Mouth & Teeth

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The NUK Guide on the healthy development of teeth, mouth and jaw was produced in collaboration with Dr. med. dent. Hubertus von Treuenfels, Doctor of Dental Medicine, Orthodontic Practitioner, Eutin, Germany.

This brochure is the fourth publication in the NUK Library Series and contains valuable information on the following topics:

- ***Significance of healthy oral development***
- ***Dental care during pregnancy***
- ***Growth of upper and lower jaw and milk teeth***
- ***Significance of the oral functions, including breathing and speaking***
- ***Tips on dental care, the first visit to the dentist and much more***

The NUK Guide on the healthy development of teeth, mouth and jaw in collaboration with Dr. med. dent. Hubertus von Treuenfels

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Editorial

Dear Parents,

During the first few days, weeks and months of your baby's life you will observe – and sometimes hardly even believe – just how quickly your baby is growing and developing. Even at this early stage the foundations are being laid for the future health of your child. This is why your love and attention are particularly important at this stage.

The development of the mouth and oral cavity is also of considerable significance during this phase – long before even the first milk tooth makes its appearance. This is because of something few people know: the overall development of the child is influenced in particular by the development of the mouth. For many parents it is not easy to judge whether this is proceeding in a positive way with their baby – simply because it is, for the most part, "latent". The aim of this brochure is to communicate to you, and in a way that is easily understandable, the knowledge that you need to enable you to help and consciously promote your baby's healthy development right from the start.

Factors such as breastfeeding, correct breathing, sufficient movement both of the mouth and the body as a whole, basic dental hygiene and, last but not least, a healthy and balanced diet, all contribute to the optimum healthy development of your little treasure's mouth and teeth.

The aim of this guide is to offer you support by answering your questions and offering practical tips for everyday life. From dental care during pregnancy through to your first visit to the dentist with your child – to help ensure that nothing stands in the way of a healthy development.

I wish you happy reading!

Yours,

Dr. med. dent. Hubertus von Treuenfels
Doctor of Dental Medicine, Orthodontic Practitioner, Eutin, Germany

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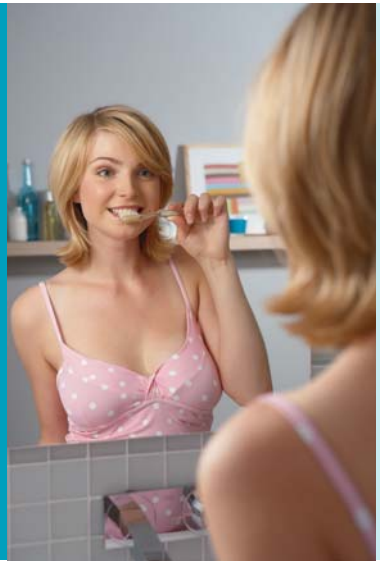


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Right from the start

Why is healthy development of the mouth so important?

Watching how a baby grows is nothing less than a miracle. This is because many different factors are involved in the healthy development before this tiny person is actually "complete". We must constantly remind ourselves of the fact that the various stages of development are not independent of each other, they actually interact. A fine balance within a child's organism is responsible for the various organs developing as they should. If this harmony is destroyed at any point, it can have a negative impact on the overall development of the child.

In the same way, the development of the oral cavity is closely connected to the overall development of the infant, not only from the physical aspect, but also from the mental and emotional aspects.

The versatile mouth

Nowhere in our bodies are there as many muscles and nerves as in our mouth. Many of the activities that we need for our survival as well as for interpersonal communication take place here in the smallest of spaces: our breathing, biting, chewing, swallowing, speaking and our facial expressions are all driven and controlled by the same muscles and nerves. And this is actually taken into account in our brain: the part of the brain responsible for our tongue and mouth is disproportionately large. And irrespective of the function that we are carrying out at the time with the aid of this versatile organ, the tongue always has the main role here. If the tongue cannot be moved correctly, this can easily upset the whole system.

Thus, the development of your baby is ensured by the mouth and tongue right from the start. The first thing that a newborn baby learns to do is to suckle at the mother's breast – usually immediately after birth during that first intimate contact between mother and child. Following straight on from this comes swallowing, as the high-quality breast milk actually needs to reach the stomach as quickly as possible.

A few months later the infant learns to chew, when the fluid feed is gradually complemented with and eventually replaced by solid food. When the infant is around one year old the final step is taken in oral development: baby learns to speak.

Each of these stages relies on the previous one having been mastered "perfectly". In other words, if your baby has had problems with sucking, then he or she may also have problems swallowing, chewing and speaking. And only once these oral functions are intact will the way be

clear for the development of healthy teeth and jaw.

Significance for body and soul

With teeth and jaw malformations it is much more than merely a cosmetic problem that can be corrected later quite simply with the aid of a brace. On the contrary – these can indicate something wrong with the child's development or other health problems. The principle of childhood development as a whole becomes clear once we consider the significance and positive impact of healthy jaw development: it permits and simplifies correct breathing, which in particular guarantees the critical supply of oxygen in the brain. For example, the muscles are strengthened, as is the immune system, and the susceptibility to infection is reduced by the mouth being closed. In addition to the respiratory tract the oral functions exert their influence on the work of the digestive organs and metabolism, posture and motor functions. The significance of the intact interaction of oral functions is all too frequently not recognised: children that become accustomed to breathing through the nose and with a closed mouth from an early age, and chew and swallow correspondingly, simply develop better. This affects not only the body's processing of food, but also the way a child carries himself or herself and moves, speaks, thinks and learns.

However, it is not just at the physical level that the development of the mouth and oral cavity plays such a major role, the child's psyche can also be influenced by possible malfunctions. In the first few months the mouth is the most important sensory organ – anything and everything in close proximity is touched and gripped using the mouth. Because it is also grasping what babies do when, for a while, they put everything in their mouth that is within their reach: through this means of perception they discover the world and also themselves. If a child has trouble managing oral functions such as sucking, swallowing, feeding from a spoon, chewing and speaking, this can considerably disturb the delicate (self-)perception. To check whether the oral functions are being carried out correctly, you will find an "Oral function test" on page 51. On the following pages you will discover the many good reasons why you should ensure right from the start that your baby is able to enjoy healthy development – and how you can help achieve this.

Dental care & pregnancy

Important for mother and child

Today we know that the mother's state of health during pregnancy also affects the development of the child in her womb. But what many people are not aware of: this also applies to the development of the milk teeth, which begins as early as six to eight weeks into pregnancy. What the mother eats during pregnancy affects the formation of the teeth as well as the resistance of the substance of the child's teeth. Expectant mothers should therefore take particular care to ensure that their daily diet contains foods providing sufficient calcium, iron and phosphorus. In addition, it makes sense to consult your doctor regarding possible food supplements such as e.g. iron or folic acid. It is now even more important than ever to drink ample fluids, preferably in the form of water, fruit drinks and herbal teas or fruit infusions. (We suggest that you read the relevant chapter "Nutrition during pregnancy" in the Pregnancy Guide from the NUK Library.)

And something else that very few people know: germs (bacteria) causing caries can be transmitted from mother to baby. For this reason dental care is particularly important during pregnancy as well as afterwards. In order to be completely sure here, we recommend that expectant mothers undergo a dental check-up, including any treatment required, as soon as possible. This should also include having her teeth cleaned professionally. If the mother does not wish to have this done at this point, she could undergo a saliva test to assess the likelihood of a "risk of transmission" to the unborn child. According to findings based on American research, untreated gum disorders in pregnant women increase the risk of a premature birth.

A change in the mouth flora

Lots of things change for an expectant mother during her pregnancy – first of all and most noticeably being of course her own body. These changes also affect the mouth flora, which is influenced by the new composition of hormones in the body of the pregnant woman. The pregnancy hormones, combined with an increase in the quantity of blood and the associated increased circulation, can, for example, loosen the gums, making them more susceptible to bleeding and on a more frequent basis. This enables bacteria to "hide" itself more easily under the edge of the gums, causing infection, periodontal disease (bone degeneration and loosening or even loss of teeth) as well as caries. In addition, the saliva of the pregnant woman

takes on a different composition, one that also offers a breeding ground where caries bacteria can multiply faster than normal.

