

Body temperature is regulated by a thermostat-like mechanism in the hypothalamus. This mechanism receives input from centrally and peripherally located receptors. When temperature changes occur, these receptors relay the information to the thermostat, which either increases or decreases heat production to maintain a constant set point temperature. However, during an infection, pyrogenic substances cause an increase in the body's normal set point, a process that is mediated by prostaglandins. Consequently, the hypothalamus increases heat production until the core temperature reaches the new set point.

During the fever (febrile) state, shivering and vasoconstriction generate and conserve heat during the chill phase of fever, raising central temperatures to the level of the new set point. The temperature reaches a plateau when it stabilizes in the higher range. When the temperature is greater than the set point or when the pyrogen is no longer present, a crisis, or defervescence, of the temperature occurs.

Most fevers in children are of brief duration with limited consequences and are viral in origin. However, children who appear very ill and neonates are at high risk for serious bacterial illness, such as urinary tract infection or bacteremia and will likely receive a sepsis work-up, antibiotics, and hospitalization ([Sahib El-Radhi, Carroll, and Klein, 2009](#)).

Fever has physiologic benefits, including increased white blood cell activity, interferon production and effectiveness, and antibody production and enhancement of some antibiotic effects ([Considine and Brennan, 2007](#)). Contrary to popular belief, neither the rise in temperature nor its response to antipyretics indicates the severity or etiology of the infection, which casts doubt on the value of using fever as a diagnostic or prognostic indicator.

Therapeutic Management

Treatment of elevated temperature depends on whether it is attributable to a fever or hyperthermia. Because the set point is normal in hyperthermia but increased in fever, different approaches must be used to lower body temperature successfully.

Fever

The principal reason for treating fever is the relief of discomfort.