ORTHODONTICS: STOP THE MASSACRE

What you need to know before, during and after an orthodontic treatment that no one will tell you

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Published in 2005, by Luigi Castelli

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CAVEAT:

I am not advising patients to avoid orthodontists, but rather to educate themselves on biological principles so as to be able to collaborate with their provider knowledgeably.

It is the patient's responsibility to inform themselves and not follow treatments and specialists blindly. One should remain circumspect with professionals who propose plans that go against principles of biology.

However it is just as important to not turn away from orthodontists as it is to put in question their "all knowing" power as specialists. A professional diagnostic is essential.

AUTHOR'S NOTE

The studies and principles on which my work is based have been in existence for many decades, and have been recognized as biologically valid. So have functional orthodontic methods that eschew extractions. My book's goal is to make this ignored and suppressed wealth of information available to the public. It is not a treatise on orthodontics and even less a manifesto: it provides food for thought.

Note that I am not promoting any particular orthodontic technique. On the contrary, I advocate for a pluri-disciplinary approach to malocclusion, open to multiple techniques. Rather than making an argument for any one particular technique or alternative method, I am denouncing the current situation of unacceptable abuse and negligence in orthodontic treatment. This is my cry of the heart against a scandal that no professional has dared to denounce before. If I am in the position to speak out it is because after my license to practice dentistry was taken away from me, I removed myself from the Order of Dentistry.

INTRODUCTION

Today, orthodontics has become an obligatory rite of passage to obtain the perfect smile. One finds it is normal today to turn to orthodontics for the most minor defect. Of course, in cases of severe dental-facial defects, one has no choice but to get orthodontic intervention. But straightening teeth is not an anodyne act. Like every technique, orthodontics has its usefulness and its limits. Like surgery, orthodontics transforms the body in an irreversible way, especially if extractions are used. If the result is not satisfying, one cannot just re-implant extracted teeth and return to one's initial state.

I am not inciting readers to reject all orthodontic treatment but to pose the question of what is acceptable and what is not acceptable in treatment. All patients must be informed of what the treatment will do, and the terms of consent made clear.

Orthodontics includes a range of diverse techniques, the most common of which are braces, the well-known "railroad tracks" in adolescents' mouths. These pages are a reflection on certain standard orthodontic practices: extractions, treatments postponed to adolescence, and lifelong retainers. The patient accepts these practices because the orthodontist tells them: "We cannot do your treatment in any other way." However, what patients do not know is that the vision on which orthodontics is currently based is mechanical, mutilating and reductive, and can have numerous long-term negative effects on health.

As for extraction, controversy about their use exists within the profession itself. Since the beginning of orthodontics, extractionists opposed non-extractionists. Writing this book is indeed simply a matter of making public an old ongoing debate within the profession. It is important to empower patients to give an informed opinion on whether extractions are right for them. To extract is both an ethical and practical question and should not be confined to theoretical debate between specialists.

It is also essential that patients are informed about the side effects of an extraction treatment: the results on their profile, their teeth, their temporomandibular joints, their respiratory system and their health, which are disastrous. Extraction orthodontics is a blind-sighted approach without conscience, and is all the more unacceptable given that other treatment modalities exist without extractions nor secondary consequences, in most cases. It is high time that the orthodontic mentality and its practices evolve. It is time to put an end to treatments put off until adolescence, when treating in early childhood is more in line with a healthy outcome. It is time for parents to inform themselves and refuse that their child be mutilated with extractions. These changes—or lack of them--will affect the future and health of future generations.

The book gives an overview of the problem. It is a plea for early childhood intervention, and if that is not possible, for circumspect safe treatment.

If you are seeking orthodontic treatment,, a warning to you: It is tempting to think that avant-garde orthodontists with new awareness will solve everything and do things better. However new ideas in themselves are unfortunately insufficient, if not grounded in science and

evidence, and can lead to more obscurity. It is not a matter of exchanging a mutilating treatment for mutilating beliefs. To believe in a miracle is a way to prevent healing. It is my hope that readers will believe in information, reasoning, and in choices that are clearly explained.

And that the practitioner will as well.

PART I

A PUBLIC HEALTH ISSUE

To leave a child with narrow jaws is to condemn them to bad health.

Orthodontics, by focussing on the alignment of teeth, neglects the real problem. Malocclusion is not a problem with the teeth but with the jaws, specifically with jaws that are too small. Moreover, the health repercussions of undeveloped jaws are as dramatic as they are multiple. Extracting teeth, the common orthodontic approach to small jaws, will lead to more atrophy of the jaws.

Do you see the error here ?

MUTILATION BY PRESCRIPTION

12 year old Marie went to her dentist appointment accompanied by her mother. A bit nervous, she took out of her bag a hand-written letter : « My dear collegue, in order to pursue orthodontic treatment of the reluctant patient Marie, I request that you extract teeth 15-25 and 45-35. »

In anguish, the young Marie took her mother aside . « Mommy, I do not want to, » she sobbed. « It is necessary, you know that Marie. Isn't that so, Doctor ? »

The dentist nodded as he prepared his syringe and davits with the intention to extract four healthy teeth from his young patient. It was out of the question to go against his colleague the orthodontist, the bearer of knowledge aquired through four years of studies after dental school.

30 minutes and several screams later, Marie burst into tears with two premolars less which ended up in the dentist's garbage pail. Marie had stopped believing in the tooth fairy long ago. The extraction of the two other premolars are held off until the next appointment.

A month earlier, Marie's mother had taken her daughter to the orthodontist for an examination. Marie suffered from overlapping front teeth. « You are about to transform into a vampire, » her father had mocked her. However this was nothing to laugh about. The verdict came like a mallet on stone.

« The mouth is too small for the size of her teeth. It is necessary to extract. » Stunned, Marie's parents had to accept the evidence. The sacrifice of four premolars and four wisdom teeth were necessary to achieve a dream smile. As for Marie, no one asked her opinion. It was for her good, after all.

