orthodontic treatment

- **Understanding Common Fee Structures in Orthodontics**
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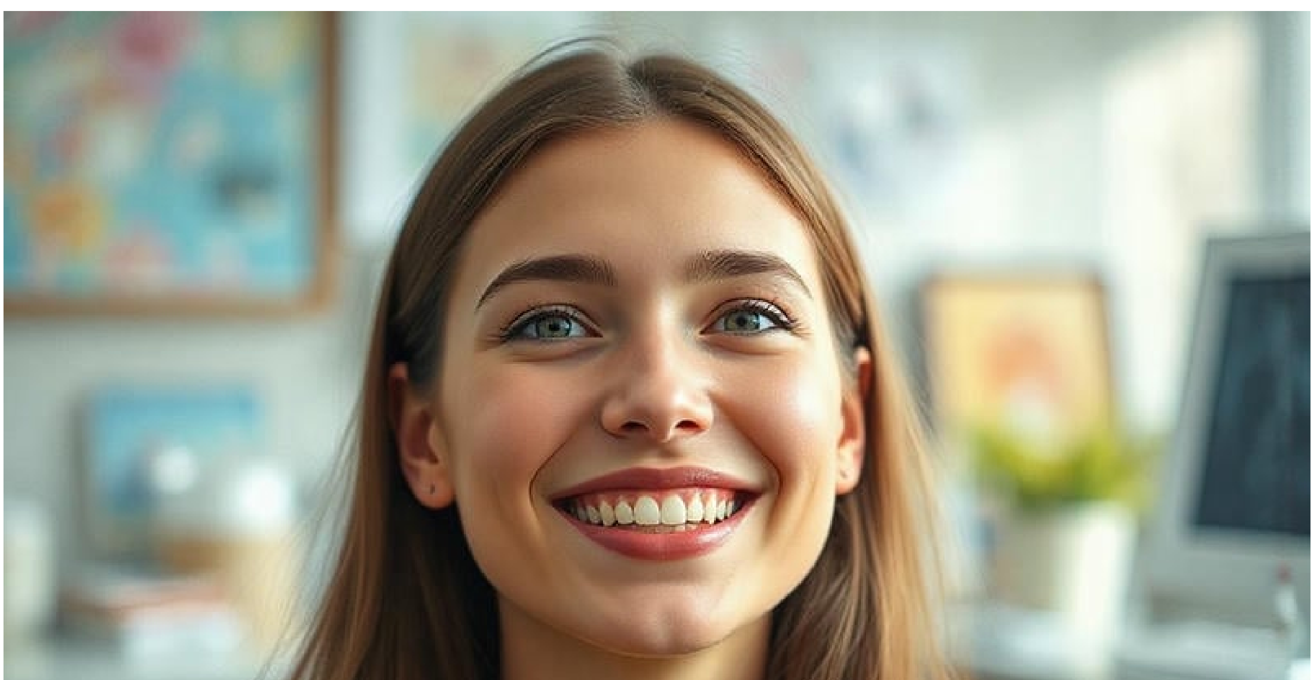
- **Role of Licensing and Certification in Orthodontics**
  Role of Licensing and Certification in Orthodontics Safeguards That Protect Patient Wellbeing Responsibilities of Healthcare Providers in Treatment Importance of Proper Clinical Supervision Informed Consent and Patient Decision Making Identifying Red Flags in Unsupervised Orthodontic Options Maintaining Ethical Standards in Modern Practices The Impact of Research on Evidence Based Treatments Open Communication as a Pillar of Ethical Care Regulations Governing Teledentistry Platforms Balancing Innovation With Patient Protection How Professional Guidelines Shape Clinical Judgments
- **About Us**



Here's the article outline for 'Understanding Common Fee Structures in Orthodontics' focusing on orthodontic treatment for kids:

Proper Clinical Supervision: A Critical Component in Pediatric Orthodontic Care

When it comes to orthodontic treatment for children, clinical supervision isn't just a fancy term-it's the backbone of safe, effective care. Children with overbites or underbites may benefit from braces **Orthodontics for young children** child. As a parent or healthcare professional, understanding the profound importance of expert oversight can make all the difference in a child's dental journey.

Imagine orthodontic treatment like navigating a complex roadmap. Children's mouths are constantly changing, growing, and developing. Without careful, professional supervision, what might seem like a straightforward treatment could potentially lead to unexpected complications. Skilled orthodontists don't just adjust braces; they monitor growth patterns, assess potential risks, and make real-time adjustments that protect a child's long-term dental health.

Clinical supervision goes far beyond simple monitoring. It involves comprehensive assessments that track jaw development, tooth alignment, and potential genetic predispositions. Every child's mouth is unique, and a one-size-fits-all approach simply doesn't work. Experienced professionals use advanced diagnostic tools and years of specialized training to create personalized treatment plans that adapt as the child grows.

Moreover, proper supervision helps manage potential psychological impacts. Orthodontic treatment can be intimidating for children, and a compassionate, attentive clinical approach can significantly reduce anxiety and build trust. When children feel comfortable and supported, they're more likely to cooperate with treatment protocols and maintain good oral hygiene.

Safety is another critical aspect. Children's developing dental structures are delicate, and improper interventions can cause long-lasting damage. Regular, thorough clinical supervision ensures that any emerging issues are caught early and addressed proactively, preventing more complex problems down the line.

Financial considerations also come into play. While expert supervision might seem like an added expense, it actually saves money in the long run by preventing potential corrective procedures and minimizing treatment duration. Think of it as an investment in your child's future smile and overall health.

In conclusion, proper clinical supervision in pediatric orthodontics isn't a luxury-it's a necessity. It represents a holistic approach that considers not just teeth, but the entire developmental journey of a child's oral health. Parents and guardians should prioritize finding skilled, experienced professionals who understand the nuanced world of pediatric orthodontic care.

By emphasizing comprehensive, compassionate clinical supervision, we're not just straightening teeth; we're building confident, healthy smiles that will last a lifetime.

Understanding the Unique Dental Developmental Stages in Pediatric Orthodontic Patients

As a healthcare professional specializing in pediatric dentistry, I've come to appreciate the intricate journey of dental development in children. The path from baby teeth to a fully developed adult smile is far more complex than most people realize. Each stage represents a critical window of opportunity for intervention and guidance.

From the moment a child's first tooth emerges, professional monitoring becomes crucial. These early years are not just about tracking tooth appearance, but understanding the underlying structural changes happening within a child's jaw and oral cavity. Pediatric orthodontic patients require a nuanced approach that goes beyond simple visual examination.

The developmental stages are like a delicate symphony, with each phase requiring specialized attention. During early childhood, we're looking at primary tooth eruption and alignment. By middle childhood, the transition to permanent teeth brings its own set of challenges - potential crowding, bite alignment, and jaw development become key focus areas.

Continuous professional supervision allows for early detection of potential issues. Misalignments caught early can often be corrected with minimally invasive interventions, preventing more complex treatments later. This proactive approach not only saves parents potential future expenses but also ensures the child's long-term oral health and self-confidence.

What many parents don't realize is that orthodontic monitoring is about more than just straight teeth. It's about understanding the complex interplay of bone growth, tooth positioning, and overall facial development. Each child is unique, and their dental journey requires personalized, expert attention.

Technology has revolutionized our ability to track and predict dental development. Advanced imaging techniques allow us to see potential challenges years before they become significant problems. This predictive approach transforms pediatric orthodontic care from reactive to proactive.

Ultimately, proper clinical supervision during dental developmental stages is an investment in a child's future. It's about creating a foundation for healthy oral function, aesthetic alignment, and long-term confidence. The small interventions we make today can have profound impacts on a child's overall health and well-being.

As healthcare professionals, our role is to guide, monitor, and support this incredible journey of dental development, ensuring each child has the opportunity to develop a healthy, beautiful smile that will serve them throughout their lifetime.

Insurance Coverage and Impact on Orthodontic Expenses

Orthodontic treatment for children is a delicate and complex process that requires careful professional oversight. When orthodontic interventions are performed without proper clinical supervision, significant risks can emerge that potentially harm a child's dental and overall health.

One of the primary concerns is the potential for irreversible damage to developing teeth and jaw structures. Children's mouths are still growing and changing, making them particularly vulnerable to inappropriate treatment techniques. Unsupervised interventions might lead to misalignment, root damage, or improper tooth positioning that could cause long-term complications.

Inadequate supervision can also result in incorrect diagnosis and treatment planning. Trained orthodontic professionals understand the nuanced developmental stages of children's dental structures and can create personalized treatment strategies. Without expert assessment, parents or untrained individuals might apply inappropriate corrective measures that could compromise the child's oral health.

Moreover, there are significant risks related to infection control and proper sterilization of orthodontic equipment. Professional clinics maintain strict hygiene protocols that protect patients from potential bacterial or viral transmission. Unsupervised settings may not adhere to these critical standards, potentially exposing children to serious health risks.

Another critical consideration is the psychological impact of orthodontic treatment. Professional clinicians are trained to manage children's anxiety, explain procedures, and provide emotional support throughout the treatment process. Unsupervised interventions might cause unnecessary stress or trauma for the child.

Financial considerations also come into play. While unsupervised or minimally supervised treatments might seem cost-effective initially, potential mistakes could lead to expensive corrective procedures in the future. Professional oversight ensures efficient, targeted treatment that minimizes long-term expenses.

In conclusion, proper clinical supervision is not just a recommendation but a necessity in pediatric orthodontic care. The potential risks of unsupervised interventions far outweigh any perceived short-term benefits. Parents should always seek qualified, experienced orthodontic professionals who can provide comprehensive, safe, and effective treatment for their children.

Payment Plan Options for Pediatric Orthodontic Care

Effective pediatric orthodontic treatment supervision requires a comprehensive and nuanced approach to clinical assessment and diagnostic techniques. As healthcare professionals, we must recognize that children's orthodontic needs are uniquely complex and demand specialized attention.

The foundation of successful pediatric orthodontic management lies in thorough initial clinical evaluations. Dentists and orthodontists must carefully assess multiple critical parameters, including dental arch development, jaw alignment, tooth eruption patterns, and potential skeletal discrepancies. These assessments go far beyond simple visual inspections and demand sophisticated diagnostic methodologies.

Crucial diagnostic techniques include comprehensive imaging studies such as digital radiographs, 3D cone beam computed tomography (CBCT), and intraoral scanning. These advanced technologies provide unprecedented insights into a child's craniofacial growth and potential orthodontic challenges. By capturing detailed anatomical information, clinicians can develop precise, personalized treatment strategies.

Careful growth monitoring becomes paramount during pediatric orthodontic supervision. Regular assessments of skeletal maturation, dental eruption sequences, and potential developmental anomalies allow practitioners to implement timely interventions. This proactive approach helps prevent more complex issues from developing and minimizes potential long-term treatment complications.

Additionally, functional assessments play a critical role. Evaluating aspects like occlusal relationships, jaw movements, and potential airway restrictions ensures a holistic understanding of a child's orthodontic needs. Integrating these observations with advanced diagnostic tools enables clinicians to craft comprehensive treatment plans.

Successful pediatric orthodontic supervision ultimately requires a delicate balance between scientific precision and compassionate patient care. By leveraging advanced diagnostic techniques and maintaining meticulous clinical assessments, healthcare professionals can guide children toward optimal oral health and development.

