# IndyCar Media Conference

Wednesday March 16, 2016

# Will Power
# Tim Cindric
# Stephen Olvey
# Terry Trammell

Press Conference

ARNI SRIBHEN: Welcome, everyone, to today's IndyCar media teleconference. Earlier today after extensive testing earlier this week at the University of Miami's concussion program, IndyCar announced that Verizon IndyCar Series driver, Will Power, showed no definitive evidence of a recent concussion. Power, the 2014 Verizon IndyCar Series champion, has been cleared to return to competition after sitting out race day on-track activities for the Firestone Grand Prix of St. Petersburg burring on March 13th.

We're pleased to be joined today by Will Power, driver of the No. 12 Verizon Team Penske Chevrolet, Tim Cindric, president of Team Penske, Dr. Terry Trammell, IndyCar Safety consultant, and Dr. Stephen Olvey, retired former director of the Neurocritical Care Unit at Jackson Memorial Hospital in Miami.

Will, we'll start off with you. How are you feeling, and what was your reaction when you learned that you were cleared to get back on track?

WILL POWER: Yeah, feeling better, and obviously it's great to be cleared to get back in the car again. That's the best medicine you can have.

I think obviously it was tough having to watch the race with someone else driving your car, but yeah, I mean, that's just the way it went. Got to move forward.

ARNI SRIBHEN: Tim, how big of a relief is it to Team Penske that learn that after an eventful weekend in St. Pete, the doctors have cleared Will to return to competition?

TIM CINDRIC: Yeah, it's been one of the more eventful weekends for the 12 car, that's for sure, I guess from the time we got going. So obviously to have some clarity, which way we're going, and how we're going forward certainly helps. Because there were obviously a lot of questions, through Sunday and even after Sunday, as far as what the next steps were.

It's good to have clarity on all those fronts. And Will once again showed us how hard-headed he was, so that was probably a good thing.

ARNI SRIBHEN: Dr. Trammell, can you briefly us through the weekend in St. Petersburg and specifically how Will's inner ear infection could have led to the concussion-like symptoms and failing the test at St. Pete?

DR. TERRY TRAMMELL: Okay. He had, as you know, an impact with a turn on the wall on the driver's right. It compressed the right side of the car pretty low, but at relatively low G's for that style of racing.

We were in the -- the chassis was in the 50 G range. I think his maximum right-sided G's were 56.9. That's on the chassis. His ear accelerometer data, without going through all the numbers, the average result was 30 G's, which is low and below our threshold that I'll talk to you about in a minute. He was being evaluated at the scene of the crash by the IndyCar medical team with Dr. Billows present, had no symptoms at that point of any kind, and was released from the scene.

Later that evening, he began to develop some neck soreness and stiffness, and Will, correct me if I'm getting this wrong, because I was doing this by remote control, and it wasn't until later that he developed the symptoms of nausea, headache and dizziness.

Now, what happens next is -- the presumption when a driver has had an impact is that anything that's wrong with him was a result of that impact. And the next step is to go to one of the sports concussion surveys, or what's called a concussion assessment tool or clinical evaluation tool of which there are several. And we use one called the SCAT test, which is sports concussion assessment test, or sometimes called a sideline concussion assessment test. That test is based on the premise that the cause of your symptoms is a concussion. It therefore quantitates the symptoms and gives a probability that you've had a concussion based on the numerical score for the symptoms.

If you have some abnormality to start with, what we

would called compounding factors or compounding variables, those are not taken into account. The effect that they have is not taken into account by the test. It simply assumes that all of your symptoms are from a concussion.

Well, if you have an inner ear infection with fluid in the inner ear like Will did, that by itself can cause you to have a sense of balance disturbance, vertigo, can cause you then to be nauseated. It can produce a headache. Anybody that's had a sinus or inner ear infection knows this, and if you have a headache and you're nauseated, you don't concentrate very well. Add to that fact that as the day, Saturday, went on, Will, if I'm correct, your neck stiffness and soreness seemed to get -- at least respond badly to loads under braking, and that causes increasing muscle tension, which also causes a headache.

