



# AUTO+ MEDICAL

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FIA's new Rescue Specialist discusses the challenges of trackside rescue P20

## CORONAVIRUS

How motor sport is dealing with the coronavirus pandemic P26

## ELFYN EVANS

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**INTRODUCTION/**

This edition is overshadowed by the Coronavirus pandemic which has affected us all and, in effect, stopped all motor sport around the world. Self-isolation, social distancing and lock downs have had a dramatic effect on life, meaning that motor sport takes a back seat for the moment.

Most of the doctors, paramedics and nurses involved in motor sport are also involved in emergency medicine, including many of the FIA Medical Commission and the editorial board of this publication. They are working on the front line providing emergency care across the world.

Inside we hear personal accounts from those involved in Australia, the UK and Canada and how the pandemic is affecting them.

However, work in motor sport safety and medicine continues apace. Ian Dunbar who has been appointed as the FIA Rescue Specialist after many years involved in emergency rescue work with the fire service, Holmatro and the British Touring Car Championship, is our interview feature which I'm sure you will all find interesting. We also explain the latest developments in circuit light panels, which are enhancing communication between race control and competitors.

Finally, we want to thank Kelvin Chew from Singapore, who after two years helping us with *AUTO+ Medical* is standing down from the Editorial Board but will, of course, still be involved with motor sport.

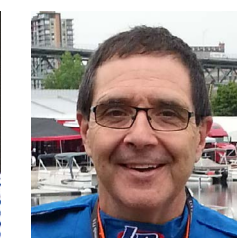
This edition had begun being prepared long before the pandemic; we hope you will understand our reason to go ahead and provide some normality and distraction from the events around us. Our thoughts are with you all; please be careful and take care, whatever you are doing.

*The Editorial Board*

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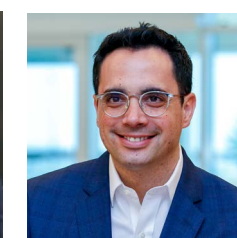
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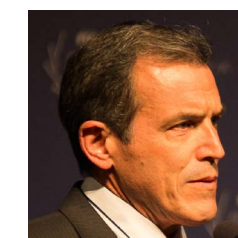
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**Dr Jean Duby** (Medical Trainer, FIA World Cup for Cross-Country Rallies)



**Dr Pau Mota** (FIA Head of Medical and Rescue)



**Dr Dino Altmann** (Deputy President, FIA Medical Commission)



# GLOBAL NEWS

## FIA AND MEMBER CLUBS SUPPORT FIGHT AGAINST CORONAVIRUS



The FIA and Member Clubs are supporting the fight against the Coronavirus Covid-19 pandemic, with a number of initiatives worldwide.

In a letter that was sent to all members of the FIA, President Jean Todt outlined what the governing body is doing, which includes launching a platform for exchanging information for doctors and hospitals approved by the FIA.

“Our Federation has put in place a platform for exchanging information between the 150 doctors and 290 hospitals approved by the FIA,” said Todt. “This is to enable the identification and dispatch of

emergency medical equipment in the areas that are most in need of it.”

In addition, there is an ad-hoc group that is chaired by FIA Medical Commission President Gérard Saillant closely monitoring the situation worldwide. The FIA has also created the hashtag #RaceAgainstCovid to bring together and promote the automotive family's initiatives against the Coronavirus pandemic.

Member clubs are stepping in to help, with The Automobile Association Vietnam turning the Protec helmet factory, owned by AA Vietnam President Greig Craft, into an assembly line to make face masks, gowns and

ventilators. Masks made in the factory were initially sent to Italy, Spain and the US, with 200,000 made in the initial days of the project getting underway.

The Automobile Association Philippines (AAP) is contributing by donating 20 per-cent of online renewal fees of AAP membership and driving permits to medical institutions.

In Spain, which is the second worst hit country in Europe, the Reial Automòbil Club Catalunya (RACC) has made its headquarters available to authorities in Barcelona. The building is fitted with a medical heliport and is located close to the main hospitals in the city. The Royal Automobile Club Spain has activated its contingency plans focused on on-site repair interventions. This is in addition to legal advice that can be sought online for club members.

In the Czech Republic the Ustřední Automotoklub České Republiky has launched an emergency telephone line to provide people with support in areas affected by Coronavirus.

These efforts are in addition to the 'Project Pitlane' initiative launched by seven of the ten F1 teams. The project has already seen the Mercedes F1 Team work with University College London to create a ventilator for NHS hospitals (pictured), and McLaren is working as part of a consortium to produce more ventilators.

## FIA AND FIM TO HOST JOINT MEDICAL COMMISSION MEETING IN OCTOBER

The FIA and the Federation Internationale de Motocyclisme (FIM) plan to hold a joint medical commission meeting on 3rd October in Geneva.

The joint meeting is part of the ongoing collaboration between the two governing bodies in motor sport, after recently teaming up to develop a new paint standard for use on circuits.

A number of other collaboration projects are planned between the FIA and

FIM, with the aim to work together on a range of research projects related to circuits and competitor safety devices.



## ZANDVOORT BUILDS NEW MEDICAL CENTER

As part of the upgrades to the Zandvoort circuit in preparation for the Dutch Grand Prix, the facility will have a brand-new medical centre.

Built by De Groot Vroomshoop, a subsidiary of earthwork and asphalt pavers Volker Wessels, the one-storey prefab structure is constructed entirely out of wood to make it sustainable and was transported in one piece to Zandvoort.

It is located on the inside of the final corner and features an Intensive Care Unit onsite, which will be used by medical team Witte Kruis Evenementenzorg who provide the drivers, teams, officials and employees of Circuit Zandvoort with medical care during all events at the track.

“Every event requires different skills,” said Zandvoort's Head of Safety Team, Björn Vos. “For example, the more professional classes have different cars and materials than the amateur drivers.”



Up until 10 years ago the circuit didn't have a dedicated extrication team, which is something Vos set up and promptly earned the FIA award for 'Best Team of Officials' at the annual prize giving in 2014.

“How we work within ambulance care in the Netherlands, with the frameworks and guidelines of AZN, was not consistent with the guidelines of the FIA,” said Vos. “I combined those guidelines and trained the Extrication Team in this way. When we could really show how we work as a team, we won the FIA Award a year later.”

## ICMS FOCUSES ON CIRCUIT DESIGN AND DRIVER EXTRICATION

The 31st International Council of Motorsport Sciences' Annual Congress took place at Indianapolis on 10th – 13th December, where a range of topics concerning medical and motor sport safety were discussed.

IndyCar doctor Dr Steve Olvey was the moderator for the first panel, which featured a presentation by the FIA's Watkins Award winner Dr Naomi Deakin that focused on the first year of the RESCUE-RACER concussion programme.

Dr Dino Altmann followed with a talk on the usage of frontal cameras in the Porsche GT3 Series, with Dr Preston Calvert rounding off the mid-morning session with a presentation on designing and implementing screening protocol for mTBI in racing.

Dr Katheryne Faccenda of the Canadian Motorsports Response Team delivered a talk on helmet and head restraint removal techniques, while Dave Audley of Charlotte Motor Speedway did a presentation on spinal immobilizations during driver extrication.

There was a demonstration by elite motor sport safety response teams, including live fire suppression practice and an exhibition by Holmatro on how to safely extricate a driver from a cockpit using hydraulic cutting tools.

The practical demonstrations also looked at race track safety and helmet and head restraint removal techniques from the Canadian Motorsports Response Team.





## MOTORSPORT AUSTRALIA TO NAME DRUG AND ALCOHOL OFFENDERS

Motorsport Australia has started to publish the names of drivers who breach its drug and alcohol policy on its website.

The new policy, which came into effect on 1st March this year, will see offenders' names being published on the Motorsport Australia website for a period of three months.

Motorsport Australia CEO Eugene Arocca said that it would serve as a further deterrent, encouraging all those involved in motor sport to understand the importance of adhering to the policy.