Tips on gentle dental care

Due to the changes mentioned it may be necessary to slightly vary the proven method of brushing teeth in order to lessen any discomfort at this time. You should use a softer toothbrush than usual and brush the teeth applying a minimum of pressure – this will be kinder to the sensitive gums, at the same time strengthening them by means of a gentle massage. What is particularly important now is to clean teeth after each meal, even if it is only a snack between meals. Some women suffer a reaction to the taste of their usual toothpaste during pregnancy. If this happens to you too, we suggest you try milder types and, if possible, without the addition of menthol. Your pharmacist or chemist can offer you advice on this. Should you also be one of those women suffering from nausea or "morning sickness" in the first few months of pregnancy, it is important that you do not immediately brush your teeth after vomiting. This is because the gastric acids temporarily soften the tooth enamel, so that a toothbrush may damage it. The best thing to do is to rinse out your mouth first with just clear water and wait half an hour or so before cleaning the teeth with toothbrush and toothpaste. Consuming sweets and sweetened drinks should be avoided during pregnancy, if possible.

Baby's oral cavity

Upper and lower jaw – the optimum development

In the first few weeks and months after the birth your baby will grow faster than at any other stage in his or her life. And, just as the whole body changes during this time, so does the face. Whereas the eyes and upper part of the skull, the so-called cranium, have already grown in a newborn baby to a considerable proportion of an adult's skull, the lower part of the skull – the face or lower skull is left "lagging" somewhat "behind". Shortly after the birth the ratio of cranium to lower skull is still 8:1. As a comparison: with adults it is only 2.5:1. Upper and lower jaw, which form part of the lower skull, therefore have to catch up with considerable growth, which is why they start soon after birth: the proportions then start to shift, slowly but surely.

The baby face …

The development of the lower jaw plays the most important role at this stage. With newborn babies this still lies behind the upper jaw and is also a little narrower. This so-called newborn "back-bite" is a natural and clever way of adapting to the birth, as it makes it easier for baby to pass through the narrow birth canal – a defined chin would only serve to obstruct here, as you can imagine. The ramus, or branch, of the lower jaw is still at a very wide angle to the lower jaw after birth, i.e. it rises very gradually towards the joint. The mandibular joint of a newborn baby thus lies very low – as it develops it gradually shifts in an upward direction. And it is not just its position, but also the shape of the joint that will still be changing for a while. The base of the joint is still flat and open, with the head of the joint only slightly marked. At this point, however, it still absolutely makes sense, as the newborn back-bite permits natural sucking with forward and backward movement during breastfeeding. The infant achieves this only thanks to the particular shape and position of the jaw and its joint.

… becomes a child's face

However, after just a few months the angle of the lower jaw will have already decreased and the ramus of the lower jaw will now be comparatively vertical to the jaw joint that has been displaced in an upward direction through this change. Also the characteristic newborn back-bite is gradually disappearing – after approximately six months the lower jaw has caught up with the upper jaw, now being positioned flush with it. This "equal position" will be ensured later by the contact of the upper and lower molars. Yet before this stage is reached the upper and lower jaw continues growing in a forward and downward direction: the lower

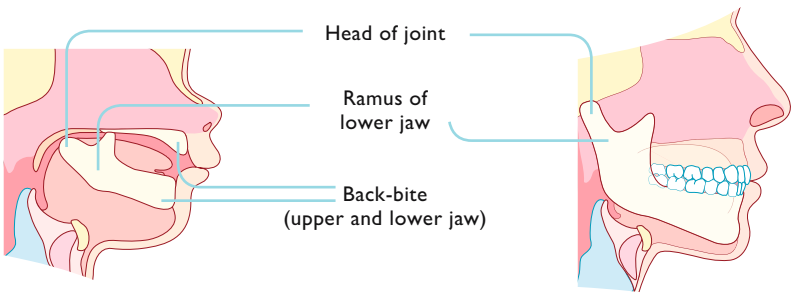
jaw receives a further strong growth spurt in this direction after the first milk teeth have come through. Widthways, too, it catches up with the upper jaw, if a little later, somewhere around the time the first molars appear (see also overview „Development of the milk teeth“ on page 37). At the same time the bite is realised in the first of a total of four movements, which occur up to the appearance of the wisdom teeth after approximately 18 years. This means, quite simply, that the difference in height between upper and lower jaw increases, stretching the face even more.

By the time the complete set of milk teeth is finally through, the lower jaw will strongly resemble that of an adult in its shape – only needing to become a little larger over the next few years. By the time the child is six or seven years old the proportions of cranium and lower skull will be more equal, as the upper and lower jaws grow considerably faster than the upper skull regions: the lower skull of a two-year-old is already a quarter of its eventual size, that of an eight-year-old having attained half its adult size.

What else will still change?

Along with the jaw baby's oral cavity, of course, will also grow. Even though no major growth spurts occur, the few millimetres in height, width and length still constitute a change. Whereas with breastfeeding the female breast adapts itself in an optimum way, when bottle-feeding the changed space proportions of the oral cavity can be achieved by means of the teat size. There is the right-sized teat or soother for every child's mouth.

Development of the jaw-face area



Development and change in the proportions and shape of the lower skull with the jawbones from childhood through to adulthood. (The child's skull has been enlarged for clearer representation.)

Breastfeeding makes baby strong

Breastfeeding makes baby strong – and this is not only thanks to the nutritious qualities of breast milk, which make your baby feel full and content; it is also because babies are working and learning at the same time with these first and most difficult activities – sucking and swallowing. The female breast and the infant mouth are absolutely made to match. When baby's mouth touches the mother's nipple, it triggers the search reflex and causes baby's mouth to open wide. At this moment the mother should direct and support the baby's head in such a way that the tiny mouth surrounds not only the nipple but also a large part of the areola around it. This is how the infant learns the correct way to close the lips. He or she now pushes the lower jaw forwards and backwards, accompanied by wave-type motions of the tongue. This smoothes the milk out from the breast. The breastfeeding process is not, however, just about giving baby nourishment, it also fulfils other essential functions: the tongue and the muscles that will be used later for chewing are also learning these finely-tuned, powerful movements, which help promote the growth of the jaw and face bones. But this is not all. With every breastfeeding action baby has to physically "work", training all the face and neck muscles right down to the shoulders. Breastfeeding is therefore real "bodybuilding" for your little one and it is already laying the foundations for good body posture in later years.

Tip

Please do not feed your little one with cereal at night. This will enable your child to maintain a natural rhythm of eating during the day and sleeping at night. To achieve maximum benefit from nourishment the quantity that your child consumes during the day will suffice. At the same time you will be helping to prevent the onset of caries.

Bottle-feeding as an alternative

If you do not wish to breastfeed or if you wish to wean your child from breast to bottle or to bottle-feed your baby with milk collected from the breast, it is important that the bottle-feeding process is as close as possible to breastfeeding. In order to achieve this, the opening of the teat must be as small as possible. The correct teat hole is available for every type of feed: the hole should always cor-

respond to the feed. You should always observe the instructions on the teat packaging.

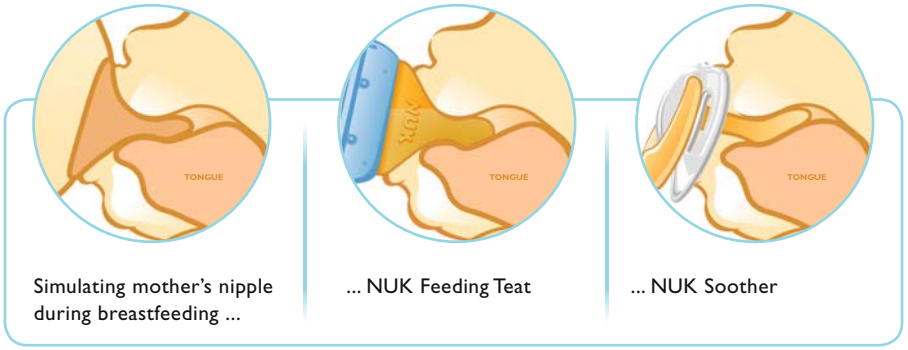
With the hole as small as possible baby has to learn to work as hard when sucking on the bottle as when breastfeeding – at the same time strengthening the muscles. If you are concerned that your child is having to work too hard when feeding from the bottle, you can rest assured that this is desirable from the medical aspect and that it will also promote the healthy development of your child. For the same reason a bottle feed should also last for approximately 20 minutes – as it is not a case of making baby feel full as soon as possible, but rather of simulating the breastfeeding process in the best possible way so that all muscles are being trained. This process promotes the interplay of jaw, face and throat muscles, thus ensuring the mouth is well prepared for later skills such as chewing and speaking.