Factors Influencing Orthodontic Treatment Costs

The Long-Term Impact of Proper Clinical Supervision on Dental Alignment, Oral Health, and Psychological Well-being of Children Undergoing Orthodontic Treatment

Orthodontic treatment during childhood is far more than just straightening teeth; it's a comprehensive approach to a child's overall health and self-confidence. Proper clinical supervision plays a crucial role in ensuring not just the physical alignment of teeth, but also the holistic development of a young patient.

When orthodontic treatment is carefully monitored, children experience multiple long-term benefits. First and foremost, precise clinical supervision ensures that dental corrections are made gradually and accurately. This careful approach minimizes potential complications and maximizes the effectiveness of the treatment. Dentists who provide attentive oversight can detect and address potential issues early, preventing more serious dental problems in the future.

Psychologically, the impact of well-managed orthodontic treatment cannot be overstated. Children who receive compassionate and professional guidance during their dental journey often develop improved self-esteem and confidence. The visible improvements in their smile can be transformative, helping them feel more comfortable in social situations and reducing potential emotional stress associated with dental irregularities.

Moreover, proper clinical supervision extends beyond immediate aesthetic improvements. It involves comprehensive oral health education, teaching children about proper dental hygiene, nutrition, and long-term care. These lessons become lifelong skills that contribute to overall health and well-being.

The monitoring process also allows for personalized treatment plans. Each child's dental structure is unique, and skilled clinicians can adapt treatments to individual needs, ensuring optimal results. Regular check-ups enable dentists to make real-time adjustments, ensuring the most effective and comfortable treatment possible.

Ultimately, the long-term benefits of proper clinical supervision in orthodontic treatment are profound. It's not just about creating a perfect smile, but about supporting a child's physical, emotional, and social development. By investing in careful, compassionate, and professional dental care, we set the foundation for healthier, more confident individuals.

As parents and healthcare professionals, understanding the comprehensive importance of proper clinical supervision can make a significant difference in a child's orthodontic journey and overall quality of life.

Comparing Different Orthodontic Practices and Their Pricing Strategies

The Role of Experienced Orthodontists in Identifying and Addressing Potential Growth-Related Challenges

In the intricate world of orthodontic treatment, experienced orthodontists play a crucial role in navigating the complex landscape of dental and facial growth. Their expertise goes far beyond simply straightening teeth; they are skilled professionals who can anticipate and address potential challenges that may arise during a patient's treatment progression.

As young patients grow, their dental and skeletal structures undergo significant changes. An experienced orthodontist brings a keen eye and years of clinical insight to identify subtle variations in growth patterns that might impact treatment outcomes. This becomes particularly important during critical developmental stages, where early intervention can prevent more complex issues later on.

The ability to read growth indicators is like solving a complex puzzle. Skilled orthodontists use a combination of clinical examination, advanced imaging techniques, and their accumulated knowledge to predict potential growth-related challenges. They carefully monitor how jaw structures are developing, how teeth are positioning themselves, and how these changes might interact with existing or planned orthodontic interventions.

What sets experienced practitioners apart is their proactive approach. Instead of waiting for problems to emerge, they develop strategic treatment plans that can adapt to a patient's unique growth trajectory. This might involve using specialized appliances, timing interventions precisely, or making subtle adjustments that guide growth in the most beneficial direction.

Moreover, these professionals understand that each patient is unique. They recognize that cookie-cutter approaches are ineffective and that personalized care is paramount. By closely supervising treatment progression, they can make real-time modifications that ensure optimal results.

The clinical supervision provided by experienced orthodontists extends beyond technical skills. They also offer emotional support, helping patients and their families understand the treatment process and feel confident about their dental journey.

In essence, experienced orthodontists are like skilled navigators, guiding patients through the complex terrain of dental development. Their expertise, keen observation, and strategic thinking ensure that potential growth-related challenges are not just identified, but effectively addressed, leading to successful treatment outcomes.

Additional Fees and Potential Hidden Expenses in Orthodontic Treatment

The Importance of Regular Monitoring and Timely Adjustments in Orthodontic Treatment

Orthodontic treatment is a delicate and precise journey that requires careful and consistent clinical supervision. Just like a skilled navigator guiding a ship through complex waters, orthodontists must continuously monitor and adjust appliances to ensure the most effective path to a perfect smile.

Regular check-ups are crucial in orthodontic care. These appointments aren't just routine visits; they're critical opportunities to assess the progress of teeth movement and make necessary adjustments. Imagine your braces or aligners as a precise instrument that needs fine-tuning. Without regular monitoring, the treatment could veer off course, potentially extending treatment time or compromising the final result.

During these check-ups, orthodontists carefully evaluate how teeth are responding to the appliances. They look for subtle shifts, check the fit of brackets or aligners, and make precise adjustments that guide teeth into their ideal positions. It's like a sculptor carefully chiseling a masterpiece, making small but significant modifications to achieve the perfect outcome.

Timely adjustments can prevent potential complications. Sometimes, teeth might not move exactly as initially planned, or a patient might experience unexpected challenges. By catching these issues early, orthodontists can quickly modify the treatment plan, ensuring minimal disruption and maintaining treatment efficiency.

Patient compliance plays a significant role too. Regular monitoring allows orthodontists to provide guidance, address any concerns, and ensure patients are following their treatment protocol correctly. It's a collaborative process that requires communication and commitment from both the healthcare provider and the patient.

Technology has enhanced this process significantly. Advanced imaging techniques and digital tracking now allow for even more precise monitoring and adjustment of orthodontic treatments. These tools provide orthodontists with detailed insights that were impossible just a few years ago.

In essence, regular monitoring and timely adjustments are the backbone of successful orthodontic treatment. They ensure that each patient receives personalized care, optimal results, and the most efficient path to a beautiful, healthy smile. It's a testament to the precision and dedication of modern orthodontic practice.

Comprehensive Clinical Supervision in Pediatric Dental Care: A Collaborative Approach

Effective clinical supervision in pediatric dental care goes far beyond traditional monitoring techniques. It represents a holistic, interdisciplinary approach that integrates the expertise of orthodontists, pediatric dentists, and active parental involvement to ensure optimal child dental health outcomes.

The cornerstone of this comprehensive approach is collaborative communication. Orthodontists and pediatric dentists bring specialized knowledge about dental development, alignment, and potential intervention strategies. By working together, they can create nuanced treatment plans that address both immediate dental needs and long-term developmental considerations.

Parents play a critical role in this collaborative model. They are not passive recipients of medical advice but active partners in their child's dental care journey. Through structured education and ongoing dialogue, parents become empowered to understand developmental milestones, recognize potential issues early, and support recommended treatment protocols.

Interdisciplinary supervision allows for a more holistic assessment of a child's dental health. By combining perspectives from different dental specialties, practitioners can identify subtle developmental patterns, potential genetic predispositions, and early intervention opportunities that might be missed in more traditional, siloed approaches.

Moreover, this comprehensive approach reduces potential gaps in care. Regular, coordinated communication ensures that treatment strategies are aligned, consistent, and tailored to the individual child's unique dental development trajectory.

Technology and systematic documentation further enhance this collaborative model. Digital record-keeping, shared assessment protocols, and standardized tracking mechanisms enable seamless information exchange between professionals and facilitate more precise, personalized care strategies.

Ultimately, comprehensive clinical supervision represents a patient-centered approach that prioritizes the child's overall dental health and developmental well-being. By breaking down professional silos and embracing collaborative methodologies, dental professionals can provide more nuanced, effective, and compassionate care.

Here's the essay:

Technological advancements have revolutionized pediatric orthodontic care, transforming how clinicians approach patient treatment and supervision. In recent years, innovative tools and techniques have dramatically improved our ability to diagnose, monitor, and address orthodontic challenges in young patients.

Digital imaging technologies like 3D cone beam computed tomography (CBCT) now provide unprecedented insights into dental and skeletal structures. These advanced imaging techniques allow orthodontists to create highly precise treatment plans tailored specifically to each child's unique anatomical characteristics. By generating detailed, multi-dimensional representations of a patient's oral landscape, clinicians can identify potential issues with much greater accuracy than traditional two-dimensional x-rays.

Computer-aided design and digital modeling have also emerged as game-changing technologies in pediatric orthodontics. Specialized software enables practitioners to simulate treatment outcomes, predict potential complications, and develop personalized intervention strategies. This predictive capability is particularly crucial when managing developing dentition, where early detection and proactive management can prevent more complex issues later.

Furthermore, digital monitoring systems now enable more frequent and less invasive patient assessments. Intraoral scanners and remote tracking technologies allow orthodontists to evaluate treatment progress without requiring frequent in-person appointments, reducing patient anxiety and minimizing disruption to children's daily routines.

Artificial intelligence and machine learning algorithms are increasingly being integrated into clinical supervision, offering predictive analytics that can anticipate potential orthodontic challenges. These technologies help clinicians make more informed decisions, ultimately improving treatment precision and patient outcomes.

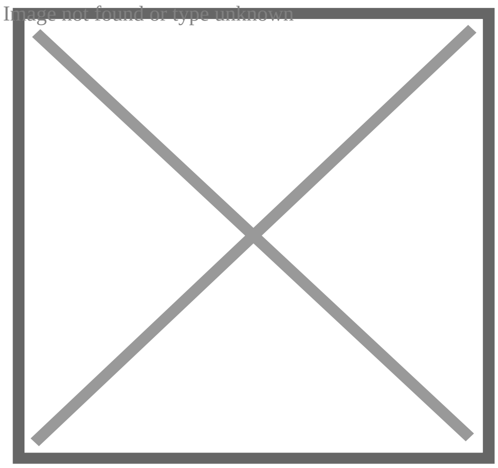
Importantly, these technological advancements not only enhance clinical effectiveness but also contribute to a more patient-friendly experience. By reducing invasiveness, increasing treatment accuracy, and providing more comprehensive diagnostic capabilities, modern orthodontic technologies are transforming pediatric dental care.

As technology continues to evolve, we can expect even more sophisticated tools that will further refine our approach to pediatric orthodontic treatment, ensuring children receive the most advanced, personalized care possible.

About tooth

This article is about teeth in general. For specifically human teeth, see Human tooth. For other uses, see Tooth (disambiguation).

Tooth



A chimpanzee displaying his teeth

Details	
Identifiers	
Latin	*dens*
MeSH	D014070
FMA	12516

Anatomical terminology
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A **tooth** (pl.: **teeth**) is a hard, calcified structure found in the jaws (or mouths) of many vertebrates and used to break down food. Some animals, particularly carnivores and omnivores, also use teeth to help with capturing or wounding prey, tearing food, for defensive purposes, to intimidate other animals often including their own, or to carry prey or their young. The roots of teeth are covered by gums. Teeth are not made of bone, but rather of multiple tissues of varying density and hardness that originate from the outermost embryonic germ layer, the ectoderm.

The general structure of teeth is similar across the vertebrates, although there is considerable variation in their form and position. The teeth of mammals have deep roots, and this pattern is also found in some fish, and in crocodilians. In most teleost fish, however, the teeth are attached to the outer surface of the bone, while in lizards they are attached to the inner surface of the jaw by one side. In cartilaginous fish, such as sharks, the teeth are attached by tough ligaments to the hoops of cartilage that form the jaw.[1]

Monophyodonts are animals that develop only one set of teeth, while diphyodonts grow an early set of deciduous teeth and a later set of permanent or "adult" teeth. Polyphyodonts grow many sets of teeth. For example, sharks, grow a new set of teeth every two weeks to replace worn teeth. Most extant mammals including humans are diphyodonts, but there are exceptions including elephants, kangaroos, and manatees, all of which are polyphyodonts.

