

Although it can be frightening to find children hot, flushed and sweaty due to a rise in their body temperature, fever itself causes no harm and is the body's natural way of fighting infection (The Nemours Foundation, 1995-2010).

What is a fever?

Fever occurs when the body's natural 'thermostat' raises the body temperature above its normal level. This 'thermostat' is found in the hypothalamus of the brain and regulates the balance between heat production and heat loss in the body. Slight changes in body temperature during the course of the day, and in accordance with activity level, are normal. Temperature is usually lower in the morning and a little higher in the evening and can fluctuate when children run around and play. Since individuals vary, a temperature between 36 and 38 degrees is considered normal. Any temperature above this, no matter where or when taken, is considered to be a fever (Leary, 1990; The Nemours Foundation, 1995-2010).

Infections release heat-producing substances known as *pyrogens* into the child's bloodstream, resulting in an elevation in body temperature. The body's thermostat attempts to reduce this heat in various ways:

- Through the dilation of blood vessels and an increase in heart rate, allowing more blood to come to the surface of the skin, so that the heat can dissipate. This accounts for the child's flushed cheeks.
- Sweating in order to cool down by means of evaporation, may occur.

- Increased breathing may occur in order to get rid of the warm air (Leary, 1990).

A fever usually indicates that the body is fighting a viral or bacterial infection and may cause children to experience symptoms such as headaches, muscle aches and general tiredness. By lowering their temperature, they will feel better, less irritable and more comfortable (Collins, 2003).

How to take a temperature

If your child has a fever, take his temperature every 2-3 hours until it returns to normal. In children under the age of 6, place a thermometer under the armpit or alternatively use a temperature strip on the forehead. In children above the age of 7, the thermometer can be placed under the tongue, provided that they can be trusted not to bite the instrument (Collins, 2003; Leary, 1990).

Traditionally, clinical thermometers are marked in degrees Centigrade from 35°-42° C. There is usually an arrow pointing at 37°

C, indicating that it is the generally accepted upper limit of normal. Before placing the thermometer, hold the graduated end and flick it downwards several times so that the mercury moves into the bulb. Place the bulb inside the armpit and press the upper arm against the chest. Ensure that the graduated end of the thermometer protrudes just below the anterior fold of the armpit. Hold this position for 3 minutes before reading the child's temperature (Leary, 1990)

To obtain an oral reading, place the bulb end under the child's tongue, slightly to the side. Ensure that the mouth remains closed because the passage of air from breathing can produce an inaccurate result. Allow the child to hold the outer end of the thermometer with the fingers in order to keep it firmly in place. A reading can be obtained after 2-3 minutes (Leary, 1990).

Digital thermometers are also available. They will 'bleep' after approximately 1 minute when placed in a child's armpit or in his mouth. They can then be removed and the child's temperature can be read on the digital display. If using an aural thermometer, place it gently in the child's ear for the recommended period of time and remove it to read the temperature. Always ensure that you use a new disposable tip every time (Collins, 2003).

When to contact a doctor

When a child has a fever, assess the situation by trusting gut instincts. If you are worried, see the doctor. How sick a child seems in general is also sometimes more important than the level of the fever itself. If you are unable to bring the fever down easily and the child's health improves, it is less worrying than if the child looks and acts sick with a slight fever, or if a high fever won't subside.

When attempting to assess the origin of a fever, doctors try to ascertain whether the infection is bacterial or viral in nature. Bacterial infections, such as ear infections, require antibiotic treatment. Other infections are caused by viruses and your child may display no symptoms other than a high fever. These are known as *fevers of unknown origin* (FUOs) and usually last for 3-5 days. Temperature control is generally the treatment of choice. However, if a child

seems unusually ill for a viral infection, a doctor may wish to run some laboratory tests.

Due to the fact that it is often difficult to determine the cause of a child's fever in the first 24 hours, continuous reporting to the doctor is both important and necessary. For example, a child may develop other symptoms and the doctor may need to reassess the initial diagnosis and treatment plan (Collins, 2003; Leary, 1990).

Danger signs

Take the child to the doctor or emergency clinic immediately if he has one or more of the following symptoms:

- abnormal drowsiness, floppiness or lethargy
- a seizure occurs
- a temperature above 40 ° C
- difficulties in breathing
- unusually fast, shallow or noisy breathing

- develops a cough
- a severe headache that will not go away
- cries more than usual and cannot be calmed
- cannot sleep or sleeps restlessly
- signs of dehydration
- the child has a medical condition that requires chronic medication
- has a rash
- is unable to keep down liquids or food
- vomits more than once in a 24-hour period
- develops diarrhoea
- has blood in the urine or stool

- seems to be experiencing pain or appears to have developed an infection
- has sunken or swollen fontanelles
- is younger than 4 months, irrespective of the level of the fever (Collins, 2003; Ferry, 2008).