Once you eventually move onto cereal feeds, these can be given from a spoon, as this promotes lip activity and thus also the development of sound formation (see also page 32, overview "Relationship between breastfeeding, eating and speaking"). As soon as your child has cut the first teeth, you can offer him or her small pieces of the food you eat. This will build up your child's immune system and help prevent caries, tooth malformations and jaw anomalies.

The correct teat

When bottle-feeding the main issue is using the correct teat. The teat should be designed such that it resembles as closely as possible the mother's nipple while breastfeeding, both in shape and function – in other words, it should be asymmetric. It will never reach its adaptability, but you can ensure that it keeps up with the growth of your baby. It is best to use the size of teat recommended for the relevant age group. What applies to teats, where the shape is concerned, basically also applies to soothers. A soother should fit the child's jaw ergonomically and should also leave the tongue sufficient space. Another important aspect is that the soother should be soft and flexible. And in order to produce as less resistance as possible between the edges of the jaw and the teeth once they appear, the neck of the soother should also be as narrow as possible. You should always ensure that it is not overused. Providing that your child is sucking on the soother and, at the same time, training the muscles, it can be considered beneficial.

So what does the optimum teat look like?



Babies have an innate sucking desire which needs to be satisfied. During breastfeeding this is, of course, achieved in a most natural way. But infants also demonstrate a need to suck between feeds.

However: a soother is first and foremost meant for sucking on! If it simply hangs out of the mouth, then it is better to remove it. This is especially the case at night – an infant rarely needs a soother while asleep. Yet according to a comprehensive study undertaken in the USA* there are many indications that the danger of Sudden Infant Death Syndrome (Cot Death) is reduced if a soother is used at night during the first twelve months. Once the child is two years old you should gradually try and wean your little one off it.

The thumb – an alternative?

Before the little ones reach for their fingers or comfort blanket, however, they should be offered an orthodontic-shaped soother. The reason for this is that all other objects, including the thumb, are unsuitable, as they have a negative impact on the teeth and bone structure in the child's mouth and can thus result in malformations of the teeth and jaw. With thumb-sucking over a long period the upper incisors may grow at an angle towards the front, with the lower ones at an angle towards the back. This can result in so-called prognathous, in other words, the front of the upper jaw is too far forward and the lower jaw will tend towards a back-bite position with a protruding chin. This can also cause an open bite, which can prevent the child from biting correctly with the front teeth later on. Orthodontic treatment at a later date will then much more likely be required. An orthodontic-shaped teat, which is used appropriately, i.e. to fulfil the need to suck and to train the muscles of the mouth, is therefore the better and more hygienic alternative for your baby. And above all, it is much easier to wean off than the thumb, which is always there.

Children often prefer the "taste" of their own thumb or finger to that of the soother. Physiologically, however, the soother remains the better alternative. From the psychological aspect thumb-sucking is considered more helpful in an "emergency". Children instinctively seek comfort, peace or satisfaction with their finger. If you give your child your attention, by occupying him or her or offering a distraction, it will be easier for your little one to be weaned off sucking, be it thumb or soother. There is no cause for concern – with less intensity over a short timeframe thumb-suckers can still have a set of normal, straight teeth and jaw.

*Source: Pediatrics 2005; 116; 716–723; www.pediatrics.org/cgi/content/full/116/5/e/716

Four tips for easier weaning off the soother

Talk to your child: explain why the time has come to give up using a soother – for example, because baby is really much too big now for a soother, or dummy, or because the soother is old and tired.

This should not happen overnight, though. Saying good-bye to a soother is often easier in stages. Talk it over with your child and suggest, perhaps, that the soother may only be used at home, for example, until your child can give it up completely.

Give the soother away: talk to your child about it, the fact that another child – perhaps a newborn baby of one of your friends, for example – may need the soother more desperately, and then really praise your child when he or she gives this favourite comforter away.

Soother fairy, etc.: a visit from the Easter Bunny, Father Christmas or the Soother Fairy can all help to ease the pain of parting. Children can give one of these the soother, receiving a small gift in return. Even a ritual can be a good idea: for example, you can help your child bury the soother in the garden. In some towns there's even a "soother tree", on which you can put the soother being discarded.

“Correct” breathing

As with everything else nature also has an age-old recipe for growth and the forming of jaw and mouth area: genes and hormones determine together when, where, for how long and to what extent growth will take place. Yet despite this there is a series of additional potential factors that can contribute in a positive way towards this essential development of your baby, like, for example, healthy breathing.

Breathing is one of the functions that, although essential to life, is often not paid particular attention to – until that is, something goes wrong. That fact that we do not have to think about it does make some sense, as otherwise we would have little time for anything else in life. But when it concerns the development of your child, then you should grant the topic of breathing the attention it deserves.

Right: breathing through the nose

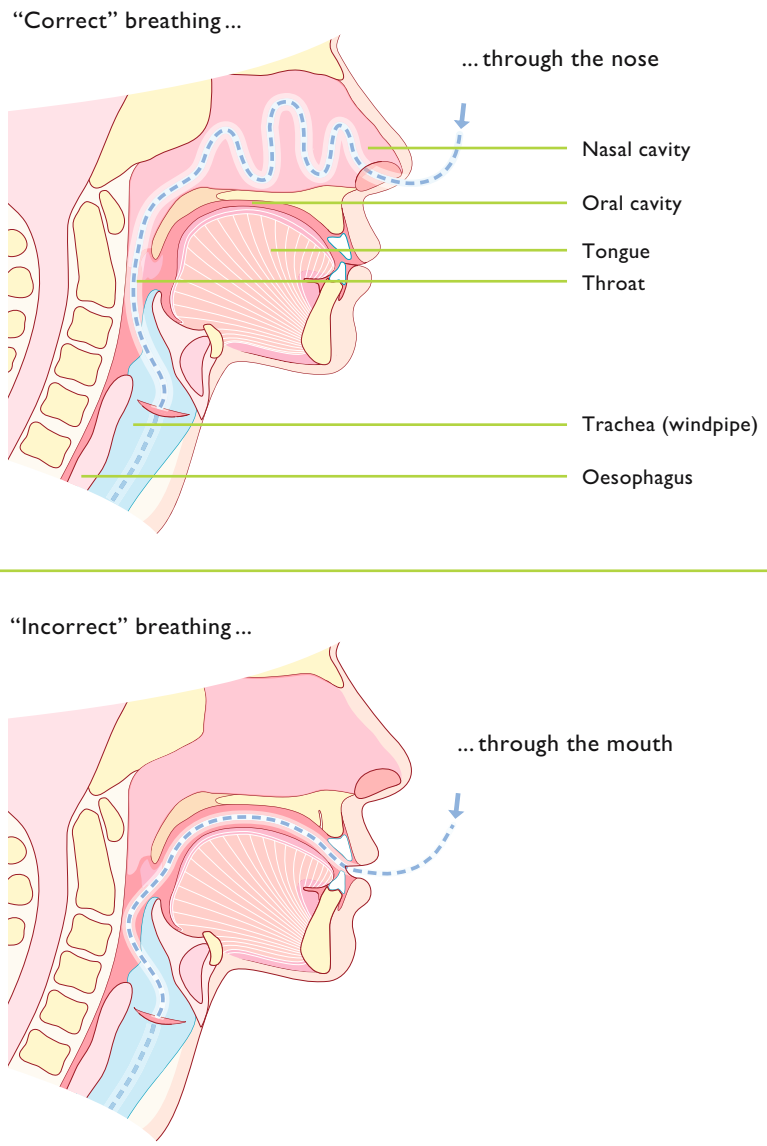
Normally we prefer to breathe through the nose – and we do this subconsciously. This is the correct way, as the passage through the nose prepares in an optimum way the air being breathed in: it is warmed up, moistened and cleaned, before it reaches the bronchial tubes in the lung cavity. We opt for the mouth mostly when breathing through the nose is no longer possible or no longer sufficient, for example when we are ill or exhausted.