Rodent incisors grow and wear away continually through gnawing, which helps maintain relatively constant length. The industry of the beaver is due in part to this qualification. Some rodents, such as voles and guinea pigs (but not mice), as well as lagomorpha (rabbits, hares and pikas), have continuously growing molars in addition to incisors.[2][3] Also, tusks (in tusked mammals) grow almost throughout life.[4]

Teeth are not always attached to the jaw, as they are in mammals. In many reptiles and fish, teeth are attached to the palate or to the floor of the mouth, forming additional rows inside those on the jaws proper. Some teleosts even have teeth in the pharynx. While not true teeth in the usual sense, the dermal denticles of sharks are almost identical in structure and are likely to have the same evolutionary origin. Indeed, teeth appear to have first evolved in sharks, and are not found in the more primitive jawless fish – while lampreys do have tooth-like structures on the tongue, these are in fact, composed of keratin, not of dentine or enamel, and bear no relationship to true teeth.[1] Though "modern" teeth-like structures with dentine and enamel have been found in late conodonts, they are now supposed to have evolved independently of later vertebrates' teeth.[5][6]

Living amphibians typically have small teeth, or none at all, since they commonly feed only on soft foods. In reptiles, teeth are generally simple and conical in shape, although there is some variation between species, most notably the venom-injecting fangs of snakes. The pattern of incisors, canines, premolars and molars is found only in mammals, and to varying extents, in their evolutionary ancestors. The numbers of these types of teeth vary greatly between species; zoologists use a standardised dental formula to describe the precise pattern in any given group.[1]

Etymology

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The word *tooth* comes from Proto-Germanic **tanþs*, derived from the Proto-Indo-European **hÃ¢â€šÂ•dent-*, which was composed of the root **hÃ¢â€šÂ•ed-* 'to eat' plus the active participle suffix **-nt*, therefore literally meaning 'that which eats'.[7]

The irregular plural form *teeth* is the result of Germanic umlaut whereby vowels immediately preceding a high vocalic in the following syllable were raised. As the nominative plural ending of the Proto-Germanic consonant stems (to which **tanþs* belonged) was **-iz*, the root vowel in the plural form **tanþiz* (changed by this point to **tÃ„â€¦ÃŒâ€žþi* via unrelated phonological processes) was raised to /œÃ‹Â•/, and later unrounded to /eÃ‹Â•/, resulting in the *tÃ…Â•þ/tÃ„â€œþ* alternation attested from Old English. Cf. also Old English *bÃ…Â•c/bÃ„â€œÃ„â€¹* 'book/books' and 'mÃ…Â«s/mÃˆÂ³s' 'mouse/mice', from Proto-Germanic **bÃ…Â•ks/bÃ…Â•kiz* and **mÃ…Â«s/mÃ…Â«siz* respectively.

Cognate with Latin *dÃ„â€œns*, Greek Ã¡Â½â‚¬??Ã•Â• (*odous*), and Sanskrit *dát*.

Origin

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Teeth are assumed to have evolved either from ectoderm denticles (scales, much like those on the skin of sharks) that folded and integrated into the mouth (called the "outside–in" theory), or from endoderm pharyngeal teeth (primarily formed in the pharynx of jawless vertebrates) (the "inside–out" theory). In addition, there is another theory stating that neural crest gene regulatory network, and neural crest-derived ectomesenchyme are the key to generate teeth (with any epithelium, either ectoderm or endoderm).[4][8]

The genes governing tooth development in mammals are homologous to those involved in the development of fish scales.[9] Study of a tooth plate of a fossil of the extinct fish *Romundina stellina* showed that the teeth and scales were made of the same tissues, also found in mammal teeth, lending support to the theory that teeth evolved as a modification of scales.[10]

Mammals

[edit]
Main article: Mammal tooth

Teeth are among the most distinctive (and long-lasting) features of mammal species. Paleontologists use teeth to identify fossil species and determine their relationships. The shape of the animal's teeth are related to its diet. For example, plant matter is hard to digest, so herbivores have many molars for chewing and grinding. Carnivores, on the other hand, have canine teeth to kill prey and to tear meat.

Mammals, in general, are diphyodont, meaning that they develop two sets of teeth. In humans, the first set (the "baby", "milk", "primary" or "deciduous" set) normally starts to appear at about six months of age, although some babies are born with one or more visible teeth, known as neonatal teeth. Normal tooth eruption at about six months is known as teething and can be painful. Kangaroos, elephants, and manatees are unusual among mammals because they are polyphyodonts.

Aardvark

[edit]

In aardvarks, teeth lack enamel and have many pulp tubules, hence the name of the order Tubulidentata.[11]

Canines

[edit]

In dogs, the teeth are less likely than humans to form dental cavities because of the very high pH of dog saliva, which prevents enamel from demineralizing.[12] Sometimes called cuspids, these teeth are shaped like points (cusps) and are used for tearing and grasping food.[13]

Cetaceans

[edit]
Main article: Baleen

Like human teeth, whale teeth have polyp-like protrusions located on the root surface of the tooth. These polyps are made of cementum in both species, but in human teeth, the protrusions are located on the outside of the root, while in whales the nodule is located on the inside of the pulp chamber. While the roots of human teeth are made of cementum on the outer surface, whales have cementum on the entire surface of the tooth with a very small layer of enamel at the tip. This small enamel layer is only seen in older whales where the cementum has been worn away to show the underlying enamel.[14]

The toothed whale is a parvorder of the cetaceans characterized by having teeth. The teeth differ considerably among the species. They may be numerous, with some dolphins bearing over 100 teeth in their jaws. On the other hand, the narwhals have a giant unicorn-like tusk, which is a tooth containing millions of sensory pathways and used for sensing during feeding, navigation, and mating. It is the most neurologically complex tooth known. Beaked whales are almost toothless, with only bizarre teeth found in males. These teeth may be used for feeding but also for demonstrating aggression and showmanship.

Primates

[edit]
Main articles: Human tooth and Dental anatomy

In humans (and most other primates), there are usually 20 primary (also "baby" or "milk") teeth, and later up to 32 permanent teeth. Four of these 32 may be third molars or wisdom teeth, although these are not present in all adults, and may be removed surgically later in life.[15]

Among primary teeth, 10 of them are usually found in the maxilla (i.e. upper jaw) and the other 10 in the mandible (i.e. lower jaw). Among permanent teeth, 16 are found in the maxilla and the other 16 in the mandible. Most of the teeth have uniquely distinguishing features.

Horse

[edit]
Main article: Horse teeth

An adult horse has between 36 and 44 teeth. The enamel and dentin layers of horse teeth are intertwined.[16] All horses have 12 premolars, 12 molars, and 12 incisors.[17] Generally, all male equines also have four canine teeth (called tushes) between the molars and incisors. However, few female horses (less than 28%) have canines, and those that do usually have only one or two, which many times are only partially erupted.[18] A few horses have one to four wolf teeth, which are vestigial premolars, with most of those having only one or two. They are equally common in male and female horses and much more likely to be on the upper jaw. If present these can cause problems as they can interfere with the horse's bit contact. Therefore, wolf teeth are commonly removed.[17]

Horse teeth can be used to estimate the animal's age. Between birth and five years, age can be closely estimated by observing the eruption pattern on milk teeth and then permanent teeth. By age five, all permanent teeth have usually erupted. The horse is then said to have a "full" mouth. After the age of five, age can only be conjectured by studying the wear patterns on the incisors, shape, the angle at which the incisors meet, and other factors. The wear of teeth may also be affected by diet, natural abnormalities, and cribbing. Two horses of the same age may have different wear patterns.

A horse's incisors, premolars, and molars, once fully developed, continue to erupt as the grinding surface is worn down through chewing. A young adult horse will have teeth, which are 110–130 mm (4.5–5 inches) long, with the majority of the crown remaining below the gumline in the dental socket. The rest of the tooth will slowly emerge from the jaw, erupting about 3 mm (1?8 in) each year, as the horse ages. When the animal reaches old age, the crowns of the teeth are very short and the teeth are often lost altogether. Very old horses, if lacking molars, may need to have their fodder ground up and soaked in water to create a soft mush for them to eat in order to obtain adequate nutrition.

Proboscideans

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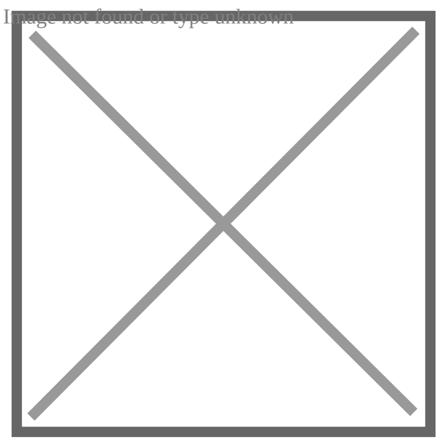


Section through the ivory tusk of a mammoth

Main article: Elephant ivory

Elephants' tusks are specialized incisors for digging food up and fighting. Some elephant teeth are similar to those in manatees, and elephants are believed to have undergone an aquatic phase in their evolution.

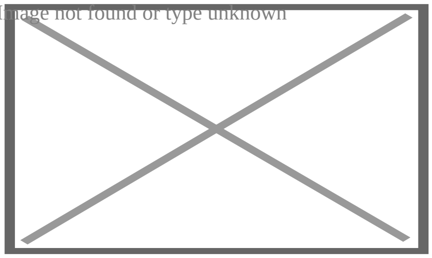
At birth, elephants have a total of 28 molar plate-like grinding teeth not including the tusks. These are organized into four sets of seven successively larger teeth which the elephant will slowly wear through during its lifetime of chewing rough plant material. Only four teeth are used for chewing at a given time, and as each tooth wears out, another tooth moves forward to take its place in a process similar to a conveyor belt. The last and largest of these teeth usually becomes exposed when the animal is around 40 years of age, and will often last for an additional 20 years. When the last of these teeth has fallen out, regardless of the elephant's age, the animal will no longer be able to chew food and will die of starvation.[19][20]

Rabbit

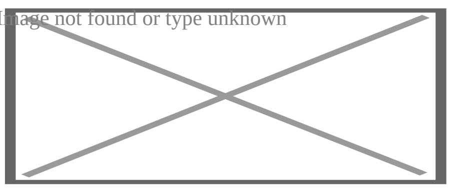
[edit]

Rabbits and other lagomorphs usually shed their deciduous teeth before (or very shortly after) their birth, and are usually born with their permanent teeth.[21] The teeth of rabbits complement their diet, which consists of a wide range of vegetation. Since many of the foods are abrasive enough to cause attrition, rabbit teeth grow continuously throughout life.[22] Rabbits have a total of six incisors, three upper premolars, three upper molars, two lower premolars, and two lower molars on each side. There are no canines. Dental formula is $\frac{2.0.3.3}{1.0.2.3}$ = 28. Three to four millimeters of the tooth is worn away by incisors every week, whereas the cheek teeth require a month to wear away the same amount.[23]

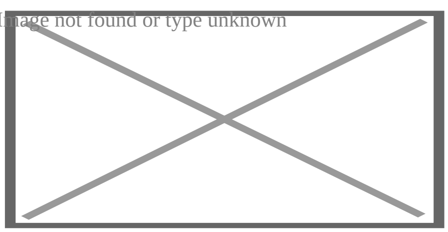
The incisors and cheek teeth of rabbits are called aradicular hypsodont teeth. This is sometimes referred to as an elodent dentition. These teeth grow or erupt continuously. The growth or eruption is held in balance by dental abrasion from chewing a diet high in fiber.