"Motorsport Australia has a commitment to all motor sport participants to provide a safe and fair playing field" said Arocca.

"Given the number of overwhelming tests performed each year, the number of infractions is low, but that doesn't mean we can rest on our laurels and not provide further deterrence to those who think they can get away with doing the wrong thing."

Previously it was down to the discretion of Motorsport Australia on whether it would name those who had breached its zero tolerance of Alcohol or Illicit Drug Policy for the first time.

The policies apply to all competitors including co-drivers and navigators, officials, team members, Motorsport Australia contractors or third-

party contractors attending an event, and anyone who agrees to be bound by the policy.

You can read the policies in full here: [Alcohol Testing Policy & Illicit Drugs in Sport Testing Policy](#).



New policy came into affect in March

## V8 SUPERCARS CHAMPION FEARED CONCUSSION AFTER 43G CRASH

Two-time V8 Supercars champion Scott McLaughlin feared he sustained a concussion after a 43G impact with a concrete wall during the Gold Coast 600.

McLaughlin underwent a concussion test at the trackside medical centre, after the accident data recorder in his car recorded a 31.5G impact followed by a second 42.7G impact.

The medical team completed a SCAT-5 concussion test and he was subsequently given the all-clear to return to his team, however later during a television interview he was heard slurring his words.

"I can hardly remember saying that... I don't know what I was thinking," said McLaughlin. "The doctors don't really know me, right? So it's people like Ryan Story (team boss) and Karly (wife) who noticed on the interviews that I was slurring a little bit and mixing up my words."

Complaining of a sore neck McLaughlin returned to the medical centre where he was put in a neck brace and sent to Gold Coast University Hospital for further tests.

"I went to the hospital, I was lying on the bed for about 40 minutes, there were like 400 doctors

around me, it was full-on," McLaughlin continued. "They said 'we just saw a bit of an anomaly on the brain, it's meant to be 50:50, parallel, but it does look like yours has moved, so we're going

to have to do an MRI." McLaughlin was taken in for an MRI which took a further 30 mins, before the all-clear came while he watched the end of the race.



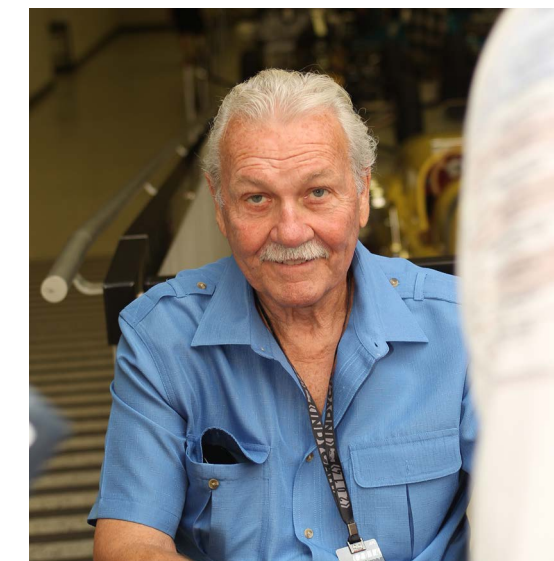
## FIA HOLDS WEEKLY VIDEO CONFERENCE FOR MOTOR SPORT MEDICAL COMMUNITY

The FIA is holding weekly video conferences for Chief Medical Officers (CMO), Deputy CMOs, and the motor sport medicine community to monitor the Coronavirus situation globally.

The conference takes place virtually with doctors from around the world participating. Dr Kelvin Chew, CMO of the Singapore Grand Prix, hosted

the first session and discussed the situation in that country, with over 30 doctors participating.

"The idea is to have a platform where we can share experiences, and find ways to offer medical support where it is needed most worldwide," said FIA Head of Medical and Rescue Pau Mota.



Dr Kelvin Chew was the first speaker, with over 30 doctors participating

## MOTOR SPORT SAFETY PIONEER BILL SIMPSON DIES

Former IndyCar driver and motor sport safety pioneer Bill Simpson has passed away, following a stroke.

A strong advocate for improving driver safety, Simpson was the creator of Simpson Performance Products which made a number of driver protection devices including helmets, firesuits, gloves and shoes.

He is noted for being part of the breakthrough in using Nomex fireproof materials when working for NASA, and is famous for setting himself on fire to prove his products effectiveness.

In 2002 he left Simpson Performance Products due to a dispute over the death of Dale Earnhardt, when initial reports blamed the seat belts manufactured by Simpson as the cause.

Subsequent medical investigations into the accident concluded that it was a basilar skull fracture that caused Earnhardt's death, ultimately leading to the adoption of frontal head restraints in top-level motor sport.

Simpson later went on to create safety equipment company Impact! Racing, and helped develop lighter and stronger helmets in American Football due to players suffering from concussion.

A celebration of Simpson's life will take place at the Indianapolis Motor Speedway Museum.

## FIA MEDICAL SUMMIT SET FOR MUNICH

The next FIA Medical Summit and Chief Medical Officers' Seminar is set to take place in Munich, Germany on 5th and 6th December.

The two-day conference will bring together leading motor sport doctors from across the world, discussing the latest developments and theories in the field.

Previously, the biennial conference was held in St Petersburg, Russia in 2018 where it focused on the efficiency of extrication and medical teams using crew resource management and concussion management in motor sport.

There were also workshops that looked at extrication for rally cars and single seaters that use the Halo, and the safety hazards that come with electrical cars and how it is standardized across different disciplines such as F1, WEC, and Formula E.

Dr Dino Altmann and Matteo Piraccini also hosted a round table discussion based around the prevention of injuries in motor sport. A case study was presented that looked at Pietro Fittipaldi's accident in the World Endurance Championship race at Spa Francorchamps in 2018, in which he broke both his legs.



## FLÖRSCH WINS 'COMEBACK OF THE YEAR' AT THE LAUREUS WORLD SPORTS AWARDS

Sophia Flörsch took home the award for 'Comeback of the Year' at this year's Laureus World Sports Awards, for her return to racing after her major accident at the 2018 Macau Grand Prix.

During the accident she was launched airborne into a photographer's bunker, but now Flörsch has made her comeback to motor sport following a full recovery from spinal injuries.

Racing for Van Amersfoort racing in last year's European Formula 3 championship, she later joined HWA Racelab for the 2019 edition of the Macau Grand Prix.

In her acceptance speech she thanked the Mercedes Formula One team and Team Principle Toto Wolff, who provided support while she was being treated in Macau.

"I want to thank my parents, my little sister, the Mercedes F1 team and Toto Wolff, who helped me in that week," said Flörsch. "The team helped me with the doctor, Doctor Ceccarelli, who was next to me the whole time."



"It was hard times, but I always had the goal to come back in a racecar which happened 106 days later," she added. "Having this in my hand now is incredible, and hopefully I'll be here again in a few years as World Sportswoman of the Year"

Flörsch beat fellow nominees Andy Murray, the Liverpool football club, Nathan Adrian, Christian Lealiifano, and Kawhi Leonard. For the 2020 season she is planning to drive with Campos Racing in Formula 3, which supports Formula One.

## DR JACQUES BOUCHARD STEPS DOWN

**Dr Jacques Bouchard has stepped down from the FIA Medical Commission and has been replaced by Dr Ronald Denis.**

**This is as part of the FIA's age limit rule brought in place in 2018, whereby all members of FIA commissions must step down once they reach the age of 75 years old.**

**Dr Bouchard has served as principal of the Formula One Medical Team for the Grand Prix of Canada in Montreal since its inception in 1978. Beginning in 1979, Dr Bouchard assumed the role of Chief Medical Officer for the event, a position he has shared with Dr Ronald Denis since 1987.**

**He has been instrumental in advancing the field of the delivery of health care at motorsport events in Canada and worldwide, through his involvement with the FIA Medical Commission.**

**This was celebrated in 2016 when he was inducted into the Canadian Motorsports Hall of Fame, for being a significant contributor in the advancement of motor sport medicine.**

**Dr Ronald Denis was inducted alongside Dr Bouchard for his efforts in introducing a video link between circuit and hospital.**

## OMP RACING ACQUIRES BELL HELMETS TO CREATE MOTOR SPORT SAFETY GIANT

OMP Racing has acquired Bell Racing Helmets Group to create a motor sport safety equipment industry giant.

