



THE IMPORTANCE OF FEVER

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Introduction

Childhood fevers can be frightening, mostly because they are misunderstood. A fever is an increase in body temperature above the “normal range.” But the definition of normal can vary from person to person. Body temperature also varies with different levels of activity and at different times of the day. Medical texts differ in their definition of the highest normal body temperature, which can range from 98.2 to 100.4°F (37 to 38°C). The generally accepted definition of fever is an “early morning temperature greater than 99°F (37.2°C) or a temperature greater than 100°F (38°C) at any given time of the day.”

There are many causes of fever, but a fever is most commonly associated with the dozens of different viruses, bacteria and parasites that cause upper respiratory and urinary tract infections, pneumonia, and diarrhea.

When a microorganism invades the body, it is fever that gets our attention. Yet, despite its universal recognition, little is known about how the body actually generates a fever. The current understanding is when a pathogen enters the blood stream, the body activates the innate immune response, leading to the release of complex mediators called cytokines with equally complex names: tumor necrosis factor alpha (TNF α), interleukin beta (IL-1 β), and interleukin 6 (IL-6). These substances signal the hypothalamus, the part of the brain that raises the body’s thermostat, to generate chills and shivering. Restricting blood flow to the skin minimizes heat loss and gives the pale, pasty appearance that goes along with not feeling well. Fever sufferers lose their appetite and feel tired, achy and lethargic.

However, contrary to the ingrained reflex to give an aspirin, acetaminophen (Tylenol) or other anti-pyretic medicine such as Advil or Ibuprofen, an elevated temperature is an indication that the immune system is on full alert and is taking prompt action. White blood cells are released and cascades of cytokines are called to action in pursuit of the intruders. Fever creates an inhospitable environment for the offending organisms. By turning up the heat, the microbes cannot replicate and by definition, they die off.

While fever is sometimes a response to severe bacterial infection that requires an antibiotic, fever in children is usually an indicator of an underlying harmless and self-limiting viral infection.

Always remember: When it comes to infection, if you are otherwise healthy, fever is your friend. It eliminates the microbe, exercises the immune system cascade, purges the lymphatics and allows the body to return to health.

FEVER PHOBIA



Fever is the most common reason parents seek medical attention for their children. In 1980, a [paper published](#) by Barton Schmitt, M.D. reported on a survey of 81 parents who were asked about their understanding of fever. What he discovered was telling. All parents were inappropriately worried about low-grade fever, with temperatures of 102°F (39°C) or less. Most parents (52 percent) believed that fever of 104°F (40°C) could lead to serious neurological consequences, even death. As a result, almost all parents treated fever aggressively: 85 percent gave anti-fever medications and 68 percent used cool water sponge baths temperatures far below 102°F (39°C). Schmitt coined the term “fever phobia” to label the inappropriate response to fever.

Fever Phobia Revisited: Have Parental Misconceptions About Fever Changed in 20 Years?

In 2001, [a follow-up study](#) published in PEDIATRICS (Crocetti) again investigated fever phobia, to see if trends had changed. The study sought to explore current parental attitudes toward fever and to compare these attitudes with those described by Schmitt in 1980. The results of the study were disturbingly worse:

- ✚ Of the 340 caregivers parents who were interviewed, 56 percent reported that they were “very worried” about the potential harm fever could cause their children. Compared to 20 years earlier, more caregivers:
 - Listed seizure as a feared outcome from fever.
 - Woke their children often to check temperatures.
 - Gave anti-fever medications or initiated sponging for near-normal temperatures.
- ✚ Forty-four percent considered 102°F (39°C) to be a high fever, and 7 percent thought that a temperature could spiral out of control if untreated and reach temperatures greater than 110°F (43°C). Almost all caregivers (91 percent) believed that even a low-grade fever could cause harm. The worst concerns listed were brain damage (21 percent) and death (14 percent).
- ✚ Strikingly, 25 percent of parents admitted giving medication for fevers less than 100°F (37.8°C) and a full 85 percent admitted waking their child to give fever medication. When it came to cool baths, 73 percent stated they sponged their child to treat a fever. However, 24 percent sponged at temperatures less than 100°F (38°C) and nearly 20 percent used alcohol instead of cool water.

