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Fever is not a disease but rather a symptom of an illness.

- Childhood fevers frighten grownups.
- Fever is maligned and misunderstood.
- Controversy surrounding the management of fever causes anxiety for parents, because they are not completely sure what to do when their child has one.

It may help parents to remember that fever is only one part of the picture of an illness. In fact, for children under eight years of age, and especially for infants, **the severity of a fever is an unreliable indicator of the severity of the child's illness.**

For example, infants and toddlers can be very sick with a low or even subnormal temperature. Conversely, children three to eight years old can be running about quite cheerfully with a fairly impressive fever. The important thing is how your child is acting, not the thermometer reading.

Defining Fever

First, let's define normal body temperature. Most people say 98.6°F (37°C) is normal, but this doesn't account for individual variations or the fact that kids tend to run slightly hotter than adults. You can think of anything between 97° and 99.4°F (36° and 37.4°C) as normal.

Consumption of hot food, recent exercise, overbundling, hot weather, or an overheated room can drive body temperature up a degree or two. Body temperature also varies during the course of the day, and, with teenaged girls, the menstrual cycle.

Fevers usually hit their highest point in the late afternoon.

Conversely, kids often have their lowest temperature of the day early in the morning. So don't panic at 4 p.m. when your child's fever rises slightly; this does not necessarily forebode a raging fever. On the other hand, if your child has a low-grade fever upon awakening, you may want to keep him home.

How Fever Happens

Infections most commonly launch fever, especially in children. Other triggers include transfusion reactions, juvenile rheumatoid arthritis, tumors, inflammatory reactions caused by trauma, medications (including some antihistamines, antibiotics, or an overdose of aspirin), immunizations, and dehydration.

Most physicians do not believe that teething directly causes significant fever, but we have seen it happen.

When infectious "bugs" stimulate white blood cells in a specific way, they release a substance called endogenous pyrogen, which signals the brain's hypothalamus to raise the body's thermostat setting. In turn, the body heats up by increasing its metabolic rate, shivering, or seeking warm environments.

It also minimizes heat loss by restricting blood flow to the skin, giving it a pale appearance. Once body temperature rises, the skin flushes and sweats. A fever sufferer may lose appetite and feel lethargic, achy, and sleepy. When these phenomena happen to our children, we just tuck them into bed and let them sleep.

A basic fever, one due to minor bacterial or viral illness, can be an expression of the immune system working at its best. Given that most animals (vertebrates anyway) mount a fever in response to illness, it's likely that humans have preserved this evolutionary response because it improves survival. Some research supports this theory; animal studies show when fever is blocked, survival rates from infection decline.

Fever increases the amount of interferon (a natural antiviral and anticancer substance) in the blood. **A mild fever also increases the white blood cells that kill cells infected with viruses, fungi, and cancer, and improves the ability of certain white blood cells to destroy bacteria and infected cells. Fever also impairs the replication of many bacteria and viruses.**

Bottom line: A moderate fever is a friend, but not one you want to spend a lot of time with. So it makes sense to avoid suppressing moderate fevers with drugs, while continuing to monitor your child for dramatic increases in temperature and worsening of any other of his symptoms.

Can Fever Do Harm?

Any time body temperature increases, salt and water are lost via sweating, and stores of energy and vitamins, especially the water-soluble ones, are burned up. During moderate fevers, we can compensate for these losses by drinking appropriate fluids, ingesting nutritious foods, or taking vitamin supplements.

Replacing water-soluble vitamins (chiefly C and Bs) makes sense. However, during fevers, the body makes some minerals unavailable for a good reason - bacteria need them to thrive. In terms of energy stores, our bodies switch from burning glucose (the favorite meal of bacteria) to burning protein and fat.

This means a few days of poor appetite is probably adaptive. In other words, don't cajole or coerce your children into eating during fevers if they don't feel hungry; they will likely regain any lost weight quickly after the illness ends. You do, however, need to encourage fluids, because dehydration alone can drive up fever.

