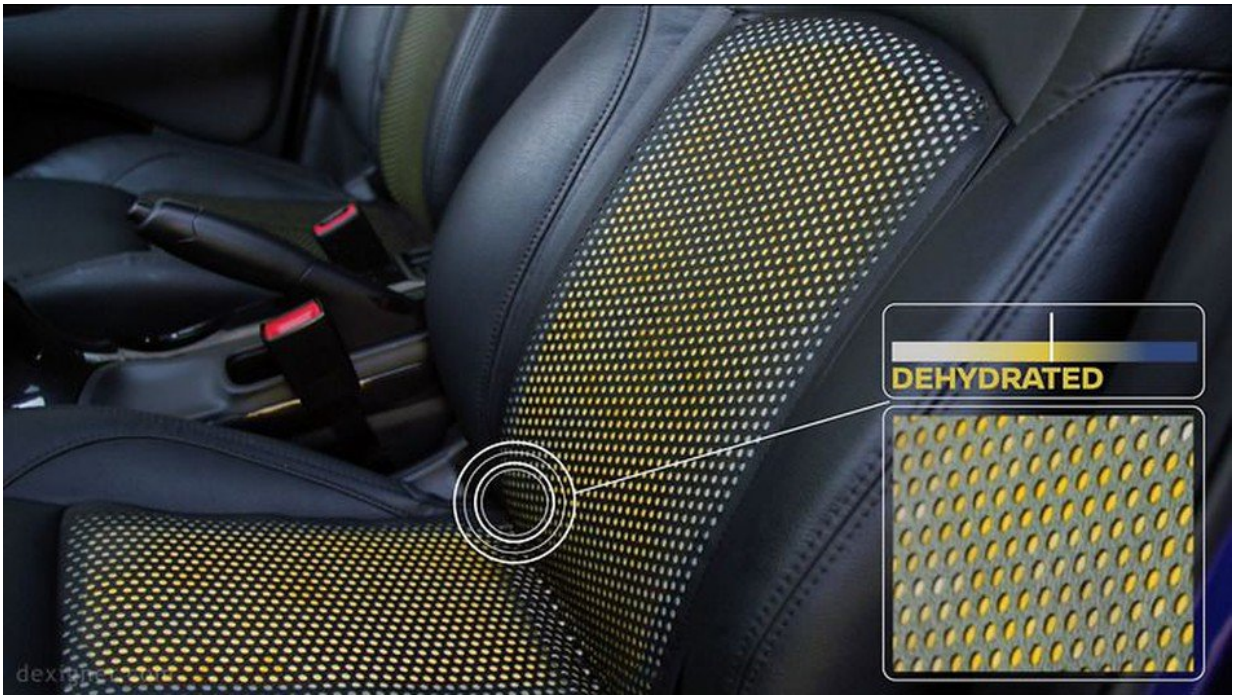
# Nissan highlights how coating on wheel and seats can signal dehydration

October 3 2017, by Nancy Owano




(Tech Xplore)—Drink before you drive.

That is not macabre advice from a nightclub bouncer wishing you a horrific journey home.

That is genuine advice from Nissan but the drink they are talking about

is water.

The company has highlighted the "dangers of driver dehydration" in a video posted late last month. The purpose of the video is to raise awareness of the impact of driving while dehydrated.

They emphasized that dehydration can adversely impact driver safety. They delivered some supporting statements.

Dehydrated drivers make a number of mistakes on the road— equivalent to being over the drink-drive limit.

Symptoms include dizziness, tiredness, dry mouth, slower reaction times.

While there is relatively little research on safe hydration levels for drivers and the role of drinking water to maintain concentration, a 2015 hydration study reported mistakes made including late-braking, drifting within a lane and even crossing lane lines.

"A 2015 study funded by the European Hydration Institute and carried out by Loughborough University, UK, discovered that: "Drivers who had consumed only a sip of water (25ml) per hour made more than double the number of mistakes on the road than those who were properly hydrated. The number of errors was equivalent to those displayed by people with a blood alcohol content of 0.08% - the current UK drink-drive limit.

Said the 2015 university press release: "Researchers at Loughborough University carried out a range of tests over two days on male drivers, using a laboratory-based driving simulator. During the normal hydration test there were 47 driving incidents, but when the men were dehydrated that number more than doubled to 101 – a similar number to what might be expected of someone driving under the influence of drugs or alcohol."

Nissan has a solution for keeping drivers safe from risks of dehydration. They are talking about a sweat-sensing technology coating called SOAK.

For purposes of showing the concept applied to automobiles, they integrated it into a Nissan Juke.

The coating is applied to the steering wheel and front seats. This acts as an alert system to warn drivers that they need to drink more water.

The SOAK coating changes color when it's in contact with perspiration, so when dehydrated the SOAK coating turns yellow; when rehydrated it turns blue.

Paulien Routs is a design researcher who focuses on materials and design processes. Her web page said, "The Juke SOAK is an innovative concept car, created for Nissan in collaboration with Droog Design."

An article is *psfk* in 2015 said Routs developed SOAK, a textile coating providing visual cues of hydration levels, that could be applied to sportswear, changing color while the wearer is working out.

Routs had more details:

"The treated textile is used as the base layer in the upholstery of the seats and steering wheel, covered with a laser-cut leather, which thanks to its open pattern, allows the textile to be in contact with the occupants' hands and clothes. The perforated leather is a custom design specially made for the one-off car, created to communicate the hydration levels in the most convenient way to the driver and front-passenger."

Other than providing an interesting point about driver safety, there are no plans at Nissan currently to add the sweat-sensing tech into the Juke, according to the video notes. *Digital Trends* said "the Nissan Juke Soak is

a reminder that drivers need to do their part to keep the roads safe. A driver must be calm, alert, and awake at all times."

Routs said, "The one-off car has been created as a media activation," whereby drivers can be informed about the importance of drinking water to maintain concentration.



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