In 2000 [PEDIATRICS reported](#) that 50 percent of pediatricians surveyed stated they advised parents to alternate acetaminophen and ibuprofen, using various regimens despite no evidence to support this protocol. A 2013 [Cochrane Review](#) further confirmed this recommendation:

- ✚ There is some evidence that both alternating and combined antipyretic therapy may be more effective at reducing temperatures than mono-therapy alone. However, the evidence for improvement in measures such as child discomfort remains inconclusive. There is insufficient evidence to know which of combined or alternating therapy might be more beneficial.

Many parents incorrectly believe that antipyretic use is always a safe intervention. They have not been warned that antipyretics can cause side effects ranging from liver and renal failure, to serious skin disorders (e.g., Stevens-Johnson syndrome) and gastrointestinal ulceration. It has been [reported](#) that 89 percent of caregivers administer antipyretics to febrile children who appear otherwise comfortable, as many as 50 percent of parents routinely give incorrect antipyretic doses to young children and 86 percent would schedule a clinic visit for a fever less than 38°C (100°F).

Caregiver Anxiety about Fever May Be Heightened by the Pediatrician's Lack of Knowledge Regarding the Importance of Fever.

Most parents still rely on their physicians as their primary resource for information about fever. Unfortunately, fever phobia is often fostered by the medical community itself. When doctors tell parents to give a medication when a temperature rises above 101°F (38°C), many parents automatically assume that fever is dangerous.



A study in [PEDIATRICS](#) revealed that instructions given to parents about the management of fever are often dismally incomplete and lack consistency. Pediatricians were asked,

1. How dangerous do you believe fever to be?
2. How do you treat fever in your practice?
3. What types of educational information do you give families regarding fever?



Of the 234 pediatricians surveyed, 172 responded. Amazingly, 65 percent believed that fever itself could be dangerous to a child, citing that a temperature of 104°F (40°C) or greater could lead to complications such as seizures, brain damage, or death. In practice, 72 percent “always” or “often” recommended treatment to reduce fever and a disturbing number (89 percent) even recommended lowering the temperature when it was only between 101°F and 102°F (38-39°C).



Researchers also found that during sick-child visits, 10 percent of providers almost never discussed the definition of a “high fever”; 25 percent almost never discussed when fever was at a dangerous level, and sadly, a full 15 percent almost never discussed the reasons for fever, assuming that parents understood the importance of fever.

A review of the current medical literature finds that over prescribing of antipyretics and unnecessary antibiotics is a common theme around the world, from the [Netherlands](#), to [Korea](#) and [China](#). Even as recently as [2013](#), professional and caregiver literacy had not improved much. A 2016 nursing [meta-analysis](#) concluded that fever phobia remains common and has not significantly declined over time.

How Best to Treat a Fever: Home Management

Unnecessary parental fear and anxiety regarding fever is costly. In 2013, children presenting to outpatient clinics and emergency departments accounted for a combined 68 million visits, costing the healthcare system nearly \$10 billion.

Having a fever might be uncomfortable, but research has shown that a fever is part of an effective immune response. Understanding that a fever will not spiral out of control and how important fever is to overcoming an infection, parents should be able to breathe a little easier. Here are a few tips for managing your child's fever – or your own – in the comfort of your own home:

Encourage drinking plenty of water:

Fever increases fluid loss, and dehydration cause fevers to remain high. Often, children with fevers do not feel thirsty, or by the time they ask for something to drink, they are already at least mildly dehydrated. Every drop and every teaspoon counts. Small, frequent sips are best, especially if your child complains of an upset tummy. For babies, use a glass medicine dropper to gently hydrate. These can be readily purchased at the drug store. Keep encouraging them to drink purified water or offer a tasty electrolyte-based drink such as coconut water.



