

Fever in Children: What's important medication or nutrients

By the Dr. Rath Research Institute

If a child has a fever most of us immediately give Tylenol®, Motrin, Aspirin or other over-the-counter medications. Of course we would rather choose chewable tablets or flavored syrup especially designed for children. Is it a right thing to do? Are these medications really beneficial and safe for your child?

This article provides educational information about the role of fever in our bodies and how it can be safely controlled. This information is not a substitute for your doctor's advice.

What we know about fever

Humans have an internal system controlled by the hypothalamus, which maintains our body temperature around 98.6 degrees F. The "normal," range fluctuates from 98.6 degrees to 99.5 degrees F, which is an optimal range for all biochemical reactions in the body. A fever is when the body's temperature rises above 100.5 degrees F.

Although in most cases fever develops in response to infections, cancer, and disease; it can also appear after a vigorous exercise. Fever itself is not a disease but a symptom of an underlying pathological process and in many cases does not require medical intervention unless it is higher than 102 degrees F. The increased body temperature helps in fighting the infection; therefore a child with a fever who is feeling and behaving well may not need any medication, unless he/she is younger than 3 months.

How fever helps defend our body

Increase in our body temperature is a defense mechanism by which the body cells shut down many functions and shift their activity towards producing a series of specific "safety" proteins called heat shock proteins. Although scientists are still studying their many functions, it is known that heat shock proteins are critical for survival when any organism is exposed to stress. These proteins protect us not only against damage by heat, but also by toxins, heavy metals, oxidative agents or a lack of oxygen (hypoxia). Therefore, a temporary increase in the body's temperature causes little harm and it is needed to launch this natural defense. Consequently, rushing with the medication at the first sign of fever is not always beneficial and even tends to prolong the illness rather than shortening it. Studies show that moderate fever can aid in the fight against infectious organisms and boosting the body's immune response. Parents should not worry excessively about fever in children who are eating, drinking, and acting normally. If the fever rises to 103 degrees F, or the child becomes uncomfortable, consultation with a physician is necessary.

Anti-Fever medication is freely available, but is it really safe?

It should be remembered that a child is not just a “small adult”. Most of the physiological and biochemical functions in children are still developing, and due to an immature immune system they are more prone to infections; also, their bodies process pharmaceutical drugs and respond to toxins differently than adults. We still do not have enough knowledge about long-term health problems stemming from the exposure to various medications during early childhood.

Easily available over the counter, Paracetamol or acetaminophen (Tylenol®) is the most common drug given to infants and children. In most cases physicians recommend alternating strong medications, like Tylenol® and Motrin, to bring down high temperature, but there is no scientific evidence to support this practice. In a study published in the journal of *Pediatrics* (May, 2000) Clara E. Mayoral, and her colleagues surveyed 160 experienced doctors, mostly pediatricians. More than 50% of them stated that they regularly recommend such an alternating therapy to control high fever. A third of them said their suggestions were based on the recommendations made by the American Academy of Pediatrics (AAP), although there is no such documentation at AAP. Moreover, after searching medical literature from 1970 to 1998, the author found no scientific data pertaining to such a practice or verifying its safety. Dr. Mayoral contends that the origin of such a practice to alternate the medications in order to bring down high fevers remains a mystery.

Many parents are not aware that the majority of pharmaceutical drugs prescribed to children have been tested only in adults and the side effects, interactions, and even the effectiveness in children is learned after the medication is on the market and widely prescribed for the pediatric population.

Although acetaminophen could be less dangerous than ibuprofen (Motrin®) and aspirin, this drug like all others is not devoid of side effects. Due to easy availability, it is one of the most common causes of accidental and intentional poisoning and is the leading cause of liver failure in developed countries and accounts for approximately 100 deaths annually in the US. Acetaminophen toxicity is not from the drug itself, but from one of its metabolites produced in the liver. This metabolic product of Acetaminophen combines with glutathione and other powerful antioxidants, depleting the body's antioxidant pool. Such depletion exposes the body to free radical damage increasing a risk of various adverse effects including asthma, respiratory problems and so on.

A recent study published in the journal *Lancet* shows that children given acetaminophen during the first year of life to reduce fever are more likely to develop allergic reactions such as asthma

and eczema when they reach 6 or 7. Scientists conducting this study implied that increased use of acetaminophen in recent years could have explained the current increased incidence of asthma.

Additives in medications:

Besides the toxicity related to the active ingredient of the drug, different forms of children's anti-fever medication contain dangerous additives and preservatives. These ingredients give the medications flavor and/or texture resembling candy, thereby making them more appealing to young patients. However, hazardous additives and preservatives, such as povidone, propylene glycol, benzoic acid, sodium benzoate, aspartame, SDS and others found in anti-fever medications can pose very serious health risks to the child.

