephalometry into AI-powered 3D imaging enhances traditional methods by offering a more dynamic and accurate analysis of the craniofacial structure.

AI also enables the automation of tedious tasks, such as cephalometric analysis and treatment adjustments, which can reduce treatment planning time by up to 95% without compromising quality. This efficiency not only enhances patient satisfaction but also reduces the cost of treatments like clear aligners. By harnessing the power of AI, orthodontic care is poised to deliver more precise outcomes, improve patient engagement, and ultimately enhance the quality of care for patients worldwide.

In the evolving landscape of healthcare, personalized treatment plans have become a cornerstone of effective patient care. The integration of artificial intelligence (AI) in this process has revolutionized the way healthcare providers approach treatment, moving from a one-size-fits-all approach to tailored interventions that cater to the unique needs of each individual.

AI-assisted tools play a pivotal role in analyzing vast amounts of patient data, including genetic information, medical records, lifestyle choices, and responses to previous treatments. By processing this complex data, AI algorithms can identify patterns and correlations that might elude human clinicians, leading to the creation of personalized treatment strategies. These strategies are not only more effective but also minimize potential side effects by considering the genetic makeup, medical history, and environmental factors of each patient.

One of the key benefits of AI-assisted treatment plans is their ability to integrate data from various sources. This includes electronic health records, wearable device data, and patient-reported outcomes, providing a holistic view of a patient's health status. Predictive analytics, another powerful tool in AI-assisted treatment, allows healthcare providers to forecast potential outcomes based on different treatment approaches. This enables them to assess the likely effectiveness of various interventions before implementation, ensuring that the most optimal treatment plan is used.

AI also empowers real-time monitoring and adjustments to treatment plans. With wearable devices and remote patient monitoring, healthcare providers can continuously assess patient progress, making necessary adjustments in near real-time. This not only improves treatment efficacy but also empowers patients to actively participate in their healthcare by providing insights into how their lifestyle choices impact their health outcomes.

Moreover, AI-driven predictive analytics can identify individuals at high risk of developing certain diseases, allowing for early intervention and preventive measures. This capability is particularly valuable in managing chronic conditions, where timely interventions can significantly reduce the burden of disease and improve overall population health.

In conclusion, AI-assisted treatment plans are transforming the healthcare landscape by providing customized care that maximizes therapeutic outcomes while minimizing adverse effects. As AI technologies continue to evolve, their role in personalized medicine will only grow more significant, ushering in a new era of precise and effective healthcare.

The HealthyStart System

The integration of predictive analytics in orthodontic treatment planning represents a significant leap forward in precision and effectiveness. Artificial intelligence (AI) predictive models analyze vast amounts of historical data to forecast treatment progress, enabling orthodontists to anticipate potential challenges and set realistic goals and timelines for patients, including kids undergoing orthodontic treatment.

This approach is particularly valuable in orthodontics, where treatments are often lengthy and require precise adjustments over time. By leveraging AI, orthodontists can simulate different treatment scenarios, predicting how a patient's teeth will move and align throughout the treatment process. This predictive capability allows for the creation of highly personalized treatment plans tailored to each patient's unique needs and characteristics, such as age, dental structure, and oral health history.

Predictive analytics also plays a crucial role in managing patient expectations and improving treatment compliance. By accurately predicting the duration of each stage of treatment, orthodontists can provide patients with clear timelines, helping to reduce the overall duration of treatments and the need for frequent adjustments. This not only enhances patient satisfaction but also reduces the likelihood of complications during treatment.

Furthermore, AI-driven predictive models continuously learn from new data, refining their predictions and treatment strategies over time. This dynamic learning process ensures that treatment protocols evolve alongside advancements in orthodontic care, leading to more precise and effective outcomes.

In the future, the role of AI in orthodontic treatment planning is set to become even more integral. As AI technologies continue to evolve, they will become increasingly capable of handling complex tasks, offering greater precision and personalization in dental care. This transformative shift in orthodontics is revolutionizing how treatments are planned and executed, ultimately leading to better patient outcomes and more efficient care.

This non-invasive approach targets the natural development of children's teeth and jaw, using soft

dental appliances to align teeth and address breathing issues, reducing the need for more invasive treatments.

The integration of AI-driven 3D modelling in dentistry has revolutionized the field of treatment planning, offering precise and detailed representations of dental structures. This technology allows for the accurate analysis and diagnosis of complex issues such as misalignments and overcrowding, particularly in pediatric patients. By leveraging advanced algorithms, AI can analyze vast amounts of data from 3D scans, providing dental professionals with comprehensive insights into the anatomical relationships of teeth and facial structures.