With xrays and dental molds supporting his view, the orthodontist explained the irrefutable logic of his conclusion. « To fit 32 teeth in jaws that are so small: do you see any other way but to extract 8 teeth ? »

Seen from this perspective, the amputation seemed to make good sense.

Responsible for the well being and flourishing of their daughter, Marie's parents hesitated for a long time about what to do. Of course, it was out of the question to accept such an unattractive smile, all the more so since the orthodontist had warned them that with time, the bad occlusion would lead to cavities and even a risk of losing teeth.

Nonetheless something bothered Marie's mother.
« To extract good teeth, what a waste,» she could not help thinking. With some remorse, she thought of the teeth that she was missing, extracted some years past, not so long ago when tweezers were used on ailing teeth in lieu of treatment. She had left the empty spaces in her mouth as Social Security would not reimburse her a centime to replace the teeth with implants. And now they were about to take out good teeth from her child, which would never grow again! Was this reasonable ?

In addition, her little daughter who had never experienced an extraction was traumatized and trembling with fear at the idea of undergoing surgery.

A philosophical question burned on her lips as she faced the orthodontist : « Would you do it if it were your child ? » But she dared not ask it. She contented herself with a weak : « Doctor, is it really necessary ? »

The « Yes, of course ! » of the orthodontist deterred her from insisting. From 32 teeth, Marie's mouth now would have just 24. These would be more than enough for her to swallow down the soft and insipid nourishment of fast-food.

Marie's parents reluctantly accept the proposed extractions. Deep down, common sense or instinct tells them that this isn't right, that their daughter should be treated differently. The practitioner's peremptory arguments however prevail. They accept the extractions out of resignation, not out of choice. How can there be choice when no alternative is offered?

"It had to be done," Marie's mother repeated to herself as she left the dental surgery. Ten days later, braces were fitted to cover the little girl's teeth. A new ordeal begins, that of the pliers

tightening the braces in monthly appointments with the orthodontist.

But Marie, who thinks the hardest part is over, doesn't know yet that this is only the beginning. For her part, Marie's mother thinks she's doing her daughter a favor by giving her a beautiful smile, a guarantee of seduction and social success. Unfortunately, she has no idea that she has jeopardized her daughter's health...

WHEN TEETH HIDE THE REAL PROBLEM

For some time now, the public has been off-track about the relationship between beauty and heath. The common idea, propagated in media and advertizing, is that beauty signifies health. However, the equation beauty equals health does not work when it comes to teeth. Contrary to what people believe, a beautiful smile does not make a beautiful face. Teeth that are well aligned can be detrimental to the health of the teeth and to the body.

Starting from the false premise that beauty rhymes with health, people mistakenly believe that dentists and orthodontists exclusively working on the smile are doing a good thing. For the orthodontist who focuses their treatment on tooth alignment and bases their success on the evenness of the resulting smile, it doesn't matter if the dentition is wobbly, if the patient breathes badly or swallows incorrectly, as long as the teeth are perfectly aligned! If everything threatens to fall apart, a wire discreetly glued to the back of the teeth gives the illusion that it is not.

The alignment holds, but for how long and at what cost in terms of health?

Patients are in part responsible for this situation. The slightest defect in tooth placement, the most discreet overbite, is now a reason for an orthodontic consultation and a request for treatment. "Doctor, couldn't you straighten that incisor that slightly overlaps its neighbor? » It doesn't matter to the patient if perfectly healthy premolars have to be sacrificed to achieve this minor correction ; it's no longer socially acceptable to display the slightest defect. "You have to mutilate yourself to be beautiful" is the new adage of a society focused on appearance and a frantic quest for physical perfection.

Marlène Dietrich, like other actresses in her day, had her third molars extracted to make her cheeks narrower and her cheekbones more prominent. Today's orthodontics is closer to cosmetic surgery than to dentistry. Practitioners have to respond to the demands of increasingly exigent patients, whose benchmark is the perfection they see in magazines. It's all the more tempting to give in to the siren calls of aesthetics when the orthodontist knows that, if they do not meet the patient’s demands, another more complacent practitioner will... and having more patients is a good source of income. So today, we treat misalignments that yesterday would not have been considered a problem.

Besides these debatable decisions, orthodontics treats conspicuous malocclusions. Unfortunately, if the aesthetic result is good in the short-term, it is not sure if it is functional, or what will happen in the longterm.

A majority of parents and orthodontists see poorly positioned teeth and an unsightly smile as just a problem of not enough space for the teeth to fit. However, to approach orthodontic treatment solely from the angle of aesthetics is to look through the small end of the spyglass and reduce the human being to a pretty façade. An orthodontist who considers their mission solely from an aesthetic point of view and forgets about function (breathing, swallowing, chewing) is misguided, and so is their patient. Orthodontic treatment should be about much more than achieving the perfect alignment of the six front teeth.

Crooked teeth are not aesthetic nor non-aesthetic. They are a sign and symptom of narrow, atrophied jaws. Beyond teeth, the real problem is small jaws, which has a major impact on facial aesthetics and on overall health.

Even from an aesthetic point of view, the orthodontist's focus on alignment is faulty. It overlooks the fact that the proportions of the arch must be harmonious with the face. A wide face does not sit well with a narrow arch for example. A child's mouth is shocking in an adult's face.

Emilie has a round face. Her teeth are correctly aligned, thanks to a treatment that deprived her of four teeth at the age of twelve. Despite her pretty smile, something's wrong: her mouth is undersized in relation to her face. She complains about it. She'd like a big smile and a jawline to match her adult face. Unfortunately, this is impossible. The arch width that wasn't generated during growth (before the age of twelve) is impossible to achieve later (except through surgery). Yet the full smile Émilie dreams of could easily have been obtained by intervening earlier in her childhood. Moreover, not extracting would have spared her the disaster of a narrower smile and a flat profile (chapter 15).

Along with the size of the jaws, the position also plays an important role in facial aesthetics.