All healthy babies demonstrate how natural it is to breathe through the nose. They do not first have to learn that this is the “correct” way to breathe. Yet in order to be able to do this, your child must, of course, be given the possibility of breathing through the nose. In particular, the nose needs to be free. If your baby has a cold then you should try, with the aid of a nasal decongester, to remove the secretion that has built up. If, however, your child has a heavy cold or frequently suffers from colds, then you should seek the advice of your paediatrician or family doctor, who will be able to give you further tips and, if necessary, prescribe medication. With a clear nose the first and most important step will already be taken towards healthy breathing – and this, for a variety of reasons, is essential for the continued development of your child. If, on the other hand, your baby has difficulty breathing through the nose, then he or she may well get into the habit of opting for the way of least resistance – and this will be through the open mouth.

Wrong: breathing through the mouth

One problem with breathing through the mouth is the fact that it is accompanied by the mouth being frequently or constantly open and the lips slack. In other words: the lips are no longer unconsciously closed in the relaxed state, the lower jaw may drop back; it may

Types of breathing in a relaxed state (without speaking or any physical exertion)



sag slightly with the tongue lying limply on the base of the mouth or between the two rows of teeth. As a comparison: when a child breathes through the nose the upper and lower jaw are close together, the lips being naturally closed and the tongue nestling itself against the palate. We have summarised below the different effects that may result:

Too little tension

In order to successfully master the oral functions such as sucking, chewing, swallowing and speaking, your child will require all the skills contained in his or her lips and tongue. If the child is breathing constantly through the mouth, these first of all have to be placed in the correct position before they set to work. This extra effort, combined with the lack of (muscular) tension and co-ordination, may later become one of the causes of speech defects.

Overworked tonsils

If the mouth is open the mucous membranes will dry out to such an extent that they will become more susceptible to all kinds of germs. This means that the tonsils will have so much work to do, as they then have to assume one of the tasks otherwise undertaken by the nose: they will increasingly have to attempt to defend off germs and other penetrating foreign bodies, which can result in frequent attacks of tonsillitis or at least in swollen tonsils. This drying out will also have a detrimental effect on the production and composition of saliva, and your child may then find it more difficult to mix food with the saliva and to digest the food properly.

Underworked sense of smell

The sense of smell will also suffer from constant breathing through the mouth. This is because when your child is not breathing properly through the nose, he or she may also have difficulty detecting and distinguishing smells. This again will impact the sense of taste, which is intrinsically linked to the sense of smell.

You will be all too aware of this: when your nose is blocked up you often lose your sense of taste – and if you have to consume something you do not like, then you simply hold your nose. So if the sense of taste is not properly trained, this can also have a long-term impact on the selective eating behaviour of your child. Fruit and vegetables may be declined, which itself will lead to an underworking of the oral functions of biting and chewing – and this means an unbalanced, one-sided diet coupled with a lack of growth stimulation for the jaw.

Harmful to the teeth

When a child breathes permanently through the mouth there is also a potential threat to the teeth: this incorrect breathing will continually dry out the upper incisors in particular. This will cause a deficiency in the important salivary functions such as the basic rinsing away of the food, the neutralising of acids, e.g. fruit acids from fruit, as well as impacting on the antibacterial properties of saliva. The result: the teeth will become more susceptible to caries and will

frequently have small areas of coloration, or so-called opaque spots.

Reasons for "incorrect" breathing

There are many factors that can make it easier for a child to breathe more through the mouth later. Some of these are difficult to influence, if at all. There are, however, some that you can control to help your child breathe "correctly" and healthily.

As already mentioned, a clean nose is, of course, a basic prerequisite for breathing properly through it. If your baby is suffering, for example, from polyps or allergies, then this condition cannot be fulfilled. There are also other organic complaints that can make it more difficult for your little one to breathe through the nose. If you do have any doubts as to whether your child is breathing "correctly", you should, as a precautionary measure, seek medical advice from a doctor, dentist or orthodontist. Intact oral functions in particular are just as important as the organic requirements for breathing easily through the nose. They play their important part in ensuring that jaw and teeth develop in the best possible way – a major step in the direction of healthy breathing for your baby. You can learn more about the significance of the oral functions on the following pages.

Tip

Nose drops are not really to be recommended, as they dry out the sensitive mucous membranes and prevent the mucous flowing away together with the associated bacteria it contains. We suggest you try a few drops of breast milk or common salt solution instead.

Overview of potential accompanying symptoms of incorrect breathing

- Malformations of tooth and jaw
- Unclear or defective speech, late development of speech
- Weak facial muscles
- Blocked lymph glands (swollen face)
- Concentration and memory problems
- Restlessness, poor attention span
- Fatigue, mood fluctuations, lack of motivation
- Tendency towards tension headaches
- Defective senses of smell and taste (abnormal eating habits)
- Incorrect mouth functions (including champing, swallowing of air)
- Increased risk of infection (diseases of the bronchial tract, in particular infection of the middle ear)

Significance of the oral functions

Significance of the oral functions

The various oral functions are at the heart of the development of the jaw and the oral cavity of your baby. If they are performed correctly these represent a valuable form of daily training for all the jaw and facial muscles. This is because it is not enough that hormones simply give them the command to grow – the muscles also need to be used. And this is the most powerful impetus for your child to thrive – and, there again, this makes it easier to breathe "correctly".

Vice versa, however, means that without intact oral functions there cannot be sufficient development of the oral cavity. Sucking motions, swallowing and chewing actions that have been incorrectly learnt and carried out, encouraged, for example, by constantly sucking on a soother, the thumb or a comfort blanket or by eating the wrong type of food, can all result in other more visible problems.

Sucking, swallowing, eating from a spoon and chewing

Sucking is the first conscious motion made by your baby, representing the first expression of his or her thirst for life. And with this first oral function the foundation will be laid for all the following: if your child masters the correct sucking action the fluid will be directed behind the front teeth into the mouth and from there via the tongue into the oesophagus. This is how your baby learns to swallow correctly and completely automatically. Once this fluid nourishment is then supplemented with thicker cereal feeds or solid foods, after at least six months, then your baby will also learn how to feed from a spoon. At this point another oral function will be added: chewing. The muscles that your infant requires for this have already been well trained through the sucking action and will therefore have no problem in mastering this new task. This is particularly important, because food that is not sufficiently chewed unnecessarily puts a strain on the still somewhat sensitive digestive system of a small child.

Speaking – the ultimate skill

Once your child has already mastered all the other oral functions for a considerable time, he or she will learn the final and most difficult function, the ultimate skill: speech. If you can support your child in training his or her mouth functions from an early stage and, above all, on a regular basis, this is the best prerequisite for your child to learn to talk without problems. The reason for this: if tongue and lips are in good shape, it will be particularly easy for them to direct the air through the mouth, halt it at the right position and thus generate sounds. You can imagine these two as being ballet dancers performing a duet: for each sound there is a particular position for the tongue and lips to assume.

Tip

Let your children occasionally drink out of a beaker without lid and spout and give them cereal feeds with a spoon. When the first molars appear at the latest, more solid-type foods should be offered. This is good practice for the jaw muscles, once again an important prerequisite for forming the correct sounds when learning to speak.

