



O'Donnell and Lavin impress in Spain with breakthrough personal bests

#### Cathal Dennehy

OLYMPIANS Chris O'Donnell and Sarah Lavin produced a pair of breakthrough performances at the Continental Tour Silver meeting in Madrid on Saturday night.

O'Donnell smashed his personal best to finish second in the men's 400m in 45.26 and Lavin clocked a PB of 12.93 to finish runner-up in the 100m hurdles.

O'Donnell, an Olympic finalist in the mixed 4x400m relay last year, had a previous best of 45.55, but his time in Madrid moved him joint-second on the Irish all-time list alongside Brian Gregan, and behind only David Gillick's Irish record of 44.77. He finished a close second behind Olympic and world medallist Luguelin Santos of Dominican Republic.

Lavin's previous best was the 12.94 she ran in Slovakia earlier this month, but she edged closer to Derval O'Rourke on the Irish all-time list with her 12.93 to finish runner-up to Denmark's Mette Graversgaard (12.89). Both Lavin and O'Donnell have yet to hit the automatic qualifying standards for next month's World Championships in Oregon, but both are within the quota cut-off based on their world rankings.

#### Duel

At the Northern Ireland Championships in Belfast, teen star Nick Griggs had a thrilling duel with former national senior champion Harry Purcell over 800m, with Purcell holding him off in a sprint finish, 1:55.49 to 1:55.67, their second lap covered in a swift 53 seconds. At the same meeting Jason Smyth opened his season, the six-time Paralympic champion finishing third in the 100m in 10.66. The race was won by Oliver Swinney in 10.48.

Elsewhere, Hugh Armstrong of Ballina AC produced an impressive kick to beat Dunboyne's Peter Somba to win the Tallaght 5-Mile yesterday, the first race in the Irish Life Dublin Race Series. Armstrong's time of 24:13 edged Somba by two seconds with Tomás Fitzpatrick third in 26:31.

"It's just great to be back out racing again, I was injured last year with two stress fractures in my back," said the 27-year-old from Mayo. Ciara Hickey of Brothers Pearse AC took the women's title in 27:35 with Sarah Mulligan second in 29:14. "I'm delighted to win because it is my local race and there was a big gang from the club out here running," said Hickey. "The atmosphere was great, they really put on a great show."

Elsewhere, there were some promising performances from the Irish at the U-18 International in Franconville, France. Elizabeth Ndudi leapt 6.28m to win the girls' long jump. Fintan Dewhurst clocked a PB of 52.98 to take the boys' 400m hurdles, while there were wins for Oisín Joyce in the javelin (67.40) and Jack Fenlon in the 3000m (8:21.82).

# 'Am I resting enough? Am I eating enough? Am I sleeping enough?'

'Elites are wired to overreach, but it's about pushing hard at the right times' – Galway sports scientist Brian Moore is helping athletes to train smarter and maximise performance

#### CATHAL DENNEHY



IF THERE is a conversation that simplifies it all – the complex balance between hard training and optimal recovery – then for Brian Moore it was the one he had with Moses Kiptanui in 1999. Kiptanui, a three-time world champion and former steeplechase world record holder, was training in London at the time, where Moore was making his name as a physiologist.

He was studying the blood of elite athletes and trying to identify signs of over-training – the dreaded state for sportspeople whereby the more work they put in, the worse they perform.

Moore was running with Kiptanui one morning and the Kenyan was complaining of lingering fatigue. The World Championships were approaching, but Kiptanui's form was going in reverse. Moore asked him what he normally does in such scenarios.

"First, I ask myself three questions," said Kiptanui. "One: am I resting enough? Two: am I eating enough? Three: am I sleeping enough?"

"And what happens if the answer to all those is yes?" asked Moore.

"Then, Brian, I come to you."