- a lower jaw that is too small or retruded will cause a double chin.
- an upper jaw that is atrophied and recessed, will be accompanied by a hooked nose and fallen cheekbones in a flat face
- a narrow upper jaw will be accompanied by a "sad eye", the outer corner of which falls away for lack of width support (the upper jaw forms part of the occipital bone).

In terms of health, overlapping teeth result in poor meshing, which compromises chewing (chapter 4). But here again, to focus solely on the teeth and forget the narrowness of the jaws is to overlook the numerous health problems that are comorbid with narrow jaws: recurrent ENT infections (angina, otitis, sinusitis), eye convergence problems, concentration problems, excessive fatigue and sleepiness during the day, enuresis (bed-wetting), nocturnal snoring, back

problems, etc. These problems are caused by the fact that the narrow jaws make it difficult both to breathe (see Chapter 2) and to swallow with the tongue in the correct position (see Chapter 3). Undeveloped jaws also negatively affect the temporomandibular joint and position (see Chapter 4).

On the verge of asphyxiation

Narrow jaws hinder breathing. Orthodontics does not treat this problem. It even aggravates it with the use of extractions which further atrophies the jaws and narrows the airway.

The narrowness of the upper jaw leads to atrophy of the respiratory system.

The air that enters the nose passes through the nasal passages, the bony cavities located just above the palate, the width of which depends on the development of the upper jaw.

Since air enters a narrow nasal cavity with difficulty, the person with narrow nasal passages will breathe harder to compensate. The acceleration of the air creates suction. The throat stretches. The person snores and breathes even worse.

The narrowness of the lower jaw (the mandible), or its too backwards position too back (a retruded chin) leads the tongue to fall backwards. The tongue then prevents air from passing through.

One of the functions of the mandible is to prevent the tongue from falling back into the throat, especially in the supine position.

Doubly asphyxiated, the child with narrow jaws hence compensates for the lack of nasal ventilation by breathing through the mouth. This abnormal breathing, called mouth breathing, can be detected by the mist which forms on a mirror placed near the mouth. The child lives to the minimum of her possibilities. She doesn't live, she survives. The narrower the jaws, the more difficult it is for air to pass through, sometimes to the point of suffocation (i.e. Sleep Apnea; see section that follows).

Anyone who has had a cold knows the unpleasant feeling of a stuffy nose. With a head stuffed in wool, it is impossible to align two clear ideas. The child who breathes through their mouth is

in this state permanently. Mouth breathing does not allow the heat produced by the brain to be evacuated because the head is not cooled by the circulation of air in the sinuses. The child's brain is "overheating" and his performance is declining. Sleeping poorly, he is tired and dozes off in class. He cannot concentrate or think properly. His academic results suffer. Irritable and grumpy because he is tired, he suffers from behavioral problems. He is apathetic or on the contrary hyperactive. Particularly agitated and anxious, he cannot focus his attention. He suffers from night terrors and nightmares.

Children classified as hyperactive are "drugged" from an early age with anxiolytics.

What if, quite simply, they suffered from mouth breathing?

Breathing through the mouth prevents normal development of the lungs due to lack of thoracic amplitude. The respiratory rate increases to compensate, so the child is out of breath even at rest. Her heart beats faster and gets tired. For example, she collapses at half-time of the soccer match, unable to go to the end. Due to lack of air, she is unfit for physical exertion. She spends hours in front of the television or on his game console rather than exercising physically. She spends a good part of his childhood taking antibiotics (for ears nose and throat infections), sleeping too lightly (due to sleep apnea). Her physical constitution suffers.

A vicious circle is established: poor breathing leads to a lack of exercise which hinders growth and therefore the development of the jaws. The nasal passages remain narrow, the child breathes more and more poorly. Throughout her life, she will maintain fragile health: low resistance to infections, poor quality sleep, mood and concentration disorders. Lack of physical activity predisposes to obesity. Because of their blocked nose, children who cannot perceive the taste of food tend to gorge themselves. They swallow food without tasting it, especially since chewing is difficult for them (poor dentition, swollen tonsils).

The habit of swallowing whole is another factor in obesity. That said, some children react to their insufficient jaws in an opposite way; they eat to the point of choking, and end up no longer swallowing anything..

A possibly even more serious issue is the fact that the air that enters through the mouth is loaded with bacteria, dust and other allergens, instead of being filtered, sterilized and warmed like that which enters through the nose. The child then develops ENT infections and allergic problems. Taking antibiotics doesn't help anything. Over time, antiobiotics no longer work and even weaken the child's health (causing allergies or intolerances). The fact that children under the age of six consume a quarter of all antibiotics in France is cause for concern. Taking

antibiotics is aberrant as it denotes a capitulation in the search for causes. Mouth breathing is moreover not difficult to diagnose and every doctor (especially ENTs) should consider it. If not, it is up to the parent to ask at each consultation. Otherwise, ENT diseases can become chronic. In response, the tonsils and adenoids can hypertrophie. Their swelling further slows down the passage of air. They are eventually removed, but the real cause of the problem (narrow jaws) is not treated. The child then develops : chronic sinusitis and end up with respiratory failure or asthma, and swollen tonsils that prevent chewing. The child eats poorly and loses weight (unless he swallows whole and becomes obese). Because he chews poorly, his jaws do not develop properly. It's a vicious circle.

Breathing through the mouth dries out the oral mucosa, causes inflammation of the gums which leads to bad breath. Worse still, the teeth risk becoming loose (due to chronic inflammation of the gums).

The child who mouth breathes tilts his head backwards in a survival reflex: he tries to get air this way as tilting the head opens the airway. The weight of the head places enormous strain on the upper back. The neck and shoulder muscles suffer with multiple repercussions on posture (scoliosis). If the child breathes through the mouth from a very young age, the habit of keeping the head extended blocks the growth of the neck. A stocky neck causes respiratory problems, not to mention unpleasing aesthetics.

Mouth breathing and bedwetting are also linked. Enuresis is a debilitating problem because it affects the child's self-esteem. Pediatricians and general practitioners are without answers. No treatment is offered, except drugs (Oxybutinin. Desmopmsine, Imipramine). In France, enuresis affects on average 10% of children aged five to ten. The problem is reduced, or even resolved, by orthopedic jaw widening treatment. Unfortunately, many children do not benefit from it due to the ignorance of doctors and orthodontists.