In orthodontics, AI-powered tools are particularly valuable. They enable the design of personalized treatment plans by simulating various scenarios and predicting outcomes. For instance, AI can assist in creating customized aligners like Invisalign, ensuring a perfect fit and predictable tooth movements. This not only enhances the efficiency of the treatment process but also improves patient satisfaction by reducing the need for adjustments during treatment.

The fusion of 3D imaging and AI also enhances patient engagement and understanding. Patients can visualize their treatment plans through realistic simulations, fostering better communication between them and their dental care professionals. This approach not only addresses the limitations of traditional diagnostic methods but also provides a safer and more efficient way to deliver dental care, minimizing errors and reducing chair time.

In the future, AI-driven 3D modelling is expected to become even more integral to dental diagnostics and treatment planning. As AI technologies continue to evolve, they will enable more precise and personalized care, allowing dental professionals to predict potential challenges and adjust treatment plans accordingly. This predictive power will further enhance patient outcomes, positioning AI as a transformative force in modern dentistry.

Myobrace: A No-Braces Approach

The integration of artificial intelligence (AI) in orthodontics has revolutionized the field, particularly in the design and application of custom braces and aligners. AI algorithms now analyze detailed dental scans and facial structures to create personalized treatment plans, ensuring optimal comfort and effectiveness for patients, including kids. This advanced technology transforms traditional methods by providing a precise and tailored approach to orthodontic care.

In the past, orthodontists relied on manual assessments and standard braces that might not perfectly fit every patient's unique dental anatomy. However, AI-driven systems can process vast amounts of imaging data to create virtual simulations of potential treatment outcomes. This capability allows orthodontists to visualize how teeth will move and align over the course of treatment, enabling them to formulate personalized plans that address specific dental issues more efficiently.

AI also enhances the fitting process by using intraoral scanners to capture detailed 3D images of the patient's teeth. These images are analyzed by AI to determine the best placement for each bracket and wire, ensuring that braces fit precisely and minimizing discomfort and the need for subsequent adjustments. Furthermore, AI can predict potential issues before the braces are fitted, allowing for proactive adjustments to avoid complications.

The predictive analytics powered by AI are crucial in orthodontic treatment planning. By analyzing extensive historical data, AI algorithms can predict the trajectory of orthodontic procedures with remarkable accuracy. This capability enables orthodontists to foresee potential challenges, anticipate progress, and set realistic treatment goals and timelines for their patients.

In addition to improving treatment outcomes, AI enhances patient engagement and satisfaction. AI-powered platforms allow patients to track their progress in real-time, providing visual representations of how their teeth are moving and how close they are to their desired outcome. This level of engagement is particularly beneficial for kids, who can see the tangible benefits of their orthodontic treatment and stay motivated throughout the process.

As AI continues to evolve, its role in orthodontics is expected to grow further. Future innovations may include AI-powered robotic systems for precise placement of orthodontic appliances or fully automated treatments that allow patients to receive comprehensive care remotely. With AI-driven efficiency, the cost of producing and fitting braces may decrease, making high-quality orthodontic care more accessible to everyone.

Myobrace offers a brace-free solution that corrects poor oral habits, guiding jaw and teeth alignment development in children, promoting natural growth and oral health.

The integration of artificial intelligence (AI) in treatment planning has revolutionized the healthcare field by enhancing the precision and efficiency of treatment outcomes. AI-driven systems play a pivotal role in automated adjustments and predictive analytics, which are crucial for identifying potential complications and suggesting timely adjustments. This approach not only streamlines treatment processes but also significantly enhances patient satisfaction.

AI's ability to analyze vast amounts of data, including medical history, genetic information, and real-time health metrics, allows for the creation of highly personalized treatment plans. These plans are tailored to the unique needs of each patient, taking into account factors such as lifestyle, previous health records, and current medical conditions. By continuously monitoring patient data, AI systems can make near real-time adjustments to treatment plans, ensuring that interventions are optimized based on evolving health conditions.

Predictive analytics is a powerful tool within AI-driven treatment planning. It enables healthcare providers to forecast potential health complications by analyzing historical data and real-time health metrics. This predictive capacity allows for early intervention, reducing the likelihood of severe complications and improving overall patient care. By focusing resources on high-risk patients, predictive analytics also aids in optimizing healthcare resources, leading to more efficient allocation of staff, equipment, and facilities.

