

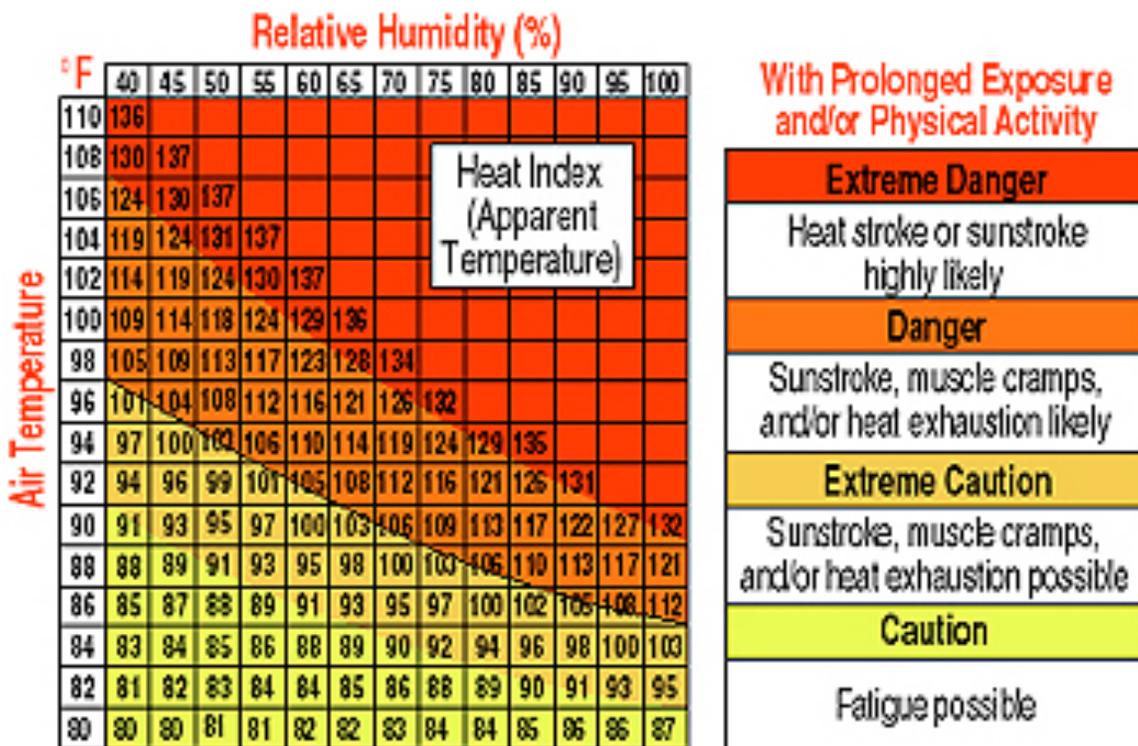
Heat Index

What Does it Mean for Cyclists and How Can You Avoid Heat Illness?

By Maggie Clarke

The Heat Index is an accurate measure of how hot it really feels when the relative humidity is added to the actual air temperature. But more than just an interesting fact, knowing the heat index and adjusting your summer cycling accordingly, can mean the difference between life and death.

To find the Heat Index, look at the Heat Index Chart. As an example, if the air temperature is 95°F (found on the left side of the table), and the relative humidity is 55% (found at the top of the table), the Heat Index -- or how hot it really feels -- is 110°F. This is at the intersection of the 95° row and the 55% column. How can you tell if it's high humidity? It's high if a cloudless sky is whitish, not blue.



U.S. National Weather Service

Important: Since Heat Index values were devised for shady, light wind conditions, exposure to full sunshine can increase Heat Index values by up to 15°F. Also, strong winds, particularly with very hot, dry air, can be extremely hazardous. Just by riding our bikes in hot weather, we are creating "strong hot winds", and we often ride in exposed areas, so the Heat Index of any given temp/humidity pair for the above table. Doing this brings the "Danger" zone down to the "Extreme Caution" zone on the chart (beginning at 90°F Heat Index), and the "Extreme Danger" zone begins at 105°F Heat Index. In the New York City area we often have summertime heat indices in the danger zones, even when the actual temperatures are in the high 80's (see the heat index for 88 degrees and 85% humidity). Smog alerts add to the danger.

Heat Illnesses Heat disorders generally have to do with a reduction or collapse of the body's ability to shed heat by circulatory changes and sweating, or a chemical (salt) imbalance caused by too much sweating. When heat gain exceeds the level the body can remove, or when the body cannot compensate

for fluids and salt lost through perspiration, the temperature of the body's inner core begins to rise and heat-related illness may develop.

