

Feed a fever

At the first sign of an elevated temperature, worried parents attempt to treat a fever. However, the evidence shows that fever is not to be feared.

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fter beating off the January blues, some of us will now have to battle a winter cold or flu.

But the biggest worry for most people—especially those with sick children—is not the flu itself, but the fever that often accompanies it.

Colds and flu are the most common causes of a raised temperature in children of all ages—in some cases, up to 105° F (40.6° C). One Baltimore, Maryland, study found that 7 per cent of parents believed temperatures would rise to 110° F (43.3° C) if left untreated, and that one in 15 caregivers thought it could rise to lethal levels in response to an infection. Also, 21 per cent believed that brain damage and other serious consequences could be brought on by a fever of 102° F (38.9° C) or less, while 14 per cent listed death as a potential outcome of fever (*Pediatrics*, 2001; 107: 1241–6).

However, in most children, the body doesn't allow fever to spiral out of control (*Pediatrics*, 2001; 107: 1241–6; *Pediatrics*, 1992; 90: 846–50). In fact, it's exceedingly rare for a child's temperature to exceed 107° F (41.7° C).

Many parents fear that a fever could lead to meningitis or streptococcal sepsis. However, studies have found serious bacterial infection (bacteraemia) in just 1.6–3 per cent of children with temperatures of 102° F (38.9° C) or higher (*Pediatrics*, 2000; 105: 260–6).

The Baltimore study concluded that parents were in the grip of fever phobia—not surprising considering how many paediatric doctors also share the belief. At a Boston city hospital, 60 per cent of the paediatricians who answered a questionnaire believed that a temperature of 104° F (40° C) or higher could lead to seizures, brain damage or death (*Pediatrics*, 1992; 90: 851–4).

In fact, a fever is Nature's defense against infection (*Yale J Biol Med*, 1986; 59: 89–95), and is often proof of an effective immune system.

Many animal investigations have shown enhanced resistance to infection with increased body temperatures (*Ann Intern Med*, 1994; 120: 1037–40). A fever can impede the spread of bacteria and viruses, improve survival rates and shorten disease duration in non-life-threatening infections (*Microbes Infect*, 2000; 2: 1891–904).

An analysis of 218 patients with bacteraemia showed an association between a high temperature on the first day of illness and the likelihood of surviving the condition (*Ann Intern Med*, 1994; 120: 1037–40).

Indeed, according to the Institute of Noetic Sciences (IONS) database, physicians in the early 1900s noted that, in some cancer patients, remission occurred after the patient developed a fever. In one case, a man with inoperable lung cancer had intermittent fever reaching 103° F (39.4° C) over a number of days. Within six months, his cancer was gone (*J Thorac Cardiovasc Surg*, 1964; 48: 984–90).

Convulsions

Many parents panic when their child has a high fever because of a perceived link between fever and febrile seizures (FS). The abnormal jerking movements of a seizure can, indeed, be a frightening spectacle for parents to endure.

But most seizures (80–85 per cent) are benign and unlikely to lead to serious illness. A benign seizure usually lasts around five minutes or less, and rarely more than 15 minutes. Although they are the most common seizures in children three months to five years of age, they only affect 2–5 per cent of febrile children. They are generally brief and do not require treatment (*Clin Pediatr [Phila]*, 1980; 19: 731–8; *Pediatr Neurol*, 2004; 2: 9–14; *Ann Emerg Med*, 2003; 41: 215–22).

Understanding fever

- ✓ Fever is a complex physiological reaction to disease involving a *cytokine* (proteins that either stimulate or inhibit immune-system function) that triggers a rise in core body temperature along with activation of various metabolic, endocrine and immunological systems (*Arch Intern Med*, 1998; 158: 1870–81).
- ✓ Fever is the regulation of body temperature as a response to infection.
- ✓ Fever can be induced by a variety of agents, including bacteria, viruses and fungi. In response to these agents, the body produces a *pyrogen* (proteins produced by immune system white blood cells), believed to be the cause of a raised temperature (*Pediatrics*, 1980, 66: 720–4).
- ✓ A raised temperature is simply one component of what is essentially a multifaceted response to infection.
- ✓ A raised temperature does not necessarily mean a fever. Body temperature can be affected by a warm environment, exercise or eating (*Arch Intern Med*, 1998; 158: 1870–81).
- ✓ At rest, more than half the body's heat is generated as a result of a biochemical inefficiency in converting food into energy (*Arch Intern Med*, 1998; 158: 1870–81).