With over 2,000 products in its catalogue OMP can now add one of the top manufacturers of head protection for drivers to its roster, with the acquisition seeing it working together with Bell to bring the latest safety innovations to motor sport equipment.

This means Bell Racing Helmet Group's research and development facilities in Bahrain, Belgium and US will be further supported by OMP's facilities in Italy and the US.

This includes an expansion of Bell's Bahrain R&D facility,

expected to increase the workforce to over 200 employees.

"This is the most important acquisition in OMP's 46 years history, and it marks a revolution in the field of motorsports safety equipment," said Paolo Delprato, OMP Racing's President and CEO. "Motor sport

continues to evolve and with this acquisition, we are preparing to face the new challenges ahead, confident in the value we can deliver."

Bell Helmets supply 11 out of 20 of the current drivers of the Formula 1 grid including Lewis Hamilton, Kimi Raikkonen and Charles Leclerc.



## MOTORSPORT AUSTRALIA TIGHTENS FRONTAL HEAD RESTRAINT RULES

Motorsport Australia has made the use of Frontal Head Restraints (FHR) compulsory at club level rally events and speed events, for those using vehicles equipped for its use.

This will mean anyone racing a 1st category vehicle, or car with a Motorsport Australia logbook which applies a Race, Rally/Road, Off Road or 5th Category classification, and used in an event applicable to its Log Book classification, requires the mandatory use of a FHR.

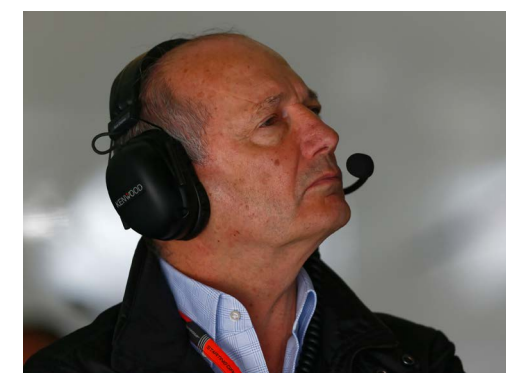
The use of FHR will not become mandatory in speed events for competitors who will be participating without the use of additional equipment such as a safety cage, safety harness or competition-style seat, such as using a road registered vehicle at a club's 'come and try day'.

The move follows the findings of a recent review into safety in rallying undertaken by the Australian Institute of Motor Sport Safety, with the use of FHR's providing significant improvement to the safety of those participating in the sport – especially in the instance of a frontal impact.

The official regulation for FHR's will apply in the Motorsport Australia Manual Schedule D – Apparel, and can be found here.



## FORMER MCLAREN BOSS TO LEAD NEW SPORT SAFETY GROUP



Former McLaren chairman Ron Dennis is teaming up with Former British Olympic Association (BOA) and World Sailing chief executive Andy Hunt, to lead a new organisation which aims "to create a safer world of sport."

The company called 'Podium Analytics' will work to develop "innovative solutions" to "significantly reduce or prevent

the incidence and long-term impact of injury in sport."

Hunt is overseeing its launch and growth from its headquarters in London. Founding trustees include Peter Hamlyn, a world leading consultant neurosurgeon who specialises in high-performance sports injury.

They are joined by Robin Fenwick, the chief executive and founder of sports marketing consultancy Right Formula, and Kristina Murrin, the chief executive of the National Leadership Centre.

"Safety in sport is something I am deeply passionate about," said Dennis. "I have spent the past two years analysing injury in youth sport, looking at how we might tackle preventable injuries that can curtail people's ability to participate in sport for the rest of their lives.

"Each year, the UK sees over 2.7 million visits to A&E as a result of young people being injured during sport and this

need addressing," he added. "I intend to bring all my knowledge and expertise of revolutionising motorsport safety into mainstream sports.

Areas likely to be looked at are the long-term impact of contact in rugby and the potential damage to the developing brain caused by football heading. One ambition is to develop monitors that can be used in schools to measure the forces imposed on the brain by heading.

A study of A&E admissions in 2018 found that children and adolescents account for almost half of all attendances for sporting injuries. Football, rugby union and rugby league were the most dangerous sports for boys and trampolining, netball and horse riding for girls.

The pair plan to building a team of "talented and dedicated professionals" with backgrounds in science, technology, data and sport.



## VIEW FROM THE GROUND:

## GREG SUMMERVILLE M.D.

CHIEF MEDICAL OFFICER FOR FORMULA E AND WEC US, DEPUTY CMO FORMULA 1 US GP, TRACK PHYSICIAN FOR SRO MOTORSPORTS, TEAM PHYSICIAN FOR CORVETTE/PRATT&MILLER AT LE MANS.

**“ I started racing before I got involved in the medical side.**

Besides being a fan it was my brother who was a mechanic in the Sports Car Club of America (SCCA) and I started going to races just kind of as the gopher - 'Go for coffee, go get the timing sheets, go for whatever' - and that was when I was still in medical school. For a while I started racing in a Formula Renault spec-car and during that I would go to the medical centres at some of these local tracks and say "Hey, you need help?" and by that time, I moved to Atlanta to start my residency in emergency medicine.

In 1999 I started to attend the International Conference for Motorsport Sciences, and from there I met a woman who was organising the Corvette medical group to go to Le Mans. Alongside this I work for the GT World Challenge as a physician. I trade off that job with a very capable doctor from Detroit who is the Chief Medical Officer (CMO) for the IndyCar Detroit Grand Prix. After I did Corvette for a while, IMSA hired me during the American Le Mans Series era. In 2015 I became the deputy chief medical officer for Formula One at the Circuit of the Americas and I'm the deputy CMO for Formula E.

**The volunteer scene depends on where you're working, and I'll use COTA as an example.** I think all the people that work on

the emergency medical services there are paid local fire people. Whereas if you go to some other tracks like Laguna Seca, even the doctors are volunteers. But it's hard these days to justify working for free all the time. When you say that, say the promoters, they're making money, but they're not paying the staff anything and it's the same with the corner workers.

**Depending on what series you work with there is no training,** you can have people like me and I'd like to say in certain cases with 20+ years' experience of doing contract medicine, you get sought after because you have experience.

The biggest thing about going on track is knowing what to do and what not to do, because there is a lot of danger out on the track. If you're a first-time doctor you might want to listen to our podcasts we do with Dr Matthew Mac Partlin.

I've seen people at particular races who are doctors who show up and they wear the proper equipment - fire suit, fireproof shoes, gloves and balaclava - and they understand what their role is and what needs to be done. Whereas I've seen some series where, as long as someone shows up and is licenced in the state, they'll take you out on track.

**One of the big things when the FIA came to the United States, is they realised we don't put doctors in our ambulances, we put paramedics in them.** I think it would

be probably not as good or suboptimal if you said, "You need a doctor in the ambulance" because that doctor hasn't seen acute crashes on the road like the paramedics have. They have great experience, they're very well trained, and it's very rigorous to get through paramedic training and to substitute somebody who's never seen a crash for someone who does it daily would be a bad thing.

So, the FIA said "Oh, okay, so you guys are using paramedics? Kind of like we use doctors?" I think that was hard for them to swallow at first, but then it was like, "Yeah, okay, this way you guys do it. We see the advantage of that and that's the way it's done in the United States. Okay, that's a good thing." So again, I think that the FIA is adapting to the way we race and the way we do things in America, and I think there was some forward thinking people that said "Oh, yeah, okay, that's good, that's safe."