The benefits of AI in treatment planning are profound. It empowers patients by providing them with insights into how their lifestyle choices impact their health outcomes, thus enabling active engagement in their care. Additionally, AI-driven systems help reduce diagnostic and treatment errors, which can lead to cost savings by reducing the need for repeat procedures and hospital stays. As AI technology continues to evolve, its role in enhancing treatment efficiency and patient satisfaction will become even more critical, paving the way for a future where healthcare is more personalized, efficient, and effective.

Comprehensive Orthodontic Solutions

The integration of artificial intelligence (AI) into orthodontic treatment planning has revolutionized the field by enhancing the accuracy and effectiveness of treatment outcomes, particularly for high-risk patients. AI algorithms can analyze extensive datasets, including patient demographics, dental records, and past treatment outcomes, to identify high-risk patients and predict potential complications. This predictive capability allows orthodontists to tailor treatment plans that address specific challenges and allocate resources more effectively to manage these high-risk cases.

One of the critical benefits of AI-assisted treatment planning is its ability to predict complications such as periodontal issues, root resorption, or other adverse outcomes. By analyzing historical data and identifying patterns, AI can help orthodontists anticipate and manage these complications early on, leading to better patient outcomes and satisfaction. For example, AI-driven virtual treatment simulations enable practitioners to visualize the potential results of orthodontic procedures before they begin, allowing for informed discussions with patients about treatment feasibility and aesthetics.

AI also plays a crucial role in the decision-making process for orthodontic extractions, which are often necessary in high-risk cases to address crowding or space issues. AI tools can assess clinical data to determine whether extractions are required, providing a more accurate and data-driven approach than traditional methods. This not only improves treatment efficacy but also helps manage patient expectations by providing realistic timelines and outcomes.

Furthermore, AI-driven systems can continuously learn and improve treatment strategies as more data is collected and analyzed. This capability ensures that treatment plans evolve to address unique patient needs more effectively, leading to enhanced treatment success and patient satisfaction. In the future, the integration of AI in orthodontics will be critical for streamlining workflow procedures, enhancing diagnostic accuracy, and ultimately providing more precise and patient-centered care.

The integration of AI in orthodontic treatment planning is on the horizon to revolutionize patient care, particularly for children, by offering more precise, individualized, and evidence-based treatments. This technological shift is expected to enhance outcomes and satisfaction for kids, transforming the way orthodontic care is approached.

AI-driven systems are capable of analyzing a child's dental structure and predicting the most effective movement paths for teeth alignment. This predictive capability allows for the creation of customized treatment plans that are tailored to the unique needs of each child. By leveraging AI algorithms, orthodontists can simulate various treatment outcomes based on current dental scans, enabling both patients and practitioners to visualize potential results before deciding on a course of action. This not only ensures that treatment plans are optimized for the best possible outcome but also allows for real-time adjustments as needed.

The use of AI in orthodontics also streamlines the alignment process, potentially reducing the number of visits required to the orthodontist for adjustments. This is particularly beneficial for children, as it makes the treatment journey more comfortable and efficient. Furthermore, AI tools enhance communication between orthodontists and parents, allowing for better tracking of progress and adjustments to the treatment as necessary.

In the future, the integration of AI with advancements in materials science is expected to further enhance the effectiveness and comfort of clear aligners, making them an even more viable option for young patients. The anticipated reduction in overall treatment times makes early orthodontic intervention more appealing, allowing parents to see positive results sooner.

As AI technologies continue to evolve, they are expected to play a central role in dental care delivery, from diagnostics to surgical procedures. The future of orthodontics for kids will be defined by precision, efficiency, and personalized care, setting a new standard for patient satisfaction and outcomes. By embracing these technological advancements, orthodontists can provide more effective and personalized treatments, leading to better smiles and improved oral health for children.

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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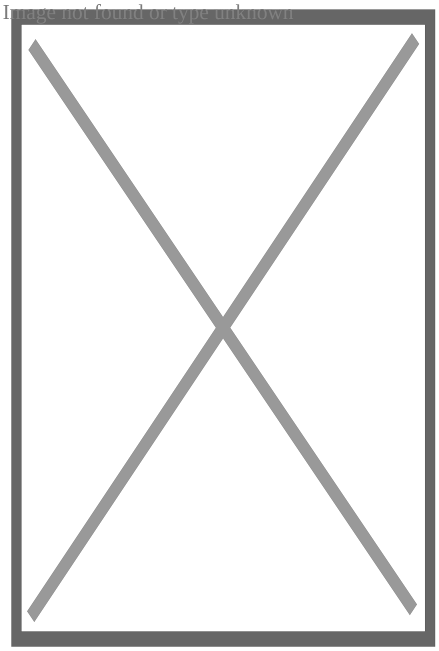

A dentist treats a patient with the help of a dental assistant.