Breathing problems due to airway congestion could create an increase in intra-abdominal pressure. The production of the hormone linked to urine production (vasopressin) would also be affected, in cases of sleep apnea, by the drop in the oxygen level in the blood.

Another explanation for euneris is linked to the position of the tongue which, through the lingual chain, affects the muscles of the perineum. Expansion of the palate not only improves breathing but also allows the tongue to return to a correct position in the oral cavity. The advancement of the mandible also has a beneficial effect on enuresis.
From an aesthetic point of view, the habit of breathing through the mouth leads to an increase in the length of the face (fig. I). The constantly half-open mouth and the hanging lower jaw give an expression of being in a daze, especially since the the eye falls and the incisors, which are too long, protrude beyond the upper lip (see fig. 2 on next page).

The upper jaw participates in the formation of three cavities: the orbit, the nasal cavity, the mouth. A growth defect in the maxilla therefore has three repercussions: narrow orbits (drooping eyes), a narrow nasal cavity (breathing failure), and a narrow palate (dental crowding).

ILLUSTRATIONS

This young girl suffers from nasal obstruction and breathes through the mouth since infancy. Her neuromuscular behavior works just for one end : to get as much air as possible to survive. Her head is inclined backwards to get the maximum amount of air ; her mouth rests open to capture air.

These compensatory habits will produce the growth of a too long face (an adenoid face), and a mandible too back, which hangs, which has as a consequence a double chin. The tongue which has no place on the palate (open mouth) will not stimulate the growth of the upper jaw. Moreover, the maxilla will not develop forward due to the absence of nasal breathing, and the naso-labial folds are accentuated.

The child's facial expression is sad and dazed. This type of face is produced by deviated functions: namely, mouth breathing and a physiologically wrongful position of the tongue. If the undeveloped jaws had been identified, in early childhood, all this could have been prevented.

Note : a mandible that is retracted will bring the tongue back. This person would be particularly susceptible to the risk of sleep apnea.

Fig. 2 : The Aesthetic Impact of Mouth Breathing

The unattractive picture of a long face is compounded by another disgrace. When the child smiles, her gums show too much. Even if the teeth are aligned, the "gummy smile" remains unsightly (fig. 3).

ILLUSTRATION

Mouth breathing, which is apparently not a concern to the medical profession, is often only discovered by chance. The parents of twelve-year-old Alain explain: "Our son has never been very athletic. From a very early age, he showed little taste for outdoor games, giving up quickly, and we didn't see any point in forcing him. When he entered sixth form, the gym teacher wanted to push him. When Alain's performance was so poor, he called him lazy. Convinced that our son didn't want to make an effort, this teacher began to take a dislike to him. Yet Alain claimed to be doing his best. Suspecting a health problem, we took him for a check-up (blood test, cardiac examination). Everything was normal. Our son was lazy. Luckily, a short time later, the orthodontist we consulted for his narrow palate problem informed us that Alain was a mouth-breather and that, despite all his good will, he couldn't match the physical performance

of children his age.

Despite his misadventure, Alain can count himself lucky. He was able to benefit from appropriate treatment. Physical re-education enabled him to acquire normal respiratory capacity at an age when this is still possible.

Twenty-year-old Magali was not so lucky. At the age of sixteen, she underwent treatment involving the extraction of four premolars. After three years of braces, the orthodontist decided to complete the treatment with an "active" retainer. This is a kind of soft mouthpiece that Magali has to keep in place at night. « I can't sleep with it on," she complains, "because it prevents me from breathing through my mouth. » She has always breathed this way, and thinks it's normal. "I thought it was normal to wake up with a dry mouth. I thought I always had a cold because I have a fragile constitution. As for my constant fatigue, I saw the same reason," she explains. In Magali's case, orthodontic treatment didn't solve anything. Unfortunately, by extracting teeth, it accentuated the narrowness of the palate and thus the respiratory deficit: a deficit that, at her age, will be difficult to make up. In these conditions, having teeth aligned is little consolation. Will it be enough for all those who "drag" themselves through life, plagued by fatigue and ENT infections, without ever discovering the cause of their problems?

Note: in some less severe cases (partial mouth breathing), the child reacts in the opposite way, and becomes a sports fanatic. It's the only way he can breathe better. But, compared with children who breathe normally, he has to train harder to achieve similar results, and he is always tired. He can succeed in endurance sports (the ten-thousand-meter race, but not the hundred-meter race, for example). Assiduous practice can serve as breathing education, freeing him from mouth breathing without anyone noticing. We can attribute his better health exclusively to sport.

Mouth breathing is a disabling problem that can worsen over time, leading to the dreaded syndrome of sleep apnea.

OBSTRUCTIVE SLEEP APNEA : A MORTAL RISK

Obstructive Sleep Apnea (OSA) is a serious case of mouth breathing, caused by a narrow palate and a lower jaw that's too far back. Orthodontists who wait until adolescence to extract and band the teeth are putting sufferers at mortal risk.

Anyone with narrow jaws is predisposed to sleep apnea. The disease is characterized by stops in breathing during sleep. Air no longer passing through the throat leads to episodes of asphyxia. Choking causes micro-awakenings that fragment sleep, impairing its quality. Micro-awakenings trigger a a change in sleep cycle, without the person waking up completely. The sufferers of

apnea do not have access to deep or REM sleep, which enables them to recover from nervous and emotional fatigue.

Deprived of REM sleep, animals become exhausted and go mad.

Neither rested nor regenerated, the person wakes up as tired as the day before, their memory impaired and unable to concentrate. In the long term, the consequences are far-reaching: lower intellectual performance, irritability, reduced libido, headaches, depression, cardiovascular problems*.

[*Hypertension, arteriosclerosis, cardiac arrhythmia, strokes, heart disorders, and up to 30% of cases of myocardial infarction.]