Over the past 23 years, Moore, a native of Galway, has worked with a Who's Who of world sport. His company, Orreco, currently works with 3,500 elite athletes – from Pádraig Harrington and Graeme McDowell to NBA stars like Pascal Siakam and A-list footballers like Gabriel Jesus.

From Benfica to Tottenham to Newcastle, the Dallas Mavericks to the Tampa Bay Buccaneers to the San Francisco 49ers, Orreco is a key piece of the performance jigsaw for many of sport's heaviest hitters, which are placing an ever-increasing value on keeping players healthy.

"Elites are wired to overreach, they are constantly pushing, but it's about pushing hard at the right times," says Moore. "Athletes can often train too hard, but just because you can doesn't mean you should."

It was a lesson he first learned in the late 1990s, when Moore got to know a host of champion distance runners like Sonia O'Sullivan and Daniel Komen, and later Australians Craig Mottram and Lee Troop. In training they were workhorses; outside that, they lived like sloths.

"The best in the world take their recovery as seriously as they do the work. I noticed they didn't move outside of training. They'd get the bus the kilometre to the shop. They'd make a big flask of tea rather than get up to go to the kettle a few times."

#### Importance

Moore has a long list of qualifications and research papers to his name, but when it comes to communicating the importance of recovery to global stars, simplicity works best. He likens it to a game of Space Invaders.

"You've got free radicals and antioxidant defences, and in Space Invaders they're your antioxidant defences at the bottom. They're made up of sleep and nutrition – mainly sleep."

"The guys at the top are free radicals. They're trying to get you. What happens when your bases are knocked down? That means you're sick or you're hurt. With chronic, systemic, low-grade inflammation, or

chronic over-training or under-fueling, your bases get wiped out."

Moore knows of what he speaks – personally and professionally. In 1998 he ran himself into the ground while training with Kenyans in London, developing chronic fatigue that left him unable to "barely walk to the shops" for months.

"It often happens with Type A personalities," he says. "They're very driven (and believe) more is better."

He did a series of blood tests at the time and the lab manager told him everything was fine, but through his research Moore could identify signs of immune compromise.

"What happens is your immune system gets fried, the white cells go

knows that. In 1999, he began a PhD in the haematology of elite athletes under Dr Craig Sharp, the father of sports science in Britain.

By studying in the mid-1990s at St Mary's University in Twickenham, he got to spend time around a raft of champions, from Komen to Paul Koech to O'Sullivan – who is god-mother to Moore's son. From early on, he knew there was a performance edge to be found in blood tests – if you knew where to look.

"Both my parents were biomedical scientists and it was the last thing I wanted to do – to be in a lab. But I was seeing very early signs of iron deficiency and I was like, 'holy s\*\*t'."

"When you get a blood test you'll see 15 to 20 numbers, but there's also hundreds of numbers at the back of the machine no one ever really sees. In there was amazing stuff and you could see patterns."