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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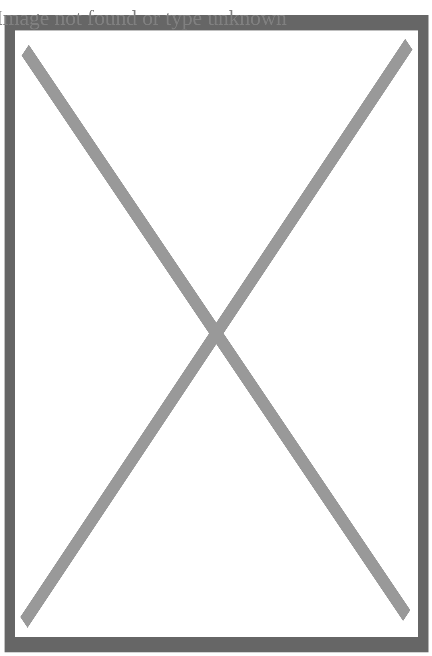

An oral surgeon and dental assistant removing a wisdom tooth

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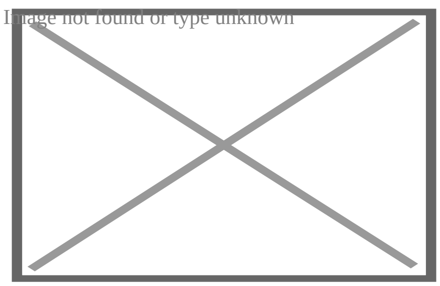
Dentistry usually encompasses practices related to the oral cavity.[7] According to the World Health Organization, oral diseases are major public health problems due to their high incidence and prevalence across the globe, with the disadvantaged affected more than other socio-economic groups.[8]

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.

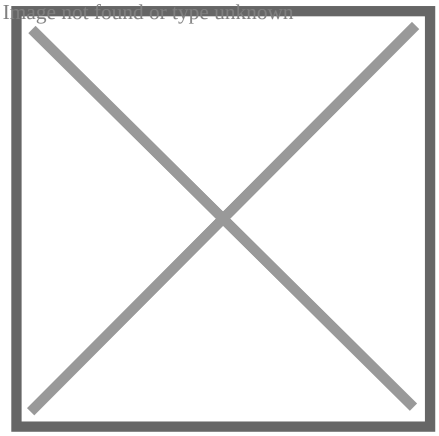


Irreversible enamel defects caused by an untreated celiac disease. They may be the only clue to its diagnosis, even in absence of gastrointestinal symptoms, but are often confused with fluorosis, tetracycline discoloration, acid reflux or other causes.[10][11][12] The National Institutes of Health include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

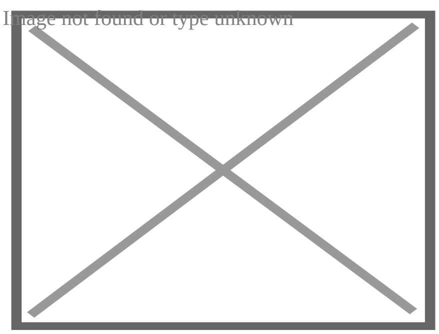
Dentists also encourage the prevention of oral diseases through proper hygiene and regular, twice or more yearly, checkups for professional cleaning and evaluation. Oral infections and inflammations may affect overall health and conditions in the oral cavity may be indicative of systemic diseases, such 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

[edit]
Main article: Dentistry throughout the world



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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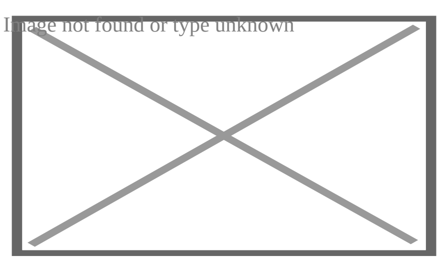
Main article: Specialty (dentistry)