Sleep deprivation leads to impaired judgment. The person is prone to road accidents due to lack of alertness. In addition, social life suffers from mood irregularity due to lack of rest. The risk of losing one's job or getting divorced is increased. As the brain lacks oxygen every night due to respiratory arrest, the disease causes long-term brain damage. People suffering from sleep apnea die prematurely.

In children, the secretion of the growth hormone, produced during the deep sleep phase is slowed. The result is a growth deficit. The lack of oxygen and sleep leads to multiple disorders: stunted growth, behavioral and learning disorders, and intellectual retardation.

Three-year-old Laurent, for example, was a fragile baby with a constant cold since birth. The pediatrician who sees him says that "it's nothing", that "it's probably linked to the pollution in Paris". Since he was old enough to chew, Laurent has had difficulty eating. At the nursery, the problem worsens. Laurent doesn't eat anything for lunch or dinner, and only accepts bottles. The doctor attributes the problem to emotional blackmail towards his mother, who has gone back to work. Gentleness, firmness or authority make no difference: Laurent won't take any solid food.

Alerted, the nursery doctor observes that Laurent has apneas during sleep and dozes off during activities requiring concentration. Despite his extensive vocabulary, Laurent suffers from a speech and verbal expression problem. The ENT specialist confirms that Laurent only breathes through his mouth. His tonsils are swollen, hindering his breathing, chewing and swallowing. For Laurent, eating is a nightmare.

The problem has gone unnoticed for three years, three years of suffering for the child. It would never have been diagnosed had it not been for the vigilance of the nursery doctor.

Tonsil removal relieves Laurent. But without respiratory retraining, he has little chance of spontaneously regaining nasal breathing. The jaws will develop insufficiently, with all the associated symptoms (see page 337). The most disabling symptom will simply have been masked. The others remain. For example, if the lower jaw is set too high and too far back, this compresses the jaw joint, preventing it from developing properly. The ear (adjacent to the joint) becomes inflamed and congested. Children with narrow jaws are thus predisposed to chronic ear infections. This is the case for Laurent, who suffers from ear infections with 30% hearing loss

(bilateral chronic waxy ear infections). In young children, hearing loss leads to delayed speech and language development.

Children who breathe through their mouths, even partially, present an attenuated form of sleep apnea: they fall behind at school, are agitated, anxious and have difficulty concentrating. They may develop sleep apnoea syndrome a few years later (Raskin et al., 2000). Care must be take as obstructive sleep apnea, a potentially fatal disease, is all the more dangerous if it goes undetected. In both adults and children, snoring is an important symptom. If in doubt, consult a doctor as soon as possible, as the disease is incurable. It is thought to affect 4% of the French population, i.e. two and a half million people (a figure that is likely underestimated due to screening difficulties). Even though palliative treatments do exist, they are, alas, cumbersome: they involve surgery to move the lower jaw forward, in order to clear the airways that are blocked by the disease. The only real treatment is prevention, and involves correcting jaw width in children as early as possible.

The benefits of early treatment are multiple and the changes are sometimes spectacular. Paul has had difficulty concentrating since he was little. The older he gets, the greater the problem of retention in his education. At the age of 10, he was declared lazy by the teacher. He offers the classic image of a dunce, asleep at the back of the class. He suffers from lack of attention, he sometimes “noses down” and dozes. He is an introverted child who still wets his bed. “Since he was the target of mockery at summer camp, he has completely withdrawn into himself and lost all self-confidence,” laments his mother. The harsh judgment of the teacher who refuses to let him move on to sixth grade further locks him into his good-for-nothing image. His disastrous smile (his teeth overlap due to a narrow palate) doesn't help anything. Paul simply suffers from mouth breathing, which had previously gone unnoticed. By chance, he was treated orthodontically by an expansion of the palate which widened his nasal cavity. Thanks to the intervention of a physiotherapist, Paul relearns how to breathe through his nose. His tonsils represent a normal volume. He no longer needs to take antibiotics and the planned operation to remove them is canceled. Additional benefit, he no longer wets the bed. In three months, Paul transformed. He has become more confident and attentive in class because he sleeps better. His academic results have skyrocketed, to the point that the teacher has no idea what happened.

Before accusing their child of laziness, parents would do well to make sure that he or she does not suffer from mouth breathing.

Technical note. The mandible plays a fundamental role in breathing. Thanks to the muscles which insert on the hyoid, (mylo-hyoid, the anterior belly of the digastric), the mandible pulls the hyoid bone (located in the neck) forward and prevents it from crushing the laryngo-pharyngeal channel . The mandible also pulls the tongue forward, which prevents it from falling backward and obstructing the oropharynx (especially when lying on the back). The genioglossus muscle which rests on your mandibular symphysis has the function function of preventing the tongue from obstructing the oropharynx.

Obstructive sleep apnea is accompanied by a (sometimes fatal) fall in the tonic activity of the genioglossus. Hence the name “safety muscle” which was given to it and its vital importance in the physiology of breathing. A jaw positioned too far back (a receding chin) cannot play its role. Insufficiently retained: the tongue falls back and blocks the passage of air.

Placing the head back (reflex hyperextension which predisposes to retrognathia or class II) or moving the mandible forward (reflex propulsion which predisposes to prognathia or class III) are survival strategies intended to clear the oropharynx to improve respiratory permeability.

3) Tell me how you swallow…

The majority of children (and adults) with narrow jaws and poorly implanted teeth suffer, most of the time unknowingly, from the persistence of atypical or infantile swallowing. In addition to multiple and largely underestimated repercussions on posture, atypical deglutition is a major cause of orthodontic treatment failure. Moreover, orthodontics does not solve the problem. Worse, by reducing the available space through extractions , it aggravates it by taking away any chance of the tongue returning to a normal position.