So now you have a driver that's nauseated, has a balance disturbance, vertigo, headache, can't concentrate very well, and you have him take the SCAT test, which he'll now fail. It's part of our concussion protocol to say that if you fail a concussion assessment test, whatever kind we're using -- and SCAT is the one we're using now -- that you have to be evaluated by a more definitive diagnostic test such as the impact test before you can return to competition. We take the possibility of concussion very seriously and want to err on the side of caution rather than the other way around.

The other side of this is we depend and are increasingly dependent on our actual accelerometer data, both ear and chassis, and we found that they relate very well one to the other and help us determine the forces involved and the probability that those forces can cause injury.

We've researched it, actually Dr. Olvey researched it for us, and found that our threshold for concussion is somewhere greater than 50 G's resultant, and probably closer to 80 G's or above for a concussion, and has a HIC value that approaches 1,000. HIC is called head injury criteria. Will's head injury criteria was 44. So he didn't have -- nothing correlated very well. His crash was not sufficient to really cause a concussion under most circumstances, and he had a mix of symptoms for a variety of reasons.

So that's how he could have a positive SCAT test and trigger the concussion evaluation that he subsequently had.

ARNI SRIBHEN: Dr. Olvey, in addition to your experience as a neurosurgeon and teaching neurosurgery and neurology at the University of Miami School of Medicine, you're also recognized as one of the leading medical professionals in motorsports. Can you give us an overview of the testing that Will underwent this week and how you and the other doctors ultimately came to the final conclusion?

DR. STEPHEN OLVEY: Sure, first I'm not a neurosurgeon. I'm a neurocritical care physician, but no neurosurgery. Terry explained the preliminary information really well. Concussion without loss of consciousness or amnesia can often be very difficult to diagnose. And the reason is, as Terry explained, the patient can be symptomatic, the kind of symptoms you'd have with a concussion, but there are several other things that can cause those same kind of symptoms.

But you have to err on being conservative, and Will was sent to our Concussion Center at UM, and we've had a lot of experience with high-end athletes as well as some motorsports. Felipe Massa was there and Dario Franchitti, of course. And we have a whole battery of tests that can be done. In fact, it's quite extensive, involves three different departments, the Department of Neurology, Radiology, and Ear, Nose and Throat, and it was quite a feat because this was -- we did this on a Monday, and of course all the clinics are booked and the CAT scanner is booked. So it was a busy day at the University, but we were able to get all of this done over about an eight-hour period.

So we looked at every conceivable area of detecting concussion and occult concussion. And Terry mentioned the impact test, we did that first. What was really important was that his impact test on Monday was actually a bit better than his baseline test that he had back in January of 2015.

Following that, we looked at balance and coordination, which is all a part of your vestibular function, which can be affected by concussion, and then in the course of the day, we had him undergo a sophisticated type of MRI. It's not just a routine MRI, it's called diffusion tensor MRI, and I won't go into all the physics of that. I don't even understand it. But it delineates areas of the brain that are white matter areas that are affected with concussion and with, actually, repeated concussions, and also other white matter diseases like multiple sclerosis and so on.

But the long and short of it is that we were unable to detect any evidence for acute concussion, and in fact, his DTI was perfectly normal, indicating that there was no residual effects from any past concussions that showed up on that.

We did, however -- we were aware of his ear infection, which had been adequately treated and was much improved, but we also found that he had pretty marked

cervical muscle tension, which again Terry referred to, but this can cause pretty debilitating type of headache. It's usually bi-frontal, goes down the back of your neck, and you get into a vicious cycle with this unless you break it. So he is on some medication to relax the muscles of his neck and to get the cycle broken so that when he steps back into the car -- I think he's scheduled to do a test next Tuesday -- if he steps back into the car the whole thing may repeat itself as far as his neck muscle spasm goes.

So we'd like him to sit out this week, but it's related to the cervical muscle tension problem, not a concussion, and be able to go back in the car on Tuesday and should have no further problem.

