Osteopathy in Formula One
An engineer for the body

Gemma Fisher, the iO’s Principal of the Year 2018 holds a unique position in the challenging and fast-paced world of Formula One racing. We talk to her about her contribution to the health of drivers and pit crew of F1.

Could you explain how your role began with the team?
I was initially brought into the team as their human performance specialist after being headhunted from the driver performance programme I was working on in endurance motorsport with Aston Martin Racing. The primary reason for this was to focus on the pitcrew, as the regulations within Formula One had changed meaning that refuelling within pitstops was no longer permitted and the entire ‘choreography’ of the stops became an important strategic operation. With the reduced time required to service the car, races could now be won or lost in a pitstop.

With over a thousand channels of data being transmitted from the car at any one point, generating around 19 billion data points per Grand Prix, Williams were the first to turn their attention to the human elements within the team, realising that they had all the information they required from the car but knew very little about the driver and the 22 personnel that run into the pit lane in front of the car doing 60kph to carry out a pitstop. The Williams chief technical officer at the time, Pat Symonds referred to me as an “Engineer of the body” and it became my responsibility to conduct the detailed analysis of every aspect of the crew's performance across a race weekend.

The position had many roles under one title, as we know, a person’s performance is defined by a complex interaction of various mental and physical factors, none of which had previously been objectively assessed within an F1 pitcrew. This gave me the opportunity to provide a truly holistic approach to the challenge and to use our osteopathic principles in designing a comprehensive package of care. The pragmatic, diagnostic mindset we develop as autonomous osteopathic practitioners lent itself well to the highly scrutinised world of F1 performance analysis and engineering.

As in any industry, I needed to understand the tools of the trade if I was to have an impact on the intricate series of actions and events within a pitstop. I examined each part of the process from the ‘structure and function’ of the pit equipment to the ‘neurology’ of the auto-release jack electronics. I understood what was required physically from each individual crew member in their specific roles, I wrote the pitcrew manual and became an integral part of the implementation of the new-style pitstops.

How did the role develop across your time with the team?
We soon began to reap the rewards of the intense assessment and training structure that I embedded, combined with the enhanced pitstop analysis. The critiquing of a myriad of human factors including; psychometrics, skill acquisition, strength and conditioning and nutrition lead to Williams performing the fastest pitstops at 14 of the 21 races in 2016. Improving from one of the slowest teams in the paddock to a mind-blowing 1.92 seconds which still stands as the world record for the fastest ever pitstop in F1 history and secured the DHL award that year.

I was then asked by deputy team principal Claire Williams to take this engineered approach to performance healthcare from trackside to the corporate setting, and designed the company’s welfare strategy for over 1000 personnel to support the team behind the team. This position as Head of Health and Human Performance allowed further osteopathic exploration of a whole system approach to health and wellbeing goals. From establishing commercial deals supplying the latest technology in order to quantify our healthcare efforts, to devising a mental health program and providing nutrigenetic analysis. Building a multidisciplinary team expanded the service provision and partnering with fitness industry leaders gave me the opportunity to design and build a state-of-the-art gym with treatment rooms in order to compliment the exercise programs and rehabilitation of the staff and drivers.

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The extrapolation of knowledge from the F1 environment is transmitted to other industries via the Williams Advanced Engineering (WAE) division and I was soon using my experience to help develop innovative technology and protocols for medical applications. This was recognised by a group of doctors at the University Hospital of Wales who saw the parallels between the time critical scenarios of pitstops and neonatal resuscitation. They approached WAE for my support on a project to streamline their procedures and advise on the human factors involved. I’ve subsequently coached other emergency medical teams and have been an invited speaker at a number of international conferences. I continue to provide these services through Formula Health Consultancy Ltd. alongside seeing patients and supporting motorsport-based charities. It’s great to be able to feel like I’m giving something back.

Do you work with other healthcare practitioners or specialists to provide a package of care?

There is a new human performance specialist that I took on to replace my trackside position and back at the factory there is now a team of health and fitness professionals that I brought in to meet the diverse needs of this group which range from young drivers and apprentice engineers to long-serving manufacturing machine operators. I set out to build a department that thrives on a high-pressure environment that demands self-improvement and innovative thinking in order to achieve a great multidisciplinary team dynamic. I feel honoured to have been awarded the iO's Principle of the Year for 2018 as a result.

Have you undertaken any additional training which has helped in providing care for this group?

Prior to qualifying as an osteopath, I was already qualified in gym instructing and personal training. The initial role certainly presented different challenges whereby many of my clients were expected to be mechanics 90% of the time, yet perform the other extremely important 10% like athletes! My former work with the emergency services and advanced life support provided the skills needed to identify and respond to medical emergencies. I’d previously studied psychology and I’m now qualified with a specialist interest in nutrigenetics. All of this has helped prepare me for the wide-ranging applications of this unique job role, based upon an appreciation of the human mind and body.

How are patients referred to you?

When we were back at the team’s HQ between races, I was responsible for scheduling the race team’s timetable to permit adequate time for fitness training, pitstop practice and booking follow up appointments. Whilst

With Claire Williams – Deputy Team Principle

I was travelling with the team, I was always present trackside during the same hours as the mechanics; arriving with the team at the start of a race week and only leaving at the end of the eight hour post-race pack-up on a Sunday night. This way I’d be able to provide ongoing and preventative treatment for those with chronic conditions, along with being able to respond immediately to any accidents or injuries that may occur.

What are some of the most common conditions and injuries that you come across?

Although as much is done as possible to mitigate the inherent risks, trackside can be a dangerous environment; from constructing the motorhomes, working with potentially hazardous materials and car parts reaching extreme temperatures, along with the obvious pit lane risks. Mixed with a dose of cognitive fatigue, accidents and injuries are common.

Within the pitcrew you would frequently see wrist related problems due to the impact on the front jack and the excessive torque that is required to operate the wheel guns at such speed (on average 0.3 seconds to undo the wheel nut).

Lower back pain presentations were often exacerbated by the long haul economy flights, 18-hour days working in less-than-ergonomic positions, followed by using the explosive strength required in a pitstop.

A large part of the fitness training and conditioning work I implemented was targeted at reducing the likelihood of these types injuries, particularly as downtime due to injury could cause a huge operational and logistical problem whilst abroad.

Since initiating the culture shift across the team towards a healthier and more fitness-centered approach, many of the mechanics and engineers now run the track at each GP and some even compete in ultra marathons, ironman triathlons or extreme sports. So I often had to deal with the physical aftermath in order to ensure there was no impact on their ability to work.

There were a huge variety of presenting conditions due to the range of team members I was responsible for. You tend to see presentations related to increased sympathetic arousal in the younger less experienced drivers for example, and more structural complaints from those that have spent a lifetime folded into single seaters!

Have you treated anyone famous?

Yes. Once the word got out that Williams had their own race team osteopath, I was often called upon by the other team doctors to treat their drivers or provide a second opinion. As with any travelling team sport you all look out for each other within the paddock, so treating the TV presenters and VIP hospitality guests also became part of the package.