Infantile swallowing is the mode of swallowing of newborns and babies. In infants, the tongue, which is voluminous, serves as a suction organ. Baby D projects it forward and, in the absence of teeth, the tongue interposes between the arches. When the child sucks, sucking allows him to swallow at the same time as he breathes. The transition from infant swallowing to adult swallowing begins with the appearance of baby teeth. They create a natural barrier for the tongue. Held like water by a dam, the tongue remains inside the arches during swallowing. By occluding together, the milk teeth oppose any overflow. The transition to adult swallowing takes place between eighteen months and three years of age.

We speak of atypical (or infantile) swallowing when the passage to| adult swallowing does not take place.* The tongue is not placed correctly during the swallow or at rest. Due to a lack of stimulation from the tongue, the bone growth of the jaws is hindered. Thus, atypical swallowing plays an important role in their narrowness (chapter 6). In addition, the tongue influences the position of the lower jaw (or mandible) in which it inserts. The tongue that rests low instead of coming up to the palate is placed incorrectly, askew, either too far back or too far forward. The jaw joints then function abnormally or are compressed. Various problems follow: congestion of the ears which promotes ear infections, and dysfunctions of the joint with eventually cracking, pain, and popping.

The only mobile bone of the face, the mandible is a kind of pendulum which participates in the balance of the body in the three planes of space; Its deviation (right-left front-back) or collapse puts tension on the masticatory muscles (masseter, temporal), the muscles of the back, the muscles of the neck (connecting the mandible to the hyoid bone). The tongue is in continuity

with the muscle chains that connect the jaws to the feet.
In osteopathy, the tongue belongs to the lingual chain. "The tongue, by pressing on the roof of the mouth at the level of the retroincisor area, makes the link between your lingual (or anterior) chain and the facial (or posterior) chain. It connects the 'conception' meridian and the 'governor' meridian" (M. Clauzade and B. Daraillans, L'homme, le skull, les dents).

Thus, the abnormal position of the tongue has repercussions on posture. The tongue is a kind of bridge that connects the front and back of the body. Its high position (against the palate) and centered in the oral cavity is the basis for the construction of the body schema: Any deviated or collapsed position of the tongue profoundly destructures the postural and energetic organization. The individual loses his axis. Its muscle chains work in an unbalanced way, causing tilting of the shoulders, pelvis, deformity of the back (scoliosis), etc. He loses and wastes energy, due to a lack of cohesion in his body.

Atypical swallowing has dreadful consequences on the implantation of teeth. The tongue exerts abnormal pressures, pushes them forward or opposes | their complete eruption (gap, infraclusion). It ends up taking off their shoes (tangue that hits the teeth) or causing them to move (spontaneous migration). For example, in the case of "rabbit teeth", the tongue pushes the incisors forward. Without swallowing education, it would be pointless to try to make them retreat because the "drive" of the tongue brings them back to their initial position: atypical swallowing is a major cause of relapse in orthodontics.

Note. If the swallowing problem persists after orthodontic treatment, the risk of rhizalysis (Chapter 21) and teeth loss is increased.

Atypical swallowing also has negative repercussions on aesthetics. It unbalances the functioning of the muscles of the face, with various consequences depending on the placement of the tongue. In the case of a lingual thrust, the muscles of the lips contract to compensate for the thrust of the tongue and prevent it from coming out. They develop too much and produce an unsightly relief around the mouth which seems to be « inflated". When the tongue is placed too far back, it prevents the complete eruption of the molars. The lower jaw is packed. The face is too short with a crushed lower level (fig. 'b page 55).
Loïc, ten years old. suffers from atypical swallowing. He's gotten into the habit of placing his tongue on his left side. By interposing itself, it prevents the complete eruption of the teeth and disturbs their meshing on this side. The lower jaw sags to the left and shifts to the right to regain a satisfactory chewing side. Loïc's face develops asymmetrically, his left eye socket is lower. He has a strabismus and suffers from chronic infections of the right ear. One of his shoulders is lower than the other, and scoliosis appears. With age, the problem will spread to the pelvis, the hips, the knees. If he is an athlete, Loïc will be prone to tendonitis, muscle strains and joint problems that are predominantly unilateral, not to mention the jaw joint problems (cracking, stalling, pain) and other headaches that are sure to appear. An impressive cascade of deformities will affect his entire body, the starting point of which is an abnormal position of the

tongue. If by chance, Loïc is treated by an orthodontist who is concerned with restoring correct swallowing, he will escape most of these ailments. Otherwise, Loïc risks spending his whole life from doctor to physiotherapist, from ophthalmologist to podiatrist (not to mention the dentist), all without being relieved. The icing on the cake is that his orthodontic treatment will relapse, since the problem of atypical swallowing will not have been solved.

Note. A wrong position of the tongue can be induced! by the habit of sucking on an object (pacifier, thumb, cuddly toy). It is also a perverse effect of early tooth loss (cavities, fractures). The tongue rushes into the void left by the extracted tooth(s). There is a good chance that the harmful habit will remain acquired, even after the eruption of the permanent teeth. Hence the interest of using a space maintainer to replace the missing teeth (page 254).

4 Occlusion : the "great mop"

Occlusion or meshing is the way the upper and lower teeth fit together. Orthodontics by intervening too late, by moving or extracting teeth, disrupts the bite and creates serious, even insoluble problems.

CHEWING IS VITAL

Narrow jaws and poorly implanted teeth do not allow for proper chewing. Orthodontics allows the malocclusion to set in before correcting it too late. The habit of incorrect chewing will have been established. The braces, which prevent efficient chewing, make the problem even worse.

The first step in digestion, chewing is important for the assimilation of food. People with disturbed chewing tend to choose soft or liquid food. Sometimes their entire life liquefies, or even their ideation slows down. Indeed, chewing stimulates the functioning of the brain, accelerating its metabolism and energy consumption. Chewing moderately hard food improves cerebral irrigation. Chewing increases the secretion of histamine which gives better ability to study and strengthens memory.

Studies on the relationship between chewing and learning in young rats show that learning abilities are lower in animals fed a liquid diet than in those fed a solid diet. The reason for this is the increased release of cholecystoquinine through chewing.

