Fitter And Faster Than Ever - The Data Highlighting Squash's True Physical Demands

When Tarek Momen walked off court following his first round victory over Mathieu Castagnet at the 2018 Swedish Open, following a tournament-record 97-minute match, he had covered almost 5km, struck the ball almost 1000 times and covered 48 meters on average during each point played.

He'd spent over 60 per cent of that match – equating to over 60 minutes – in play. Not resting between points or between games. No, that 60 minutes was spent engaged in a high quality battle of squash with his nemesis that day, Mathieu Castagnet, with the duo pushing each other into all four corners in a brilliant match.

5 kilometers. That's over 500 court sprints back-to-back. Made up of movements that generally consist of three-six meter sprints, of which almost 50 per cent is backwards, followed by a lunge or dynamic movement to set up for a shot – before exploding back to the T in anticipation of the next shot to come.

To put the figures into perspective, during the 2017 Wimbledon Championships, the longest match was recorded when Gilles Muller caused a five-set upset over Rafael Nadal in a marathon 288 minutes.

In that match, with Nadal pushed around the court and out-working his opponent, data recorded by IBM SlamTracker showed Nadal covering 3,645.1 meters during the course of 389 points – an average of 9.4 meters per point.

In comparison, Momen covered a total of 4,965.5 meters during the course of 100 contested points – an average of 48 meters per point. Momen covered 1.3km more than Nadal in a third of the time Nadal spent on court.

Momen was in-play for 60 per cent of the match – a figure that pushes squash towards the very top of the relative in-play tables with only sports like soccer and field hockey registering greater numbers.

Nadal was in-play for 15 per cent of his.

Momen covered more distance, in less time, with less rest, with more distance per point.

And 24 hours later he was back on court against Cameron Pilley – again emerging victorious, this time in four games. He'd covered almost another 2.5 kilometres and struck the ball almost 500 times to book his place in the semi-finals.

Momen celebrating his win

Momen was just one player subject to a data trail run by the Professional Squash Association (PSA) and interactiveSquash – utilising their newly created 'MoTrack' System – while a secondary trial conducted by the PSA with Sports Data Labs has also analysed further player biometric data.

The systems, which track performance data such as heart rate, distance tracking, and movement patterns, in real-time have allowed the PSA to gather comprehensive and quantifiable performance based data for the first time ever – showcasing the true physical demands of squash.

Data captured shows players covering distances upwards of one kilometre per single game, with matches played in a best-of-five-game format, comprising hundreds of changes in direction and multiple complex movements, with player heart rates regularly registering upwards of 190 bpm – at times almost hitting 200 bpm.

But while the peak numbers are eye-opening, it is the speed of recovery and ability for players, following rest periods averaging between four-ten seconds, to reset their heart rate levels in preparation for another brutal rally, that are most impressive.

In contrast, Tennis players are allowed up to 25 seconds in between points to regather and recompose. In Badminton, the average time between points comes in at over 12 seconds.

"Squash has long had a reputation as one of, if not the single most demanding racket sport out there courtesy of the complex movements required and the repeated bursts of short, intense action with little rest periods," said PSA COO Lee Beachill.

"That reputation is one that we have lacked the ability to directly translate to fans and viewers in the past. But the trials we have run with Sports Data Labs and interactiveSquash have allowed us to develop an understanding of players' movement and relative fitness, which go a long way to help illustrate the physicality of the sport."

"The numbers we have seen have made for compelling reading. To see players covering over one kilometre in a single game, made up entirely of three-six meter sprints, of which 30-40 per cent is a backwards movement, followed by a lunge or dynamic movement before striking a shot, is quite staggering."

"We're hugely excited about what this data can mean for squash moving forward and the next step for us is to fully integrate the technology into our broadcast programming and social media channels in real-time to add a new dimension to the sport and enhance the experience for players and fans alike."

The 'MoTrack' system has been developed as a training tool made available to regular players competing on interactiveSquash's innovative game-changing front-wall technology and founder Markos Kerns said: "It is hugely exciting for us to be involved in this new step for squash."

"Gathering performance based data showcases just how phenomenal these athletes are and we are thrilled to be at the cutting edge of this new development in squash. Since we started we looked at the data we tracked in squash and we knew how demanding the sport is for an athlete."

"The biggest learning at the tournament was how unbelievably close the statistics of both players are. Squash is a strategic game but we were thrilled to see that these athletes give each other such minimal space to get ahead. It's comparable to running a marathon and winning by milliseconds."

With 'MoTrack' set to be used at the Grasshopper Cup, with graphic data set to be integrated into the SQUASHTV broadcast for the very first time, and with Sports Data Labs set to continue testing and tracking player Heart Rates at the British Open and World Series Finals before the end of the season, the depth of data available on squash players will be greater than ever before.

Showing, clearly with evidence, just how demanding squash is.