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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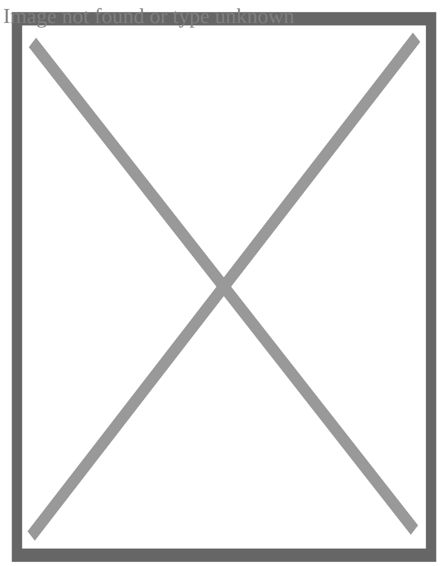
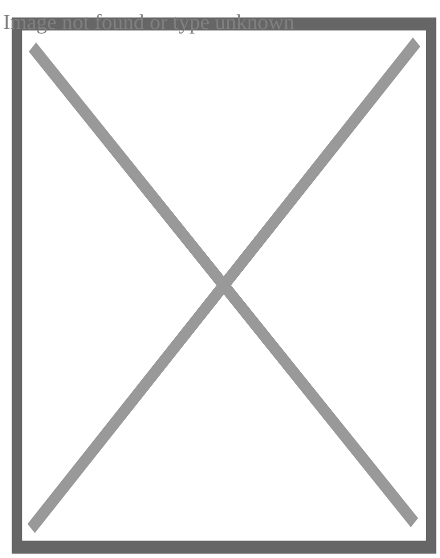
See also: History of dental treatments



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



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]

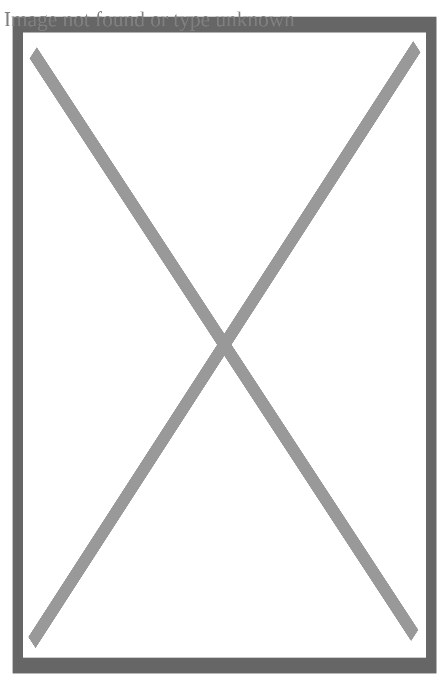
An ancient Sumerian text describes a "tooth worm" as the cause of dental caries.[41] Evidence of this belief has also been found in ancient India, Egypt, Japan, and China. The legend of the worm is also found in the *Homeric Hymns*,[42] and as late as the 14th century AD the surgeon Guy de Chauliac still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

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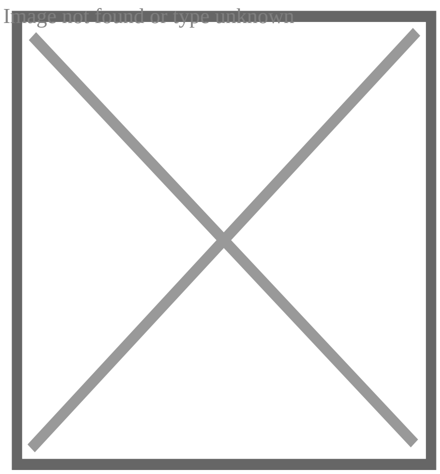


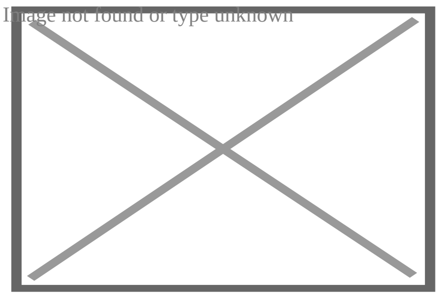
A microscopic device used in dental analysis, c. 1907

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.

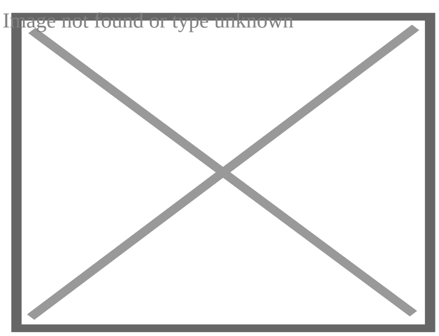
The French surgeon Pierre Fauchard became known as the "father of modern dentistry". Despite the limitations of the primitive surgical instruments during the late 17th and early 18th century, Fauchard was a highly skilled surgeon who made remarkable improvisations of dental instruments, often adapting 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.