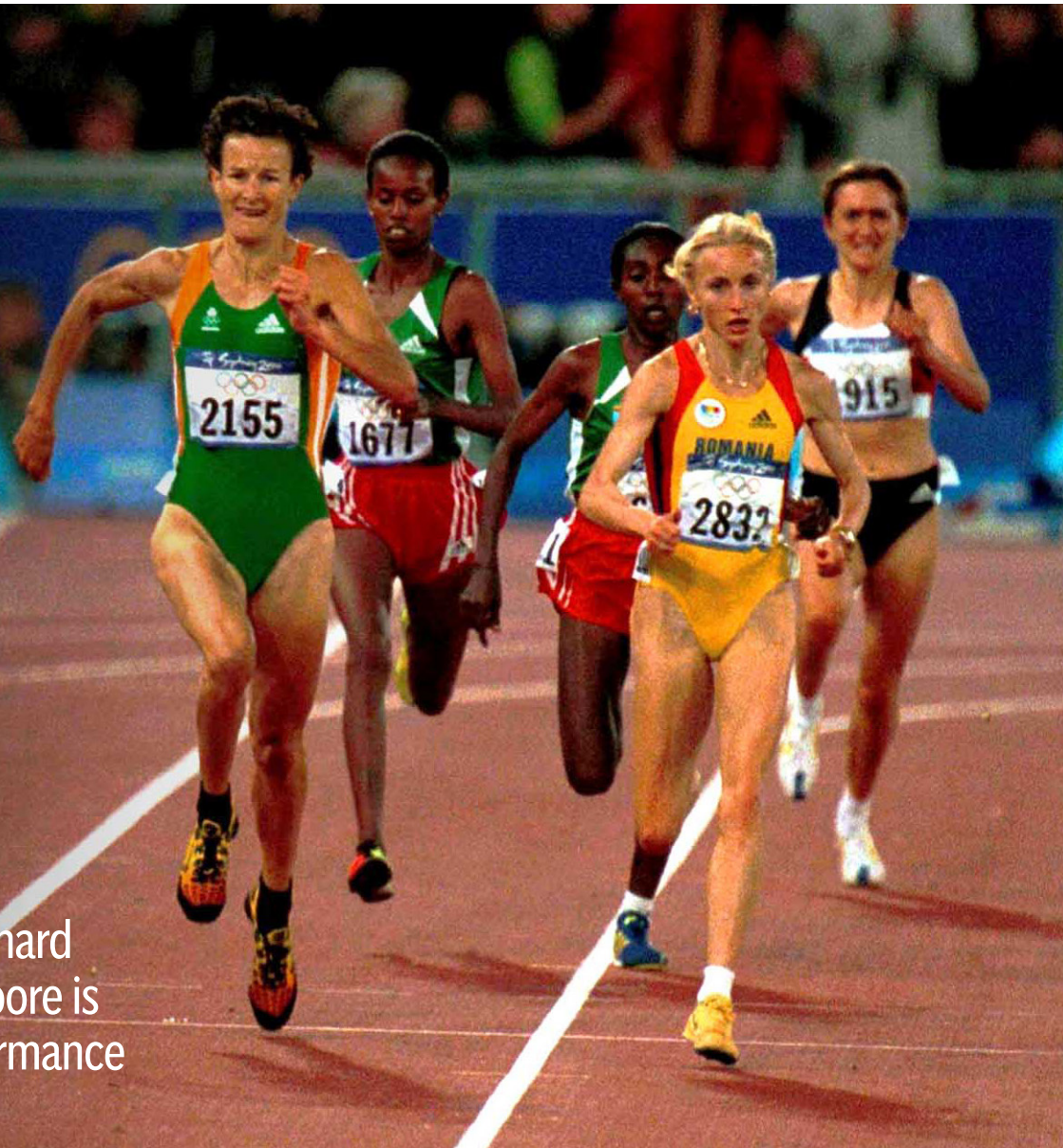
#### Trends

Seeing such trends is one thing, making use of them is another. But top athletes kept Moore around because of his ability to understand the data and transmit its meaning.

"If you don't add value, you're gone, and I love that," he says. "There's a lot of similar scenarios with Sonia and Pádraig Harrington. They're very analytical and there's no bulls\*\*t. Around this stuff, you can't bulls\*\*t."

So how, exactly, does it help? There's an example O'Sullivan cites in her book. A month out from the Sydney Olympics, she had a terrible run in Crystal Palace, trailing home ninth over 5,000m, a race that made her question her fitness, her training – everything.

A day later, Moore tested her blood and could tell her – with confidence – that nothing was seriously amiss, but Moore (right) had a lucky start. He



**Agony:** Sonia O'Sullivan finished behind Gabriela Szabo in the 5000m at the 2000 Sydney Olympics

BRENDAN MORAN/SPORTSFILE

[from anti-doping work]. I said there were enough very smart people doing it and I wanted to help clean people go faster. That's the other side to it: athletes competing clean had to train so hard that they were destroying themselves."