Roseola Infantum

Infants between the ages of 6 months to 1 year often develop a viral illness known as Roseola which initially produces a high fever for 3-4 days, although they may otherwise seem well. Once the fever subsides a rash consisting of tiny (2-5 mm), distinct, flat pink spots develops on the face and trunk. The spots do not itch or blister and tend to blanch (turn white) when pressed. The rash typically lasts for 24-48 hours. Treatment for Roseola generally involves fever reduction as outlined below. Complications such as febrile convulsions are rare in otherwise healthy children (Collins, 2003; Greene inc, 2010).

Febrile convulsions

Febrile convulsions are quite common in babies and young children between the ages of 6 months to 5 years, because their brains are still relatively immature. These are seizures that occur when a child's body temperature rises rapidly, often as a result of an infection such as an upper respiratory tract infection. Seeing a child have a febrile convulsion can be extremely

frightening. However, in most cases they are harmless, are over quickly and the child recovers completely (BMJ LTD, 2009).

Symptoms

During a convulsion a child's body twitches or shakes and the child may lose consciousness. Therefore, the child will avoid eye contact and will not react when spoken to. The child may vomit, foam at the mouth, or wet or soil himself. His body may become stiff and rigid. During the first 30 seconds, breathing stops for up to half a minute. When it resumes breathing may be shallow and barely detectable. The eyes may also roll back. Most children fall into a deep sleep after experiencing a febrile convulsion and may be confused, sleepy and irritable on waking (BMJ LTD, 2009; Collins, 2003; Netdoctor, 1998-2010).

How to help your child

- As a preventative measure, try to bring down a high temperature.
- Mild painkillers such as paracetamol and ibuprofen can be used.
- If a child has a convulsion, place him in the recovery position, i.e. on his left-hand side, ensuring that his head is tilted slightly backwards to keep the airways open. Babies can be held firmly in this position, with their heads tilted downwards to prevent choking.
- One third of children who have had one attack may have another less than 6 months

later.

- A doctor may prescribe diazepam (an anti-convulsive drug) which can be squirted into the child's rectum to shorten the duration of the convulsion.
- Continue trying to reduce the fever.
- Always call a doctor in the occurrence of a febrile convulsion, so that he/she can determine the cause of the rapid rise in temperature (Collins, 2003; Netdoctor, 1998-2010).

How to treat a child's fever

- Antipyretic medications such paracetamol (Panado) and mefenamic acid (Ponstan) are both effective in lowering temperature and relieving pain. Doses can be repeated 4-6 hourly and should be used in conjunction with the heat removal procedures outlined below. It is unwise to awaken a child with a fever and it is therefore not serious if he misses 1 or 2 doses per day. Aspirin is no longer recommended for the treatment of fever in children as it has been associated with the development of a serious and sometimes fatal condition known as Reye's Syndrome.
- Remove all excess clothing so that the child is in his underwear or nappy.
- If he is confined to bed, remove any sheets and blankets.
- Ensure that the room he is in is cool and well ventilated (15° C), open the window, turn off the heater and use an air conditioner or fan. The cool air will allow the child's excess

body heat to dissipate by convection. However, the environment should not be so cool that it promotes shivering, since shivering produces more body heat.

- Give fluids frequently, preferably cool, clear liquids, in small amounts, as the child may vomit easily.
- Moisten a sponge with lukewarm water and place it on the child's skin and forehead. Let the water evaporate to help cool the skin.
- If the child has a temperature above 39,5° C or seems incredibly uncomfortable, place him up to the neck in a lukewarm bath. As long as the water is cooler than his body temperature, it will absorb the heat. A child with a fever is often excessively irritable and more easily frightened than usual and may protest about being put into the bath. Crying and struggling should be minimised as they will increase body temperature. He may be more willing to bath if you join him, along with a few of his favourite floating toys. A 30-minute bath will usually assist in lowering the child's body temperature by at least a few degrees. If his temperature is extremely high, repeat the bath tub several times. After the bath procedure, pat the child partially dry and leave him exposed so that the remaining water can evaporate from the skin and cool the body even further.
- Children who have a fever may go outside; they won't get sick because they are sick already, and the fresh circulating air often helps to bring down a temperature.
- NEVER use ice packs as they can produce the chills and therefore raise body temperature. Similarly, the use of alcohol as a cooling agent is not only unnecessary and uncomfortable, as it may cause the shivers, but potentially dangerous due to the production of toxic vapours that may be inhaled or absorbed through the skin (Collins, 2003; Leary, 1990; The Nemours Foundation, 1995-20110; WebMD, 2010).