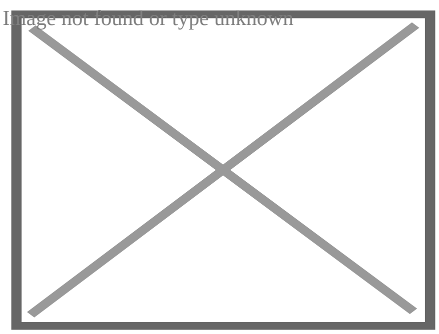
Within the field of dentistry, a variety of cleaning tools are used including piezoelectric and sonic scalers, and ultrasonic scalers and cleaners.[69] While a majority of the tools do not exceed 75 dBA,[70] prolonged exposure over many years can lead to hearing loss or complaints of tinnitus.[71] Few 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

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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

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- icon Image not found or type unknown 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	○ Endodontics ○ Oral and maxillofacial pathology ○ Oral and maxillofacial radiology ○ Oral and maxillofacial surgery ○ Orthodontics and dentofacial orthopedics ○ Pediatric dentistry ○ Periodontics ○ Prosthodontics ○ Dental public health ○ Cosmetic dentistry ○ Dental implantology ○ Geriatric dentistry ○ Restorative dentistry ○ Forensic odontology ○ Dental traumatology ○ Holistic dentistry
Dental surgery	○ Dental extraction ○ Tooth filling ○ Root canal therapy ○ Root end surgery ○ Scaling and root planing ○ Teeth cleaning ○ Dental bonding ○ Tooth polishing ○ Tooth bleaching ○ Socket preservation ○ Dental implant
Organisations	○ American Association of Orthodontists ○ British Dental Association ○ British Dental Health Foundation ○ British Orthodontic Society ○ Canadian Association of Orthodontists ○ Dental Technologists Association ○ General Dental Council ○ Indian Dental Association ○ National Health Service
By country	○ Canada ○ Philippines ○ Israel ○ United Kingdom ○ United States

See also

- Index of oral health and dental articles
- Outline of dentistry and oral health
- Dental fear
- Dental instruments
- Dental material
- History of dental treatments
  - Ancient Rome
- Infant oral mutilation
- Mouth assessment
- Oral hygiene

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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

Medicine

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

Specialties

- 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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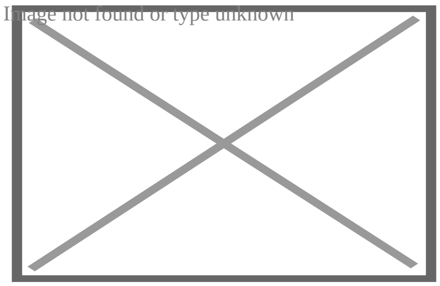
About jaw

This article is about the anatomical part. For the mountain, see The Jaw. For other uses, see Jaws (disambiguation) and Jawbone (disambiguation).

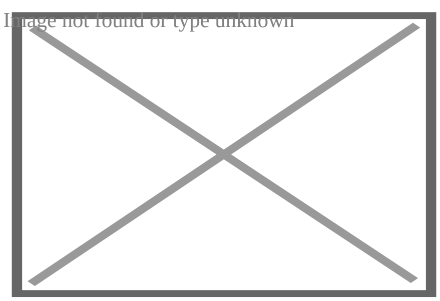


Human lower jaw viewed from the left

The **jaws** are a pair of opposable articulated structures at the entrance of the mouth, typically used for grasping and manipulating food. The term *jaws* is also broadly applied to the whole of the structures constituting the vault of the mouth and serving to open and close it and is part of the body plan of humans and most animals.

