

CHILDREN
AND YOUNG
PEOPLE WITH

headache

Children and young people with **headache**

Headache and migraine affect approx. 5% of all children ages 3 to 11. Actually, cases of migraine have been reported in children as young as 1 year. This means that in each school class there could be at least one child suffering from migraine. Recent studies indicate that 50% of all school children experience mild tension headache and that 10% experience tension headache more than once a month.

There is probably no doubt that migraine among children is an overlooked condition. Often parents are not aware that their child is suffering from migraine and although the child is examined it can be difficult to make the right diagnosis. This is because migraine in children presents itself differently than in adults and especially small children find it difficult to explain their symptoms.

In this leaflet, you can read about the following:

- Symptoms of migraine in children
- Possible causes why children and young people get migraine
- Various types of treatment
- How to prevent or relieve pain

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Maybe your child has migraine

If your child experiences repeated attacks of moderate-to-severe intensity headache and at the same time loses appetite, becomes nauseous and vomits and becomes sensitive to light and noise, your child may be suffering from migraine. If members of the immediate family are suffering from migraine too, this will strengthen the suspicion further. Children with migraine often also have tension headache, which makes it difficult to make the right diagnosis.

Migraine in children may present itself differently than in adults.

The most frequent type of migraine in children and young people is migraine without aura. For more details, please go to pages 13 + 14 (IHS criteria). Even with the diagnostic criteria it can be difficult to make the diagnosis childhood migraine. It becomes easier when the children get intense, attack-like headache in the same way as adults; but it is rarely unilateral and vomiting is rare. It is characteristic, however, that smaller children feel nauseous and lose their appetite during the attack.

Parents can usually see when their child is not feeling well. The child often turns quiet and pale and does not want to play. Often the child asks to be put to bed and often it falls asleep quite fast. In many children the symptoms get milder or have disappeared when they wake up again.

Causes of migraine

The cause of migraine is not known with certainty. There is, however, no doubt that migraine is hereditary but the reason why people with migraine are suffering from such severe pain remains unclear. Today, we are almost certain that during the attack some of the blood vessels in the brain are dilated and there is a disturbance of the chemical balance in the nerves around some of the blood vessels in the brain. This leads to irritation of the nerve paths that lead to the pain centre in the brain.

Trigger factors

Often, several factors may contribute to the outburst of a migraine attack. These are called trigger factors and they may work alone or together.

Popularly speaking, there are eight important trigger factors:

**stress • hunger • sleep disturbances • sugar
noise • strong light • pain • strong smells**

Stress (physical and/or mental)

Stress is the factor that most often triggers migraine. It may be positive stress such as happy or exciting experiences. It can be expectations about experiences. In this situation, the attack will most often come during the phase of expectation, while in cases with more severe and especially negative stress, the attack will appear when the child relaxes after the acute stress. Emotional frustration caused by undisclosed problems may release both migraine and tension headache.

Hunger (irregular meals and/or fasting)

Low blood sugar is not in itself thought to be an important trigger factor. However, the circulating amounts of free fatty acids formed during fasting could perhaps trigger an attack.

Sleep disturbances

Too little and too much sleep may trigger migraine attacks.

Sugar

There is no scientific evidence that white sugar may trigger a migraine attack but the experience is that sugar may release attacks in some children, especially if the sugar is eaten on an empty stomach. This does not mean that children should avoid sugar altogether, only to be aware that sugar may be a trigger factor.

Noise

Most children and young people are used to noise in their everyday lives – from radio, television, music, computers, means of transportation – or from other children in the childcare institution, the school or at the discotheque during the weekend. An attack might also be avoided by reducing the noise level.

Strong light

Sunlight or flickering television or computer screens may trigger an attack. A sensible use of computers is fine.

Pain

Local pain in the neck may trigger a migraine attack. Therefore, it is quite natural to see tension headache in the same person.

Strong smells

Perfume, smoke or strong smells may trigger a migraine attack.