**People ask me "What do you need to be part of a safety team?" And the first thing that comes out of my mouth is "You've got to know which end of a broom to push!"**

Once you're done with the medical part of it, the drivers cleared and you're satisfied they're not injured, you become one of the people that is out there to make the show go on. You pick up a broom, you pick up pieces on the track, you get it cleared for racing. You're not just a doctor out there to take care of the medical things. ”







# FEATURES

## LEADING LIGHTS

High-tech light panels are set to become the first line of safety at FIA circuits worldwide







Flags have been a big part of the history of motor sport, acting as a way to get information to drivers on track in the event of an incident. But in recent years they have been supplemented by light panels that can be placed in high risk areas and deliver information quicker and more clearly to the driver.

Now this technology is set to become mandatory at FIA championship circuits worldwide, after the FIA created the first homologation standard for light panels.

These high-tech LED panels, which are operated by race control and trackside marshals, are currently used for every F1 race but are transported to each track by the promoter. The new standard will

ensure that every current F1 circuit has top-level light panels permanently installed and similar systems will filter down to grade two and three level circuits.

This would represent a huge step forward for safety as the light panels can form the basis for a number of systems around the track. The panels are integrated into the timing systems, CCTV, and incident reporting software, giving race control a quick way to deliver concise and critical information to drivers, such as an upcoming incident on track, a Virtual Safety Car, or double-waved yellow flags.

Over the past two years the FIA has been working to develop the homologation

standard for this technology, to ensure circuits around the world are adopting it and to further enhance safety and communication between race control, marshals and drivers.

#### MAKING THE GRADE

The FIA Standard 3504-2019 – Light Panels for Motor Racing Circuits, which was published in November 2019, is split up into three different levels: T1 for use at Grade 1 circuits that host F1, T2 for use at Grade 2 circuits that host Formula 2 and World Endurance, and T3 for use at Grade 3 circuits that host World Touring Cars and Formula E.

“The main difference between the three is in the performance of the light panel itself,” explains Stuart Robertson, FIA Head of Circuit and Rally Safety. “This performance must match the speed and reaction times of the drivers on track.”

This is why a Grade 1 circuit will have higher performance requirements compared to a Grade 2 because of the speed of car that race around it.

The FIA tests performance across several parameters, such as Luminance, Viewing Angle and Colour Shifting.

“These technical requirements usually take one full day of testing for one panel and then we examine the data for performance,” says Carlos Soteras, FIA Circuit Safety Engineer. “It’s the FIA in the end that decides if it has passed or not.”

Each panel is sent to the Federal Institute of Metrology (METAS) laboratory in Switzerland, where it is tested under a number of conditions, such as wet weather or under direct sunlight. Another test

## “ THE LIGHT PANEL STANDARD WAS DEVELOPED OVER THE PAST TWO YEARS BETWEEN THE FIA AND F1 ”

ensures that the panels can still be seen by people who are colour blind – an area examined by the FIA Medical Commission, which made sure that certain colour combinations were avoided.

#### HIGH-TECH RESEARCH

British company EM Motorsport, which supplies the software for race control and trackside marshalling systems, is the first and currently only supplier to have passed the tests for T1 and T2 panels. Spanish company PIXELCOM has achieved homologation for its T3 panels.

EM Motorsport is the current supplier of light panels to F1 but still had to develop its technology further to meet the new stringent FIA standard.

“We had to modify part of our light panels to achieve the FIA homologation which is quite strict,” explains EM Motorsport engineer Luca De Angelis. “We had to change some software and some cooling parts of the hardware to be able to homologate the panels, so we had some work to do.”

To ensure the panels have the required performance under direct sunlight, the FIA measures two things: the reflection of the panel and the colour shift. De Angelis explains how the company had to do research into the visibility of the panels in various conditions.



“THE GOAL WAS TO SHOW DRIVERS CLEAR INFORMATION THAT CANNOT BE MISUNDERSTOOD”

“At the beginning of the light panel project we had to define what was our main light ‘enemy,’” explains De Angelis. “We had to be visible and clear to drivers who are racing at 300km/h and focusing on the road ahead. The goal was to ‘distract’ the drivers from their focus. Showing them clear information and messages that cannot be misunderstood.”

This is where a light panel has a distinct advantage over a waved flag because it can adapt to conditions to ensure it is always visible to the driver. Another advantage is that a light panel could be installed anywhere on the circuit, even at the most hazardous point of a high speed corner, whilst a marshal needs to be a certain distance away from the action.

“The standard flag is a passive object subjected to the light physics (reflection/refraction of the light) and the environment has a big impact over this compared to the light panel,” adds De Angelis. “During sunset races for example, the sun is low on the horizon so a driver may be looking directly at it while driving. This means the panels have to be more visible than the sun, even when it is directly in the background.”

To solve the issue of people seeing distorted images due to the frequency differences, the FIA looked at how the light



Marshals can operate light panels safely from a distance



Race control links to panels and can override marshals if needed

would appear in the onboard TV cameras.

“In the standard, there is one criteria which is called flickering and this technical parameter measures these kind of things,” says Soteras. “To ensure that the drivers don’t have problems with it, we also want to show that for the television cameras this effect doesn’t appear.”

**BRIGHT FUTURE**

The aim for the FIA is to make the light panel technology affordable for all circuits,

which is why it is making it mandatory based on championships rather than circuit grade itself.

There is also a cost consideration as circuits typically need between 10 and 20 of these light panels to cover the track, with each T1 panel costing around €10,000. This is not including the cabling and system installation that enables each panel to link up to a marshal post and to race control through a fibre optic network.

So whilst there are currently 46 FIA licenced

Grade 1 circuits around the world, it is just for the 29 that host F1 and MotoGP races that these panels will become mandatory by 2022.

In addition, every new Grade 1 circuit will have to implement the T1 panel by 2022, with new Grade 2 circuits getting homologation in 2023 for the T2 panel, and new Grade 3 circuits in 2024 for the T3 panel. For circuits that host non-permanent street races, such as Singapore and Azerbaijan, one of the ways the FIA is going to support them is by working with suppliers



to enable them to hire their light panels for an event if they do not want to make the investment to purchase them straight away.

“Obviously a lot of investment from circuits depends on the promotional agreement they have with F1,” says Robertson. “As you can imagine if someone is renegotiating next year then that would be high on their list of topics to ensure they can afford to implement the panels for 2022. But if a circuit is finishing an agreement very soon after 2022, they may wish to hold off and just rent the panels until such time that they’ve got a new agreement.”

But it will be to the circuits benefit to introduce these for the future as the technology develops. Robertson points out the FIA is looking at ways to make the integration between race control and the cars more automated so these panels will become a key part of racing’s future.

One new project involves using advanced GPS systems to precisely locate the position of a car on track at any time. This connects to the trackside panels to give information to that particular driver, and eventually this could be automated so the right flag would display to a driver in a quicker time than any human operator could manage

Giles Cooper, EM Motorsport’s Business Development Manager, explains: “There are some areas that we can automate such as the blue flag, because we know where the cars are and which lap they are on. We can show the blue flag to the car that is approaching that panel, and don’t rely on a marshal pressing a button.”

But this would not eliminate the need for marshals altogether. As Cooper says. “It’s

**“ WE ARE GOING TO COME UP WITH AN AFFORDABLE LIGHT PANEL THAT CAN BE USED AT LOWER GRADE CIRCUITS ”**

sometimes seen that the flags are replacing the marshals but this isn’t true. You still need marshals to be the eyes and ears, and aware of any on-track incident.”

In the longer term the FIA hopes to make this system more affordable for grassroots motor sport, including karting, by creating products that can be installed just for a race weekend.

“We are going to come up with an affordable light panel system which could be used at national club racing circuits and also an affordable marshalling system to plug into a car,” says Robertson. “As is often the case, we’re starting at the top level and then cascading down because we really want to work on the more grassroots end of the market as well.”

Other projects that the FIA has introduced at top-level motor sport, such as the Accident Data Recorder in F1, are now being used in the national F4 series worldwide. With the rate at which technology develops it will only be a matter of time before affordable light panel systems are seen at most circuits.