Very high fevers - those above 106°F (41°C) - can harm the heart and brain. Some authorities, however, say that fever is unlikely to cause brain damage in a previously healthy child. During most infections, the brain keeps body temperature at or below 104°F (40°C). So in

most - not all - cases, you don't need to be afraid that your child's temperature is going to continue to rise above that point.

What About Febrile Seizures?

First, let's define them. These abnormal jerking movements occur in children between the ages of three months and five years in association with a fever, but without evidence of infection of the nervous system. The seizure lasts no longer than 15 minutes (usually five minutes or less) and causes twitching all over. About 3 percent of kids get febrile seizures.

The reason some children have this susceptibility isn't well understood. Of those kids who have a first-time febrile seizure, about one-third have a recurrence. Risks for recurrence go up with younger age at the first seizure (16 months old or less) and a family history of febrile seizures.

Frightening as these seizures are for parents, they're benign; once they pass, the child continues to develop normally. Often pediatricians can help parents learn to block high temperatures by giving ibuprofen or acetaminophen when fevers start. For the few children who have recurrent febrile seizures, anticonvulsants or sedatives may be used.

What to Do If Your Child Has a Febrile Seizure

Try to stay calm. That's a tall order, but your child needs you to be collected. Take a deep breath. Let it out. Tell yourself that the seizure will not last long (although it may seem like forever) and that your child will likely be fine afterward.

Look at your watch to time the length of the seizure. This sounds like a big demand, given the anxiety a parent naturally feels. However, you will otherwise overestimate the time, and the duration of the seizure is important information for the doctor. If it exceeds five minutes, call 911.

- Turn your child on his side. This reduces his risk of gagging on or inhaling secretions.
- Make sure the immediate environment is safe. Remove objects your child might hit.
- Do not restrain your child.

After the seizure is over, comfort and reassure your child, then call your doctor for an immediate appointment. He or she will want to evaluate your child for any abnormalities (other than fever) that may have triggered the seizure. If the seizure lasted longer than five minutes and/or your child seems to be very sick, your physician may tell you to go to the emergency room right away.

Over-the-Counter Medications for Fevers

It makes sense to us that **if fever helps defend against infection, giving fever-reducing medications may make things worse.** In addition, some fever medications can have undesirable

side effects. On the other hand, no one likes to watch a child suffer. And fever can deplete a child's energy. Here's a profile of over-the-counter medicines for reducing fever and discomfort.

Acetaminophen reduces fever and pain but not inflammation. Follow the package instructions. Because of the risk of liver damage, do not dose more frequently than every four to six hours or for more than five consecutive days. There is no need to awaken your child to give her a dose; sleep will do far more good.

Ibuprofen (Children's Motrin, Pediaprofen, Advil) reduces fever, pain, and inflammation. Follow the package instructions. Do not give more often than every six hours unless your physician advises otherwise. This medicine can cause stomach upset.

Aspirin reduces fever, pain, and inflammation, but pediatricians rarely recommend it.

Use of aspirin in children during viral illness has been linked to Reye's syndrome, a disease characterized by severe liver dysfunction and brain swelling. Symptoms include effortless and repeated vomiting, then a change in the level of consciousness (lethargy, stupor, combative behavior, delirium, seizures, coma).

No one knows what the cause of Reye's is, but it seems to be linked with aspirin use during viral illnesses. For this reason, authorities have recommended that children under 21 years with symptoms of viral respiratory illness or chickenpox do not take aspirin. Sometimes herpes outbreaks and viral gastroenteritis (marked by vomiting and/or diarrhea) are included in the list of illnesses during which aspirin must be avoided.

Unfortunately, it is often difficult to be certain of the cause of an illness when it starts. Aspirin is a component of many cold and flu over-the-counter medications, so avoiding it requires careful label reading on your part.

Medications for fever can act as a screen. Here are some pros and cons to giving your child over-the-counter medication to ease a fever.