Arthropods

[edit]
Further information: Mandible (arthropod mouthpart) and Mandible (insect mouthpart)



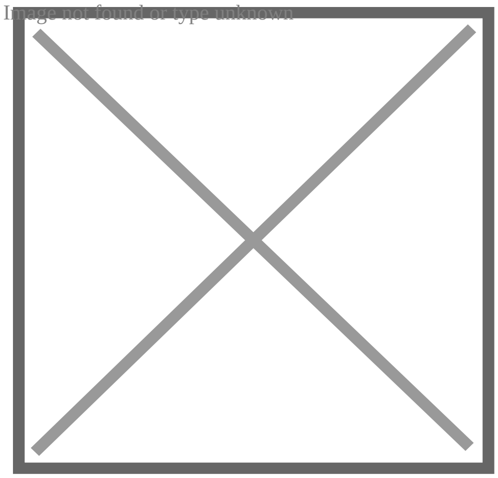
The mandibles of a bull ant

In arthropods, the jaws are chitinous and oppose laterally, and may consist of *mandibles* or *chelicerae*. These jaws are often composed of numerous mouthparts. Their function is fundamentally for food acquisition, conveyance to the mouth, and/or initial processing (*mastication* or *chewing*). Many mouthparts and associate structures (such as pedipalps) are modified legs.

Vertebrates

[edit]

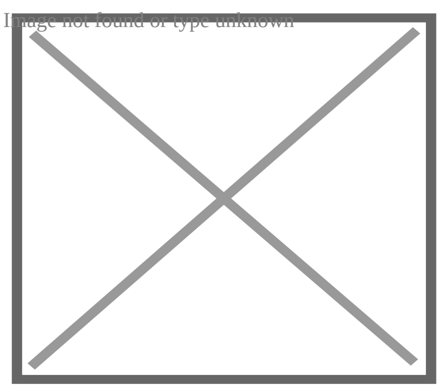
In most vertebrates, the jaws are bony or cartilaginous and oppose vertically, comprising an *upper jaw* and a *lower jaw*. The vertebrate jaw is derived from the most anterior two pharyngeal arches supporting the gills, and usually bears numerous teeth.



Jaws of a great white shark

Fish

[edit]



Moray eels have two sets of jaws: the oral jaws that capture prey and the pharyngeal jaws that advance into the mouth and move prey from the oral jaws to the esophagus for swallowing.

Main article: Fish jaw

The vertebrate jaw probably originally evolved in the Silurian period and appeared in the Placoderm fish which further diversified in the Devonian. The two most anterior pharyngeal arches are thought to have become the jaw itself and the hyoid arch, respectively. The hyoid system suspends the jaw from the braincase of the skull, permitting great mobility of the jaws. While there is no fossil evidence directly to support this theory, it makes sense in light of the numbers of pharyngeal arches that are visible in extant jawed vertebrates (the Gnathostomes), which have seven arches, and primitive jawless vertebrates (the Agnatha), which have nine.

The original selective advantage offered by the jaw may not be related to feeding, but rather to increased respiration efficiency.[1] The jaws were used in the buccal pump (observable in modern fish and amphibians) that pumps water across the gills of fish or air into the lungs in the case of amphibians. Over evolutionary time the more familiar use of jaws (to humans), in feeding, was selected for and became a very important function in vertebrates. Many teleost fish have substantially modified jaws for suction feeding and jaw protrusion, resulting in highly complex jaws with dozens of bones involved.[2]

Amphibians, reptiles, and birds

[edit]

The jaw in tetrapods is substantially simplified compared to fish. Most of the upper jaw bones (premaxilla, maxilla, jugal, quadratojugal, and quadrate) have been fused to the braincase, while the lower jaw bones (dentary, splenial, angular, surangular, and articular) have been fused together into a unit called the mandible. The jaw articulates via a hinge joint between the quadrate and articular. The jaws of tetrapods exhibit varying degrees of mobility between jaw bones. Some species have jaw bones completely fused, while others may have joints allowing for mobility of the dentary, quadrate, or maxilla. The snake skull shows the greatest degree of cranial kinesis, which allows the snake to swallow large prey items.

Mammals

[edit]

In mammals, the jaws are made up of the mandible (lower jaw) and the maxilla (upper jaw). In the ape, there is a reinforcement to the lower jaw bone called the simian shelf. In the evolution of the mammalian jaw, two of the bones of the jaw structure (the articular bone of the lower jaw, and quadrate) were reduced in size and incorporated into the ear, while many others have been fused together.[3] As a result, mammals show little or no cranial kinesis, and the mandible is attached to the temporal bone by the temporomandibular joints. Temporomandibular joint dysfunction is a common disorder of these joints, characterized by pain, clicking and limitation of mandibular movement.[4] Especially in the therian mammal, the premaxilla that constituted the anterior tip of the upper jaw in reptiles has reduced in size; and most of the mesenchyme at the ancestral upper jaw tip has become a protruded mammalian nose.[5]

Sea urchins

[edit]

Sea urchins possess unique jaws which display five-part symmetry, termed the *Aristotle's lantern*. Each unit of the jaw holds a single, perpetually growing tooth composed of crystalline calcium carbonate.