Physical exertion

Considerable physical exertion may trigger a migraine attack. This should, however, not prevent children with migraine from exercising. The point is to choose the right type of exercise. In some cases, exercise may even prevent a migraine attack.

Tobacco smoking

Tobacco smoke in the surroundings may trigger migraine in some children. Therefore, caution should be shown in relation to smoking in families where the child is suffering from migraine.

Medication

Children rarely have an excessive use of painkillers for a long period of time. If they do, it may worsen the headache – even if they only take non-prescription drugs. The use and dose of medicine should therefore always be discussed with a doctor.

Allergies

It has been heavily discussed if there is a connection between migraine and allergy. It has never been shown that allergy may be a trigger factor for migraine. There is, however, a slight tendency to migraine in children with allergies.

Hormonal factors

The arguments for the role of hormones are as follows:

- Migraine is a little more frequent in boys compared to girls up to the age around seven years.
- At puberty the frequency is clearly increased in girls. Here, migraine is seen in approx. twice as many girls as boys. The frequency increases further after puberty and among adults three times as many women as men are suffering from migraine.
- Many girls and adult women frequently experience attacks of migraine in connection with their menstruation.

Special types of migraine in children and young people

Contraceptive pills may worsen the migraine, but most often it does not. Girls suffering from migraine with aura should be very cautious about taking contraceptive pills with oestrogen; not only can they worsen the migraine, but they may also have other side effects.

Therefore, it is important that the general practitioner examines girls with migraine before they decide to take contraceptive pills and which type to take. Contraceptive pills without oestrogen do not have the same side effects as those with oestrogen, but might change the pattern of headaches.

There are other types of migraine that may occur with or without headache. They may show up as attacks of stomach pain, vomiting or dizziness.

In addition, there are a number of severe types of migraine in young and older children but fortunately, these are very rare. These types of migraine give temporary hemiplegic paralysis, squinting accompanied by headache or sudden unconsciousness followed by headache. All these special types of migraine naturally require a thorough examination in a paediatric department to exclude other causes than migraine.

Tension headache

Tension headache is very common, especially among school-age children.

There are two types.

- Episodic tension headache
(less than 15 attacks per month)
- Chronic tension headache (at least 15 attacks per month for six months or more).

Tension headache is rare in very young children, but approx. 50% of all school-age children are familiar with recurrent tension headache and approx. 10% have headache more than once a month. Approx. 1% of these children are severely affected and are suffering from headache 15 days or more per month.

It seems that, like migraine, tension headache is hereditary. The headache is experienced as a pressure in the entire head. It may also feel like an iron band around the head or like a heavy, tight-titting hat. The headache may last between 30 minutes and several days and often tension headache lasts longer than a migraine attack.

Tension headache may, for example, be present in the morning. This may be because the child grinds its teeth at night. In some

cases, tension headache may become more and more pronounced during the day.

Contrary to migraine, it will remain either unchanged or improve with physical activity. Children and young people with tension headache often have tender and tight muscles in the neck, temples, jaw and forehead; tension headache also exist without these typical changes in the muscles.

In tension headache the pain, ranging from mild to moderate, is often dull and constant. In migraine, the pain is often throbbing, similar to the beat of the pulse, and often ranges from medium to severe.

Tension headache thus rarely prevents daily activities while migraine attacks most often prevent participation in activities.

Children and young people with tension headache rarely suffer from vomiting but they may lose their appetite. Sensitivity to light and noise is also rare.

Conditions that may lead to tension headache

- Stress, anxiety or depression (e.g. as a result of problems in school or in connection with leisure activities).
- Wrong body posture and/or work posture in school or at home.
- Prolonged periods with sedentary work or play in front of the computer and too little physical activity.
- Pain in other parts of the body, especially in the back and neck.

Mixed headache

Many children are suffering from both migraine attacks and tension headache. It can be difficult to distinguish between the two types even though most children are in no doubt that they have two types of headache, i.e. a type which is throbbing and another dull type of headache.