**Q. Will, we talked Friday afternoon after you had quit time. Was there anything -- as Saturday progressed, was it hard to get in and out of the car? Did you feel wobbly? I think the fact that you went out and broke the track record on the last lap and won the pole makes it a pretty amazing accomplishment. Did you feel the effects of that all day?**
WILL POWER: Yeah. Well, actually the third day when I turned up to track, I had very swollen glands around my ears. You know, so I wasn't 100 percent then. Obviously Dr. Trammell and Dr. Olvey talked about the muscle tension, the neck was most probably the cause of the headaches. But I wasn't -- on Friday after the crash, I was okay. But I got out, felt fine, got in the car, felt fine, did practice, and then -- yeah, it was that night that I started to feel -- started to have some of these symptoms.

Yeah, and then that kind of continued on into Saturday and kind of got worse, and then it came to the point where I had to say something to the medical staff.

**Q. Right before qualifying did you think, man, I can't do this, it's just too much? How did you feel right before qualifying?**
WILL POWER: Yeah, I wasn't -- before qualifying I wasn't feeling very good, and I wasn't sure whether I should do it or not. I was kind of keeping it to myself, and yeah, I just thought, I'll just go out, see how it is, and kind of did one lap on black tires, and then just kind of went from there and just kept it short. I just really was just doing one more lap and a lap and then pitting. But yeah, I wasn't feeling good at that point.

**Q. On Sunday morning, I know you're a tough guy, but Sunday morning did you feel -- did you feel you should be racing?**
WILL POWER: Sunday morning, yeah, I was -- yeah, that's when I was questioning. Obviously it's tough to say you don't want to get in the race car, but I just had those symptoms that the doctors had talked about. So at that point it went to this SCAT test, and yeah, just -- yeah, determined at that point that I had all the symptoms of a concussion.

You know, it's tough to say. Obviously I wanted to get in the car, but on the other hand, when you feel you've got a concussion, that's also very concerning.

**Q. I know the test proved or showed what the test showed. Regardless of what that was, did you feel like you should be in the car? Did you argue for it?**
TIM CINDRIC: If you're asking if he ever said he wanted to race the race, aside from the obvious, the answer is no. Will, you can answer, but there was never a point where there was any disagreement about racing or not racing. I think the only discussion on Sunday morning was whether or not he should do one or two laps just to see how he feels in the car versus having a real run. Would you agree with that?

WILL POWER: Yeah, exactly.

TIM CINDRIC: Is that what you're asking?

**Q. Yeah, I guess. We didn't really get a sense for how bad he was Sunday morning.**
TIM CINDRIC: Yeah, I think it's fair to say that with or without the diagnosis or whatever or any of the doctors' orders on Sunday, he wasn't going to drive.

WILL POWER: Yeah, that's accurate.

**Q. Dr. Olvey, Brad Keselowski Tweeted while this was all going on that it's not IndyCar or NASCAR's fault that doctors don't understand concussions and/or can't agree on them to diagnose. I'm curious, is that statement accurate, and do you know how much question or how much -- I guess how much difference is there with doctors as far as whether a driver is able to drive or not?**
DR. STEPHEN OLVEY: That's really a very good question. The problem -- as you all know, 12, 15 years ago, we used to say if a driver had a particularly bad crash and maybe he was unconscious for a minute or two and then felt fine or it was getting better, we'd say, oh, good, he just had a concussion. Well, as you all know now, we understand the concussion is very serious. Too many concussions can be really bad, and too many too soon can lead to CTE and all of that stuff that everyone has read about in papers.

The problem is the medical profession has lagged behind this. I went to a neurology conference two years ago, and there were a couple of neurologists that were rather well-known who were kind of scoffing at the idea of chronic traumatic encephalopathy and

having too many concussions.

The situation is still present where a lot of -- especially at lower levels, lower than IndyCar, NASCAR, Formula 1 and all, where you have, maybe, physicians at the racetrack, but they're not really tuned in on diagnosing the concussion. There's still people that think you have to be knocked out. There's still people that think you had to have hit your head. None of that's true. You can have a very significant concussion and not hit your head at all.