Here's a healthy recipe you can make at home:

- 3 cups of coconut water
- 1 cup 100% organic apple, orange, pomegranate, cranberry juice, low in sugar
- 1 cup ice
- 1/8 teaspoon sea salt
- 1 tablespoon raw, organic honey

Put all ingredients in a high-powered blender, and blend for 1 minute. Drink immediately or store for up to 1 week in refrigerator. **If you have access to liquid minerals, add 1T to the mixture prior drinking.**

Dress lightly or bundle up?



The answer depends on your child's perception of temperature - follow their lead. If s/he looks pale, shivers, or complains of feeling cold, bundle the child in layers of breathable fabrics but be sure that the layers are easily removed. If the fever is low-grade, dress him/her snugly and give warm liquids to assist the body's fever production. If s/he complains of being too hot, choose light clothes and cool sheets for comfort.

Starve a fever?

Children with fevers generally don't have much appetite. And it is much more important to remain hydrated than to consume foods.

Let your child determine when and what to eat. Use light foods such as homemade chicken broth or cooked gluten-free or rice cereal for calories and easy digestion. Remember, when you don't feel well, you don't feel like eating much either! A return of appetite is generally a clue that your child is on the mend.



Definitely avoid white refined sugar



It has long been documented that refined white sugar suppresses the immune system. As far back as 1977, a [study](#) in the American Journal of Clinical Nutrition reported the adverse effects that refined sugar has on the immune system.



Blood was drawn from subjects and the activity of the white blood cells that neutralize viruses and bacteria was observed and calculated. The white blood cell activity was calculated before and after subjects were given various doses of refined white sugar: 6, 12, 18 and 24 teaspoons, respectively.



Each subsequently higher dose of sugar created a corresponding decrease in the activities of the subject's white blood cells. The group that had consumed the largest amount of sugar had essentially no functioning white blood cells within an hour after consuming the sugar. The immunosuppression occurred for up to two hours after consuming the sugar, but the adverse effects of no white blood cell activity persisted in some instances for up to five hours.

White blood cells eliminate viruses and bacteria that cause illness. Without the efforts of these cells, recovering from infection is stalled. Therefore, do not offer children with a fever Gatorade or Coca-Cola for hydration, ginger ale for an upset tummy or ice cream to soothe a sore throat. The hefty doses of refined white sugar can drag down the immune system during the time it needs to be strongest.

To Medicate or Not to Medicate



A rule of thumb when treating a fever is "First, do nothing," meaning that observation is a better choice or option than running for the medicine cabinet.

Is your child drinking fluids well? Is he urinating at least once every few hours or wetting at least 8 diapers per 24-hr day? Does your touch console him/her? Is h/she attempting to play? If the answer to these questions is yes, this is not a serious illness, despite the number on the thermometer. In reality, even gentle anti-fever methods, such as cool baths and ice chips, should only be used for comfort. Let the body fight off the infection. Here are a few recommendations for comfort:

- 1** If your child seems miserable, one dose of over-the-counter medication can be given as a "screening test." If your child looks and acts much better within a short period of time, it is likely that the infection is not serious.
- 2** Elderflower tea is a good remedy for fever. Steep 2 teaspoons of dried elderflowers in a cup of water for 20 minutes. A few sips at a time can greatly increase comfort.
- 3** Work with a practitioner trained in homeopathy. It is safe and amazingly effective. Belladonna and pulsatilla are frequently used to support the body's fever-fighting abilities.
- 4** Several studies have shown that by suppressing the fever, the body needs a longer time to recover. In a study of children with [chickenpox](#), acetaminophen prolonged itching and the time to scabbing compared to placebo treatment.
- 5** A [study](#) of adults found that aspirin and acetaminophen suppressed production of the patient's antibodies and increased cold symptoms, with a trend toward longer viral shedding and prolonged symptoms.

