

REVOLUTIONIZING INJURY PREVENTION WITH MOTION ANALYSIS

PITCH READY'S SAAS MODEL OFFERS
DEEP INSIGHTS TO A BROAD CHURCH
OF ATHLETES

Pitch Ready is a consultancy turned tech company that helps sports organizations manage return-to-play and injury prevention for their athletes. The part of the offering that makes the company unique is a software platform that takes high fidelity Vicon data and turns it into actionable clinical recommendations. The company has worked with over 50 teams in 10 different leagues internationally, and that number is growing all the time.



Tim McGrath,
Clinical & Research
Director at Pitch
Ready

Pitch Ready grew out of Clinical & Research Director Tim McGrath's 15+ years experience as a practicing clinician in professional sport and his observations of how athletes' split-second decisions can impact pre-existing injuries.

Tim gives the example of an ACL injury: "An injury scenario generally occurs within around 40 milliseconds of ground contact, which is an extraordinarily short period of time.

There is no ability for an athlete to detect this at a conscious level as it is occurring, and so prevention strategies are very much about how your brain has derived this information in advance. The strategy that the body uses within this context can either be quite protective, or it can basically set up an injury. The Vicon piece really came about as a way to objectify what people do within that space under pressure, but in a really robust and repeatable way."

With the motion analysis component in place, Tim and the team at Pitch Ready began to build a battery of tests and an accompanying database. It was the next step that would shift the company away from the realm of hands-on consultancy and into the role of tech company.

The company began to automate its process, developing a software tool that would integrate the company's Vicon data with input such as clinical information, running, strength and jump data, and generate recommendations that a clinician, coach or athlete can implement in a practical way.

"The trick with these things is you can have really robust, repeatable data, but it needs to be in a format that's palatable on the back-end to the clinician. It's really about removing biases which can cloud our decision-making in regards to allowing an athlete to return to their chosen level of activity," explains Tim.





Tim says. Historically there have been budget constraints around women's sports that have meant that the kind of deep testing Pitch Ready does simply hasn't been carried out. As these historical gender imbalances are addressed and women's sports grow in popularity, however, demand is increasing.

Pitch Ready hopes to be part of the solution. "It's something that really excites me," says Tim. "Historically, female athletes have had such a hard road, with high injury rates and catastrophic injury. So if we can position ourselves as being quite helpful in that space, then that can change things for a lot of people."

Tim's other ambition for Pitch Ready revolves around getting even faster. "It's trying to have the ability to capture in real time with training data. This is where a lot of these markerless outputs can come into the picture. I don't think it'll ever replace optical capture, but it's really the ability to have more data coming in on a more regular basis as a way of trying to profile injury risk from a player point of view."

The two goals complement the work Pitch Ready has already done in automating and streamlining its process to reach as many organizations as possible. If Tim, Chris and Jon have their way, Pitch Ready will continue to capitalize on advances in motion capture, gathering more data to help more athletes stay safe and injury-free.



Chris Dunn,
Director of Product &
Customer Experience
at Pitch Ready



Jon McGrath,
Director of Strategic
Partnerships at
Pitch Ready

Chris Dunn, Director of Product & Customer Experience, explains that it's this solution that sets Pitch Ready apart from its competitors. "We plugged that process into a seamless, elegant solution that we could ship to the mass market." It means that while the company still acts as a hands-on consultancy to help organizations understand and utilize the information that is received, it also operates as a software-as-a-service (SaaS) provider. In this capacity, it enables partner organizations with their own Vicon systems to run tests themselves, feeding their data into Pitch Ready's portal to generate their own reports, containing unique analysis, recommendations and strategies.

MASS MARKET RELIABILITY

For the model to work, Pitch Ready needed a motion capture system that would reliably produce the results it needed.

"There are a few other players in the market, but Vicon has been around a long time. It's usually a good litmus test – when teams can survive long-term, they must be doing something right. So it was really the backend support behind the system, and just how robust and repeatable the whole system is. That was attractive to us," says Tim.

Once the raw data is uploaded to the platform, Pitch Ready's software generates its report. "Everything is matched to demographic data," says Tim. "So it's age, gender, the type of sport they play, and the level that they play at, because we're using that information to reference against population norms to guide relative benchmarks needed for safe participation in sport. The software then generates a report, which talks about where that individual sits in comparison to population norms, and then there are some automated outputs which are clinically derived."

For an external organization doing its own testing, the process is much the same. They run Pitch Ready's tests using their own motion capture system, then plug the data into the platform. "It's really about empowering them into the methodology from the testing battery, making sure that they're getting good, robust data and washing out learning effects," Tim says.

SCALING UP

One of Pitch Ready's goals was to streamline the entire process, from data entry to report, to a 20 or 30 minute window.

"One of the key features of dealing with professional sports organizations is that they're always time poor," explains Jon McGrath, Director of Strategic

Partnerships. "Reducing the processing time means we can test lots of players rather than testing one and spending a long time processing the data before we can pull anything meaningful out of it."

That becomes particularly important when it comes to testing whole teams to generate injury prevention strategies. "Very rarely is it possible to send a whole squad of players to a lab. So the way that the platform works is that we can capture data on lots of different surfaces and in lots of different areas. So whether it be on a basketball court or a football field, it just makes it more accessible for individuals and also teams to actually use the service," says Jon.

"Indoors, outdoors, internationally, locally, we have that ability. It's a real point of differentiation to our competitors," adds Chris.

Creating an environment that allows for highly accurate motion capture and an authentic simulation of field conditions can be challenging. "You need to make the testing sterile enough that you can compare apples to apples. It can't be so chaotic that you can't make head nor tail of it. And sport is by nature a chaotic sort of environment," says Tim.

"When we first started, we were testing in a 20 meter lab environment, but we open it right up now, because the

fastest athletes we test are running at eight meters per second at the point of changing direction. So it's about really trying to promote the intensity and the chaos of it, but still making it sterile enough just to be able to compare the outputs," he says.

BRIDGING THE GENDER GAP

Another challenge is the lack of good data on female athletes.

"There's this rapid expansion that's kind of going on in the female codes,"