The histamine released by chewing also provides a feeling of satiety. A lack of secretion therefore promotes obesity. At a time when we are talking about an epidemic in children, chewing is a remedy of choice. However, it must be possible (sufficiently developed jaws and good mesh) and the sensation of taste must not be altered by a blocked nose (mouth breathing).

Thanks to their very rich innervation, teeth (particularly when they are alive) send information to the brain on the position of the mandible in space. They provide information to the brain in the same way as the eyes, ears or feet. When the position of the mandible is deviated or the occlusal contacts are deficient, the nervous system works from a distorted perception and the person loses their ability to locate themselves in space. Correct chewing is therefore essential to the sense of balance.

Chewing is also a factor of youth and protects against senile dementia. Older people who continue to chew with their own teeth age better than others. The close connection between teeth and brain through the trigeminal nerve explains the link between memory and edentulism.
According to a Swedish study (confirmed by Japanese research), people who no longer have teeth lose their memory more quickly (Agence France Presse des Correspondants in Stockholm, October 2004).

Chewing also boosts bone density. People who chew properly retain their autonomy, while edentulous people are most often dependent or bedridden.
In rats, the absence of chewing caused by edentulism accelerates aging, reduces physical impairment, as well as impairs sensitivity of the tongue, oral mucosa and taste.

Orthodontic treatment, although supposed to restore proper chewing, on the contrary, disturbs it. If extractions are used, they reduce the individual's dental capital (page 163). Braces make chewing difficult or impossible (page 213) and threaten the integrity of the remaining teeth (page 207). Any mutilating treatment accelerates the evolution towards edentulism and dangerously reduces the chewing coefficient.

A SITUATION THAT DOES NOT MAKE SENSE

The smallest flaw in the high-precision mechanism of occlusion affects posture. It is a delicate balance that the orthodontist destroys without being sure of restoring a more stable one. Occlusion is developed during growth. Its placement begins at the age of six months with the emergence of the milk incisors. Around twelve months, it stabilizes with the eruption of the first milk molars. From the child's empty mouth, a plane of contact is built between the top and the

bottom, perfectly horizontal and parallel to the eye line. The teeth fit together to the nearest tenth of a millimetre, in a regular curvature that goes from front to back. How do they manage to meet when nothing unites them, what incredibly precise balance allows them to stop their eruption once they have sufficiently emerged from the gums? The miracle is possible because teeth are sensors. They have a particularly rich innervation and proprioception. A nerve stem of major importance, the trigeminal, i.e. the fifth pair of cranial nerves, connects them to the brain. The tooth is thus a direct extension of the brain, in the same way as the eye. Like the brain, the tooth is a captor sensor. Just like the eye is a visual sensor,. the tooth is a kinesthetic sensor: it perceives heat, cold, temperature variations, as well as very fine variations in thickness of the order of a tenth of a millimetre. Sensitive antennae, the teeth look for each other to finally find each other and mesh.

What happens if they don't mesh well? The functioning of the muscles responsible for the mobility of the eye is disturbed. The child has convergence disorders (squinting, for example). The asymmetrical tension of the eye muscles has an impact on posture because the eye plays a decisive role in the perception of verticality. The brain works from information that is doubly distorted, coming from the teeth and the eye. The impact on posture does not stop there. Osteopathy has shown that muscle chains connect the teeth to the skull, spine and feet.

Note: To convince yourself of the enormous impact of occlusion, simply do this simple test. Grit your teeth (without forcing) in your usual way, then, with your arms outstretched in front of you, walk on the spot, closing your eyes and raising your legs very high. Count to twenty and open your eyes. Write down your position. Intersperse a thin cardboard tab between your teeth that you can place on the right or left, as desired. Grit your teeth on the improvised wedge, take a few steps to convey the new information to the body. Then repeat the experiment: after counting to twenty, open your eyes and observe your posture. It's likely that you've pivoted on yourself, without realizing it. If the body is able to react to a change of the order of a tenth of a millimetre, what about displacements of several millimetres when teeth are extracted or simply realigned?

By modifying an athlete's bite, the strength of his thighs can be reduced by 50%. Conversely, by stabilizing the occlusion with wedges, muscle power is increased. A defect in the bite disturbs the support of the feet on the ground. Sprinters like Carl Lewis wore braces designed to place their jaws in the ideal position so that no parasitic muscle stress was exerted. This is because the occlusion concerns the jaw and its joint as much as the teeth. A meshing that seems correct at the level of the teeth can shift the mandible to the right or left and create a postural asymmetry with, for example, a contraction (t the shoulder on the side of the deviation. Any tension in the masticatory muscles produces tension in the back muscles. Many problems (scoliosis, sciatica) are caused by a deviated or collapsed position of the mandible, due to a lack of care or caused by restorations or treatments that do not take into account the muscular balance of the body.

Any malocclusion, which necessarily leads to deviated posture, is serious in children because it integrates the imbalance into their structure. For example, breathing through the mouth is accompanied by a tilting of the head that unbalances the back. Or, in the case of an inverted or crossed joint, the lower jaw moves to the side. The consequences are enormous. The spine deformed, scoliosis appeared. Growth is organized around a deviated axis. During the years when the child remains in this position, the jaw joints develop asymmetrically (with chronic otitis on the compression side). Orbits, which do not each have the same volume, disrupt ocular motor skills (strabismus). To compensate for the imbalance, the muscle chains contract, the back twists, etc. The problem that is allowed to persist for twelve or fifteen years fixes the individual in an imbalance from which the eyes, jaw joints, ears, back, pelvis, etc. suffer. Finally, late intervention on an imbalance that is already well established is an additional source of disturbance (Chapter 10).

RISKS TO THE TEMPOROMANDIBULAR JOINT

The TMJ (jaw joint or temporomandibular joint) conditions the postural, nervous and psychological balance of the individual. Its role is crucial in health. Orthodontics that intervenes too late or in a brutal way mistreats the already weakened joint.

The TMJ joins the lower jaw to the skull. More

than a simple joint, it is a highly differentiated nervous structure of the same embryological origin as the brain. The most fragile joint in the body, it is the first structure to suffer from incorrect jaw development or placement because it functions in a deviated way as soon as the teeth do not fit together properly.