When a Fever Should Become a Concern



What most parents don't recognize – and apparently many pediatricians don't understand either – is the body has a way to protect itself from excessively high temperatures. In the absence of overwhelming factors, such as extreme dehydration or unsafe circumstances, such as being locked in a closed automobile, it is exceedingly rare for a temperature to exceed 106°F (41°C).

Parents are most fearful that a sustained high fever will lead to seizures. A febrile seizure manifests as abnormal jerking movements all over the body, without evidence of central nervous system infection, such as meningitis.



Febrile seizures are divided into two types. The most common is a simple febrile seizure which lasts less than 15 minutes and does not recur within 24 hours. They are often seen in children between the ages of three months and five years. About 3 percent of all children experience a simple febrile seizure sometime during childhood. Simple febrile seizures occur most commonly due to a sudden rise in temperature and rarely, if ever, associated with prolonged high fever, unless the child is severely dehydrated.

A second type, referred to as a complex febrile seizure, is a prolonged episode, lasting more than 15 minutes, reoccurring one or more times within 24 hours. Complex febrile seizures may indicate a more serious infection, such as meningitis or a brain infection. If a seizure persists for at least 30 minutes, it is defined as febrile status epilepticus, which can be caused by a long list of serious conditions. Medical help is essential for both of these circumstances.

Why some children are susceptible to febrile seizures and others are not is not well understood. Although frightening, simple febrile seizures are almost always benign, self-limiting episodes with low risk of injury, death, and long-term neurologic consequences. Nonetheless, if your child experiences a febrile seizure, be sure to have an evaluation by a healthcare professional.

When to Contact Your Doctor



The following situations warrant a call to your doctor. If none of these situations occur, then you probably don't need to call your doctor.

- If your infant is **under 6 weeks of age** and has a fever of 101°F (38°C) or higher, this is considered a medical emergency and your doctor should be contacted immediately. Go directly to his/her office, or to the nearest emergency department. Do not give any fever-reducing medications. It is best to confirm the fever with a rectal thermometer.
- Infant's **age 7 weeks to three months** with a fever 101°F (38°C) but appearing comfortable, should have an appointment with the doctor within the next several hours. If it is evening, page the doctor on call since you will not be able to go to the office until the following day. Confirm the temperature with a rectal thermometer.
- If your child has a fever and one or more of the following symptoms at any age, seek medical care immediately:
 - **Prolonged** fevers of 104°F (40°C) or higher that don't go down to 102°F or less (30°C) with measures previously discussed.
 - **Lethargy:** If your child is limp and lifeless, won't nurse or won't make eye contact.
 - **Marked irritability:** If your child is nearly impossible to console, for even brief periods of time.

- **Signs of meningitis:** If your child has a sustained high fever, complains of neck pain or appears to be in pain when you touch the back of the neck, this could be a sign of meningitis. If the neck pain is accompanied by vomiting, an unusual rash, pain in the eyes due to lights, or worsening pain with leg movement, go immediately to the nearest hospital.
- **Children with asthma:** If your child is breathing so hard that his/her rib cage is “sucking in,” i.e., retractions, seek medical care immediately.
- **Children with cancer:** Fevers are always of concern in adults or children who are immune compromised. Contact your physician even with low-grade fevers of 100°F (38°C) for further instructions/treatment.

Bottom Line

Like it or not, your child is going to get a fever – and an infection – at some point, regardless of all the healthy food and vitamins you provide. Remember that fever is important. It activates the immune system, mobilizes white blood cells and kills off viruses and bacteria. Understanding the basics about fever will eliminate unnecessary stress, unnecessary suppressive medications, unnecessary doctor and emergency room visits and most of all, give your child’s immune system the benefit of experiencing an infection-fighting fever. Ask yourself whether you are choosing interventions to make your child more comfortable or to decrease your own anxiety.

Armed with this information, “fever phobia” can be eliminated from your household. A mantra to follow is,

“The fever is helping now - and in the long run - so let it burn!”

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