



Pediatric Clinic
PATIENT EDUCATION HANDOUTS

Fever

This discussion of fever pertains to children over 3 months of age. Parents of infants 3 months old or younger who have fever of 100.4°F or higher are advised to immediately seek medical attention. Newborns have weak immune systems and fever at this age can be a sign of serious illness.

What is fever, anyway?

The human body does a fairly good job of regulating its temperature, usually in the range of 96-100° Fahrenheit. If you check your own temperature throughout the day, you will find that it varies by several degrees in a normal, healthy state; usually you will be coolest in the morning and warmest in the evening. There is also normal variation between people. There is nothing magical about 98.6°! We consider the body temperature to be a **fever** when it is equal to or over 100.4 °F.

Fever occurs in response to illness, or rarely other factors, when white blood cells release a chemical which resets the brain's "thermostat" to a higher setting. This, in effect, causes the body's "furnace" to turn on, and the temperature begins to rise. Symptoms of this "furnace" working include shivering, goosebumps, and a sensation of feeling cold. Collectively, these symptoms are called "chills". Chills occur when the fever is rising.

When the brain's thermostat is reset back to normal (as when a child receives acetaminophen or ibuprofen, or when the illness subsides), the body turns on the "air conditioning" and the temperature begins to decline. Symptoms of this "air conditioning" working include sweating, red, flushed skin, and a sensation of feeling hot. These symptoms are referred to as "sweats". Sweats occur when the fever is breaking.

The body's temperature can rise for reasons other than fever. For example, runners will raise their temperature when they run on a hot day. This is not called fever, the term for this is **hyperthermia**. In hyperthermia, the body thermostat remains set at "normal".

Debunking Myths about Fever

Fever is **not** harmful. Indeed, when we are ill, fever is a natural and useful part of the body's attempt to combat the illness. As such, *some* fever is a good thing when we are ill!

Fever will **not** rise out of control if left untreated. The body has a built-in limit on how high fever can rise; for most people, that limit is about 106 °F. While this sounds high, many people (children especially) have fevers in this range with no ill-effects.

The degree of temperature on the thermometer does **not** correlate with the seriousness of the illness. Children with life-threatening illness may present with only a low-grade fever, or none at all! Conversely, children with common viral illnesses can have very high fevers, occasionally even over 105°F. Other symptoms and behaviors must be used to determine whether or not an illness is serious. These include observations of the child's alertness and level of activity, their ability and willingness to take fluids, and other objective signs such as diarrhea, vomiting, runny nose, cough, and so forth. The thermometer, by itself, should not be the basis for either panic or reassurance.

Fever does **not** cause brain damage. If it did, we would all have brain damage, because we have all had fever! Fever is sometimes (2-5%) associated with brief seizures in children between 6 months and 6 years of age. These seizures alarm parents but do no harm, and do not lead to epilepsy. Some researchers believe that these seizures occur due to a rapid change in body temperature, and are not due to a high fever *per se*. Thus, **there is at least one reason to avoid rapidly lowering a child's temperature during a fever.**

Sponge bathing is **not** a useful tool to treat fever. For many reasons, sponge bathing should not be used to treat fever. For one thing, sponge baths are uncomfortable. More importantly, sponge baths do not change the setting of the brain thermostat, so fever treated in this way is likely to return after the sponge bath.

Reasons to treat fever

There are a few reasons to consider treating your child's fever. The best reason is *comfort*. Temperatures higher than 102 °F are often associated with discomfort. If there is fever associated with discomfort, it is reasonable to treat it. Also, high fever will often cause a child to act or appear more ill than he or she really is. If reducing the fever causes the child to look, act, and drink more normally, this should help assure the parent that the illness is probably not serious. Persistent fever will increase the child's fluid losses and thus increase the need for supplemental fluids.

Reasons to avoid treating fever

As discussed above, most fears about fever in children are unjustified. There is evidence that fever helps the body combat common illnesses. While fever does cause some discomfort, so may fever therapy, especially if it is over-zealous.

The most serious concern over aggressive fever therapy involves the focus of a parent's *attention*. Too often, parents become so focused on monitoring and treating a child's fever that they neglect to observe other more worrisome signs and symptoms. A decrease in the child's alertness and activity, less responsiveness to a parent's comforting, and refusal to take liquids are all of more concern than the number on the thermometer.

In summary

When your child is ill, you should pay attention to *all* of the symptoms, but especially those less tangible behavioral symptoms described above. If you check the temperature, do not fall prey to the knee-jerk reaction of treating fever just because it is there. Remember that fever occurs for a reason, and it is doing no harm. If the fever is causing your child discomfort, it is reasonable to treat with a dose of acetaminophen (Tylenol®) or ibuprofen (Motrin®). The goal of this treatment should be to improve comfort – do not be concerned if the medicine does not produce a significant drop in the temperature.

Consult your child's doctor for fever lasting over 2 days without an obvious cause, or fever with listlessness and refusal to drink fluids.