For the FIA the effort means that officials can have more focus on incidents on track in real time and for competitors it means quicker response times from officials, ensuring their safety at the most critical moments in a race.



Marshals still wave flags if they are not cleaning up the circuit



# IAN DUNBAR

## FIA RESCUE SPECIALIST

Ian Dunbar is the FIA's newly appointed Rescue Specialist, with over 25 years' experience working in the UK Fire and Rescue Service and as a rescue consultant. *AUTO+ Medical* spoke to him about his history of working in motor sport and the challenges of trackside rescue from both a medical and technical point of view.

### **AUTO+ Medical:** What is your background in technical and medical rescue?

**Ian Dunbar:** I joined the UK Fire Service when I was 17 and I've been in emergency response for nearly 30 years now. After 12 years in the fire service I was offered a position as an instructor, and I was put in a specialist department that focused on everything from road safety education to intervention. Most of my role was training the fire fighters in the Cheshire Fire and Rescue Service, ensuring they were able to safely and effectively respond to road traffic collisions.

That is when my career started to focus on the technical rescue and medical aspects of rescue, and I quickly developed a real passion for it. I decided to take a pre-hospital course because as a fire fighter in the UK we were not (in those days) trained much above

advanced first aid. So I did a trauma course that was designed principally for doctors and I managed to pass. I was asked to join the faculty to become part of the staff, teaching doctors from all around the world on vehicle extrication. On the technical side I joined the United Kingdom Rescue Organization whose ethos is to improve response to road traffic collisions in the UK and I became an assessor for them. That really enhanced my awareness and understanding of all elements of vehicle extrication.

### **A+M:** How did you get involved with motor sport?

**ID:** If we fast forward to 2010, by which time I was a world qualified assessor. I was at the World Extrications Challenge in Ireland and I was approached by Holmatro, one of the major manufacturers of hydraulic rescue equipment, and they offered me a job as a consultant. It was a hard to decision to leave the UK Fire Service but eventually I accepted and we relocated to the Netherlands in 2011. My work for that company took me to more than 100 countries working with emergency services, police, fire, any organization who deals with road traffic collisions. My job focused on education, research and development, and empowering the emergency responders around the world to be best with what they do.





While I was working for that company I was approached by FIA research consultant Andy Mellor, who was working on the Halo project in 2016. He explained the Halo concept to me and he said 'Would you be available to do a little bit of work around what impact the Halo may have on driver extrication? Can we cut it? Can we remove it if we have to?' so I did. Over a period of about two years I worked with Andy on that.

**A+M: And then you got involved with the British Touring Car Championship?**

**ID:** One of the Halo sessions I did was at Brands Hatch and I worked with the TOCA

Safety Team from the British Touring Car Championship (BTCC). I was asked to join the team in 2016. Primarily I agreed because I love the BTCC, but when I started having discussions with Martin Hunt, who is the rescue chief on the TOCA Safety Team, I thought maybe I can add a bit of value. My impression was that in terms of technical rescue in motor sport, a lot of the people who respond to accidents are a bit like myself - fire fighters or paramedics who are off duty - but it's probably less than 5 per-cent; it is 'your butcher, your baker, your candlestick maker' and I was mightily impressed with their dedication and professionalism. I did

three and a half years of BTCC, and that was my first real venture into motor sport in a professional rescue capacity.

**A+M: How did this role within the FIA come about?**

**ID:** In addition to my continued work around the Halo I also did some single-seater cutting tests with the FIA in 2019. I wasn't aware at the time, but the FIA was starting to look at a role for someone who was a specialist in technical rescue. Then when I looked at the job description from the FIA, I printed it off, showed it to my wife and she said 'Well, that's just clearly you isn't it?' and it's one of those job descriptions where you think 'This is me and everything I've worked for, certainly for the last 20 years' and after a three to four month process, they offered me the role.

**A+M: What's your role now?**

**ID:** My title is 'Rescue Specialist' and my mandate is to work within the medical and safety department in the FIA and really assess what we do from a technical perspective. Quite honestly, I think the first thing for me to do is to learn more about the motor sport environment worldwide. My plan for the first six to twelve months is to learn more about all of the championships and more about how we react and respond in different environments, whether that is on a circuit in

South America or a rally stage in Scandinavia. What we do well, and what we can improve? It is about sharing best practice, as there are some incredibly passionate and dedicated people working in motorsport and they do brilliant things.

On the technical side, it involves looking at all of the ingredients involved in rescue. Researching equipment; what equipment do people use? How has the construction of vehicles changed and what impact will have that have on our ability to extricate a driver? Also looking at how we train people and condition them to be able to actively respond in a pressurized environment.

**A+M: For grassroots events how can you ensure that extrication is at the right level there?**

**ID:** For me it's quite simple - there should be no difference in our approach to developing those involved in grassroots motorsport compared to those who attend World Championship events. Whilst the level of exposure is obviously different, the consequences of something going wrong are comparable. We therefore need to make sure that crews who respond to an incident during a hill climb on a cold winter morning in the UK have the same mental and physical tools available as those who deal with an incident during the Monaco Grand Prix. I guess that is easier said than done, but it is a position we should aspire to.

**A+M: Are there any other areas of technical rescue that can be improved that you're targeting?**

**ID:** My passion for the last 15 years has been closing the gap between the technical



Dunbar worked as a consultant for Holmatro in the US

**“ MY PASSION HAS BEEN CLOSING THE GAP BETWEEN TECHNICAL AND MEDICAL ASPECTS OF RESCUE ”**



and medical aspects of rescue. Clinicians can work better if they have an acute understanding of the technical complexities and conversely, technical rescuers can be more patient-focused if they understand key concepts like mechanism of injury and the importance of gentle handling. There is a definite benefit in the two disciplines working more closely together and each understanding far more about the others role.

Historically, rescue has been seen as paramedics and doctors working on the patient while the technical rescuers wield the tools and make a big hole. Over the last decade or so this has changed to a position where we are now far more patient-centred thanks to closer collaboration. This must continue and one of my aims is to develop this trend within motorsports.

Additionally, I am fascinated by human factors. Responding to an incident on track or on a rally stage is an extremely pressurized role, especially when someone is injured and trapped. How we plan, make decisions, work as a team and deal with things if they are not going right, is an area of rescue response that is so vitally important. This is especially when we consider that the overwhelming majority of motorsport rescue teams around the world do not routinely operate in such an environment as part of their day job.

**A+M: Will any of your work cross over into road safety?**

**ID:** I think primarily because of the background I've come from I know that fire fighters all around the world who respond to road traffic collisions have the thirst for knowledge, possibly more so than any other area of their job. Primarily it relates to two

“ **RESPONDING TO SOMETHING ON TRACK IS DIFFERENT TO RESPONDING TO SOMETHING ON THE ROAD** ”

areas; vehicle technology and dealing with the patient.

I think my role within the FIA will undertake really relevant research that doesn't only apply to motorsport but also to the wider population and can positively impact on those who perform 'road rescue'.

What I would like to do is to get the practitioners a lot closer together, and one thing I've discussed is a call to action from the emergency services around the world to say 'Why don't you come and get involved in motorsport, your experience would be invaluable.'

I think there is a huge benefit in that kind of cross pollination of knowledge and understanding. They could be brought closer together and provide a very productive platform for learning.