So until more physicians are tuned into that -- and imagine what it's like in Pee Wee football leagues and things like that where you may have no physician there at all or no medical person at all -- and the coach says, oh, you know, you're all right, kid, you're awake, you're talking, and put them back in the game, and they get into trouble.

We're trying to spread the word to different organizations in motorsports as well as to sports medicine, and the American College of Sports Medicine has a task force on this. We've got special education in south Florida with all the high schools and grade schools, and it's recognizing concussion. It has to be a conscious thing and a conscious awareness around team members. I mean, even in motorsports. If a crew member or the car owner or the chief principal thinks the driver is not acting quite right after an incident or is just a little bit strange, as Terry said, you need to err on the side of being conservative, and they need to be brought in and given an exam. And if it leads to what happened with Will, even though the symptoms were due to something other than a concussion, you still have to go through that process because concussion is very serious.

DR. TERRY TRAMMELL: Let me interject something briefly here if I may. Your comment about the variance in physician behavior, part of that, if not all of it, is addressed by using the standardized instruments like the SCAT test, because that doesn't have much room for the bias of an individual examiner. And that's been the drift, to try and get doctors to buy into these various sideline tests or acute concussion inventories that you can do on the spot. And that is, first of all, something that we've mandated with IndyCar, and since we have the same physicians available at the racetrack all the time, they're able to do that consistently and do away with any personal bias that might come into it if you're just doing a, well, you look okay, kind of exam.

**Q. Dr. Trammell, when you say that you need to err on the side of caution or being conservative, how much of that is for the driver's own benefit, and how much is a driver who you believe may have had a concussion considered a safety risk to other drivers?**
DR. TERRY TRAMMELL: Well, first and foremost, it's for the driver's own benefit so that he doesn't end up with a chronic condition or a worsened injury, having a second concussion before the first one is resolved. And then, of course, when you're in the middle of 22-plus other drivers, you certainly don't want to not be performing at your peak where you endanger all of them.

Our goal is to protect all of our drivers, both from themselves and others.

**Q. For either Dr. Trammell or Dr. Olvey and considering both of your experience, is it harder to diagnose concussions now compared to say maybe the late 1990s, early 2000s when there were always a lot of -- head protection and the like wasn't the same? And how much more important is it to diagnose concussions now given how things have evolved the last few years?**
DR. STEPHEN OLVEY: It's actually harder now than it used to be, but it's harder because what we thought was concussion -- now we know that you can have a significant concussion without, as I said before, loss of consciousness or suffering amnesia, and you don't have to be hit in your head. The findings of concussion can be quite subtle. And the scary thing is sometimes they don't turn up for 24 to 48 hours following the concussion. So it's becoming more difficult because you have to be more aware of that, and there has to be more education of those who are responsible for determining whether a participant has had a concussion or not.

It's actually become a little more difficult, but we didn't know what we were doing in previous years when we thought it was easy to diagnose a concussion. Now it's become kind of a -- it's a pretty big deal. There is a lot of education that goes into understanding when a concussion may have occurred.

DR. TERRY TRAMMELL: Part of my job is to follow up with any driver that's been in a crash 24 to 48 hours after that for the purposes of seeing if they've had delayed onset of symptoms, particularly if it happened on a Saturday or a Sunday, and they take off immediately after the race on Sunday and would not normally be seen for two weeks until they show up at the next track. So part of my reason for being is to follow up with each one of these guys for any injury that they might have had.

**Q. How are you feeling as far as your inner ear is concerned? And when and where do you think your next drive in the car will be? Will you like, for example, make up for the test day that you missed**

**at Barber yesterday?**
WILL POWER: Yeah, yeah, I'm feeling -- my inner ear is feeling better. I don't have headaches or nausea, and yes, I'll be testing Barber next Tuesday to make up for the test. Yeah, that'll be good to get back in the car.