Human bodies dissipate heat by varying the rate and depth of blood circulation, by losing water through the skin and sweat glands, and -- as the last extremity is reached -- by panting, when blood is heated above 98.6 degrees. The heart begins to pump more blood, blood vessels dilate to accommodate the increased flow, and the bundles of tiny capillaries threading through the upper layers of skin are put into operation. The body's blood is circulated closer to the skin's surface, and excess heat drains off into the cooler atmosphere. At the same time, water diffuses through the skin as perspiration. The skin handles about 90 percent of the body's heat dissipating function.

Sweating, by itself, does nothing to cool the body, unless the water is removed by evaporation -- and high relative humidity retards evaporation. The evaporation process itself works this way: the heat energy required to evaporate the sweat is extracted from the body, thereby cooling it. Under conditions of high temperature (above 90 degrees) and high relative humidity, the body is doing everything it can to maintain 98.6 degrees inside. The heart is pumping a torrent of blood through dilated circulatory vessels; the sweat glands are pouring liquid -- including essential dissolved chemicals, like sodium and chloride -- onto the surface of the skin.

Heat Index / Heat Disorders	
Heat Index (in shade)	Possible heat disorders for people in higher risk groups
130°F or higher	Heatstroke/sunstroke highly likely with continued exposure.
105° - 130°F	Sunstroke, heat cramps or heat exhaustion likely , and heatstroke possible with prolonged exposure and/or physical activity.
90° - 105°F	Sunstroke, heat cramps and heat exhaustion possible with prolonged exposure and/or physical activity.
80° - 90°F	Fatigue possible with prolonged exposure and/or physical activity.

What is heat exhaustion? Heavy sweating, weakness, skin cold, pale and clammy. Pulse weak and shallow. Normal temperature possible. Fainting and vomiting. I've experienced this on rides -- you can actually have goosebumps! What do you do in this instance? Get out of the sun. Lay down and loosen clothing. Apply cool wet cloths. Fan or move victim to air-conditioned room. Give sips of water. If nausea occurs, discontinue use. If vomiting continues, seek immediate medical attention.

What is heat stroke? High body temperature (106°F, or higher). Hot dry skin. Rapid and strong pulse. Possible unconsciousness. Heat stroke is a severe medical emergency. Summon medical assistance or get the victim to a hospital immediately. Delay can be fatal. Meanwhile, move the victim to a cooler environment. Reduce body temperature with cold bath or sponging. Use extreme caution. Remove clothing, use fans and air conditioners. If temperature rises again, repeat process. Do not give fluids.

Studies indicate that, other things being equal, the severity of heat disorders tend to increase with age -- heat cramps in a 17-year-old may be heat exhaustion in someone 40, and heat stroke in a person over 60.

So what can we do to prevent heat illness? It may seem anathema or sacrilegious to us die-hard cyclists, but when the heat index is predicted to rise to 90 or above, taking shade and wind into account, it is advisable to slow down. Translation: Start the ride earlier, cut it short, reduce the speed or strenuousness, increase water breaks in cool, shady places, choose less strenuous routes, stay out of the sun. Sunburn makes the job of heat dissipation that much more difficult. Have you ever noticed that you feel warmer if you wear dark colors? Wear white, light-weight, loose clothing so that the air can circulate. Cotton

works well; lycra and some plastic synthetics trap heat and prevent evaporation. Drink LOTS of water. If you're still feeling hot, squirt water on your head and chest. When you start riding, the wind will chill you until the water has evaporated. Don't charge up the hills. Not only does that use up your "cookies", it makes you hot! Ride leaders have already started to list ride cancellation provisions using the Heat Index. It might be a wise move for more of us to do so. Let's pay attention to both predicted temperature and humidity in the weather forecast. Let's all ride safe this summer.

Tips for Avoiding Heat Illness

Ride Leaders:

Slow Down the Ride!
Start the Ride Earlier in the Day
Cut the Ride Short (Bail onto a train)
Choose A Less Hilly Route
Choose A More Shaded Route
Take a longer lunch break
Get into air conditioning for breaks

Stop for cold drinks / ice cream
**If the Heat Index will be dangerous,
Cancel the Ride!**

Everybody:

Drink a few bottles of cool water
Buy additional cold drinks along the way
Wear white, loose clothing
Choose lightweight, breathable fabrics
Squirt water on your head and chest
Ride smooth and steady
**Don't be afraid to stop if you have a
warning sign for heat illness**

Thanks to the National Weather Service website for much of the above information.