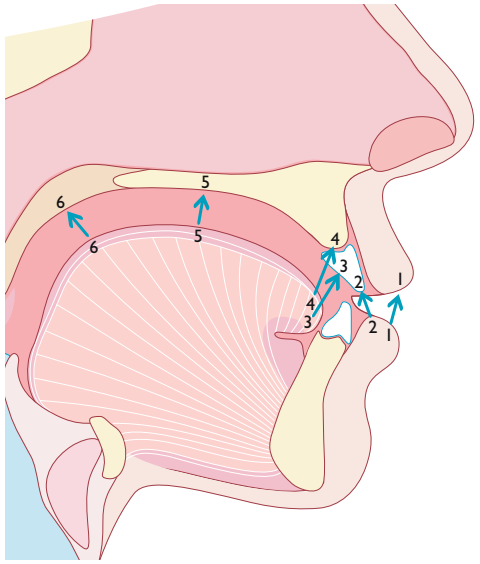
The better these organs work together, the better the result will be. Yet however well they may seem to go together, just as with any good team, tongue and lips still need to adapt to each other. There is, however, no cause for concern if not every sound works immediately and if letters are sometimes confused.

Relationship between breastfeeding, eating and speaking

Breastfeeding ...	**Nourishment in the form of solid food ...**	**Forming the sounds**
		
Touching the breast with the lips	Removing food from the spoon using the lips	Labials: **p, b, m, f, w**
Bowl-shape of the tongue when touching the breast	Bowl-shape of the tongue when positioning the food ready to be swallowed	Voiced and voiceless **s** and **sch** and **bright ch**
Upward movement of the tongue towards the front of the palate when coaxing out the milk	Upward movement of the tongue towards the front of the palate when swallowing	**t, d, n, l** and the formation of a narrow opening for the fricatives **s, sch, z** and **rolled r**
Closing the throat when swallowing the food	Closing the throat when swallowing the food	Throat sounds: **r, g, k, dark ch**

Start practising early for the best results – this applies to speech too. The overview shows that the formation of sounds is the result or "product" of motions that are learnt early on when feeding. **According to the German proverb that translates something like this: "The better the infant feeds at the breast, the better the child will eat and speak".**

How are the different sounds formed?



1 → 1 p b m

2 → 2 f v w

3 → 3 s z (ts)

4 → 4 t d n l

r (rolled r [dialect])

5 → 5 sch

ch_1 (as "chip")

g_1 (as "jar")

6 → 6 j k x (ks)

g_2 (as "get")

r

ch_2 (as "ch" in Scottish "loch")

The arrows indicate the points of contact or "narrow openings" between lips, teeth, tongue and palate for forming the sounds.

Speaking is also a learning process – and this does not happen overnight. There will be transition phases, during which the vowels and syllables are either not yet refined or are actually incorrect, and these represent a completely normal stage in the development of speech. Only if your child still has problems forming specific sounds over a long period of time should you consider whether to seek extra help – possibly from a speech therapist. Sometimes a reduced hearing capacity can be the cause of the problem. If in doubt you should seek the advice of a paediatrician or ear, nose and throat specialist. A hearing test will soon clarify whether there is a problem here.

How are the different sounds formed and what are they?

Only when the air breathed in is halted or its passage narrowed at the right position will the "correct" sounds be uttered – lips and tongue must therefore also be in the appropriate position. To form the sounds **p, b** and **m** the upper and lower lips are pressed together: for the **p** they are firmly pressed together, for the **b** they are more gently closed and for the **m** they are only very slightly touching. The **f** and **v** are virtually the same sound, so they are formed the same way, that is to say by the lower lip and upper incisors coming into contact. The silibants **s** and **z** are produced when the tongue and the upper incisors meet. For many sounds the tongue has to stop the air above on the palate immediately behind the incisors, for the **t, d, n, l** and **rolled r,** for example. The sounds **x, j, k, g** and the **"normal" r**, however, are produced by the contact between the back of the tongue and the palate. This contact takes place further forward with the first two sounds than with the other three.

Incidentally, some sounds are more easily formed than others – and you will notice this as your child's speech develops. Sounds such as **m, b, p, d, t, n** and **l** will be mastered relatively quickly and surely – the first "Mama" and "Dada" are usually uncomplicated sounds. Later **w, f, k** and **g** will be added, and these will require a little more effort and to start with will often be "replaced" by other sounds. The silibants **s, sch** and **ch** are more complex, as is the combination of two consonants – but practice makes perfect.

Tip

Soothers, bottles and so on are not meant to be just sucked on constantly. You should always ensure that your child does not play or talk with a soother in his or her mouth – this will only disturb speech. The same applies to night-time – your baby will not normally need a soother. It may be helpful in getting baby to sleep, but then it should be removed (see also note on Sudden Infant Death Syndrome or Cot Death, page 22).

It may well be that your child has problems with articulation, in particular with the **s**, up to the age of six. As with everything else it is a case of: everyone, big or small, needs his or her own way and time to learn to understand things and to put them into practice. So there is no cause for concern, if your child does not "produce" perfect sounds and sound combinations right from the start. Not until it is noticeable that your child is clearly behind his or her peers in speech development and over a long period of time, should you seek the advice of an an expert.

Tip

Talk to your child using clear and simple language. Give a commentary on what you are doing if your child is interested and understands. Also encourage your child to speak "correct" language by affirming the statements corrected: if your child says to a dog "Bow, wow", for example, respond with "Yes, that's right, that's a dog and it goes "Bow wow". Don't yourself lapse into baby language, but speak "properly" and slowly. The important thing here is for you to give your little one the opportunity to chatter away. However, you should always ensure that the soother stays out of the infant's mouth when talking.

The teeth

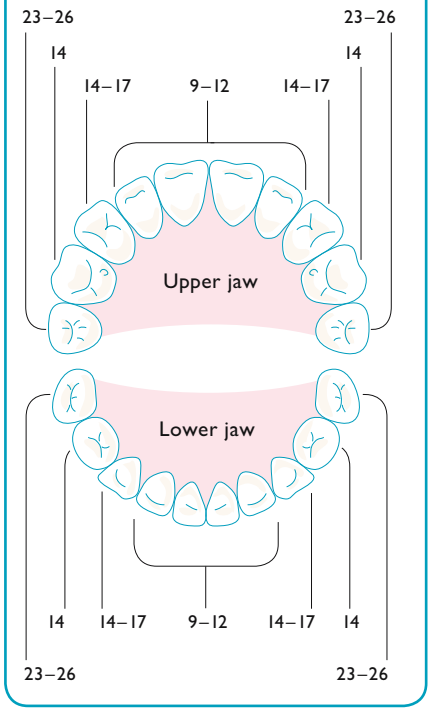
The milk teeth and their development

Development of the milk teeth starts long before they visibly shine out through a smile. As early as between the sixth and eighth weeks of pregnancy they slowly begin to grow, and after a further two months the mineralisation process sets in. This is how the crowns of the incisors are "ready" at birth – they are just waiting for the right time to push themselves out of the jaw and into the oral cavity. Even the canines and molars are already in place, although these still need more time to fully develop. A few weeks after baby makes his or her first appearance the roots of the milk teeth will have grown enough to start pushing upward towards the gums, till they eventually break through between the sixth and eighth months. The first ones are the middle lower incisors, shortly followed by the two upper incisors. The remaining milk teeth will follow in approximately the next 20 months, until the set is complete – by the child's third birthday at the latest – with eight incisors, four canines and eight molars.