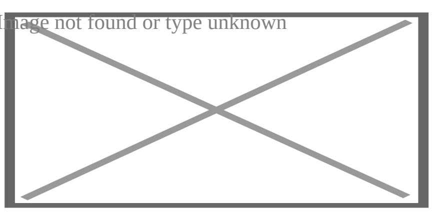
Buccal view of top incisor from *Rattus rattus*. Top incisor outlined in yellow. Molars circled in blue.



Buccal view of the lower incisor from the right dentary of a *Rattus rattus*



Lingual view of the lower incisor from the right dentary of a *Rattus rattus*

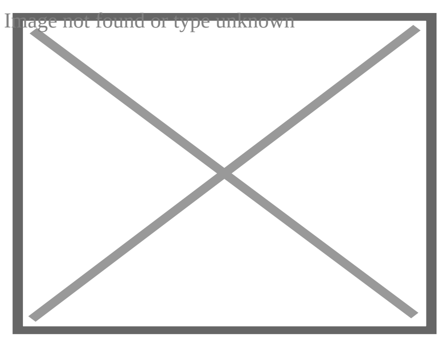


Midsagittal view of top incisor from *Rattus rattus*. Top incisor outlined in yellow. Molars circled in blue.

Rodents

[edit]

Rodents have upper and lower hypselodont incisors that can continuously grow enamel throughout its life without having properly formed roots.[24] These teeth are also known as aradicular teeth, and unlike humans whose ameloblasts die after tooth development, rodents continually produce enamel, they must wear down their teeth by gnawing on various materials.[25] Enamel and dentin are produced by the enamel organ, and growth is dependent on the presence of stem cells, cellular amplification, and cellular maturation structures in the odontogenic region.[26] Rodent incisors are used for cutting wood, biting through the skin of fruit, or for defense. This allows for the rate of wear and tooth growth to be at equilibrium.[24] The microstructure of rodent incisor enamel has shown to be useful in studying the phylogeny and systematics of rodents because of its independent evolution from the other dental traits. The enamel on rodent incisors are composed of two layers: the inner portio interna (PI) with Hunter-Schreger bands (HSB) and an outer portio externa (PE) with radial enamel (RE).[27] It usually involves the differential regulation of the epithelial stem cell niche in the tooth of two rodent species, such as guinea pigs.[28][29]



Lingual view of top incisor from Rattus rattus. Top incisor outlined in yellow. Molars circled in blue.

The teeth have enamel on the outside and exposed dentin on the inside, so they self-sharpen during gnawing. On the other hand, continually growing molars are found in some rodent species, such as the sibling vole and the guinea pig.[28][29] There is variation in the dentition of the rodents, but generally, rodents lack canines and premolars, and have a space between their incisors and molars, called the diastema region.

Manatee

[edit]

Manatees are polyphyodont with mandibular molars developing separately from the jaw and are encased in a bony shell separated by soft tissue.[30][31]

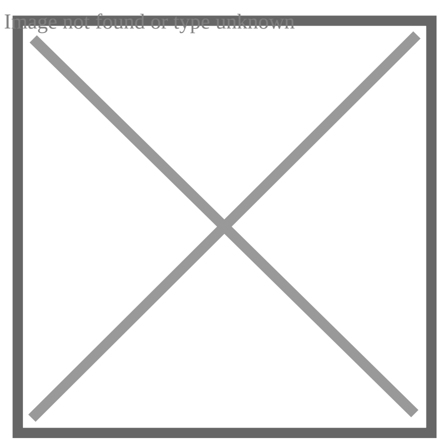
Walrus

[edit]
Main article: Walrus ivory

Walrus tusks are canine teeth that grow continuously throughout life.[32]

Fish

[edit]



Teeth of a great white shark

See also: Pharyngeal teeth and Shark tooth

Fish, such as sharks, may go through many teeth in their lifetime. The replacement of multiple teeth is known as polyphyodontia.

A class of prehistoric shark are called cladodonts for their strange forked teeth.

Unlike the continuous shedding of functional teeth seen in modern sharks,[33][34] the majority of stem chondrichthyan lineages retained all tooth generations developed throughout the life of the animal.[35] This replacement mechanism is exemplified by the tooth whorl-based dentitions of acanthodians,[36] which include the oldest known toothed vertebrate, *Qianodus duplicis*[37].

Amphibians

[edit]

All amphibians have pedicellate teeth, which are modified to be flexible due to connective tissue and uncalcified dentine that separates the crown from the base of the tooth.[38]

Most amphibians exhibit teeth that have a slight attachment to the jaw or acrodont teeth. Acrodont teeth exhibit limited connection to the dentary and have little enervation.[39] This is ideal for organisms who mostly use their teeth for grasping, but not for crushing and allows for rapid regeneration of teeth at a low energy cost. Teeth are usually lost in the course of feeding if the prey is struggling. Additionally, amphibians that undergo a metamorphosis develop bicuspid shaped teeth.[40]

Reptiles

[edit]

The teeth of reptiles are replaced constantly throughout their lives. Crocodilian juveniles replace teeth with larger ones at a rate as high as one new tooth per socket every month. Once mature, tooth replacement rates can slow to two years and even longer. Overall, crocodilians may use 3,000 teeth from birth to death. New teeth are created within old teeth.[41]

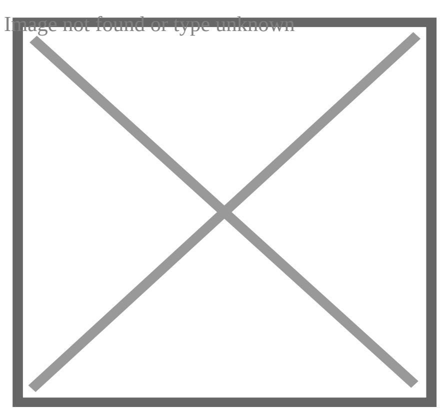
Birds

[edit]
Main article: Ichthyornis

A skull of Ichthyornis discovered in 2014 suggests that the beak of birds may have evolved from teeth to allow chicks to escape their shells earlier, and thus avoid predators and also to penetrate protective covers such as hard earth to access underlying food.[42][43]

Invertebrates

[edit]

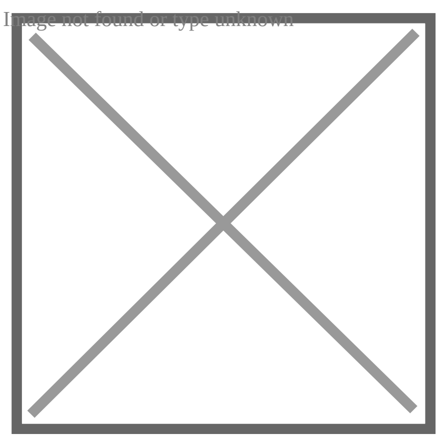


The European medicinal leech has three jaws with numerous sharp teeth which function like little saws for incising a host.

True teeth are unique to vertebrates,[44] although many invertebrates have analogous structures often referred to as teeth. The organisms with the simplest genome bearing such tooth-like structures are perhaps the parasitic worms of the family Ancylostomatidae.[45] For example, the hookworm *Necator americanus* has two dorsal and two ventral cutting plates or teeth around the anterior margin of the buccal capsule. It also has a pair of subdorsal and a pair of subventral teeth located close to the rear.[46]

Historically, the European medicinal leech, another invertebrate parasite, has been used in medicine to remove blood from patients.[47] They have three jaws (tripartite) that resemble saws in both appearance and function, and on them are about 100 sharp teeth used to incise the host. The incision leaves a mark that is an inverted Y inside of a circle. After piercing the skin and injecting anticoagulants (hirudin) and anaesthetics, they suck out blood, consuming up to ten times their body weight in a single meal.[48]

In some species of Bryozoa, the first part of the stomach forms a muscular gizzard lined with chitinous teeth that crush armoured prey such as diatoms. Wave-like peristaltic contractions then move the food through the stomach for digestion.[49]



The limpet rasps algae from rocks using teeth with the strongest known tensile strength of any biological material.

Molluscs have a structure called a radula, which bears a ribbon of chitinous teeth. However, these teeth are histologically and developmentally different from vertebrate teeth and are unlikely to be homologous. For example, vertebrate teeth develop from a neural crest mesenchyme-derived dental papilla, and the neural crest is specific to vertebrates, as are tissues such as enamel.[44]

The radula is used by molluscs for feeding and is sometimes compared rather inaccurately to a tongue. It is a minutely toothed, chitinous ribbon, typically used for scraping or cutting food before the food enters the oesophagus. The radula is unique to molluscs, and is found in every class of mollusc apart from bivalves.

Within the gastropods, the radula is used in feeding by both herbivorous and carnivorous snails and slugs. The arrangement of teeth (also known as denticles) on the radula ribbon varies considerably from one group to another as shown in the diagram on the left.

Predatory marine snails such as the Naticidae use the radula plus an acidic secretion to bore through the shell of other molluscs. Other predatory marine snails, such as the Conidae, use a specialized radula tooth as a poisoned harpoon. Predatory pulmonate land slugs, such as the ghost slug, use elongated razor-sharp teeth on the radula to seize and devour earthworms. Predatory cephalopods, such as squid, use the radula for cutting prey.

In most of the more ancient lineages of gastropods, the radula is used to graze by scraping diatoms and other microscopic algae off rock surfaces and other substrates. Limpets scrape algae from rocks using radula equipped with exceptionally hard rasping teeth.[50] These teeth have the strongest known tensile strength of any biological material, outperforming spider silk.[50] The mineral protein of the limpet teeth can withstand a tensile stress of 4.9 GPa, compared to 4 GPa of spider silk and 0.5 GPa of human teeth.[51]

Fossilization and taphonomy

[edit]

Because teeth are very resistant, often preserved when bones are not,[52] and reflect the diet of the host organism, they are very valuable to archaeologists and palaeontologists.[53] Early fish such as the thelodonts had scales composed of dentine and an enamel-like compound, suggesting that the origin of teeth was from scales which were retained in the mouth. Fish as early as the late Cambrian had dentine in their exoskeletons, which may have functioned in defense or for sensing their environments.[54] Dentine can be as hard as the rest of teeth and is composed of collagen fibres, reinforced with hydroxyapatite.[54]

Though teeth are very resistant, they also can be brittle and highly susceptible to cracking.[55] However, cracking of the tooth can be used as a diagnostic tool for predicting bite force. Additionally, enamel fractures can also give valuable insight into the diet and behaviour of archaeological and fossil samples.