With Orreco, his work centres on optimising recovery through natural means. It was at a different Olympics, London 2012, where he found his gateway to the Premier League.

That's where Moore met Dr Paul Catterson, chief physician at Newcastle United, who told him about a player struggling to recover in training following that summer's European Championships.

In the years after, word of his methods spread across the world, with interest growing in the US, where Mark Cuban, the billionaire owner of the Dallas Mavericks, was one of the earliest converts.

A couple of years ago, having worked with Orreco throughout the season, the Mavericks lost zero days to illness among its players.

"They're the kind of things that are possible," says Moore. "The reasons teams keep us around is they see that reduction."

An NBA or Premier League player working with Orreco might have their blood tested once a week, but in pre-season, "when guys are getting blitzed", Moore might do it every morning "to see how they're handling the load".

Orreco recently launched a new app, @thlete, that collates data – from biomarkers to sleep cycles, nutrition to training loads to travel schedules – and offers clients advice on tweaking their routines to optimise performance.

Women can add their menstrual data, a long-overlooked element that Orreco tried to address in 2018 by launching the FitWoman app.

#### Difficult

"It can be very difficult for male coaches to get their head around, that female athletes can do a workout on two different weeks and feel completely different based on the hormonal profile," says Moore. "A lot of the sports science research is done on men and extrapolated to women, but we have a five-year-old in our house who'll tell you that's not a good idea."

Moore (below) works with a staff of 40 that includes experts in biostatistics, applied nutrition, physiology and even machine learning, given the complexity of the algorithms he uses.

"The data sets run into billions of rows, but you have to bring it back to the athlete in a really simple way."

"We've got 17 PhDs on staff and over 300 peer-reviewed papers. It's the hard way, the long way, the expensive way, but the right way. It's why I've got all this grey hair."

Among sportspeople, no matter the level, Moore sees the same mistakes time and again.

"A lot of under-fuelling," he says. "Athletes will say they don't want to gain weight, but you can eat more

and go faster. If you restrict intake, you get a short-term spike where your performance can improve, but in the long term you can run into serious challenges around osteopenia, amenorrhea. The other thing is taking a load of supplements when you don't know what is in them. I'm tired, I must take iron. Why?"

Mistakes happen, of course, but those who succeed tend not to repeat them. Moore cites one of his favourite lines from an American football coach: "First time's an accident. Second time's a trend. Third time's a problem."

Of course, not everyone has the budget for such testing, but most of the practices Moore preaches can be applied without any cost. His advice on recovery to the everyday sportsperson?

**'If things aren't going to plan, athletes can sometimes dig themselves further into a hole'**

"It's about balancing load and recovery, and prioritising sleep," he says.

"Simple things like morning heart rates give you a sense of how you're adapting. If you feel tired, ask those three questions Moses did."

"If the answer is no, talk to your primary care physician to get a simple blood test, get your iron levels checked, and have a look at your immune system."

"If you're a multi-sport athlete or on different teams, you have to own your own performance. Each team will have their own demands and if there's no one taking ownership you can very easily get burnt out."

"It's having the courage to go to your coach and say, 'I'm tired.' There are points you have to push through fatigue and adaptation, but the problem is when you're overreaching or under-recovering without knowing it."

"If you're a female athlete, I'd suggest looking at your menstrual cycle. Download the FitWoman app, it's free and it gives you a sense to understand the changes week to week."

"If you are missing cycles or have delayed onset, they're good things to talk to your GP about, and to your coach."

Moore hopes to eventually scale his work to "make it available to everyone" and when he gets the time, he would love to do a study on athletes who succeed at major championships following a breakdown during the build-up. It sounds counter-intuitive, but he's got a hunch it often helps.

"They're saved from themselves – that one extra session, the one sharper," he says. "If things aren't going to plan, athletes can sometimes double down and dig themselves further into a hole, where they'll try to prove everything is fine, but the best ability is availability."