Treating a fever

- ◆ **Eliminate** alcohol, caffeine, refined foods and sugar.
- ◆ **Increase** fluid intake.
- ◆ **Supplement** with:
 - ❖ **vitamin C** at 1 g/day or more can reduce the severity and duration of cold and flu symptoms
 - ❖ **beta-carotene/vitamin A** at 15,000–50,000 IU/day can help lower a fever
 - ❖ **zinc** at 10–30 mg/day.
- ◆ **Homoeopathic remedies** to try:
 - ❖ **Belladonna** helps with throbbing pain, a 'burning' fever or if pupils are dilated (Int J Clin Pharmacol Ther, 1997; 35: 296–301)
 - ❖ **Pulsatilla** is ideal for fever due to ear infection (Int J Clin Pharmacol Ther, 1997; 35: 296–301)
 - ❖ **Aconite** works for treating colds in their early stages.
- ◆ **Herbal remedies** to try:
 - ❖ **Echinacea purpurea** boosts the immune system, helping the body to fight fever naturally (J Alt Complement Med, 2000; 6: 327–34)
 - ❖ **moxa (Artemisia)** is best used together with acupuncture against the worst symptoms of colds and flu (Zhongguo Zhong Yao Za Zhi, 1993; 18: 44–8, 63–4)
 - ❖ **elderberry (Sambucus nigra) extract** helps reduce fever and infections of the throat, sinuses, ears and upper respiratory tract (J Alt Complement Med, 1995; 1: 361–9).



Finally, a fever does not always lead to seizure. Although most children have temperatures of 102° F (38.9° C) or lower at the time of a seizure, many can tolerate higher temperatures without convulsing (Arch Intern Med, 2000; 160: 449–56). The fact is, there is no clear threshold over which fever leads to seizure.

Treating a fever

Often, the discomfort of a fever causes the patient—or the parent—to try to lower the temperature. Yet, a US studies found that those who took anti-fever medications such as paracetamol or aspirin for flu only prolonged their suffering—by an average of three and a half days more than those who took no medicines (Pharmacotherapy, 2000; 20: 1417–22).

And despite a lack of evidence that antipyretics can protect against seizures (Arch Intern Med, 2000; 160: 449–56), parents continue to give these drugs to febrile children. Indeed, paracetamol and ibuprofen are being inappropriately used, placing children at an unnecessary risk of toxicity (Pediatrics, 2001; 107: 1241–6).

In one randomised study of over 84,000 children, around 1 per cent of those taking either ibuprofen and paracetamol were hospitalised. Four of the children taking ibuprofen had gastrointestinal (GI) bleeding. Indeed, the risk of hospitalisation

for GI bleeding with ibuprofen was 7.2/100,000 population (JAMA, 1995; 273: 929–33).

Although no child in that study was hospitalised for GI bleeding with paracetamol, parents should nevertheless be aware of the dangers of overdosing (Pediatrics, 2001; 107: 1241–6). In 71 cases of paracetamol-induced liver toxicity, 30 per cent were the result of accidental overdose in patients using the drug for pain relief (N Engl J Med, 1997; 337: 1112–8).

However, treating a fever doesn't have to include drugs. One relatively successful treatment is sponging with ice water or alcohol water. But note: alcohol can cause dehydration and hypoglycaemia in young children (Pediatrics, 2001; 107: 1241–6).

Sponging with tepid water can also work (Cochrane Database Syst Rev, 2003; 2: CD004264), and is reportedly more comfortable for the patient (J Pediatr, 1970; 77: 824–9). However, it could interfere with the natural healing process and prolong illness.

So, it appears that if a child—or adult—has a fever from a winter cold or flu, it may be best to just leave it be. It may well be the body's own best medicine.

Amanda Diamond

Fever folk remedies

- ◆ **Sponging** with ice water or alcohol is said to help alleviate fever.
- ◆ **Eucalyptus** leaf has been used as a cure for fever since the early 19th century. Eucalyptus oil as a steam inhalation helps asthma, colds and flu, and whooping cough (J Ethnopharmacol, 2003; 89: 277–83).
- ◆ **Boneset** (*Eupatorium*, agueweed, hempweed, Indian sage, thoroughwort) is a perennial daisy that works by raising body temperature, which causes perspiration that, in turn, lowers body temperature. The herb's polysaccharides also activate immune system T cells to fight bacterial infections.
- ◆ **Goat's rue** is a wild legume used during the Middle Ages to treat the plague. Like boneset, it induces sweating to break fevers, and can treat parasitic worm infestations and snakebite.
- ◆ **Marigold** (*Calendula officinalis*) was traditionally used by American physicians to treat conjunctivitis, fever, cuts, scrapes, bruises and burns, as well as minor skin infections.
- ◆ **Lemongrass** (*Cymbopogon*) also stimulates perspiration to cool the body in summer, and reduce fevers. As a medicinal herb, it is a mild diuretic and stimulant tonic. In southeast Asia and Sri Lanka, it is cultivated as a culinary herb.