The development of the TMJ is not genetically programmed ; it occurs at the same time as that of the jaws. Flat until the age of six, the joint is shaped by the pressure and movements exerted during chewing and swallowing. It develops mainly between the ages of six and twelve. Its growth depends on the position of the lower jaw. If the child chews or swallows poorly, the lack of contact between the teeth or deviated contacts can cause the development of TMJ. Unilateral chewing produces asymmetrical development that is particularly harmful to joints which are designed to work in synergy. The child who suffers from dental malpositions therefore presents with a marked fragility of the joint, especially since he or she has been left in this state for a long time. In the fluoric type (a category in homeopathy and a typical candidate for orthodontic treatment), the hyperlaxity of the ligaments will make the jaw joint more fragile because it is less well maintained.
The term SADAM (algo-dysfunctional syndrome of the mandible) refers to temporomandibular joint problems. This is the most commonly used term. There are others: Costen's syndrome, DAM (dysfunction of the manducatory apparatus), DCM (craniomandibular disorders), DATM (dysfunction of the temporomandibular joint), TMD (temporomandibular disorders), STM

(temporomandibular syndrome), ADAM (dysfunctional headache of the mandible).

When the jaw joint works asymmetrically, so do the muscles of the spine, with multiple harmful consequences: impairment of performance in sports, impact on posture, balance and locomotion, and behavioural disorders, such as nervous breakdown. Chronic damage to the jaw joint weakens the entire individual: she sleeps less well, and her immunity decreases. Furthermore, jaw joint damage makes the person prone to chronic fatigue, dizziness, ringing in the ears, hearing loss, loss of muscle strength, local and generalized pain. These symptoms are those of fibromyalgia, a disease that in 80% of cases stems from a TMJ problem or from dental malposition. Moreover in the case history of patients suffering from fibromyalgia. orthodontic treatment is often found. If we consider that fibromyalgia is, as Dr. Mergui observes, a reflection of the loss of the vertical axis of the body, we can wonder to what extent orthodontic treatments contribute to the disorientation of the individual, with disastrous consequences several years later.

In any case, orthodontic treatments can weaken or even deteriorate the jaw joint. The orthodontist intervenes too late, once growth is complete. Their treatment forces the mandible to take a position that is not physiological. Devices designed to propel the mandible, if used incorrectly or too late (after twelve years), produce internal disturbances of the joint in one out of five cases. As for premolar extractions, they lead to a the recession of the lower jaw and therefore the compression of the joint (page 150).

Forcing the mandible into a non-physiological position increases the likelihood of developing problems in the jaw joint. A study (Kahnberg, 1988) showed that 60% of patients treated with jaw repositioning surgery developed temporomandibular joint problems (cracking, dropping, pain, etc.).

Wisdom teeth extractions can also damage the joint (page 171). Any treatment that intervenes on an injured joint aggravates its dysfunction. However, joint problems (cracking, jumping) are not uncommon in children, even young ones. Many children suffer from a backward mandible, mouth breathing or atypical swallowing. The risk of aggravation or injury by orthodontics is taken into account in the United States, where joint X-rays are often routinely done before orthodontic treatment. In France, the risk is largely underestimated, or even denied.

It is worrisome that children and young adults are complaining of pain or problems in their jaw joints. Alain testifies: “At the age of eleven, I had my teeth extracted and I wore braces and elastics for four years. I am now twenty-nine years old. For several months, I have felt pain in my teeth, my jaw is blocked. Dentists, osteopaths, surgeons, I don’t know who to consult. My sister who was treated by the same orthodontist suffers from the same problems.

Julie's case is similar: “For two years, I have suffered from jaw problems: clicking, reduced opening, jaw locking. It is clear that this is due to the orthodontic treatment I underwent at the

age of twelve: eight teeth removed, braces for several years. I am told that I will have to wear a splint at night for the rest of my life. I'm twenty years old and I don't want to wear an appliance at night for the rest of my life!"

With the widespread use of orthodontics, it is to be feared that damage to the jaw joints will become prevalent in the years to come. Due to their impact on general health, jaw pathologies are highly disabling, and can burden the social health budget significantly.

CONCLUSION

Health and beauty depend on the harmonious development of the jaws. Ccrowded teeth is only a minor manifestation of a much larger problem that concerns the health and harmony of the body as a whole. It is vital to correct the bone bases.

Aesthetically, a face that is too long or too tight remains unsightly, even if the teeth are aligned. In terms of health, people with long faces have breathing problems (sleep apnea) due to the narrowness of their nasal cavities. People with short or tight faces mainly develop problems with compression of the jaw joints, otitis, neck and back (fig. 4 next page).

As with any disease, in orthodontics every minute counts (during the growth period, i.e. before the age of twelve). A child who breathes poorly, swallows or eats badly is a child in pain. Orthodontic treatment should never be postponed in young children. In the case of mouth breathing, waiting until adolescence and extracting teeth can prove fatal. In addition, by extracting teeth and exposing the teeth that remain to multiple risks, orthodontics accelerates the evolution towards edentulism rather than slowing it down. To squander the dental capital of the individual is to jeopardize their ability to survive.

In view of the scale of the problem and the risk of mortality it poses, one would expect that health professionals would be out there offering comprehensive care to resolve the health issue. However, most often, the orthodontist is the only one who gets involved. Either the parents do not understand the need to involve other kinds of professionals (speech therapist, psychologist, etc.) for a problem that remains discreet or whose importance they do not know (atypical swallowing or mouth breathing); or the orthodontists themselves does not imagine collaborating with other professionals. The real problem escapes the orthodontist and they sink out of pride. thinking that they can solve everything.

As for treatment, it should be based on three priorities: re-educating breathing and swallowing, acting as soon as possible, and widening the jaws. Defying all logic and common sense, orthodontics does exactly the opposite: lack of rehabilitation and prevention (page 115), late treatment after the age of twelve (page 95), and reduction of the jaws by extractions (page 121).