

Heat and The Driver's Internal Engine

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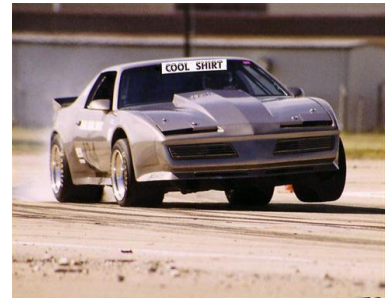
As part of a three-part series *Heat and the Driver's Internal Engine*, this first segment will focus on how the hot environment in a racecar affects the driver's physical well-being and their abilities on the track. In segment two, we'll examine *how the human body copes* with this excess heat, its overall internal ability to combat heat stress and the different methods by which the body loses its heat. And in our last segment, we'll look at why *alternative cooling methods* are necessary to help the cool racecar driver's body and what cooling methods are the most effective in helping eliminate the heat-induced fatigue and heat stress that drivers experience.

How much in-car heat a racecar driver experiences depends on several variables: the time of the year, the type of racecar, the geographic location of the track, the length of the event and the protective clothing worn by the driver during the race.

Let's assume a worst case scenario: a closed-cockpit car, running at a notoriously *hot* road course like *Sebring International Raceway* in August. If you've ever been there, you know that it truly cannot get any hotter than that in a racecar.

So, what do you as drivers do? You climb into this rolling oven wearing a helmet, fireproof balaclava, 3-piece fire suit, fireproof underwear, fireproof socks and shoes. Temperatures in the cockpit can rise to 140 degrees or more and you vigorously exercise in this environment with your body completely encapsulated. At a minimum, this a recipe for heat stress, realistically it is a recipe for disaster. Your body's core temperature begins to rise quickly. As it rises, you enter the beginning stages of heat stress. As this happens, studies have proven that there are several key physiological changes that take place:

- ◆ *Your heart rate increases rapidly as a result of an increase of adrenalin and the intense heat*
- ◆ *Your muscles are working overtime, generating even more body heat as they steer, clutch, accelerate and brake. This is especially true of road course drivers.*
- ◆ *You begin to perspire and breathe heavily*
- ◆ *Your reaction times slow significantly*
- ◆ *You begin to feel fatigue & weakness*
- ◆ *Your muscles can begin cramping*
- ◆ *You experience decreased mental capacity and confusion*
- ◆ *You experience body ache, headache even nausea*
- ◆ *Your skin becomes hot, dry and red*



As you look at the list above, one thing is clear. All of your body's reactions to the heat can *drastically* affect your driving abilities and how well you handle your racecar. And, most of the time, you may not actually *feel* these things happening! You are concentrating on bigger things: *racing*. But whether they begin 5 minutes into your event or 20 minutes in, the fact remains that they *WILL* happen.

On a HOT day:

- ◆ Do your laps times fall off?
- ◆ Have you ever overshoot a corner?
- ◆ Have you braked too late?
- ◆ Has your reaction time fallen off?
- ◆ Have you hit a competitor?
- ◆ Have you spun or wrecked with no help from your opponent?



In our next segment, we'll examine how the human body recognizes that you are overheated, how it copes with this excess heat and what steps it takes internally to expel that heat and cool your core temperature. Stay tuned and drive safe....

Until next time, consider this.....

Are more accidents mechanical failures or human mistakes ???



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