Decalcification removes the enamel from teeth and leaves only the organic interior intact, which comprises dentine and cementine.[56] Enamel is quickly decalcified in acids,[57] perhaps by dissolution by plant acids or via diagenetic solutions, or in the stomachs of vertebrate predators.[56] Enamel can be lost by abrasion or spalling,[56] and is lost before dentine or bone are destroyed by the fossilisation process.[57] In such a case, the 'skeleton' of the teeth would consist of the dentine, with a hollow pulp cavity.[56] The organic part of dentine, conversely, is destroyed by alkalis.[57]

See also

[edit]

- icon Image not found or type unknown Medicine portal
- Animal tooth development

- Dragon's teeth (mythology)

References

[edit]

1. ^ ***a b c*** *Romer, Alfred Sherwood; Parsons, Thomas S. (1977). The Vertebrate Body. Philadelphia, PA: Holt-Saunders International. pp. 300–310. ISBN 978-0-03-910284-5 .*
2. **^** *Tummers M, Thesleff I (March 2003). "Root or crown: a developmental choice orchestrated by the differential regulation of the epithelial stem cell niche in the tooth of two rodent species". Development.* ***130*** *(6): 1049–57. doi:10.1242/dev.00332. PMID 12571097.*
3. **^** *Hunt AM (1959). "A description of the molar teeth and investing tissues of normal guinea pigs". J. Dent. Res.* ***38*** *(2): 216–31. doi:10.1177/00220345590380020301. PMID 13641521. S2CID 45097018.*
4. ^ ***a b*** *Nasoori, Alireza (2020). "Tusks, the extra-oral teeth". Archives of Oral Biology.* ***117****: 104835. doi:10.1016/j.archoralbio.2020.104835. PMID 32668361. S2CID 220585014.*
5. **^** *McCOLLUM, MELANIE; SHARPE, PAUL T. (July 2001). "Evolution and development of teeth". Journal of Anatomy.* ***199*** *(1–2): 153–159. doi:10.1046/j.1469-7580.2001.19910153.x. PMC 1594990. PMID 11523817.*
6. **^** *Kaplan, Matt (October 16, 2013). "Fossil scans reveal origins of teeth". Nature. doi:10.1038/nature.2013.13964 – via www.nature.com.*
7. **^** *Harper, Douglas (2001–2021). "tooth | Origin and meaning of tooth". Online Etymology Dictionary.*
8. **^** *Jheon, Andrew H (2012). "From molecules to mastication: the development and evolution of teeth". Wiley Interdiscip Rev Dev Biol.* ***2*** *(2): 165–182. doi:10.1002/wdev.63. PMC 3632217. PMID 24009032.*
9. **^** *Sharpe, P. T. (2001). "Fish scale development: Hair today, teeth and scales yesterday?". Current Biology.* ***11*** *(18): R751 – R752. Bibcode:2001CBio...11.R751S. doi:10.1016/S0960-9822(01)00438-9. PMID 11566120. S2CID 18868124.*
10. **^** *Jennifer Viegas (June 24, 2015). "First-known teeth belonged to fierce fish". ABC Science. Retrieved June 28, 2015.*
11. **^** Shoshani 2002, p. 619
12. **^** *Hale, FA (2009). "Dental caries in the dog". Can. Vet. J.* ***50*** *(12): 1301–4. PMC 2777300. PMID 20190984.*
13. **^** *"Types of Teeth, Dental Anatomy & Tooth Anatomy | Colgate®". www.colgate.com. Archived from the original on 2017-11-19. Retrieved 2017-11-19.*
14. **^** *"Common Characteristics Of Whale Teeth". Archived from the original on 4 September 2011. Retrieved 18 July 2014.*
15. **^** *"Everything you need to know about teeth". NHS Scotland. Retrieved 5 May 2020.*
16. **^** *"Gummed Out: Young Horses Lose Many Teeth, Vet Says". Archived from the original on 8 July 2014. Retrieved 6 July 2014.*
17. ^ ***a b*** *Patricia Pence (2002). Equine Dentistry: A Practical Guide. Baltimore: Lippincott Williams & Wilkins. ISBN 978-0-683-30403-9.*

18. **^** *Al Cirelli. "Equine Dentition" (PDF). University of Nevada Reno. SP-00-08. Retrieved 7 June 2010.*
19. **^** *Maurice Burton; Robert Burton (2002). International Wildlife Encyclopedia. Marshall Cavendish. p. 769. ISBN 978-0-7614-7266-7.*
20. **^** Bram, L. et al. MCMLXXXIII. *Elephants.* Funk & Wagnalls New Encyclopedia, Volume 9, p. 183. ISBN 0-8343-0051-6
21. **^** *"Dental Anatomy & Care for Rabbits and Rodents".*
22. **^** Brown, Susan. Rabbit Dental Diseases Archived 2007-10-14 at the Wayback Machine, hosted on the San Diego Chapter of the House Rabbit Society Archived 2007-10-13 at the Wayback Machine. Page accessed April 9, 2007.
23. **^** Ryšavy, Robin. Hay & Dental Health, hosted by the Missouri House Rabbit Society-Kansas City. Page accessed January 2, 2024.
24. ^ ***a b*** *Cox, Philip; Hautier, Lionel (2015). Evolution of the Rodents: Advances in Phylogeny, Functional Morphology and Development. Cambridge University Press. p. 482. ISBN 9781107044333.*
25. **^** Caceci, Thomas. *Veterinary Histology* with subtitle "Digestive System: Oral Cavity" found here Archived 2006-04-30 at the Wayback Machine.
26. **^** *Gomes, J.r.; Omar, N.f.; Do Carmo, E.r.; Neves, J.s.; Soares, M.a.m.; Narvaes, E.a.; Novaes, P.d. (30 April 2013). "Relationship Between Cell Proliferation and Eruption Rate in the Rat Incisor". The Anatomical Record.* ***296*** *(7): 1096–1101. doi:10.1002/ar.22712. ISSN 1932-8494. PMID 23629828. S2CID 13197331.*
27. **^** *Martin, Thomas (September 1999). "Evolution of Incisor Enamel Microstructure in Theridomyidae (Rodentia)". Journal of Vertebrate Paleontology.* ***19*** *(3): 550. Bibcode:1999JVPal..19..550M. doi:10.1080/02724634.1999.10011164.*
28. ^ ***a b*** Tummers M and Thesleff I. Root or crown: a developmental choice orchestrated by the differential regulation of the epithelial stem cell niche in the tooth of two rodent species. Development (2003). 130(6):1049-57.
29. ^ ***a b*** AM Hunt. A description of the molar teeth and investing tissues of normal guinea pigs. J Dent Res. (1959) 38(2):216-31.
30. **^** *Shoshani, J., ed. (2000). Elephants: Majestic Creatures of the Wild. Checkmark Books. ISBN 0-87596-143-6.*
31. **^** *Best, Robin (1984). Macdonald, D. (ed.). The Encyclopedia of Mammals. New York: Facts on File. pp. 292–298. ISBN 0-87196-871-1.*
32. **^** The Permanent Canine Teeth, hosted on the University of Illinois at Chicago website. Page accessed February 5, 2007.
33. **^** *Underwood, Charlie; Johanson, Zerina; Smith, Moya Meredith (November 2016). "Cutting blade dentitions in squaliform sharks form by modification of inherited alternate tooth ordering patterns". Royal Society Open Science.* ***3*** *(11): 160385. Bibcode:2016RSOS....360385U. doi:10.1098/rsos.160385. ISSN 2054-5703. PMC 5180115. PMID 28018617. S2CID 12821592.*
34. **^** *Fraser, Gareth J.; Thiery, Alex P. (2019), Underwood, Charlie; Richter, Martha; Johanson, Zerina (eds.), "Evolution, Development and Regeneration of Fish Dentitions", Evolution and Development of Fishes, Cambridge: Cambridge University Press, pp. 160–171, doi:10.1017/9781316832172.010, ISBN 978-1-107-17944-8, S2CID 92225621, retrieved 2022-10-22*

35. ^ *Rücklin, Martin; King, Benedict; Cunningham, John A.; Johanson, Zerina; Marone, Federica; Donoghue, Philip C. J. (2021-05-06). "Acanthodian dental development and the origin of gnathostome dentitions". Nature Ecology & Evolution.* ***5*** *(7): 919–926. Bibcode:2021NatEE...5..919R. doi:10.1038/s41559-021-01458-4. hdl:1983/27f9a13a-1441-410e-b9a7-116b42cd40f7. ISSN 2397-334X. PMID 33958756. S2CID 233985000.*
36. ^ *Burrow, Carole (2021). Acanthodii, Stem Chondrichthyes. Verlag Dr. Friedrich Pfeil. ISBN 978-3-89937-271-7. OCLC 1335983356.*
37. ^ *Andreev, Plamen S.; Sansom, Ivan J.; Li, Qiang; Zhao, Wenjin; Wang, Jianhua; Wang, Chun-Chieh; Peng, Lijian; Jia, Liantao; Qiao, Tuo; Zhu, Min (September 2022). "The oldest gnathostome teeth". Nature.* ***609*** *(7929): 964–968. Bibcode:2022Natur.609..964A. doi:10.1038/s41586-022-05166-2. ISSN 1476-4687. PMID 36171375. S2CID 252569771.*
38. ^ Pough, Harvey. Vertebrate Life. 9th Ed. Boston: Pearson Education, Inc., 2013. 211-252. Print.
39. ^ Kardong, Kenneth (1995). *Vertebrate: Comparative Anatomy, Function, Evolution*. New York: McGraw-HIll. pp. 215–225. ISBN 9780078023026.
40. ^ Xiong, Jianli (2014). "Comparison of vomerine tooth rows in juvenile and adult Hynobius guabangshanensis". *Vertebrate Zoology*. **64**: 215–220.
41. ^ *Poole, D. F. G. (January 1961). "Notes on Tooth Replacement in the Nile Crocodile Crocodilus niloticus". Proceedings of the Zoological Society of London.* ***136*** *(1): 131–140. doi:10.1111/j.1469-7998.1961.tb06083.x.*
42. ^ Hersher, Rebecca (May 2, 2018). "How Did Birds Lose Their Teeth And Get Their Beaks? Study Offers Clues". NPR.
43. ^ Field, Daniel J.; Hanson, Michael; Burnham, David; Wilson, Laura E.; Super, Kristopher; Ehret, Dana; Ebersole, Jun A.; Bhullar, Bhart-Anjan S. (May 31, 2018). "Complete Ichthyornis skull illuminates mosaic assembly of the avian head". *Nature* Vol 557, pp 96 - 100.
44. ^ ***a b*** *Kardong, Kenneth V. (1995). Vertebrates: comparative anatomy, function, evolution. McGraw-Hill. pp. 55, 57. ISBN 978-0-697-21991-6.*
45. ^ *"Ancylostoma duodenale". Nematode.net Genome Sequencing Center. Archived from the original on 2008-05-16. Retrieved 2009-10-27.*
46. ^ Roberts, Larry S., and John Janovy, Jr. Foundations of Parasitology. Seventh ed. Singapore: McGraw-Hill, 2006.
47. ^ *Brian Payton (1981). Kenneth Muller; John Nicholls; Gunther Stent (eds.). Neurobiology of the Leech. New York: Cold Spring Harbor Laboratory. pp. 27–34. ISBN 978-0-87969-146-2.*
48. ^ *Wells MD, Manktelow RT, Boyd JB, Bowen V (1993). "The medical leech: an old treatment revisited". Microsurgery.* ***14*** *(3): 183–6. doi:10.1002/micr.1920140309. PMID 8479316. S2CID 27891377.*
49. ^ *Ruppert, E.E.; Fox, R.S.; Barnes, R.D. (2004). "Lophoporata". Invertebrate Zoology (7 ed.). Brooks / Cole. pp. 829–845. ISBN 978-0-03-025982-1.*
50. ^ ***a b*** *Asa H. Barber; Dun Lu; Nicola M. Pugno (18 February 2015), "Extreme strength observed in limpet teeth", Journal of the Royal Society Interface,* ***12*** *(105): 20141326, doi:10.1098/rsif.2014.1326, PMC 4387522, PMID 25694539*