And to achieve that every weekend – whether on the pitch, court or track – Moore encourages sportspeople to think about what they're doing each day, and why.

"The most precious thing we all have is time and if you're going to spend that training, it makes sense to get the best return on that investment," he says.

But amid all that he's learned, the complex science behind his work, Moore often finds himself steering people back to those three questions from Kiptanui, knowing they so often provide the answers for struggling athletes: "Am I resting enough? Am I eating enough? Am I sleeping enough?"



Red Bull's Max Verstappen leads the pack at the Canadian Grand Prix in Montreal yesterday RYAN REMIORZ/AP

# Verstappen holds off Sainz to extend his lead in Canada

#### MOTORSPORT

##### Mark Mann-Bryans

MAX VERSTAPPEN held off a late challenge from Carlos Sainz to take victory at the Canadian Grand Prix and further extend his championship lead.

With Formula One returning to Montreal for the first time in three years, it was the Red Bull of Verstappen which took the chequered flag to move 46 points clear at the top of the standings.

Sainz was fast in the closing stages following a period behind the safety car but could not find a way past Verstappen and had to settle for second place, the pair joined on the podium by Lewis Hamilton - the seven-time world champion taking third for Mercedes.

His team-mate George Russell continued his record of top-five finishes all season as he took fourth ahead of Charles Leclerc, who recovered from starting 19th to claim a decent haul of points for Ferrari.

The Alpines were sixth and seventh, Esteban Ocon managing to finish ahead of Fernando Alonso, while Valtteri Bottas, Guanyu Zhou and local favourite Lance Stroll rounded out the pointers.

Verstappen cantered off the line and into the first corner well ahead of Alonso, who had impressed in qualifying to take his first front-row start in a decade. Hamilton had started an impressive fourth and held off a challenge from the Haas of Kevin Magnussen, with Alonso passed by Sainz on lap three.

An early virtual safety car for the retirement of the sister Red Bull of Sergio Perez, seemingly with an engine issue, allowed a spate of pit stops with Verstappen and Hamilton among those to put on fresh tyres.

A similar situation occurred on lap 19 as Mick Schumacher was forced to retire, this time the VSC allowing Russell to pit as Sainz also stopped and Verstappen retook the lead.

With Perez out, another of Verstappen's title rivals was cutting

his way through the field as Leclerc overcame a 10-place grid penalty after replacing engine parts on Saturday.

The Monegasque, however, ended up stuck behind Ocon to check his progress, a slow pit stop then forcing him back down into the pack.

The sell-out crowd on Ile Notre-Dame was treated to a rare example of a Hamilton and Verstappen battle, with last year's title protagonists neck and neck as the Dutchman left the pits.

Sainz stayed out to take the lead and was able to pit under a safety car on lap 49 after Yuki Tsunoda crashed out in the AlphaTauri, getting right onto the gearbox of Verstappen at the restart.

There was no drama as the safety car peeled away but Sainz was keeping Verstappen honest, closing to within a second and pushing for an overtake in the closing stages.

But, while Leclerc cut past the two Alpines to improve his position, Sainz had no answer up front as Verstappen took the 26th win of his career and his fifth in the last six races.

There had been doubts as to whether Hamilton would even drive in Canada after he suffered from a bad back due to the amount of porpoising he suffered at the Azerbaijan Grand Prix last weekend.

But a mixture of acupuncture and cryotherapy had him ready for the race and he took third place, just his second podium of the season.

"It is feeling good, I'm back to feeling young," he replied when asked about his back at the end of the grand prix. It is quite overwhelming to get this third place, it has been such a battle this year as a team - I'm so proud and inspired by my crew.

"They are a little bit too quick for us at the moment, I gave everything and we are getting closer and closer. I could just about see (the leaders) at the end thanks to the safety car, our pace was quite good so honestly I'm ecstatic, I didn't expect it coming into the weekend."