Therefore, it is a good idea to keep a headache diary (see at the back of this material). This can help the doctor make the right diagnosis. This is important, as the treatments of migraine and tension headache are very different.

Medication-induced headache

This type of headache is primarily seen in adults, but may also occur among children. You get this type of headache if you take too many painkillers. This is true irrespective of whether you take non-prescription drugs, drugs against arthritis or migraine or drugs that contain morphine. Among children, headache caused by medicine is primarily caused by excessive use of non-prescription drugs. Therefore, we recommend that use of non-prescription drugs does not exceed three doses for children two days per week. Children with chronic headache must never be given morphine.

Dental headache

Dental headache is caused by problems with the bite function. If children grind their teeth at night or have a misaligned bite, the result may be severe headache. The problem can often be solved with a bite plate, which can be made by the school dentist.

Other types of headache

In rare cases the child's headache can be caused by eye diseases (e.g. astigmatism), ear diseases, sinusitis, high fever, meningitis, concussion or consequences of a concussion. Elevated blood pressure may also cause headache but is very rare in children. It is always a good idea to have the eyes of children/young people examined by an eye specialist.

Horton's headache, which is extremely rare in children, is a brief (often between 15 minutes to three hours), attack-like headache around one eye. The eye turns red and swollen; the eye is watery and the nose runs. The pain is often very intense but usually not accompanied by nausea and vomiting. Most people with Horton's headache experience repeated attacks within a few weeks or months, and then they may be totally attack-free from many months or years.

Fortunately, brain tumours and other serious diseases of the brain are very rare causes of headache in children.

How does the doctor make the diagnosis?

The diagnosis is made on the basis of the child's medical history and the examination of the child.

The doctor will make a thorough examination of your child. The child's posture is examined, and the doctor checks for muscular infiltrations in the back, neck and jaw.

The blood pressure also needs to be checked. The doctor will often also examine your child's nervous system, motor function and skills. Other examinations, including CT scans and blood samples are rarely necessary, but they may be made.

When the medical history and the physical examinations do not result in clinical signs of other diseases, the diagnosis will be migraine with aura, migraine without aura or tension headache based on international classification criteria IHS (see pages 13-14).

Before consulting the doctor it is a good idea to fill in the headache diary, which you will find at the back of this leaflet. The diary makes it easier for the doctor to make the right diagnosis.

International classification

Diagnostic criteria for migraine without aura

At least five attacks that meet the following criteria:

Duration

Attacks of headache that last 2-48 hours (untreated or treated without any effect on the pain).

Characteristics

At least two of the following:

1. Unilateral
2. Throbbing
3. Moderate to severe pain intensity
4. Worsening with physical activity

Accompanying symptoms

At least one of the following:

Nausea and/or vomiting
Photophobia and phonophobia (sensitivity to light and sound).

Diagnostic criteria for episodic tension headache

At least ten attacks that meet the following criteria:

Duration

30 minutes to 168 hours (one week).

Frequency

< 15 days per month.

Characteristics

At least two of the following:

1. Bilateral
2. Dull
3. Mild to moderate pain intensity
4. No worsening with physical activity

Accompanying symptoms

No nausea or vomiting. Absence of photophobia and phonophobia or only presence of one of these symptoms.

Diagnostic criteria for migraine with aura

At least two attacks that meet at least three of the following four criteria:

1. One or more fully reversible aura symptoms.
2. At least one aura symptom develops gradually over a period of more than four minutes or two or more symptoms appear in sequence.
3. One aura symptom never lasts more than 60 minutes. If more than one aura symptom occurs, the duration is increased proportionally.
4. The headache appears within 60 minutes after the aura ends (but can also start before or at the same time as the aura).

AURA means that the symptoms appear prior to or together with the headache; the symptoms typically last for 10-30 minutes. Most frequent symptoms are visual disturbances in the form of black spots that spread or form zigzag lines. Especially children may experience that everything becomes small or big. In addition, there may be increasing sensitivity disturbances in arms and legs and in rare cases hemiplegic paralysis and paralysis of the eye muscle.