51. **^** *Zachary Davies Boren (18 February 2015). "The strongest materials in the world: Limpet teeth beats record resistance of spider silk". The Independent. Retrieved 20 February 2015.*
52. **^** *Taphonomy: A Process Approach*. Ronald E. Martin. Illustrated edition. Cambridge University Press, 1999. ISBN 978-0-521-59833-0
53. **^** *Towle, Ian; Irish, Joel D.; De Groote, Isabelle (2017). "Behavioral inferences from the high levels of dental chipping in Homo naledi". American Journal of Physical Anthropology. **164** (1): 184–192. doi:10.1002/ajpa.23250. PMID 28542710. S2CID 24296825. Retrieved 2019-01-09.*
54. ^ ***a b*** Teaford, Mark F and Smith, Moya Meredith, 2007. *Development, Function and Evolution of Teeth*, Cambridge University Press. ISBN 978-0-521-03372-5, Chapter 5.
55. **^** *Lee, James J.-W.; Constantino, Paul J.; Lucas, Peter W.; Lawn, Brian R. (2011-11-01). "Fracture in teeth—a diagnostic for inferring bite force and tooth function". Biological Reviews. **86** (4): 959–974. doi:10.1111/j.1469-185x.2011.00181.x. ISSN 1469-185X. PMID 21507194. S2CID 205599560.*
56. ^ ***a b c d*** *Fisher, Daniel C (1981). "Taphonomic Interpretation of Enamel-Less Teeth in the Shotgun Local Fauna (Paleocene, Wyoming)". Museum of Paleontology Contributions, the University of Michigan. **25** (13): 259–275. hdl:2027.42/48503.*
57. ^ ***a b c*** *Fernandez-Jalvo, Y.; Sanchez-Chillon, B.; Andrews, P.; Fernandez-Lopez, S.; Alcala Martinez, L. (2002). "Morphological taphonomic transformations of fossil bones in continental environments, and repercussions on their chemical composition" (PDF). Archaeometry. **44** (3): 353–361. doi:10.1111/1475-4754.t01-1-00068.*

Sources

[edit]

- *Shoshani, Jeheskel (2002). "Tubulidentata". In Robertson, Sarah (ed.). Encyclopedia of Life Sciences. Vol. 18: Svedberg, Theodor to Two-hybrid and Related Systems. London, UK: Nature Publishing Group. ISBN 978-1-56159-274-6.*

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About patient

For the state of being, see Patience. For other uses, see Patient (disambiguation).

- v
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Part of a series on Patients

Patients

Concepts

- Doctor-patient relationship
- Medical ethics
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- Patient safety

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- Adherence
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- Motivational interviewing
- Involuntary treatment

Rights

- Patients' rights
- Pregnant patients' rights
- Disability rights movement
- Patient's Charter
- Medical law

Approaches

- Patient advocacy
- Patient-centered care
- Patient and public involvement

Abuse

- Patient abuse
- Elder abuse

Medical sociology

- Sick role

A **patient** is any recipient of health care services that are performed by healthcare professionals. The patient is most often ill or injured and in need of treatment by a physician, nurse, optometrist, dentist, veterinarian, or other health care provider.

Etymology

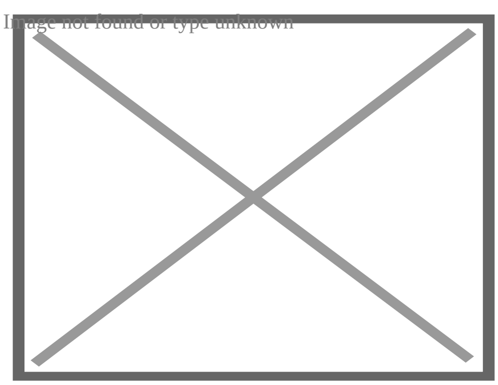
[edit]

The word patient originally meant 'one who suffers'. This English noun comes from the Latin word *patiens*, the present participle of the deponent verb, *patior*, meaning 'I am suffering', and akin to the Greek verb ?ÃŽÂ¬????? (*paskhein* 'to suffer') and its cognate noun ?ÃŽÂ¬??? (*pathos*).

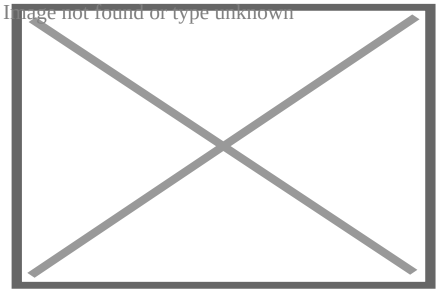
This language has been construed as meaning that the role of patients is to passively accept and tolerate the suffering and treatments prescribed by the healthcare providers, without engaging in shared decision-making about their care.[1]

Outpatients and inpatients

[edit]

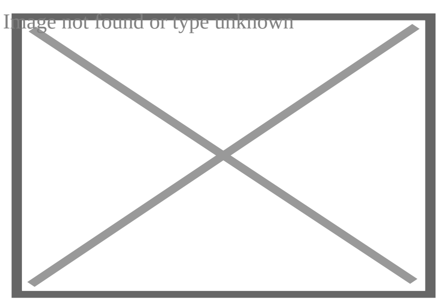


Patients at the Red Cross Hospital in Tampere, Finland during the 1918 Finnish Civil War



Receptionist in Kenya attending to an outpatient

An **outpatient** (or **out-patient**) is a patient who attends an outpatient clinic with no plan to stay beyond the duration of the visit. Even if the patient will not be formally admitted with a note as an outpatient, their attendance is still registered, and the provider will usually give a note explaining the reason for the visit, tests, or procedure/surgery, which should include the names and titles of the participating personnel, the patient's name and date of birth, signature of informed consent, estimated pre-and post-service time for history and exam (before and after), any anesthesia, medications or future treatment plans needed, and estimated time of discharge absent any (further) complications. Treatment provided in this fashion is called ambulatory care. Sometimes surgery is performed without the need for a formal hospital admission or an overnight stay, and this is called outpatient surgery or day surgery, which has many benefits including lowered healthcare cost, reducing the amount of medication prescribed, and using the physician's or surgeon's time more efficiently. Outpatient surgery is suited best for more healthy patients undergoing minor or intermediate procedures (limited urinary-tract, eye, or ear, nose, and throat procedures and procedures involving superficial skin and the extremities). More procedures are being performed in a surgeon's office, termed *office-based surgery*, rather than in a hospital-based operating room.



A mother spends days sitting with her son, a hospital patient in Mali

An **inpatient** (or **in-patient**), on the other hand, is "admitted" to stay in a hospital overnight or for an indeterminate time, usually, several days or weeks, though in some extreme cases, such as with coma or persistent vegetative state, patients can stay in hospitals for years, sometimes until death. Treatment provided in this fashion is called inpatient care. The admission to the hospital involves the production of an admission note. The leaving of the hospital is officially termed *discharge*, and involves a corresponding discharge note, and sometimes an assessment process to consider ongoing needs. In the English National Health Service this may take the form of "Discharge to Assess" - where the assessment takes place after the patient has gone home.[2]

Misdiagnosis is the leading cause of medical error in outpatient facilities. When the U.S. Institute of Medicine's groundbreaking 1999 report, *To Err Is Human*, found up to 98,000 hospital patients die from preventable medical errors in the U.S. each year,[3] early efforts focused on inpatient safety.[4] While patient safety efforts have focused on inpatient hospital settings for more than a decade, medical errors are even more likely to happen in a doctor's office or outpatient clinic or center.[*citation needed*]

Day patient

[edit]

A **day patient** (or **day-patient**) is a patient who is using the full range of services of a hospital or clinic but is not expected to stay the night. The term was originally used by psychiatric hospital services using of this patient type to care for people needing support to make the transition from in-patient to out-patient care. However, the term is now also heavily used for people attending hospitals for day surgery.

Alternative terminology

[edit]

Because of concerns such as dignity, human rights and political correctness, the term "patient" is not always used to refer to a person receiving health care. Other terms that are sometimes used include **health consumer**, **healthcare consumer**, **customer** or **client**. However, such terminology may be offensive to those receiving public health care, as it implies a business relationship.

In veterinary medicine, the **client** is the owner or guardian of the patient. These may be used by governmental agencies, insurance companies, patient groups, or health care facilities. Individuals who use or have used psychiatric services may alternatively refer to themselves as consumers, users, or survivors.

In nursing homes and assisted living facilities, the term **resident** is generally used in lieu of *patient*.[5] Similarly, those receiving home health care are called *clients*.

Patient-centered healthcare

[edit]
See also: Patient participation

The doctor–patient relationship has sometimes been characterized as silencing the voice of patients.[6] It is now widely agreed that putting patients at the centre of healthcare[7] by trying to provide a consistent, informative and respectful service to patients will improve both outcomes and patient satisfaction.[8]

When patients are not at the centre of healthcare, when institutional procedures and targets eclipse local concerns, then patient neglect is possible.[9] Incidents, such as the Stafford Hospital scandal, Winterbourne View hospital abuse scandal and the Veterans Health Administration controversy of 2014 have shown the dangers of prioritizing cost control over the patient experience.[10] Investigations into these and other scandals have recommended that healthcare systems put patient experience at the center, and especially that patients themselves are heard loud and clear within health services.[11]

There are many reasons for why health services should listen more to patients. Patients spend more time in healthcare services than regulators or quality controllers, and can recognize problems such as service delays, poor hygiene, and poor conduct.[12] Patients are particularly good at identifying soft problems, such as attitudes, communication, and 'caring neglect',[9] that are difficult to capture with institutional monitoring.[13]

One important way in which patients can be placed at the centre of healthcare is for health services to be more open about patient complaints.[14] Each year many hundreds of thousands of patients complain about the care they have received, and these complaints contain valuable information for any health services which want to learn about and improve patient experience.[15]

See also

[edit]

- Casualty
- e-Patient
- Mature minor doctrine
- Nurse-client relationship
- Patient abuse
- Patient advocacy
- Patient empowerment
- Patients' Bill of Rights
- Radiological protection of patients
- Therapeutic inertia
- Virtual patient
- Patient UK

References

[edit]

1. **^** *Neuberger, J. (1999-06-26). "Do we need a new word for patients?". BMJ: British Medical Journal.* ***318*** *(7200): 1756–1758. doi:10.1136/bmj.318.7200.1756. ISSN 0959-8138. PMC 1116090. PMID 10381717.*
2. **^** *"Unpaid carers' rights are overlooked in hospital discharge". Health Service Journal. 8 September 2021. Retrieved 16 October 2021.*