**Q. Are you worried about the kind of G force effects on the inner ear going 190 miles an hour around Phoenix in a couple of weeks?**
WILL POWER: Yeah, well, actually I had an at-Phoenix test, and I actually had the infection when I was there, and it didn't seem to be a problem. Yeah, you know, which is -- yeah, I'm not worried about that.

**Q. Tim, are you worried at all?**
TIM CINDRIC: I worry all the time. It's my job.

**Q. Have you noticed any odd behavior patterns in Will?**
TIM CINDRIC: That's an open question (laughing). No, from my standpoint, in the off-season -- he's had a tough off-season in terms of being healthy. This whole inner ear thing isn't a new thing, which is why kind of for us it wasn't so alarming that he wasn't feeling so well over the weekend, until we got to the nausea part.

You know, as we got along, I think, yeah, we need to get him over this totally and back to where he's feeling himself again. I think some of that's getting some rest and listening to the Doc here, and go from there. But no, I don't see any reason why things shouldn't be business as usual, but we've got to get him over the hump.

**Q. For the doctors, did this episode reveal any need for changes or adjustments to the at-track medical evaluation program, or were there so many extenuating circumstances, it's tough to get a gauge on what might need to be adjusted, if anything?**
DR. STEPHEN OLVEY: I think they did a terrific job, really, because as I stated, there's really subtle findings now with concussion, and the symptomatology is one of them. He had an accident and he had symptoms. Even though the accident was relatively minor, the symptoms were there. We did a recognized test that is commonly used to detect a concussion, and it was positive because of the symptoms that he was having, and so they sent him to have a definitive evaluation. Erring on the side of being cautious, if you miss it and all kinds of catastrophic things can occur from it, then you'd really feel bad.

IndyCar has a terrific protocol in place for uncovering these occult kinds of concussions, and every once in a while there's going to be false positive tests, and they need to be worked out and resolved as has been done here.

So I think the system worked quite well, actually.

**Q. If I understand it correctly, drivers don't have to go to the Med Center if it's not a crash on an oval. Would that help at all? Would that alleviate any sort of mystery or provide more information that could help everything?**
DR. TERRY TRAMMELL: We have discussed that briefly about when to make a driver come into the Med Center on a road course or street course. And as our knowledge of how to use our data increases in a driver that says he has no symptoms, we probably -- suppose Will had been 50 G's in his ears, we would have probably had him come back Friday end of day and gone over him again.

The other potential option would be to have them all come in, but his symptoms would not have been present in that first 15 minutes or so that we make people stay at the center at an oval.

The other thing we could have done and have done in the past is to administer the impact test when they fail the sideline concussion test, or the sports concussion test. And that really wouldn't have helped because he would have still had all the same symptoms even if he passed the impact test.

So then the question is, okay, he hasn't had a concussion, but he still doesn't perform well enough that he should be in a race car. So all you say is you can't get in a race car because your symptoms are bad enough to prevent it, but we're not sure what's causing that.

So I don't know that we would have done anything any different than what happened.

**Q. Dr. Trammell, it seems like about four or five decades ago, injuries and fatalities in motorsports were far more common. What do you consider the most significant safety advance, say in the last decade or so, that have helped prevent these injuries?**
DR. TERRY TRAMMELL: Well, the big things -- first of all, there's no single entity. It's been an evolution of safety over the last 20 years or more. You know, the combination of the better chassis, better driver fit into the chassis, the design of the seat becoming the back half of the restraint system, so to speak, the improved quality of the helmets, and their resistance to impact.

In the IndyCars we have a very sophisticated head surround that is reactive to the loads that are applied to it so that it's protective both at very low G's and very

high G's, and probably the head surround in the IndyCars is one of the most advanced features to protect against head injury because it, by itself, absorbs head impact into the head surround very well, and better now than it did even two years ago because of the evolution of what we've built into it.

IndyCar carries out an ongoing R&D program, testing and evaluation, and that's where this head surround has come from, and it's still an evolution. We're planning some additional changes to it to make it even more protective.

