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Full Throttle Athlete: The physiological demands of driving a race car

Racecar drivers are highly skilled athletes who experience tremendous physical challenges during high-speed racing. Drivers are also exposed to significant G forces and high ambient temperatures for long periods of time with no timeouts. All of this is complicated by the fact that they are also encapsulated in protective gear and clothing. Furthermore, fluid losses during competitive racing can be significant. Without a fluid replacement strategy, fluid losses for these drivers may exceed three percent body weight, which could negatively impact driving performance. Research has been established in other sports to show the detrimental impact thermal stress and fluid loss can have on athletic performance, especially by straining the cardiovascular system. Similar effects are likely during races where drivers need to circulate blood efficiently to dissipate heat, ward off fatigue to maintain their ability to mentally concentrate, and rely on quick reaction times and precise hand-eye coordination. And much of this, including G tolerance to some degree, is adaptable by systematic physical training and preparedness. Advocacy is warranted to ensure the sports medicine and motorsports communities are doing all they can to protect the drivers and pit crew athletes. Like other serious competitors, motorsports athletes are looking for sound advice to improve their performance. Sports medicine professionals are poised to offer a great deal of expertise to offer motorsports athletes who face similar (dehydration, thermal strain) and unique (G-forces) challenges compared to other sports.

Biography

Dr. Lara Carlson is an Associate Professor in the Department of Physical Therapy at the University of New England. Carlson also has a faculty appointment with the U.S. Department of Veterans Affairs. Outside the classroom, Carlson was an U.S. ranked hammer thrower qualifying for four USA Outdoor Track and Field National Championships. Carlson is a Fellow of the American College of Sports Medicine, a recipient of the New England ACSM (NEACSM) Honor Award, and was elected President of the NEACSM for an unprecedented second term in their history. Her research interests include the effects of exercise on immune responses, and motorsports physiology.

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