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Fever Temperatures: Accuracy and Comparison

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Topic Overview

You can take a temperature using the mouth (oral), anus (rectal), armpit (axillary), or ear (tympanic). But the temperature readings vary depending on which one you use, and you need an accurate body temperature to determine if a fever is present.

Medical research hasn't determined an exact correlation between oral, rectal, ear, armpit, and forehead temperature measurements. Generally, the correlation of temperature results are as follows:

- The average normal oral temperature is 98.6°F (37°C).
- A rectal temperature is 0.5°F (0.3°C) to 1°F (0.6°C) higher than an oral temperature.
- An ear (tympanic) temperature is 0.5°F (0.3°C) to 1°F (0.6°C) higher than an oral temperature.
- An armpit (axillary) temperature is usually 0.5°F (0.3°C) to 1°F (0.6°C) lower than an oral temperature.
- A forehead (temporal) scanner is usually 0.5°F (0.3°C) to 1°F (0.6°C) lower than an oral temperature.

It is important to remember:

- Rectal temperatures are generally thought to be the most accurate for checking a young child's temperature.
- The manufacturer of the temperature device you use, such as an ear or forehead thermometer, provides information on how to use it. Be sure to read and follow the instructions to obtain an accurate temperature. The information may also include how the results of the device correlate with the results from other methods of taking a temperature.
- Plastic strip thermometers have some uses, but they aren't recommended for general home use. Unlike oral, rectal, and ear thermometers, plastic strip thermometers measure skin temperature, not body temperature.

When you talk with your doctor about your temperature, be sure to say what method was used to take the temperature.

Temperature comparison table

The temperature comparison table below will give you the range of temperature correlation with the different methods used to take a temperature. For information about taking accurate temperatures in infants and children, see the topic [Body Temperature \(/health-library/hw198785#hw198788\)](/health-library/hw198785#hw198788).

To use the table:

- Find the method that you used to take a temperature.
- Find the correct temperature range.
- Look for the temperature range of the other methods that correlates to the method you used. For example:
 - If your 2-year-old child's oral temperature is 101°F (38.3°C), his or her rectal or ear temperature may be about 102°F (38.9°C). Remember, a child has a fever when his or her temperature is 100.4°F (38°C) or higher, measured rectally.
 - If your axillary temperature is 100°F (37.8°C), your oral temperature is about 101°F (38.3°C).

Feedback

Comparison of temperatures in Fahrenheit by method

Axillary/Forehead (°F)	Oral (°F)	Rectal/Ear (°F)
98.4–99.3	99.5–99.9	100.4–101
99.4–101.1	100–101.5	101.1–102.4
101.2–102	101.6–102.4	102.5–103.5
102.1–103.1	102.5–103.5	103.6–104.6
103.2–104	103.6–104.6	104.7–105.6

Comparison of temperatures in Centigrade by method

Axillary/Forehead (°C)	Oral (°C)	Rectal/Ear (°C)
36.9–37.4	37.5–37.7	38–38.3
37.5–38.4	37.8–38.5	38.4–39.1
38.5–38.9	38.6–39.1	39.2–39.7
39–39.5	39.2–39.7	39.8–40.3
39.6–40	39.8–40.3	40.4–40.9

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