Non-medical treatment of migraine

Treatment of attacks

Sleep is often the best treatment. If your child gets migraine, it must be possible for the child to lie down in a dark room without noise. This applies both when the child is in school and at home.

Preventive treatment

Good advice and information about trigger factors can often reduce attacks with up to 60%.

Good advice

Sleep

Too little sleep may provoke a migraine attack. Make sure that your child maintains regular bedtimes and that the child sleeps in calm and cool surroundings – preferably with a quality mattress and pillow.

Eating and drinking habits

It is important to have time to eat a healthy breakfast. During the day your child should eat a healthy snack every three hours e.g. fruit or bread. Children should drink between 1 and 1.5 litre of fluid a day – preferably milk or tap water.

Physical and mental stress

Help your child to avoid or reduce both negative stress (e.g. bullying) and positive stress (e.g. excitement in connection with birthdays and Christmas).

Examine your child's everyday schedule to identify possible stress factors in school or at home:

Are there problems with siblings?

Does the family have a stressful everyday life?

Is the child unhappy about school?

Is there a fair distribution of time between school and leisure-time activities, time for playing, sports and personal activities?

Everybody needs to relax in quiet surroundings – also children. You could e.g. keep a diary – or let your child do it – to uncover possible stress factors.

Please note that children have different stress tolerance thresholds some children can manage more stress than others.

Exercise

Physical activity is healthy and is a booster of both physical and mental energy. It is recommended that children and adults exercise for at least 30 minutes four times a week, preferably every day. This does not have to involve expensive activities.

A brisk walk or a bike ride may be enough. It may be a good idea for adults and children to do the activities together e.g. playing ball, going for a swim or roller-skating. Afterwards it is a good idea to stretch and relax.

Acupuncture

Some children may benefit from acupuncture. It is not possible to tell in advance who will benefit. There is no scientific evidence of the beneficial effect of acupuncture, but practical experience shows that some children react positively to acupuncture both as a preventive measure and as part of the acute treatment. Talk to your general practitioner about your considerations first.

Non-medical treatment of tension headache

Treatment of attacks

Physical activity and relaxation often have a good effect.

Preventive treatment

Basically, the treatment is similar to that described under migraine. Special attention should be given to stress factors, misaligned bite function and not least inappropriate work postures. Unfortunately, it is rather common not to pay much attention to the work postures in young children. Similar to changing clothes and shoes as the child grows, tables and chairs should be ad-

justed – both in the home (at the computer, the place where the homework is done) and in school. Children's functional activity level has changed considerably and playing has to a wide extent been replaced by playing or working at the computer and other sedentary activities such as watching television.

Stretching of muscles and relaxation seem to be beneficial when suffering from tension headache; however, the offers in Denmark are not yet as comprehensive as abroad. You may talk to a physical therapist to find out whether he or she can give instructions in stretching and relaxing exercises as well as give advice on good work postures in school or at home. The health visitor at school can also give advice.

If your child shows symptoms of stress, you may talk to the school psychologist counselling services.

It is important to inform the school about your child's disposition for headaches. Good collaboration with the child's teachers is important for your child's school years.

Medical treatment of migraine

Treatment of attacks

The medical treatment of the individual migraine attack depends on the severity of the attack. Many migraine attacks in children and young people require treatment of nausea/vomiting.

Medication should always be given in a dose adjusted to the child's age. Even though it is non-prescription drugs, the type and dose should always be agreed with the general practitioner. It is important to note that children that suffer from fever, and the cause is unknown, should never be treated with medicine that contains acetylsalicylic acid (in Denmark: Magnyl, Albyl, Kodimag-nyl). If your child has severe migraine, specific medicine to treat migraine may be used. This medicine can only be acquired by prescription.

Preventive treatment

If your child is suffering from severe and frequent attacks (e.g. one attack per week) preventive treatment may be necessary. For a period of time, the child will have to take medicine daily regardless of whether it has migraine attacks or not. The purpose of this preventive treatment is to reduce the number of attacks. If your child still experiences individual attacks of migraine, these will be treated as described previously.