**A+M: So are you excited about this new challenge?**

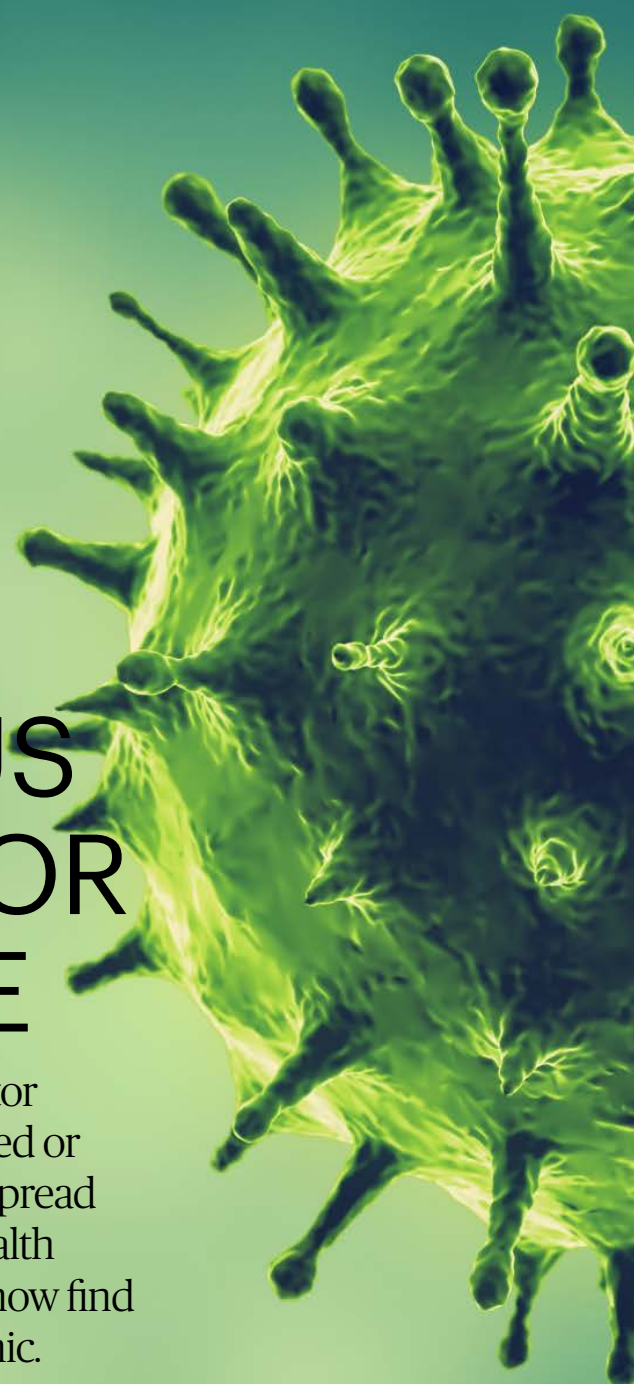
**ID:** I see this role as a fantastic challenge for me, despite what I've done previously in my career, there is a lot for me to learn in this role and that's why I'm really excited about it. Responding to something on track is different to responding to something on the road - they both have their unique challenges but also there are many similarities, so for me it is a learning curve that I relish and hopefully I can bring some value to the FIA and clubs around the world.





# HOW CORONAVIRUS IS AFFECTING MOTOR SPORT WORLDWIDE

As the world grapples with the coronavirus pandemic, motor sport is being put on hold, with many events either cancelled or postponed until further notice. This is to help combat the spread of the virus and reduce the possibility of overwhelming health care services. And the doctors that are usually at the track now find themselves on the frontline of defence against this pandemic.



**AUTO+ Medical spoke to three doctors from the United Kingdom, Australia and Canada to see what the situation is like in their respective territories and how this will affect motor sport going forward.**

## UNITED KINGDOM

**DR PAUL TRAFFORD**  
**Chairman Motorsport UK medical committee and Medical Director British Touring Car Championship**



I am an anaesthetist and have just finished working five consecutive days in theatres and five nights being on call for any patients who need to be taken back with problems. As someone who has a major involvement in motor sport and has worked part time in the National Health Service (NHS) in the UK for many years, I never expected to return to work full time, let alone be the only anaesthetist in a hospital designated for urgent cancer surgery while many of my colleagues are struggling with covering emergency rotas, self-isolation and expanding a network of intensive care beds to cope with the coronavirus pandemic.

Before everything was locked down and all motor sport activities stopped, I was at the first Porsche UK test day of the year, followed by the launch of the British Touring Car Championship at Silverstone. These were to be the last motor sport activities in the UK, with Motorsport UK suspending all events a

few days later and the UK government advising against any large gatherings. As events unfolded, we have had discussions about the number of emergency care assets motor sport has access to, including ambulances and ventilators and how these can be utilised by the NHS. Many of the teams and those involved are anxious about the situation and their jobs, most self-employed and relying on being in work to pay their bills. We have now entered a complete lock down in the UK, something no one has ever experienced, with people only being allowed out to buy essential supplies, take a walk once a day with family members and at a safe distance, or go to work if it is an essential job.

So many people now are at home without an income, although the UK government have put in place measures to help. Doctors and those involved in health care are fortunate to be able to contribute and still have work, but this is not without risk. My wife is a surgeon and one of the nurses she works with is currently on a ventilator in intensive care. She sent a text to everyone she works with saying she had COVID-19 and was being transferred to be ventilated – she went on to say she wanted everyone to know she had loved her work and everyone she worked with and they had been the best years of her life, but she was frightened she might not make it. That really brought home the stark reality of what was happening. It makes you realise the important things in life. In the UK suddenly

**“ IN THE UK THE NHS HAS BECOME THE MOST IMPORTANT FOCUS FOR EVERYONE ”**



everyone is more helpful and considerate, the NHS has become the most important focus for everyone, with many of the major motor sport companies turning their expertise to manufacturing medical equipment and everyone offering help. When all this is over the world will have changed, motor sport will start again but we will all have a different perspective on life and hopefully be more caring to one another.

**AUSTRALIA**

**DR MATTHEW MAC PARTLIN, Deputy Chief Medical Officer WRC Rally Australia and Formula 1 Australian Grand Prix**



In December at the end of last year a very large bushfire caused the cancellation of the Australian World Rally Championship stage, resulting in the premature endings of the series season.

There was disappointment after all of the hard work only to have the event called off the day before competition. But we knew the bushfires would be brought under control, so we packed up and started planning for the next event.

In addition to the usual months of planning, strategies for managing the coronavirus at the opening Formula One race in Melbourne were developed. Meetings were held to ensure that everything that could be done was in place. The support category cars hit the track for practice, qualifying and one race, and the next day the Australian Formula One Grand Prix was cancelled. The sense of

deflation, of all that preparation for no event, was palpable. And thereafter sporting codes rapidly began to shut down as the reality of the COVID-19 disease manifested itself.

Australia prides itself on being a sporting nation. Some sports have continued albeit under heavy restrictions, playing in empty stadia and facing a mixture of criticism and praise for doing so. The majority of motor sport in Australia has closed down.

Social distancing restrictions may limit on track activity and prevent spectator attendance but sim racing provides a platform, albeit a less physical one, to race on. F1, NASCAR, IndyCar, the Australian ARG and the Australian Supercars have all announced plans to run their normal calendars as a virtual racing series, providing much needed distraction during difficult times.

There are other ways that the motor sport industry can help. Already F1 manufacturers are exploring ways to modify their parts factories to be able to produce essential health care equipment such as ventilator parts. Motor sport teams have great experience in efficiently managing supply chain logistics and efficient workflow patterns. Now might be a good time to bring those skills to health care systems that are already, or are about to be, struggling with high demand, high stakes, dwindling resources and eroding morale.

**“SOCIAL DISTANCING MAY LIMIT ON TRACK ACTIVITY, BUT SIM RACING PROVIDES A PLATFORM TO RACE ON”**

**CANADA**

**DR ROB SEAL, Clinical Professor and Director Pediatric Cardiac Anesthesia**



As I am married to a physician who is an expert in that field, acquaintances often approach me for advice or reassurance about infectious diseases. Regrettably, this is not one of

those occasions. The COVID-19 pandemic has placed us in a situation of enormous uncertainty. Even if you are good at mathematics, it is difficult to comprehend the impact of something that increases in a logarithmic fashion. Some colleagues throughout the world have already faced the need to care for a volume of patients that has overwhelmed their healthcare systems. Whereas others of us are early in the phases of bracing for the impact through education, preparation, and re-directing our resources in the hope that we will be able to cope.