Additives such as povidone — a dispersing and suspending agent — increase the risk of cerebral palsy and suppress thyroid function. Propylene glycol —inhibits fermentation and growth of molds — affects the central nervous system. Benzoic acid —a mild irritant to skin, eyes, and mucous membranes — is believed to contribute to asthma and hyperactivity in children and a possible increase in Attention Deficit Disorder (ADD).

Aspartame, another additive and a popular sugar substitute is, by far the most dangerous substance on the market. Aspartame accounts for over 75 percent of adverse reactions to food additives reported to the US Food and Drug Administration (FDA). Many of these reactions included seizures, headaches, tachycardia, hearing loss, breathing difficulties, anxiety attacks, tinnitus, memory loss, slurred speech, joint pain and even death. These findings were disclosed in a February 1994 Department of Health and Human Services report, yet Aspartame remains in wide distribution in many of the “sugar-free” foods and drugs, which are consumed by children.

One may argue that there are small quantities of chemicals in a tablet or per serving. Yet, it must be understood that these chemicals are processed in a child's body, which is still maturing and many of its organs including the immune system haven't become fully functional. Detrimental health effects of such substances could be either cumulative or manifest years later in forms of different health problems or higher susceptibility to diseases. Thus we must ask ourselves is better taste and flavor of a medication worth such potential long-term risk?

How to deal with a fever ?

Fever is accompanied by sweating, hyperventilation and redness (dilating of peripheral blood vessels) all of which have cooling effects on the body. By applying cold compress or giving a quick cool bath every 20 minutes can further help dissipate the heat. Perspiration is beneficial

because it helps remove toxins from the body; however, water, minerals and other nutrients are also lost. Therefore it is important to give children plenty of fluids to prevent dehydration.

Nutrition is also very important and essential nutrients should be provided in easy assimilated forms, such as chicken broth, to meet the body's demands for nutrients and decrease muscle loss and fat mobilization from the tissues. Research shows that during infection, there is an increased need of certain nutrients such as vitamins C and A, calcium, magnesium, potassium, sodium and others. Extra vitamin C in the form of water diluted orange juice may supply vitamin C that is taken up by the white blood cells to fight infections. Research proves that Vitamin C concentration in white blood cells increases about 100 times when they are active against pathogens. Water mixed with juice and a pinch of low sodium salt given every ten minutes will provide necessary sodium and potassium. Very ripe mashed bananas are also a good source of a healthy dose of potassium. Intake of calcium/magnesium is important to support blood vessel dilation and facilitate heat dissipation.

New research by Dr. Rath supports the use of the amino acid lysine in combination with vitamin C as an effective way to prevent viruses or other microbes in the body from spreading. These and other micronutrients combined together were effective in controlling human flu virus and also bird flu viruses.

If there is a need for acetaminophen, then a supplement with N-Acetyl Cysteine (NAC) should also be introduced. Acetaminophen depletes glutathione in the liver. Therefore NAC, which is a glutathione precursor, and a potent antioxidant, will not only protect the liver but will also enhance the immune response of the body.

Recent publications from Dr. Rath's Research Institute have shown that combining NAC, with vitamin C, the amino acids lysine and proline and green tea extract among others have many benefits over using NAC alone. Due to synergistic action of the nutrients, much lower doses of NAC and other nutrients are sufficient and therefore such mixture would be safer for children.

Using all these options and communicating with a pediatrician about a child's progress is a prudent way of dealing with a fever. It is important to keep in mind that fever is the body's natural response to an infection and that the degree of fever does not always indicate the severity of illness. So before reaching for the flavored tablet or sweetened syrup just to reduce the fever, we should support the body's natural defenses by providing vitamins and other nutrients. In case the medication is needed, the appropriate nutrient synergy can alleviate damage by the anti-fever drug and support body functions needed for effective recovery from illness.

A Niedzwiecki, PhD
Bilwa Bhanap MBBS

REFERENCES:

1. Mayoral CE, Marino RV, Rosenfeld W, Greensher J. Alternating antipyretics: is this an alternative? *Pediatrics*. 2000 May;105(5):1009-12
2. Beasley R, Clayton T, Crane J, von Mutius E, Lai CK, Montefort S, Stewart A; ISAAC Phase Three Study Group. Association between paracetamol use in infancy and childhood, and risk of asthma, rhinoconjunctivitis, and eczema in children aged 6-7 years: analysis from Phase Three of the ISAAC programme. *Lancet*. 2008 Sep 20;372(9643):1039-48
3. MW Roomi, T Kalinovsky, V Ivanov, M Rath, A Niedzwiecki. A nutrient mixture prevents acetaminophen hepatic and renal toxicity in ICR mice. *Human & Experimental Toxicology*. 2000 27, 223-230