Medication such as acetaminophen can help sort out whether your child feels miserable because of a fever or because of an infection. Some physicians use a trial of acetaminophen as a screen. If, after the drug kicks in, the child looks and acts better, it is less likely that he has a fever or that his infection is a serious one.

Fever medications can make your child feel better. He may be more likely to drink fluids, nibble food, and sleep. All can help him recover.

Fever medications can mask symptoms. In other words, your child acts as though his health has improved, but it really hasn't.

Fever medications may actually prolong the illness. This opinion of some practitioners is backed by a few studies. Assuming the response of the body to illness (fever, inflammation, sleepiness)

is adaptive, it seems reasonable to assume that interfering with the process may do more harm than good. The following are some examples that support this theory.

- A study of adults with colds found that aspirin and acetaminophen suppressed production of antibodies and increased cold symptoms, with a trend toward longer infectiousness.
- In a study of children with chickenpox, acetaminophen prolonged itching and the time to scabbing compared to placebo treatment.
- In test-tube studies, therapeutic levels of aspirin suppressed the ability of human white blood cells to destroy bacteria. Acetaminophen did not have this effect. Another study found that a host of pain relievers, including aspirin and ibuprofen, inhibited white-cell production of antibodies by up to 50 percent.

The bottom line. Use these medicines sparingly when your child is in pain or suffers discomfort from a fever over 102°F (38.8°C). Ask yourself whether you are administering the fever-reducing medicine to make your child more comfortable or to decrease your own anxiety.

Nondrug approaches can go a long way toward helping your child feel better. If the situation does not seem urgent, you might want to consider a trial of herbal treatment before you pull out the acetaminophen.

Home Management of Fevers

Do give your child lots to drink. Fever increases fluid loss, and dehydration can drive up your child's temperature. Kids with fever often do not feel thirsty, or by the time they do, they're already dehydrated. So keep offering fluids.

Small, frequent sips are often best, especially if the child feels nauseated. If necessary, use a plastic medicine dropper to gently insert water into your child's mouth. The type that holds several ounces is best to use.

Dress lightly or bundle? The answer depends on your children's perception of temperature - follow her cues. If your child looks pale, shivers, or complains of feeling chilled (things that tend to happen in the early stages of fever), bundle her in breathable fabrics so that sweat will evaporate, but make sure she can easily remove the layers. If she is comfortable and her fever is low, dress her snugly and give warm liquids to assist the body's fever production. If she sweats and complains of heat, dress her lightly and let her throw off the covers. Older kids will take care of these needs themselves.

Don't push food. People with fevers generally don't have much appetite. Let your child determine when and what she eats. Just bear in mind that consumption of sugary foods could delay the natural immune response.

Herbal Remedies for Fevers

A rule of thumb that herbalists like to use during minor illness with fever is: **"First, do nothing,"** meaning that a short period of observation ought to precede any action against the illness. Follow our guidelines above for seeking medical assistance for feverish children under the age of two, and encourage fluids. For older children, give liquids, make them comfortable, and observe closely.

Is your child drinking fluids well? Urinating at least once every eight hours (ideally, every three to four hours, or wetting eight to ten diapers per day)? Does your touch console her? Is she playing normally? If the answer to these questions is yes, she is probably not seriously ill.

This observation time can also help you figure out which of the following herbs are most indicated and effective.

Boneset. We cannot find much current research on this herb, but folklore, historical medical texts, and personal experience tell us it works. Consider the opinion of Drs. John Uri Lloyd and Harvey Felter from 1898, two of the most respected herb doctors in American history: "In influenza, it relieves the pain in the limbs and back. Its popular name, 'boneset,' is derived from its well-known property of relieving the deep-seated pains in the limbs which accompany this disorder."

For more information about herbal remedies for children, see the following articles in past issues of *Mothering*: "The Scent That Soothes," no. 80; "Natural Remedies for Childhood Diseases," no. 77; "Natural Immune Boosters," no. 73; "Natural Remedies for Winter Illnesses," no. 69, and "Childhood Fevers," no. 51.

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