Health system capacity alone is unable to tackle the problem of COVID-19. World-wide public health measures, particularly those involving preventative hygiene and social distancing are essential. It is hoped that these efforts may flatten the shape of the incidence curves in order to keep the number of seriously ill cases within the capacity of the healthcare system. Time will tell how well this will work. It is also possible that these efforts may increase the duration of the pandemic.

In motor sports, we are drawn into this pandemic along with everyone else on the planet. Beyond healthcare, the socioeconomic

consequences are staggering. Is it even possible to predict the impact of COVID-19 on our sport once the pandemic has passed? It is likely to affect our sport at every level – amateur and professional competitors, team owners and personnel, and the infrastructure from marshals and safety personnel through to promoters and track owners.

Globally, we are also facing many losses in our recreation and entertainment. These activities round out our lives and are essential to our mental health. The temporary suspension motor sports is certainly a loss of that type for many.

In Canada most provinces have declared a state of emergency. Pre-season training sessions for motor sport safety teams and marshals have been postponed. Whilst not yet declared, there is a possibility that major motor sports events such as the Canadian Grand Prix, the Toronto Indy, and others may not take place in 2020. Similar uncertainty rests throughout the entirety of Canadian motor sport.

Many people in Canada have become unemployed and one hopes that their jobs will return following the pandemic. However, it is likely that jobs will be lost as some businesses will not survive the economic impact of the pandemic. The financial consequences of loss of major motor sports events are far reaching and extend beyond the operation of the events themselves. Parallel to the health concerns, these socioeconomic uncertainties are enormous.

Unlike the Spanish Influenza pandemic which occurred in an era the preceded the “connectedness era” in which we now live, I am optimistic that the global working relationships and perhaps more importantly the friendships that we have made through organizations such as the FIA will enhance our ability to re-build.





## INSIDE THE... WEC SAFETY CAR

*The Porsche name is synonymous with endurance racing and is one of the most successful marques to win the illustrious 24 hours of Le Mans. But since 2018 it has also been key to the safety of sportscar racing, as the sole provider of the fleet of safety cars for the World Endurance Championship.*

To keep the prototypes at the front of the field running at an adequate speed that ensures enough heat is in their tyres and brakes, and drive cooling air through the radiators, the Safety car must be part of a special breed of high-performance vehicles suitable for circuit driving.

With that in mind, the all-wheel-drive 911 produces 540bhp and will go from zero to 100km in just 3.0 seconds and features just a few modifications that make it slightly

different from the road car. This includes the light bar on the roof which is FIA homologated and alerts drivers of the current track status, and a radio for contacting the race director, with the brakes and suspension optimised for the racetrack.

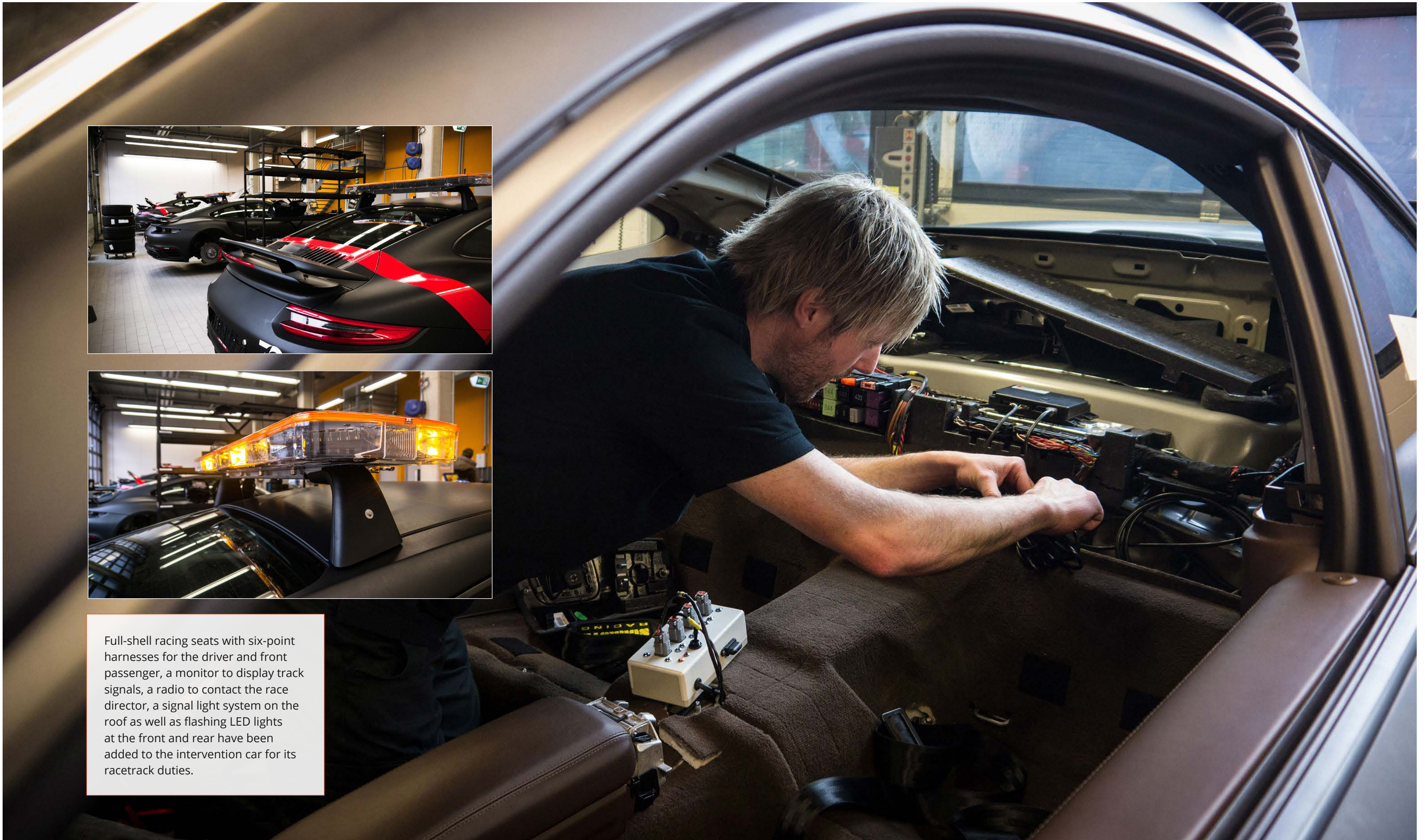
"Many of our production models fit the bill for this special task on the race circuit," said Dr Frank-Steffen Walliser, Head of Porsche Motorsport. "Ultimately, however, we chose the Porsche 911 as the safety car. In total, 16 vehicles from different model lines will fulfil different functions in the WEC."

In WEC, only one safety car can be in operation at a time, except for circuits of over

7km in length, where other safety cars, positioned at intermediate points around the circuit, can be authorised by the FIA. This is why in addition to the main Safety Car, Porsche AG will be supplying a reserve Safety Car while Three 911 Turbo will head to Le Mans as permanent vehicles.

The Leading Car is driven by FIA Driver Adviser and former 24 Hours of Le Mans winner Yannick Dalmas. This car leads the race away for a formation lap before the official start is given (all WEC races have rolling starts) and can be deployed by the Race Director at any time for official purposes.





Full-shell racing seats with six-point harnesses for the driver and front passenger, a monitor to display track signals, a radio to contact the race director, a signal light system on the roof as well as flashing LED lights at the front and rear have been added to the intervention car for its racetrack duties.