3. **^** *Institute of Medicine (US) Committee on Quality of Health Care in America; Kohn, L. T.; Corrigan, J. M.; Donaldson, M. S. (2000). Kohn, Linda T.; Corrigan, Janet M.; Donaldson, Molla S. (eds.). To Err Is Human: Building a Safer Health System. Washington D.C.: National Academy Press. doi:10.17226/9728. ISBN 0-309-06837-1. PMID 25077248.*
4. **^** *Bates, David W.; Singh, Hardeep (November 2018). "Two Decades Since: An Assessment Of Progress And Emerging Priorities In Patient Safety". Health Affairs.* ***37*** *(11): 1736–1743. doi:10.1377/hlthaff.2018.0738. PMID 30395508.*
5. **^** *American Red Cross (1993). Foundations for Caregiving. St. Louis: Mosby Lifeline. ISBN 978-0801665158.*
6. **^** *Clark, Jack A.; Mishler, Elliot G. (September 1992). "Attending to patients' stories: reframing the clinical task". Sociology of Health and Illness.* ***14*** *(3): 344–372. doi:10.1111/1467-9566.ep11357498.*
7. **^** *Stewart, M (24 February 2001). "Towards a Global Definition of Patient Centred Care". BMJ.* ***322*** *(7284): 444–5. doi:10.1136/bmj.322.7284.444. PMC 1119673. PMID 11222407.*
8. **^** *Frampton, Susan B.; Guastello, Sara; Hoy, Libby; Naylor, Mary; Sheridan, Sue; Johnston-Fleece, Michelle (31 January 2017). "Harnessing Evidence and Experience to Change Culture: A Guiding Framework for Patient and Family Engaged Care". NAM Perspectives.* ***7*** *(1). doi:10.31478/201701f.*
9. ^ ***a b*** *Reader, TW; Gillespie, A (30 April 2013). "Patient Neglect in Healthcare Institutions: A Systematic Review and Conceptual Model". BMC Health Serv Res.* ***13****: 156. doi:10.1186/1472-6963-13-156. PMC 3660245. PMID 23631468.*
10. **^** *Bloche, MG (17 March 2016). "Scandal as a Sentinel Event--Recognizing Hidden Cost-Quality Trade-offs". N Engl J Med.* ***374*** *(11): 1001–3. doi:10.1056/NEJMp1502629. PMID 26981930.*
11. **^** *Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry: Executive Summary. London: Stationery Office. 6 February 2013. ISBN 9780102981476. Retrieved 23 June 2020.*
12. **^** *Weingart, SN; Pagovich, O; Sands, DZ; Li, JM; Aronson, MD; Davis, RB; Phillips, RS; Bates, DW (April 2006). "Patient-reported Service Quality on a Medicine Unit". Int J Qual Health Care.* ***18*** *(2): 95–101. doi:10.1093/intqhc/mzi087. PMID 16282334.*
13. **^** *Levtzion-Korach, O; Frankel, A; Alcalai, H; Keohane, C; Orav, J; Graydon-Baker, E; Barnes, J; Gordon, K; Puopulo, AL; Tomov, EI; Sato, L; Bates, DW (September 2010). "Integrating Incident Data From Five Reporting Systems to Assess Patient Safety: Making Sense of the Elephant". Jt Comm J Qual Patient Saf.* ***36*** *(9): 402–10. doi:10.1016/s1553-7250(10)36059-4. PMID 20873673.*
14. **^** *Berwick, Donald M. (January 2009). "What 'Patient-Centered' Should Mean: Confessions Of An Extremist". Health Affairs.* ***28*** *(Supplement 1): w555 – w565. doi:10.1377/hlthaff.28.4.w555. PMID 19454528.*
15. **^** *Reader, TW; Gillespie, A; Roberts, J (August 2014). "Patient Complaints in Healthcare Systems: A Systematic Review and Coding Taxonomy". BMJ Qual Saf.* ***23*** *(8): 678–89. doi:10.1136/bmjqs-2013-002437. PMC 4112446. PMID 24876289.*

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Look up ***patient*** in Wiktionary, the free dictionary.

- *Jadad AR, Rizo CA, Enkin MW (June 2003). "I am a good patient, believe it or not". BMJ.* ***326*** *(7402): 1293–5. doi:10.1136/bmj.326.7402.1293. PMC 1126181. PMID 12805157.*
  a peer-reviewed article published in the British Medical Journal's (BMJ) first issue dedicated to patients in its 160-year history
- *Sokol DK (21 February 2004). "How (not) to be a good patient". BMJ.* ***328*** *(7437): 471. doi:10.1136/bmj.328.7437.471. PMC 344286.*
  review article with views on the meaning of the words "good doctor" vs. "good patient"
- "Time Magazine's Dr. Scott Haig Proves that Patients Need to Be Googlers!" – Mary Shomons response to the Time Magazine article "When the Patient is a Googler"

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Articles about hospitals

History of hospitals, Hospital network, Category:Hospitals

Common hospital components

- Accreditation
- Bed
- Coronary care unit
- Emergency department
- Emergency codes
- Hospital administrators
- Hospital information system
- Hospital medicine
- Hospital museum
- Hospitalist
- Intensive care unit
- Nocturnist
- On-call room
- Operating theater
- Orderly
- Patients
- Pharmacy
- Wards

Archaic forms	○ Almshouse ○ Asclepeion (Greece) ○ Bimaristan (Islamic) ○ Cottage hospital (England) ○ Hôtel-Dieu (France) ○ Valetudinaria (Roman) ○ Vaishya lying in houses (India) ○ Xenodochium (Middle Ages)
Geographic service area	○ Base hospital (Australia) ○ Community hospital ○ General hospital ○ Regional hospital or District hospital ○ Municipal hospital
Complexity of services	○ Day hospital ○ Secondary hospital ○ Tertiary referral hospital ○ Teaching hospital ○ Specialty hospital
Unique physical traits	○ Hospital ship ○ Hospital train ○ Mobile hospital ○ Underground hospital ○ Virtual Hospital
Limited class of patients	○ Military hospital ○ Combat support hospital ○ Field hospital ○ Prison hospital ○ Veterans medical facilities ○ Women's hospital
Funding	○ Charitable hospital ○ For-profit hospital ○ Non-profit hospital ○ State hospital ○ Private hospital ○ Public hospital ○ Voluntary hospital ○ Defunct

Condition treated

- Cancer
- Children's hospital
- Eye hospital
- Fever hospital
- Leper colony
- Lock hospital
- Maternity hospital
- Psychiatric hospital
- Rehabilitation hospital
- Trauma center
- Verterinary hospital

Century established

- 5th
- 6th
- 7th
- 8th
- 9th
- 10th
- 11th
- 12th
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Lists of hospitals in: Africa, Asia, Europe, North America, Oceania, South America

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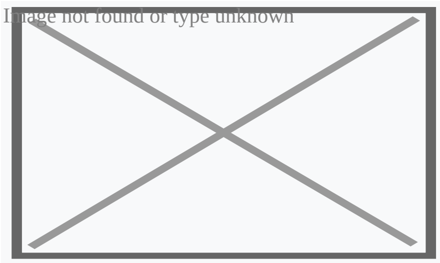
About crossbite

Crossbite



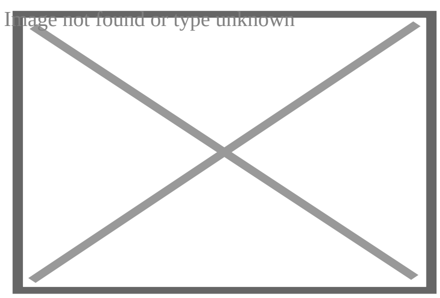
Unilateral posterior crossbite

Specialty	Orthodontics

In dentistry, **crossbite** is a form of malocclusion where a tooth (or teeth) has a more buccal or lingual position (that is, the tooth is either closer to the cheek or to the tongue) than its corresponding antagonist tooth in the upper or lower dental arch. In other words, crossbite is a lateral misalignment of the dental arches.[1][2]

Anterior crossbite

[edit]



Class 1 with anterior crossbite

An anterior crossbite can be referred as negative overjet, and is typical of class III skeletal relations (prognathism).

Primary/mixed dentitions

[edit]

An anterior crossbite in a child with baby teeth or mixed dentition may happen due to either dental misalignment or skeletal misalignment. Dental causes may be due to displacement of one or two teeth, where skeletal causes involve either mandibular hyperplasia, maxillary hypoplasia or combination of both.

Dental crossbite

[edit]

An anterior crossbite due to dental component involves displacement of either maxillary central or lateral incisors lingual to their original erupting positions. This may happen due to delayed eruption of the primary teeth leading to permanent teeth moving lingual to their primary predecessors. This will lead to anterior crossbite where upon biting, upper teeth are behind the lower front teeth and may involve few or all frontal incisors. In this type of crossbite, the maxillary and mandibular proportions are normal to each other and to the cranial base. Another reason that may lead to a dental crossbite is crowding in the maxillary arch. Permanent teeth will tend to erupt lingual to the primary teeth in presence of crowding. Side-effects caused by dental crossbite can be increased recession on the buccal of lower incisors and higher chance of inflammation in the same area. Another term for an anterior crossbite due to dental interferences is *Pseudo Class III Crossbite or Malocclusion*.

Single tooth crossbite

[edit]

Single tooth crossbites can occur due to uneruption of a primary teeth in a timely manner which causes permanent tooth to erupt in a different eruption pattern which is lingual to the primary tooth.[3] Single tooth crossbites are often fixed by using a finger-spring based appliances.[4][5] This type of spring can be attached to a removable appliance which is used by patient every day to correct the tooth position.

Skeletal crossbite

[edit]

An anterior crossbite due to skeletal reasons will involve a deficient maxilla and a more hyperplastic or overgrown mandible. People with this type of crossbite will have dental compensation which involves proclined maxillary incisors and retroclined mandibular incisors. A proper diagnosis can be made by having a person bite into their centric relation will show mandibular incisors ahead of the maxillary incisors, which will show the skeletal discrepancy between the two jaws.[6]

Posterior crossbite

[edit]

Bjork defined posterior crossbite as a malocclusion where the buccal cusps of canine, premolar and molar of upper teeth occlude lingually to the buccal cusps of canine, premolar and molar of lower teeth.[7] Posterior crossbite is often correlated to a narrow maxilla and upper dental arch. A posterior crossbite can be unilateral, bilateral, single-tooth or entire segment crossbite. Posterior crossbite has been reported to occur between 7–23% of the population.[8][9] The most common type of posterior crossbite to occur is the unilateral crossbite which occurs in 80% to 97% of the posterior crossbite cases.[10][3] Posterior crossbites also occur most commonly in primary and mixed dentition. This type of crossbite usually presents with a *functional shift of the mandible towards the side of the crossbite*. Posterior crossbite can occur due to either skeletal, dental or functional abnormalities. One of the common reasons for development of posterior crossbite is the size difference between maxilla and mandible, where maxilla is smaller than mandible.[11] Posterior crossbite can result due to

- Upper Airway Obstruction where people with "adenoid faces" who have trouble breathing through their nose. They have an open bite malocclusion and present with development of posterior crossbite.[12]
- Prolong digit or suckling habits which can lead to constriction of maxilla posteriorly[13]
- Prolong pacifier use (beyond age 4)[13]

Connections with TMD

[edit]

Unilateral posterior crossbite

[edit]

Unilateral crossbite involves one side of the arch. The most common cause of unilateral crossbite is a narrow maxillary dental arch. This can happen due to habits such as digit sucking, prolonged use of pacifier or upper airway obstruction. Due to the discrepancy between the maxillary and mandibular arch, neuromuscular guidance of the mandible causes mandible to shift towards the side of the crossbite.[14] This is also known as Functional mandibular shift. This shift can become structural if left untreated for a long time during growth, leading to skeletal asymmetries. Unilateral crossbites can present with following features in a child

- Lower midline deviation[15] to the crossbite side
- Class 2 Subdivision relationships
- Temporomandibular disorders [16]

Treatment

[edit]

A child with posterior crossbite should be treated immediately if the child shifts their mandible on closing, which is often seen in a unilateral crossbite as mentioned above. The best age to treat a child with crossbite is in their mixed dentition when their palatal sutures have not fused to each other. Palatal expansion allows more space in an arch to relieve crowding and correct posterior crossbite. The correction can include any type of palatal expanders that will expand the palate which resolves the narrow constriction of the maxilla.[9] There are several therapies that can be used to correct a posterior crossbite: braces, 'Z' spring or cantilever spring, quad helix, removable plates, clear aligner therapy, or a Delaire mask. The correct therapy should be decided by the orthodontist depending on the type and severity of the crossbite.