Timeline for the first teeth

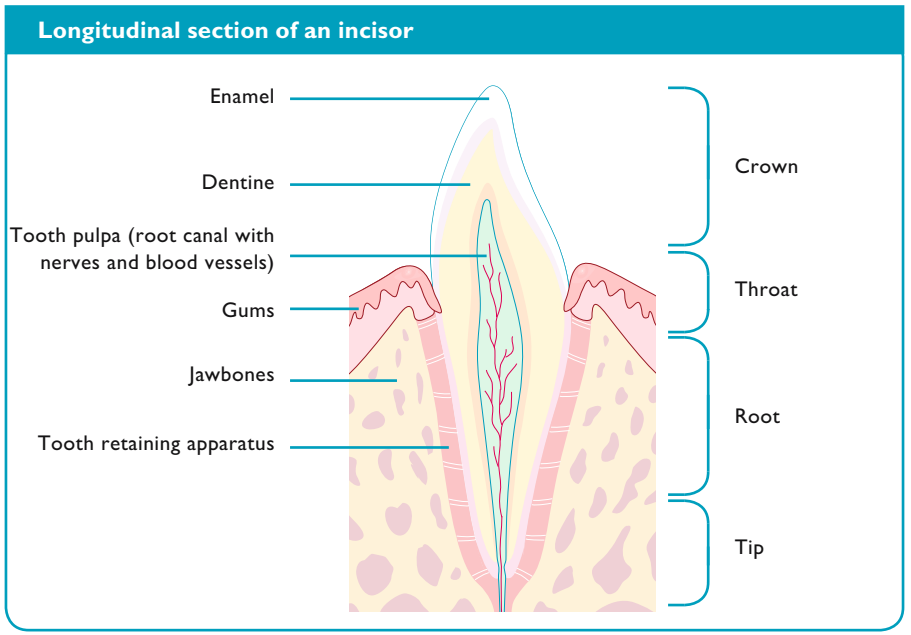
Six months and still not a tooth in sight? No cause for concern. All times given are merely average values. Individually the times for teeth coming through can vary considerably.

Development of the milk teeth



Cutting the milk teeth is not only a major step in the development of your child, it also essentially forms the basis of preparation for and reserving room for the permanent teeth. And this is one of the best reasons why you should take good care of the milk teeth and ensure that they remain healthy.

Longitudinal section of an incisor



How is a tooth formed?

The part of the tooth that is visible to us in the oral cavity is the so-called crown of the tooth. It is completely covered by a protective coating made of a mineral substance to protect it from damage. This tooth enamel is particularly hard and resistant and protects the teeth against attack from acids of the mouth bacteria, extreme temperatures and mechanical damage, e.g. from chewing on hard food.

Under the enamel lies the so-called dentine. It is considerably softer than the outer protective enamel and, apart from this, contains thousands of tiny nerve fibres. If the gum is damaged and is slowly slipping back towards the jawbone, dentine may be released at the edge of the gums – resulting in the neck of the tooth becoming sensitive and possibly painful on coming into contact with hot, cold or sweet foods and drinks. Not brushing the teeth correctly or pressing too hard on the toothbrush can also result in the gum being pushed back.

Finally, in the centre of the tooth is the pulpa, which, in addition to nerve tissue, also contains blood vessels, using these to supply the whole tooth with the necessary nutrients. In contrast to the crown, the root of the tooth does not require a "protective shield" of enamel, as it does not come into contact with external influences. Instead the root is covered with so-called dental cement.

The gum also fulfils a very important protective function. It fixes itself around the teeth directly between the crown and root and thus effectively protects the underlying jawbones and other tissue from the numerous bacteria and food particles to be found in the oral cavity.

The first teeth are cut – tips for preventing tears

The most important first: not every baby has trouble with teething, and your little one does not have to suffer either. You should consider above all that cutting the first teeth is a completely normal stage of development that every child goes through – so there is no cause for concern.

Yet despite this, babies may react to this great change with a wide variety of symptoms: they may not be able to sleep, may have little appetite or be generally restless – sometimes they may even run a temperature, suffer from diarrhoea or develop a skin rash. The latter problems are only indirectly connected with teething. Babies that are teething will put everything in their mouths that they can reach in order to relieve the pain caused by the pressure. Bacteria and dirt may also be ingested and reach the digestive tract. The chewing motion will then stimulate the production of saliva even more – the child will start to "dribble" and this can cause irritation of the sensitive skin around the mouth.

The need to chew increases with teething infants and there is much to be said for supporting this – it accelerates the teething process.

The most suitable aids for this are teething rings made of silicone and cooling dental sticks. These offer a resistance, but one that is not too hard. Stored in the refrigerator they relieve the pain even more thanks to the soothing, cool temperature. The ice-making compartment should not, however, be used: if the teether is too cold the lips or mucous membrane of your child can become frostbitten. The important thing here is that both the material of the teething ring itself and its contents have to be absolutely harmless. Some babies may now even like to chew on a piece of apple or a hard crust of bread. These are to be recommended, as long as you supervise your child to ensure that he or she cannot choke on this still unfamiliar food. If teething is very painful for your baby and neither teething ring nor any other teether can help, we suggest you contact your paediatrician or dentist for advice.

Amber pendants have been very popular for some time now, being laid round the neck of the teething infant to supply him or her with positive energy. Although doctors may doubt its effectiveness, it is for a much more important reason that they advise against this remedy: babies and small children should never wear anything around their neck – the danger of injury is simply too great.

Dental care for beginners

When the first milk teeth come through the topic of dental or oral care becomes the main focus, as the first teeth play a decisive role in the further development of the complete set of teeth. With your help the child will learn to eat like the "grown-ups" do and will also make a leap in speech development. The teeth are namely a prerequisite for forming sounds correctly. The stimulation of the chewing motions every day will also promote continued growth of the jaw. As already mentioned, the milk teeth are there to "reserve" places for the permanent set of teeth: the subsequent teeth will align themselves towards the position of their predecessors. If one milk tooth comes out prematurely due to caries, it may be that its neighbours shift along and "occupy" the gap that appeared – the next tooth coming through will then have no room and may have to push its way through crooked. So there are many good reasons for looking after the milk teeth right from the start.

There are four phases that support the oral development of your child: **sucking, massaging, training** and **care**. The foundation for healthy oral development is laid very soon after birth by breastfeeding, as this is how the child learns to **suck** correctly. During the course of the oral development your child will go through three further learning phases: first comes **massaging,** because as soon as babies start to teethe, they will have an increased need to massage the arch of the jaw as well as the gums. Once the first tooth has been cut, learning phases three and four will follow: **training** and **care.** This is because brushing the teeth needs to be learnt. An oral care training set, consisting of a special cleaning trainer and brushing trainer, is ideal for carefully teaching the little ones how to look after their teeth. The cleaning trainer gently massages the gums and the arch of the jaw. At the same time and thanks to its similar design, it prepares the child for his or her first toothbrush. The brushing trainer, with its soft, bite-resistant rubber "bristles", can gently clean the first visible tips of teeth. From around twelve months it will be time for the first proper toothbrush. For the sensitive little child's mouth you should use a special training toothbrush with a rounded head and soft, rounded bristles.

The right way to clean your teeth – the most important questions and answers

When should I start cleaning my child's teeth? Every tooth needs to be kept clean right from the start. Even the first tooth to appear should be brushed!

And how often do I need to clean them? With small children for the first two years: the toothbrush should be used once a day. After that teeth should be brushed as with adults – twice a day, mornings and evenings.

How do I clean the first tooth? Even the first tooth can be cleaned with a special baby toothbrush and a little toothpaste made especially for children. On no account should you use toothpaste for adults, as the fluoride content is much too high for small children.

When can my child start cleaning his teeth without my help? Cleaning your teeth is not an easy matter. Children are unable to master the correct technique for brushing their teeth at least until primary school age. Up to that point you should, however, let your child try it without help as it is good practice. However, you will still need to follow this each time by giving your child's teeth a good brush yourself to ensure that they are really clean.

How do I clean my teeth?

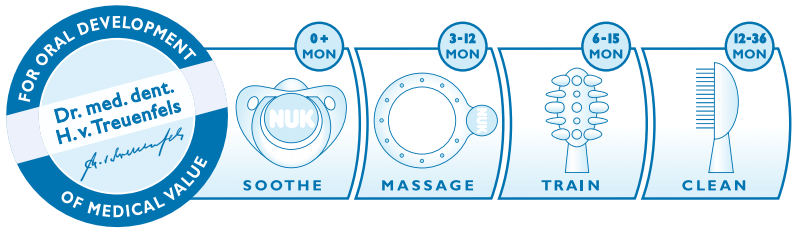
The right proper dental care is actually important right from the time the first tooth is cut, but of course your baby will not be able to do this alone at this stage. In other words, your help is required. Once the first milk tooth has appeared you should clean it carefully, but thoroughly, with a child's toothbrush once a day. You should also start as soon as possible to teach your child with considerable patience how to clean his or her teeth independently. Encourage your child right from the start to clean teeth independently. However, you should always thoroughly clean them too, as cleaning teeth is really quite difficult. Your child will usually be primary school age before becoming a real expert.