Medical treatment of tension headache

Treatment of attacks

This type of headache is milder than migraine and it is therefore rarely necessary to treat mild attacks with medicine. However, it is important that your child gets medicine to treat severe attacks of tension headache. Otherwise, your child might fear the next attack and this anxiety can lead to the development of chronic headache. General non-prescription painkillers may be used to treat tension headache.

Preventive treatment

If the headache is chronic (daily or almost daily) it is important to know that it should not be treated with general painkillers as, based on experience, they do not help and at worst may make the headache worse. In such cases it would be better to use preventive treatment.

Side effects of medicine

Medicine should be used, not abused. This applies to both children and adults. Generally, children tolerate medicine just as well as adults and you should not hesitate to give children medicine if you follow a few simple rules:

- There should be a good reason to give the medicine (e.g. medium to severe headache).

- The dose must always be adapted to the child's age. Also, the dose of non-prescription drugs should always be discussed with your general practitioner.
- Acute medicine should only be taken in case of attacks and not on a daily basis.

Good advice

Cases when you should always see a doctor

- Headache accompanied by neurological symptoms (e.g. disturbances of vision, speech, consciousness and sensory disturbances and/or disturbances of the power of arms and/or legs)
- Severe acute headache with or without neurological symptoms.
- If the nature of headache changes e.g. from appearing as attacks to appearing on a daily basis.
- If the headache is accompanied by signs of mental changes such as reduced ability to learn, signs of anxiety or depression.
- Headache in very young children (five years or younger) which is not caused by a common infection.

Good to know

Like adults, children and young people expect to be given an answer to their questions. Unanswered questions may lead to anxiety and thus worsen the headache. Children may find it difficult to express their insecurity and worries with words, and therefore it is important that the child gets an answer to the following questions before leaving the doctor's consultation:

- What is it that makes your head hurt?
- Is it dangerous?
- What can be done?
- For how long will I continue to suffer from headache?

Even though both migraine and tension headache are physiological conditions, you have considerable influence on the cause of the condition. If your child has a healthy and sensible lifestyle, especially concerning habits related to food and drink, sleep and exercise the attacks can be reduced considerably.

Headache diary for children

Correct medical treatment presupposes a correct diagnosis.
You can help the doctor by carefully filling in the headache diary.

Name: _____

Civil registration number: _____

Date: / / / /

How long did your headache last? From: o'clock _____ To: o'clock _____
Note when it started and when it stopped.

Before the headache started, did you have

Visual disturbances?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Speech disturbances?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sensory disturbances?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other disturbances?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

What did your headache feel like?

Pounding (throbbing/pulsating)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Constant (dull/tightening)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Where in your head did it hurt?
Colour the area where it hurt.

Left				
Right				
Forehead				

How much did your headache hurt?
Colour the face you think shows how much it hurt.

Very painful. Did not want to do anything; had to stay home from school.				
Painful. Would rather not move, but went to school anyway.				
A little painful. Was able to play/do sports.				

Did your headache get worse when you moved? Yes No
E.g. when you climbed the stairs, played or exercised.

Did you feel better when you moved? Yes No
E.g. when you climbed the stairs, played or exercised.

Did you feel nauseous or lose your appetite when you had a headache? Yes No

Did you vomit? Yes No

Did you feel better in a dark and quiet room when you had a headache? Yes No

Did you fall asleep? Yes No
(If yes, when?) At _____ o'clock

Was the headache gone or was it much better when you woke up? Yes No

Parental guidelines

These guidelines have been prepared by a working group set up by the departments of paediatrics in Herning, Randers, Skejby and Viborg.

The intention with these guidelines is to provide parents with advice across the following sectors: health visitors, general practitioners family doctors, doctors on call, and the staff at paediatric admission wards in the Central Denmark Region.

The parental guidelines can be seen and downloaded from the internet on the web site www.fv.rm.dk

You may order additional copies from Rikke Dalsgaard,
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