One of the keys in diagnosing the anterior crossbite due to skeletal vs dental causes is diagnosing a CR-CO shift in a patient. An adolescent presenting with anterior crossbite may be positioning their mandible forward into centric occlusion (CO) due to the dental interferences. Thus finding their occlusion in centric relation (CR) is key in diagnosis. For anterior crossbite, if their CO matches their CR then the patient truly has a skeletal component to their crossbite. If the CR shows a less severe class 3 malocclusion or teeth not in anterior crossbite, this may mean that their anterior crossbite results due to dental interferences.[17]

Goal to treat unilateral crossbites should definitely include removal of occlusal interferences and elimination of the functional shift. Treating posterior crossbites early may help prevent the occurrence of Temporomandibular joint pathology.[18]

Unilateral crossbites can also be diagnosed and treated properly by using a Deprogramming splint. This splint has flat occlusal surface which causes the muscles to deprogram themselves and establish new sensory engrams. When the splint is removed, a proper centric relation bite can be diagnosed from the bite.[19]

Self-correction

[edit]

Literature states that very few crossbites tend to self-correct which often justify the treatment approach of correcting these bites as early as possible.[9] Only 0–9% of crossbites self-correct. Lindner et al. reported that 50% of crossbites were corrected in 76 four-year-old children.[20]

See also

[edit]

- List of palatal expanders
- Palatal expansion
- Malocclusion

References

[edit]

1. **^** *"Elsevier: Proffit: Contemporary Orthodontics · Welcome". www.contemporaryorthodontics.com. Retrieved 2016-12-11.*
2. **^** *Borzabadi-Farahani A, Borzabadi-Farahani A, Eslamipour F (October 2009). "Malocclusion and occlusal traits in an urban Iranian population. An epidemiological study of 11- to 14-year-old children". European Journal of Orthodontics.* ***31*** *(5): 477–84. doi:10.1093/ejo/cjp031. PMID 19477970.*
3. ^ ***a b*** *Kutin, George; Hawes, Roland R. (1969-11-01). "Posterior cross-bites in the deciduous and mixed dentitions". American Journal of Orthodontics.* ***56*** *(5): 491–504. doi:10.1016/0002-9416(69)90210-3. PMID 5261162.*
4. **^** *Zietsman, S. T.; Visagé, W.; Coetzee, W. J. (2000-11-01). "Palatal finger springs in removable orthodontic appliances--an in vitro study". South African Dental Journal.* ***55*** *(11): 621–627. ISSN 1029-4864. PMID 12608226.*
5. **^** *Ulusoy, Ayca Tuba; Bodrumlu, Ebru Hazar (2013-01-01). "Management of anterior dental crossbite with removable appliances". Contemporary Clinical Dentistry.* ***4*** *(2): 223–226. doi:10.4103/0976-237X.114855. ISSN 0976-237X. PMC 3757887. PMID 24015014.*
6. **^** *Al-Hummayani, Fadia M. (2017-03-05). "Pseudo Class III malocclusion". Saudi Medical Journal.* ***37*** *(4): 450–456. doi:10.15537/smj.2016.4.13685. ISSN 0379-5284. PMC 4852025. PMID 27052290.*
7. **^** *Bjoerk, A.; Krebs, A.; Solow, B. (1964-02-01). "A Method for Epidemiological Registration of Malocculusion". Acta Odontologica Scandinavica.* ***22****: 27–41. doi:10.3109/00016356408993963. ISSN 0001-6357. PMID 14158468.*
8. **^** *Moyers, Robert E. (1988-01-01). Handbook of orthodontics. Year Book Medical Publishers. ISBN 9780815160038.*
9. ^ ***a b c*** *Thilander, Birgit; Lennartsson, Bertil (2002-09-01). "A study of children with unilateral posterior crossbite, treated and untreated, in the deciduous dentition--occlusal and skeletal characteristics of significance in predicting the long-term outcome". Journal of Orofacial Orthopedics.* ***63*** *(5): 371–383. doi:10.1007/s00056-002-0210-6. ISSN 1434-5293. PMID 12297966. S2CID 21857769.*
10. **^** *Thilander, Birgit; Wahlund, Sonja; Lennartsson, Bertil (1984-01-01). "The effect of early interceptive treatment in children with posterior cross-bite". The European Journal of Orthodontics.* ***6*** *(1): 25–34. doi:10.1093/ejo/6.1.25. ISSN 0141-5387. PMID 6583062.*
11. **^** *Allen, David; Rebellato, Joe; Sheats, Rose; Ceron, Ana M. (2003-10-01). "Skeletal and dental contributions to posterior crossbites". The Angle Orthodontist.* ***73*** *(5): 515–524. ISSN 0003-3219. PMID 14580018.*
12. **^** *Bresolin, D.; Shapiro, P. A.; Shapiro, G. G.; Chapko, M. K.; Dassel, S. (1983-04-01). "Mouth breathing in allergic children: its relationship to dentofacial development". American Journal of Orthodontics.* ***83*** *(4): 334–340. doi:10.1016/0002-*

9416(83)90229-4. ISSN 0002-9416. PMID 6573147.

13. ^ ***a*** ***b*** *Ogaard, B.; Larsson, E.; Lindsten, R. (1994-08-01). "The effect of sucking habits, cohort, sex, intercanine arch widths, and breast or bottle feeding on posterior crossbite in Norwegian and Swedish 3-year-old children". American Journal of Orthodontics and Dentofacial Orthopedics.* ***106*** *(2): 161–166. doi:10.1016/S0889-5406(94)70034-6. ISSN 0889-5406. PMID 8059752.*
14. **^** *Piancino, Maria Grazia; Kyrkanides, Stephanos (2016-04-18). Understanding Masticatory Function in Unilateral Crossbites. John Wiley & Sons. ISBN 9781118971871.*
15. **^** *Brin, Ilana; Ben-Bassat, Yocheved; Blustein, Yoel; Ehrlich, Jacob; Hochman, Nira; Marmary, Yitzhak; Yaffe, Avinoam (1996-02-01). "Skeletal and functional effects of treatment for unilateral posterior crossbite". American Journal of Orthodontics and Dentofacial Orthopedics.* ***109*** *(2): 173–179. doi:10.1016/S0889-5406(96)70178-6. PMID 8638566.*
16. **^** *Pullinger, A. G.; Seligman, D. A.; Gornbein, J. A. (1993-06-01). "A multiple logistic regression analysis of the risk and relative odds of temporomandibular disorders as a function of common occlusal features". Journal of Dental Research.* ***72*** *(6): 968–979. doi:10.1177/00220345930720061301. ISSN 0022-0345. PMID 8496480. S2CID 25351006.*
17. **^** *COSTEA, CARMEN MARIA; BADEA, MÎNDRA EUGENIA; VASILACHE, SORIN; MESAROÃ…Å¾, MICHAELA (2016-01-01). "Effects of CO-CR discrepancy in daily orthodontic treatment planning". Clujul Medical.* ***89*** *(2): 279–286. doi:10.15386/cjmed-538. ISSN 1222-2119. PMC 4849388. PMID 27152081.*
18. **^** *Kennedy, David B.; Osepchook, Matthew (2005-09-01). "Unilateral posterior crossbite with mandibular shift: a review". Journal (Canadian Dental Association).* ***71*** *(8): 569–573. ISSN 1488-2159. PMID 16202196.*
19. **^** *Nielsen, H. J.; Bakke, M.; Blixencrone-Møller, T. (1991-12-01). "[Functional and orthodontic treatment of a patient with an open bite craniomandibular disorder]". Tandlaegebladet.* ***95*** *(18): 877–881. ISSN 0039-9353. PMID 1817382.*
20. **^** *Lindner, A. (1989-10-01). "Longitudinal study on the effect of early interceptive treatment in 4-year-old children with unilateral cross-bite". Scandinavian Journal of Dental Research.* ***97*** *(5): 432–438. doi:10.1111/j.1600-0722.1989.tb01457.x. ISSN 0029-845X. PMID 2617141.*

External links

[edit]

Classification	◦ **ICD-10**: K07.2 D ◦ **ICD-9-CM**: 524.27

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Orthodontics

Diagnosis	○ Bolton analysis ○ Cephalometric analysis ○ Cephalometry ○ Dentition analysis ○ Failure of eruption of teeth ○ Little's Irregularity Index ○ Malocclusion ○ Scissor bite ○ Standard anatomical position ○ Tooth ankylosis ○ Tongue thrust
Conditions	○ Overbite ○ Overjet ○ Open bite ○ Crossbite ○ Dental crowding ○ Dental spacing ○ Bimaxillary Protrusion ○ Prognathism ○ Retrognathism ○ Maxillary hypoplasia ○ Condylar hyperplasia ○ Overeruption ○ Mouth breathing ○ Temperomandibular dysfunction

Appliances

- ACCO appliance
- Archwire
- Activator appliance
- Braces
- Damon system
- Elastics
- Frankel appliance
- Invisalign
- Lingual arch
- Lip bumper
- Herbst Appliance
- List of orthodontic functional appliances
- List of palatal expanders
- Lingual braces
- Headgear
- Orthodontic technology
- Orthodontic spacer
- Palatal lift prosthesis
- Palatal expander
- Quad helix
- Retainer
- SureSmile
- Self-ligating braces
- Splint activator
- Twin Block Appliance

Procedures

- Anchorage (orthodontics)
- Cantilever mechanics
- Fiberotomy
- Interproximal reduction
- Intrusion (orthodontics)
- Molar distalization
- SARPE
- Serial extraction

Materials

- Beta-titanium
- Nickel titanium
- Stainless steel
- TiMolium
- Elgiloy
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Institution	◦ Angle School of Orthodontia

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Dental disease involving the jaw

General	◦ Jaw abnormality ◦ malocclusion ◦ Orthodontics ◦ Gnathitis
Size	◦ Micrognathism ◦ Maxillary hypoplasia
Maxilla and Mandible	◦ Cherubism ◦ Congenital epulis ◦ Torus mandibularis ◦ Torus palatinus

Other	◦ Jaw and base of cranium
	    ◦ Prognathism
	    ◦ Retrognathism
	◦ Dental arch
	    ◦ Crossbite
	    ◦ Overbite
	◦ Temporomandibular joint disorder

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- **Maintaining Ethical Standards in Modern Practices**

Frequently Asked Questions

Why is clinical supervision crucial during my childs orthodontic treatment?

Clinical supervision ensures safe, effective treatment, monitors progress, prevents potential complications, and allows for timely adjustments to the treatment plan.

How often should my child be monitored during orthodontic treatment?

Typically, children should have check-ups every 4-8 weeks, depending on their specific treatment needs and the complexity of their orthodontic issues.

What risks can occur without proper clinical supervision?

Risks include improper tooth movement, potential damage to teeth and gums, incorrect bite alignment, extended treatment time, and unnecessary pain or discomfort.

Who should be conducting the clinical supervision?

A qualified orthodontist with specialized training in pediatric orthodontics should conduct regular clinical supervision, preferably a board-certified professional with extensive experience in treating children.

What does comprehensive clinical supervision include?

It includes regular physical examinations, X-ray monitoring, assessment of tooth movement, bite alignment, addressing potential issues, adjusting treatment plans, and ensuring overall oral health throughout the orthodontic process.

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