One method of brushing your teeth that is particularly suitable for a child is the so-called COI Technique, which works as follows. Starting with the **C**hewing surface, place the head of the brush on the surface and then simply move back and forth – your child will soon master this straightforward scrubbing action. The **O**uter surfaces, however, are somewhat more difficult. With the brush in a horizontal position and the teeth together, start with the molar furthest back and, with a circular motion, brush the upper and lower rows of teeth, gradually working towards the front. On reaching the front teeth the child must turn the brush around, then continuing along the other side in a similar fashion right to the back. Brushing the **I**nner surfaces is a job for a little "expert": these surfaces are also cleaned using a circular motion or using strokes, working from the gums to the crown. Although this may initially be difficult, it is also a case here of "practice makes perfect".

Toothbrush & toothpaste

If your child is to achieve good results from cleaning his or her teeth, naturally the appropriate accessories will be required – in this case a toothbrush

The four phases of a child's oral development



The oral development of every child goes through four different phases: a baby will seek satisfaction of his or her innate sucking desire, whereas during the teething phase it is a case of a soothing massage. Then, following the appearance of the first tooth, comes dental training and learning independent dental care. For each stage of a child's development there are products available that meet the changing requirements.

with a small head, soft, rounded bristles and a thick, firm grip that will prevent the tiny fist from slipping. After two to four weeks at the latest the toothbrush should be replaced. In addition to this, your child can use a special children's toothpaste containing either a minimal amount of fluoride or none at all. A low level of fluoride is particularly important for children. Toothpaste for adults should not be used at least until your child has started school. You should also ensure that your child can see himself or herself in the bathroom mirror. If your mirror is too high, just hang a smaller one up at the child's eye level – this will not only motivate, but the teeth-cleaning will also become much more effective. There are no other utensils required on a daily basis at this point. It does, however, make sense to cautiously help your child become accustomed to dental floss to clean in the gaps between the teeth. The earlier your child becomes familiar with this process, the more natural it will be when you come to use this aid later.

How does caries occur?

Contrary to still widespread opinion, caries is not congenital and therefore unavoidable; it is actually caused by bacteria. What can be handed down is merely a certain disposition, yet good dental care, combined with a healthy, balanced diet, can successfully counteract this. The oral cavity of your baby may still be sterile at the time of birth, but with the subsequent formation of the mouth flora – which contains many good and useful bacteria – caries bacteria *streptococcus mutans* will, sooner or later, also ensconce itself in the mouth. It even happens on many occasions that parents inadvertently speed up this process and actually pass on the germs to their child, e.g. by licking the soother after it has been dropped or by sampling the feed from the bottle to test the temperature. It is better to put a few drops on the back of your hand to test. But it makes no difference how careful you are – in the long term you cannot prevent bacteria from entering your child's mouth. They can, after all, be passed on by cuddling and kissing. However, you can rest assured: bacteria alone do not cause caries; they need a breeding ground on the coating of the teeth (plaque). It is therefore important that you, too, ensure your teeth are in order and have any necessary treatment before the birth in order to prevent any potential caries-related tooth defects in your little one.

The mouth bacteria – and this also includes *streptococcus mutans* – form a coating, or plaque, on the upper surface of the teeth, together with secretions, cells and food residues. When your child ingests food and drink containing carbohydrates or sugar, part of this is stored in this coating, where it serves as nourishment for caries bacteria.

When sugar is refined, acids are produced which remove minerals from the dentine and, in the long term, cause caries. Saliva provides a natural protective func-

Tip

Don't let your child drink too much at mealtimes, as a drink is not supposed to replace the production of saliva. Your child should therefore only drink with the mouth empty and after chewing thoroughly and swallowing. Of course, your child may and indeed should have drinks between meals when thirsty. But you should basically always ensure that the bottle is not used to just suck on.

tion here, constantly rinsing the teeth, neutralising the harmful acids. It can also make the teeth healthy again by "putting back" the minerals. However, once again, breathing through the mouth can have a negative impact here, as this has a drying out effect (see also page 25ff). There are, however, areas that are difficult not only for a toothbrush to reach, but also for saliva. These include the depressions – or so-called fissures – in the chewing areas of the molars, the edge of the gums and the gaps between the teeth, in particular when the teeth are extremely close together or are at an angle. Extra care therefore needs to be taken with these sensitive areas when brushing the teeth.

Tip

The more natural the food, for example fruit and raw food, the more "hard chewing" has to be done and the more thoroughly the teeth will clean themselves.

Caries from the bottle

When small children start suffering from caries at an early age, the reason is often the same: giving the child the bottle for long periods, especially with drinks that are sweetened with sugar and/or contain acid, e.g. sweetened teas, fruit juices and even milk. When children are given a "free reign" to continuously drink from a bottle the whole day long, the teeth will be constantly rinsed with fluid. This attacks the tooth enamel. You should observe your child when drinking in order to prevent him or her from just sucking, in other words "abusing" the bottle by using it as a soother.

Fluoride – pros and cons

If you think back, you may remember just a few years ago fluoride being given regularly to young children in tablet form – this was the norm. Nowadays this practice is disputed. Although it is scientifically proven that a certain dose of fluoride hardens the tooth enamel, making it more resistant to caries, the problem lies in giving the right quantity. This is because fluorides are considered harmless only within a strictly measured dose. All methods of administering fluorides therefore have to be carefully monitored. Overdosing by swallowing toothpaste when taking tablets at the same time, for example, can damage the enamel and – if this overdosing is sustained over a long period of time – can even have a detrimental impact on bone development. In order to prevent your child from swallowing toothpaste, especially if it contains fluoride, you should always ensure that it is stored in a safe place. If too high a dose of fluoride is administered over a long period of time, this can even cause so-called dental fluorosis. This causes white, opaque spots and stripes to form on the remaining teeth, which can turn brown later on. And there is a further problem: the enamel becomes porous and thus less resistant to acids than healthy enamel. In addition to this, too much fluoride can damage the lipid metabolism. Furthermore, some foodstuffs contain a small amount of fluoride by nature today – of which we are often completely unaware. In addition, you can find fluoride in water or salt enriched with fluoride. It is therefore virtually impossible to determine how much fluoride a person is consuming each day, solely in the nourishment we consume.

In spite of this, fluoride is important for general formation of bones as well as for the formation of teeth, for restoring minerals to the teeth when required and for making the teeth more resistant to acid by storing fluoride in the upper surface of the enamel, thus helping to prevent caries. However, caries is not triggered by a lack of fluoride. Decisive in the prevention of caries are a healthy diet, chewing thoroughly as well as regular and proper oral care. In accordance with current medical knowledge, the Deutsche Gesellschaft für Zahn-, Mund- und Kieferheilkunde[1] recommends a local application of fluoride direct on the teeth, e.g. by means of toothpaste. Parents should brush the first milk teeth, once erupted, once a day with a pea-sized amount of toothpaste containing fluoride (with a max. fluoride dosage of 500 ppm). Once children are two years old, the milk teeth need to be brushed twice a day this way. But there is no need to worry: the fluoride dosage in children's toothpaste today is so low that it is completely harmless, even if children occasionally swallow it when brushing their teeth. However, small children should not touch toothpaste for adults. These contain two and a half to three times as much fluoride, a level much too high for young children.

The first visit to the dentist

In order to prevent your child being scared to go the dentist later on, you should make the first visit as soon as possible to accustom your little one to it. You could, for example, take your child with you when you are having a check-up – although you would need to discuss this with your dentist and agree that there should be no major treatment undertaken on that day.

Another decisive factor is, ultimately, how you yourself handle this topic at home. If your child suspects apprehension on your part, then this will also help to build up fear. By working together with a dentist who may even specialise in treating children, combined with your love and care, you will ensure that the regular dental appointments for your child become simply a part of your normal routine.