So that whole system complex of what goes on inside the chassis, inside the tub around the driver, we package them much better now than we did -- certainly much better now than 20 years ago, and really better than we did 10 years ago. So that's what I think is the most advanced feature of the car is the ability to contain the driver and to control his movements and dissipate the energy that those movements generate.

**Q. I've been fortunate to interview a lot of sports figures, NFL players, and motorsports drivers at the top, and I've noticed that there's a certain level of intelligence. It just seems like it takes a fast brain to make fast decisions when you're dealing with speed. Am I the only one just thinking that, or is it something that almost comes with the territory?**
DR. TERRY TRAMMELL: My hair is turning gray and falling out a whole lot faster than it did when you just took a five-pound mallet to everything to fix it. Yeah, they're certainly brighter, more inquisitive. They find out a lot of information on their own that you have to help them sort out. The whole job has gotten more difficult. It's not so black and white anymore.

**Q. Will, this almost seems like it was a perfect storm, and no one could really imagine how this would play out. If this were to happen again, are there any second thoughts on your part on how this all played out? Would you go through it the same way?**
**And the second part of the question is how will this impact you from a racing standpoint having missed a race and the points that came with it?**

WILL POWER: Yeah, I mean, as far as everything, the way it all turned out, I can't see any other -- I mean, it couldn't have turned out any other way, really, when you have all those symptoms and the way I felt.

Obviously missing the first race is -- yeah, big points hit, but it is what it is, and you know, move forward and have fun.

**Q. Will, when you got out of the car after you won the pole on Saturday, did you say anything to your crew chief or to David, you can't imagine how hard that was? Did you have a sense that you had done something pretty amazing considering how you felt?**
WILL POWER: No, I just got out. I didn't feel well honestly. I don't think I said much to anyone. Once you get in the car and you do what you do, it just comes naturally. If I learned anything out of this, when you feel really bad, you just -- yeah, if you've got it, you've got it. It just flows naturally for you, and you can do -- you're able to go out and do the business.

**Q. Tim, are you comfortable with the protocols that both IndyCar and NASCAR have as far as determining whether a driver is okay and healthy enough to race?**
TIM CINDRIC: I guess I don't have anything that questions it. Those guys are much bigger experts than I am, so I don't really have anything from my perspective that questions the way in which it's handled.

**Q. Tim and Will, looking ahead, obviously you've given up about 50 points to your teammate who's obviously proven that he can take a title challenge right down to the wire. Would you say that because you've got so much to kind of like catch up on immediately from this, what will affect the start of your season, does that free you up to race a bit more like you did in 2014, not looking at points, just kind of like the pressure is off, it's just pedal to the metal from here on out?**
WILL POWER: Yeah. I mean, yeah, absolutely. I don't look at the points anyway, just go for race wins. But yeah, it's definitely the case here. You know, the double points races are going to be big for us, so real happy that they have them this year, as much as I would have been complaining about it otherwise. Yeah, double points could definitely turn things around.

**Q. Are you happy with just kind of like taking risks, Tim, as far as strategy is concerned, rather than just kind of like settle for third places to boost the consistency? Like maybe you might throw a risky strategy in there and get him back up with Montoya and Pagenaud's points.**
TIM CINDRIC: Yeah, I guess any time there's a chance for a win, I feel like we go for it. So I don't think it'll change that much. You know, certainly it was a lot different racing from the back after working with Will for so long. To start last, kind of had to sharpen your pencil, and I guess, fortunately, for the other three cars, it was a pretty straightforward race. But yeah, it's been a little while since we've started the race back there. There was a couple races where Will has started back

there that turned out all right.  Yeah, I think you still deal with it on the day that you do, and I guess I anticipate Will qualifying up front and it being pretty circumstantial as far as what you do or how you do it.

Yeah, I think it just depends on how the first half of the season plays out as far as what our chances are.  But you know, I guess I look at it and think about if we crashed on the first lap, we'd be in the same boat. Yeah, you just move forward.