See also

[edit]

- Muscles of mastication
- Otofacial syndrome
- Predentary
- Prognathism
- Rostral bone

References

[edit]

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3. **^** *Allin EF (December 1975). "Evolution of the mammalian middle ear". J. Morphol. **147** (4): 403–37. doi:10.1002/jmor.1051470404. PMID 1202224. S2CID 25886311.*
4. **^** *Wright, Edward F. (2010). Manual of temporomandibular disorders (2nd ed.). Ames, Iowa: Wiley-Blackwell. ISBN 978-0-8138-1324-0.*
5. **^** *Higashiyama, Hiroki; Koyabu, Daisuke; Hirasawa, Tatsuya; Werneburg, Ingmar; Kuratani, Shigeru; Kurihara, Hiroki (November 2, 2021). "Mammalian face as an evolutionary novelty". PNAS. **118** (44): e2111876118. Bibcode:2021PNAS..11811876H. doi:10.1073/pnas.2111876118. PMC 8673075. PMID 34716275.*

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Human regional anatomy

Body

Skin

- Hair
- Face
  - Forehead
  - Cheek
  - Chin
  - Eyebrow
  - Eye
  - Eyelid
  - Nose
  - Mouth
  - Lip
  - Tongue
  - Tooth
- Ear
- Jaw
- Mandible
- Occiput
- Scalp
- Temple

Head

Neck

- Adam's apple
- Throat
- Nape

- **Torso (Trunk)**
  - Abdomen
    - Waist
    - Midriff
    - Navel
  - Vertebral column
  - Back
  - Thorax
    - Breast
    - Nipple
  - Pelvis
  - Genitalia
    - Penis
    - Scrotum
    - Vulva
  - Anus
- **Limbs**
  - **Arm**
    - Shoulder
    - Axilla
    - Elbow
    - Forearm
    - Wrist
    - Hand
      - Finger
      - Fingernail
      - Thumb
      - Index
      - Middle
      - Ring
      - Little
  - **Leg**
    - Buttocks
    - Hip
    - Thigh
    - Knee
    - Calf
    - Foot
      - Ankle
      - Heel
      - Toe
      - Toenail
      - Sole

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The facial skeleton of the skull

Maxilla	**Surfaces**	Anterior: *fossae* (Incisive fossa, Canine fossa)
		Infraorbital foramen
		Orbital bones
		Anterior nasal spine
		Infratemporal: Alveolar canals
		Maxillary tuberosity
		Orbital: Infraorbital groove
		Infraorbital canal
		Nasal: Greater palatine canal
	Processes	Zygomatic process
		Frontal process (Agger nasi, Anterior lacrimal crest)
		Alveolar process
		Palatine process (Incisive foramen, Incisive canals, Foramina of Scarpa, Incisive bone, Anterior nasal spine)
	Other	Body of maxilla
		Maxillary sinus
Zygomatic		Orbital process (Zygomatico-orbital)
		Temporal process (Zygomaticotemporal)
		Lateral process (Zygomaticofacial)
Palatine	**Fossae**	Pterygopalatine fossa
		Pterygoid fossa
	Plates	Horizontal plate (Posterior nasal spine)
		Perpendicular plate (Greater palatine canal, Sphenopalatine foramen)
		Hard palate
	Processes	Pyramidal
		Orbital
		Sphenoidal

Mandible

Body

- *external surface* (Chin, Jaw, Mandibular prominence, Mandibular symphysis, Lingual foramen, Mental protuberance, Mental foramen, Mandibular incisive canal)
- *internal surface* (Mental spine, Mylohyoid line, Sublingual fovea, Submandibular fovea)
- Alveolar part

Ramus

- Mylohyoid groove
  - Mandibular canal
  - Lingula
- Mandibular foramen
- Angle
- Coronoid process
- Mandibular notch
- Condyloid process
- Pterygoid fovea

Nose

- Nasal bone
  - Internasal suture
  - Nasal foramina
- Inferior nasal concha
  - Ethmoidal process
  - Maxillary process
- Vomer
  - Wing

Other

- Lacrimal
  - Posterior lacrimal crest
  - Lacrimal groove
  - Lacrimal hamulus
- Prognathism
- Retromolar space

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