[1] German Association for Dental and Oral Medicine

When should I go to the dentist?

Once the first milk tooth has come through it is time for the first visit to the dentist. This first visit is essentially only a check-up. Yet it is precisely these such visits to the dentist, which have not been made necessary due to a toothache, for example, that will help give your child confidence. Important topics such as food, oral hygiene and how to brush your teeth can be discussed at this first appointment.

As soon as the molars have come through you should take your child to the dentist again. This time the bite is checked followed by an examination for possible caries. From now on you should pay a visit to the dentist every six months, as caries in the milk teeth can spread rapidly. In Germany from a child's sixth birthday a twice-yearly check-up is compulsory as part of the child's individual prophylactic treatment. Each visit adds credits to the child's dental record, helping prevent expensive additional payments for treatment necessary at a later date.

Here are some tips for motivating those little ones reluctant to brush their teeth

Brushing teeth is rarely one of the favourite pastimes of little children. So what can you do to make them enjoy it rather than grumble about it?

Set your child a good example: children will follow the "grown-ups", watching and copying a whole range of things from them. If you are in a good mood every day when you brush your teeth and you let your child watch, then this will arouse curiosity and he or she will do the same. Brushing your teeth should, at the same time, be a firm part of your daily routine. Also, why not let your child have a go at helping to brush your teeth too?

Explain to your child why oral hygiene is so important. There are many picture books around nowadays that explain the whys and the wherefores of cleaning your teeth in a fun and interesting way.

It is important for your child to see himself or herself when cleaning teeth. It is therefore a good idea to put up a suitable children's mirror in the bathroom at the child's eye level.

A sun-rain calendar will motivate your child to brush teeth every day: if the teeth are cleaned well a sun can be coloured in, otherwise it will be a rain cloud.

A cheerful, colourful timer, set to the obligatory three minutes, can help to make your child "hold out".

A jolly nursery rhyme about brushing your teeth can remind a child without your needing to raise your finger about regular oral hygiene: "I have a little toothbrush;
I hold it very tight. I brush my teeth each morning, and then again at night."

Make brushing your little one's teeth into a little game. Parent: "Just look at everything you've eaten today!" Then count the number of items that were on the menu for today, for example: "Oh, there's another hidden potato!" The chances are that your child will tell you to keep looking for more!

Recipe for success – a healthy diet

Another aspect just as important for good, healthy teeth as the correct dental care is a balanced diet. This means: lots of cereal and wholemeal products, fruit and vegetables – with the latter being preferably raw or only quickly blanched – yoghurt, milk and cheese, a little meat or fish (saltwater fish being preferred) on a regular basis, cooked meat (sausage, etc.), fats and oils in limited quantities only and sweets as little as possible. Cereal products, fruit, vegetables and meat need to be chewed thoroughly to ensure that they taste good and are easy to digest – this stimulates the flow of saliva and thus also improves the body's natural protection against caries. In addition to this, the teeth are given a preliminary clean through the chewing, i.e. by the mechanical motions. If there is ample supply of fluid this can improve the rinsing effect even more, providing that the drinks are sugar free.

Foodstuffs, on the other hand, that contain sugar or flour and are also of a sticky consistency that can stick to the teeth, causes caries – and this applies not only to raw sugar, but also to refined brands. Honey, sultanas and other dried fruit therefore also fall into this category of being "not tooth-friendly". However, these are preferable from the health aspect. Ready-made sauces, dips or dressings may also contain a not inconsiderable amount of sugar. It therefore does no harm to glimpse at the list of ingredients on the pack to establish whether they contain "hidden" sugar indicated, e.g. by maltitol, maltodextrin or lactose. As the length of time the food stays on the teeth is also of significance, slowly sucking on sweets or lollipops has a particularly negative impact.

It is only natural that your child sooner or later develops a taste for sweets. There is absolutely nothing wrong with this, provided you observe a few important rules: snacks and anything else containing sugar consumed between meals – and this includes sweetened drinks such as lemonade – should be kept to an absolute minimum. It is better to give your child something sweet to eat once a day –

These vitamins and minerals are good for the teeth, mouth and jaw

Vitamin A	*For healthy mucous membranes*	Eggs, butter, fish, carrots, spinach
Vitamin C	*For strong jaw bones* *For firm gums, fighting bacteria*	Potatoes, broccoli, sweet pepper Citrus fruits
Vitamin D and calcium	*For teeth and bones*	Milk, eggs, fish, bananas
Vitamin E	*For healthy gums*	Wheatgerm

and then always brush the teeth. But beware: brushing teeth too frequently is not healthy either. This is because it can cause abrasion of the enamel, in other words it can practically "be brushed away", putting pressure on the gums. As a general rule, as soon as a child can sit, he or she should eat with the rest of the family at the table. At around ten months your child will be able to eat increasingly more solid foods and gradually try the food the rest of the family is eating.

Oral function test

As soon as your child's first teeth have come through it is a good idea to try out this little test to check for any potential problems with the oral functions (see also section "Right from the start", page 9).

1. Can you detect any malformation of your child's teeth or jaw?
2. Does your child have problems feeding, drinking, biting, chewing or swallowing?
3. Does your child breathe predominantly through the mouth rather than through the nose?
4. Does your child normally keep his or her mouth open?
5. Does your child have any speech or voice problems?
6. Does your child frequently snore?
7. Does your child complain about headaches, neck or back pain?
8. Does your child have problems with posture, motor functions or sensory perception?
9. Does your child often have a cold or suffer from allergies?
10. Did your child either engage in thumb-sucking or use a soother beyond the age of three?
11. Does your child have one of the following habits: grinding or gritting his or her teeth, pressing on the tongue, nail-biting, or biting or sucking on the lip?
12. Has your child lost any milk teeth prematurely, either through an accident or caused by caries?

If you can answer one or more of these questions with "Yes", your child may have an oral malfunction. In this case, to be on the safe side, you should make an appointment with a dentist and paediatrician, who will then, if necessary, refer you to the relevant specialists such as an orthodontist, speech therapist or ear, nose and throat specialist.

Source: in accordance with supplements to the GZM Internationale Gesellschaft für Ganzheitliche Zahn-Medizin e. V[1].

[1]The International Society for Holistic Dental Medicine

Epilogue

Dear Parents,

Dentists and orthodontists like to debate on the slogan “Health starts in the mouth”. This is because, as a general rule, people are completely unaware of everything that depends on the mouth and nose: they influence your whole life – right from birth.

It is precisely at the start that the organism depends more than at any other time in your life on the “building materials” for its complete development – air and nourishment – not only being available, but also for their being “consumed” correctly, in other words being prepared for the metabolism process. Optimum breathing, eating and moving, the three main pillars of a healthy life, actually require intact functions of both mouth and nose. Under today’s conditions of a fast-moving everyday life, habits sometimes creep in, which can cause malfunctions, disturbances and deficiencies of these basic functions.

Even as early as the toddler stage, you can help to minimise the risk of your child suffering from illnesses and conditions associated with defects of the mouth as well as other basic functions. These include not only the local diseases of the tooth, mouth and jaw area (e.g. caries and malformations), but also the accompanying symptoms of incorrect breathing, poor nourishment and poor posture that have been mentioned in this guide. Also included are speech defects, behavioural problems, metabolic disorders and others. It is a known fact that the best and surest way to protect ourselves from such illnesses is to prevent them. This will work even better if we adhere to the elementary rules that make and maintain everyone healthy:

- A balanced diet, with food rich in nutrients, preferably freshly and lovingly prepared; everything in moderation, on a regular basis and unhurried and well chewed
- Regular dental, oral and personal hygiene as required
- Regular, freebody movements or aerobic-type physical exercise that you enjoy
- Lots of fresh air
- As natural, child-friendly and social an environment as possible, within which your child can freely develop

You should be neither too soft nor too strict in your demands; try and seek a happy medium. Enjoy life and give your child love, imagination and humour. I wish you every happiness and good luck.

Yours,

Dr. med. dent. Hubertus von Treuenfels

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