Region Educators

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Top 10 Overlooked Safety Tips from Motorcycle.com

It has happened, we complained about the cooler weather and look what we got…. triple digit temperatures. Being out in the heat can be a great threat to our health. Heat exhaustion that can lead to Heat Stroke can kill us, but it is easily avoidable if we will just stick to the correct precautions. Below, is an article written by Tom Austin from Sacramento. As you read this, pay close attention to what he has to say about ambient (your surroundings) temperatures and your body's temperature. Also, he points out that what you wear can make a big difference.

This article was taken from the LDRiders list, and was written by Tom Austin.

I spent a lot of time riding in REALLY hot weather a couple of weeks ago. On one leg of my trip, I rode for over six hours straight with temperatures in the vicinity of 115°F. Living in the Sacramento area, I frequently ride in ambient temperatures of approximately 100°F and I've ridden in temperatures as high as 113°F for shorter periods of time (e.g., crossing Death Valley). This week I learned that additional preparation is required for running at temperatures above 110°F for several hours. Several things that I experienced during the trip prompted to me to write this. Hopefully it will be useful to others.

Why Mesh Riding Suits Don't Work in Extreme Conditions

Human bodies exchange heat with their surroundings in four primary ways: convection, conduction, radiation, and evaporative cooling (from perspiration). When ambient temperatures are below the body's normal temperature of 98.6°F, all of these pathways can provide cooling. The higher the windspeed, the more cooling there is from convection. But when ambient temperatures rise above 98.6°F, only evaporative cooling can work. More importantly, too much wind becomes a bad thing. There is a limit to our body's perspiration rate and when the wind speed uses up all of the available perspiration, more wind increases convective HEATING. This is the opposite of "Wind Chill".

What this means is that you do NOT want to maximize the wind against your skin when the temperature gets extreme. Mesh suits, or wearing just a lightweight shirt, are NOT the right approach. You will actually stay cooler with a conventional suit with the vents adjusted so there is a more moderate air flow across your skin.

You Have to Carry Much More Water to Ride in 110°F+ Temperatures

When temperatures are below 98.6°F, you may perspire less than **1 quart per day**. But when the need for evaporative cooling kicks in, you perspiration rate can increase to**1.5 quarts PER HOUR**. If you aren't drinking 1.5 quarts per hour under extreme conditions, you will start becoming dehydrated. Your perspiration rate will decrease, you will feel hotter, your heart rate will increase, and your judgement will start to become clouded. If you are a competitive endurance rider, you can probably go at least 300 miles without stopping. If you are averaging 75 mph, that's four hours. You may need to consume 6 quarts of water in that period of time when the temperature exceeds 110°F.

I carry an insulated 1-gallon cooler with a drinking tube attached when I know I will be riding long distances in hot weather. It was barely adequate for this trip because I deviated from my normal routine and purchased an extra bottle of water to drink during my fuel stops. On one leg, I made the mistake of starting with less than a full gallon and started experiencing the early signs of heat exhaustion. I felt much better after sitting in the shade for 10 minutes while consuming a full quart of bottled water.

Based on my personal experience and research, there is a world of difference between 100-105°F and 115°F in terms of how much water you need. A half quart per hour is more typical of what's required near 100°F. You might even be able to run without water for several hours at about 100°F and make up the deficit by drinking at lot at your next fuel stop. But at 115°F, the level of dehydration you will be experiencing between fuel stops is excessive; you will definitely experience heat exhaustion and possibly heat stroke.

Why You Might Not Want to Be Wearing Shorts Under Your Riding Suit

Some popular bikes, Wings and Non-Wings, have "issues" with high levels of engine heat. My K1200GT makes the lower half of my legs warmer than on my K1200LT, but it's never been a problem for me, until this trip. Air passing through the radiator on both the LT and GT exits at the side of the fairing just in front of the rider's legs. On the LT, the hot air is blown far enough away from the bike that it does not impinge on the rider's legs. On the GT, the fairing is not quite as wide and you can feel heat from the radiator on your lower legs. The heat I feel on the GT is clearly less that the heat I've felt riding other bikes, such as the FJR1300. But on this trip, the heat became a problem. I rode for a long stretch with a slight crosswind which increased the amount of radiator discharge that impinged on my right leg. It got very uncomfortable. When I stopped for the night, I discovered that I had second degree burns on the back of my right calf:

This wouldn't have happened if I had been wearing long pants under my Aerostich. Under identical conditions, I did not get burned wearing blue jeans under the riding suit.

This problem showed up for the first time because the radiator discharge temperature is directly related to the ambient temperature. Although engines run hotter in hot weather, they actually discharge about the same amount of heat energy into the radiator. That heat energy raises the temperature of the radiator discharge the same amount that it does at lower ambient temperatures. At 100°F, the radiator discharge might be 140°F and it might get knocked down to 110°F before it impinges your leg. It feels very warm, but it won't burn you. If the ambient is 15°F higher, you leg might be exposed to 125°F and you can eventually get burned if your leg isn't insulated from the radiator discharge.

According to data from the National Burn Center, the time at temperature to cause a second degree burn is as follows:

113°F 1.7 hours
122°F 2 minutes
131°F 11 seconds
140°F 2 seconds

The only thing protecting you from being burned when your bare skin is exposed to ambient temperature of 113°F or higher is evaporative cooling and the cooling of the skin surface by blood flow. To be protected from radiator discharge temperatures in excess of 113°F, you need INSULATION between your skin and the hot air stream. What I painfully discovered is that the insulation provided by an Aerostich suit is not enough.

Indicators of heat stroke include

- headache
- dizziness
- disorientation
- hot, dry skin
- sluggish

I just read an article on temperatures in cities versus temperatures outside of the city. Tests have shown that on the same day, at the same time, temperatures in the city can be 20 degrees hotter, so make note of this when you travel into a city.

Ride safely and hydrate often,

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