THE ROAD BACK:

## ELFYN EVANS

*During the 2019 Rally Estonia, Elfyn Evans was running in fourth place when midway through the stage he landed hard in his M-Sport Ford after one of the high jumps and ploughed into a ditch. The landing caused damage to Evans' back and resulted in him missing the next three World Rally Championship events. AUTO+ Medical speaks to him about his recovery and how back injuries, a common issue in rallying, can be treated.*

**AUTO+ Medical:** Can you give me some background on what happened?

**Elfyn Evans:** We were competing in Rally Estonia, a rally with a lot of jumps, and we had quite a big jump at high speed. We landed ever so slightly offline, meaning that the left-hand side wheels landed in a bit of a ditch. As a result, the suspension on the left side of the car didn't take any of the brunt of the landing, so it essentially landed on the floor of the car. The wheels are obviously in contact, but because it was down a ditch it was a solid impact with the protection of the car. It broke the throttle pedal on the landing, I was severely winded and in some pain at the time, although I was able to complete the stage after I managed to gather my breath and try to get the throttle pedal back. I actually went on and finished the rally, but obviously at the time I had no idea on the extent of the injury.

**A+M:** When were you first aware of the injury?

**EE:** I was in a lot of pain to finish the rally, but I thought that I would be okay, that it was just something out of place in my back and I didn't really consider anything about breaking anything as such. I tried to see somebody locally but there were no scans or anything available there, so I essentially carried on and just tried to slow down a little bit on the jumps, although the jumps themselves were still quite painful. I continued for a day and a half of the rally after the impact, which probably didn't help in hindsight, but at the time you just think you want to carry on and learn as much as possible, etc, etc. It wasn't really until I went home and went through the networks to try and get seen that I then found out obviously what I'd done.



**A+M: What were the injuries?**

**EE:** When I got back to the UK, I got in touch Red Bull UK who have a support network for athletes. They put me in touch with physios Harris & Ross who got me seen immediately on the day I landed back in the UK. I was seen there, and they thought that I would be maybe okay, but they didn't know so they requested a few scans. I already had an MRI scan, then by the time I travelled home I had the results to say that I had two fractures in T-45 vertebra, they call it a compression fracture which one of them was a wedge fracture. They said that it was obviously quite serious and then I realised at that point I would be out of the car for some time.

**A+M: Were there any sort of doctors and physios that you work with in those months you were out of the car?**

**EE:** When I got told I had a fractured back I didn't really understand what that meant and what the permutations were, so I went to see Red Bull again who arranged for me to go back and have a CT scan to the proper understanding of how bad it was and I saw a pretty good consultant. He effectively said, because I was young, fit and healthy, to operate was not really an option because it would cause a lot of problems later on in life. Although it might give an acceleration in healing time now, but realistically you're going to have to rest up to 12 weeks and not do too much except for a few little stretchy-type exercises. But then obviously when they quoted 12 weeks I was like "I don't want to wait that long!" Harris and Ross were very good and trying to support me with exercises and stuff, they also told me "You're gonna have to wait 12 months," but



Evans is the currently second in the WRC standings after winning Rally Sweden this year

**“ I HAD TWO FRACTURES IN THE T-45 VERTEBRA, THEY CALL IT A COMPRESSION FRACTURE ”**



I wasn't really happy about that, I wanted to get back in the car sooner.

**A+M: Did you look at any ways you could speed up the process?**

**EE:** I started doing some research to see how I could accelerate the healing, because I think after looking into all sorts of these options of cementing your back, I came to the conclusion that healing naturally was the only realistic and sensible thing to do for longevity in the sport. Then I tried to find every therapy to try and aid my recovery to be as quickly as possible, and the key thing that I found was working with an electromagnetic field mat. So what the consultants at Harris and Ross, who were looking after my injuries, said is that all these therapies, the worst thing that can happen from it is nothing, that it gives you no acceleration in healing at all and it's not going to make anything worse.

I looked into a few different options, I had quite a lot of sessions of cryotherapy. The main thing was this electronic field map that I was on three times a day, it was by a company called 'Life Map Company' in the UK, who dealt with these iMRS (Intelligent Magnetic Resonance Stimulation) systems and I was getting a programme off them of how often to be on the mat as well as supplements to take to support the healing. Alongside this I was travelling back and forth to Manchester to Harris and Ross to try and do some exercises, they told me that they didn't want to put me in a brace because that would mean a longer recovery process because you'd lose all your core strength. But if they weren't putting me in a brace that I would have to be very careful. So, the only exercise I was able to do was on an exercise bike but



put in a very upright position to watch my posture. I was doing that, more or less every day along with exercises that to try and strengthen my core and support my back as much as possible. So my days were quite intense from a time point to you know, it was taking a long time to apply all these therapies and drive back and forth to Shrewsbury to get the cryotherapy. I was on this mat for basically two and a half hours total time a day. So, it was really time consuming basically and although you would associate looking after yourself by not doing a great deal with a lot of free time, I ended up actually with not so much free time. After eight weeks I persuaded to go back for scan to follow up, I really put

pressure on Harris and Ross to persuade the consultant to see me earlier. And actually after a week he said "I can't believe it, but it's more or less fully healed and you could go back in the car." So it showed that these therapies work because he said to me "I see 40 patients with back injuries every day and I never see it healing like this," so I was fortunate that I got found the right way for it to heal, but obviously then I have to turn around and get back in the car very quickly after that. I hadn't really done any real weight loading and all that type of thing, so it was a bit of a scramble then if you know what I mean to try and load my back, because nobody expected that it was as strong as it was so soon after the accident.

Evans consulted Red Bull UK who put him in touch with doctors across the UK



**“ I HAD ONE DAY TO PREPARE FOR WALES RALLY GB AND TO BE HONEST, THE FIRST COUPLE OF HOURS WERE QUITE TOUGH ”**

**A+M: What was it like when you actually got back into the car?**

**EE:** I did a small day in R5 but that didn't really help so much, I had one day basically to prepare for Wales Rally GB and to be honest the first couple hours were quite tough. I'd been out of the car for three rally's and normally we'd be driving the car every two to three weeks at the most and therefore I felt quite strange. But by lunchtime, I'd already found a good feeling in the car and I was able to push really hard and I felt pretty okay. So I was able to feel comfortable, I don't know if I was fastest but I was definitely top three in the shakedown, so it was pretty good from the off really.

**A+M: Were there any modifications you made to the seat?**

**EE:** Yeah, let's say I wasn't particularly happy with the seat that I had anyway in the car, so I changed the seat after that. Probably something that should have been done long before but when these things happen, then you realise the importance of it.

**A+M: What are your thoughts on these type of injuries in rally? Do you think drivers should be looking at the seating position in the car?**

**EE:** I mean, it's important that it's right. But to be honest, at the time, we didn't have a

lot of alternatives available. We're guided by strict homologation on things and there is probably only three or four seats on the market, and then you have commercial agreements, etc. It's often that there's only one or two seats available, and it's not the case of just changing something quickly. It's a difficult one, because you could probably end up in a situation where you could get seats that fit people a lot better by having more relaxed rules, but the reality is then them seats would never be able to be tested and be strong enough to match the homologation model of the safety cell in a different type of accident. So it is something that's very important, but at the same time more needs to be done to look at the jumps.

**A+M: Do you have any advice for just drivers who suffer similar injuries?**

**EE:** Yeah I mean, basically you can't just listen to one person is what I would say, to get a very complete picture and do what you feel is best after that. Everybody has their own theories or their own ways to go around doing things, all different consultants or different therapies. But sometimes you need advice and help from a range of different people, not just necessarily one person.

*Editors Note: As a result of research into enhancing the safety of WRC cars, this year the FIA implemented a new seat bracket system which prevents the peak G-Force load during a crash from being transferred to the drivers. The brackets helped Ott Tänak and co-driver Martin Järveoja escape injury after their 45G impact during this year's Rally Monte Carlo.*



# + CALL FOR SUBMISSIONS

*Every issue of AUTO+ Medical contains a research paper or injury case study that takes a scientific look at the sport.*

All submissions are welcome so if you have a study that you feel would be suitable for publication in future issues of AUTO+ Medical, please send it to:  
**automedical@fia.com**

For each submission please include a summary of the research and all necessary contact information.

The editorial board will evaluate each submission before it is accepted for use in the magazine.

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