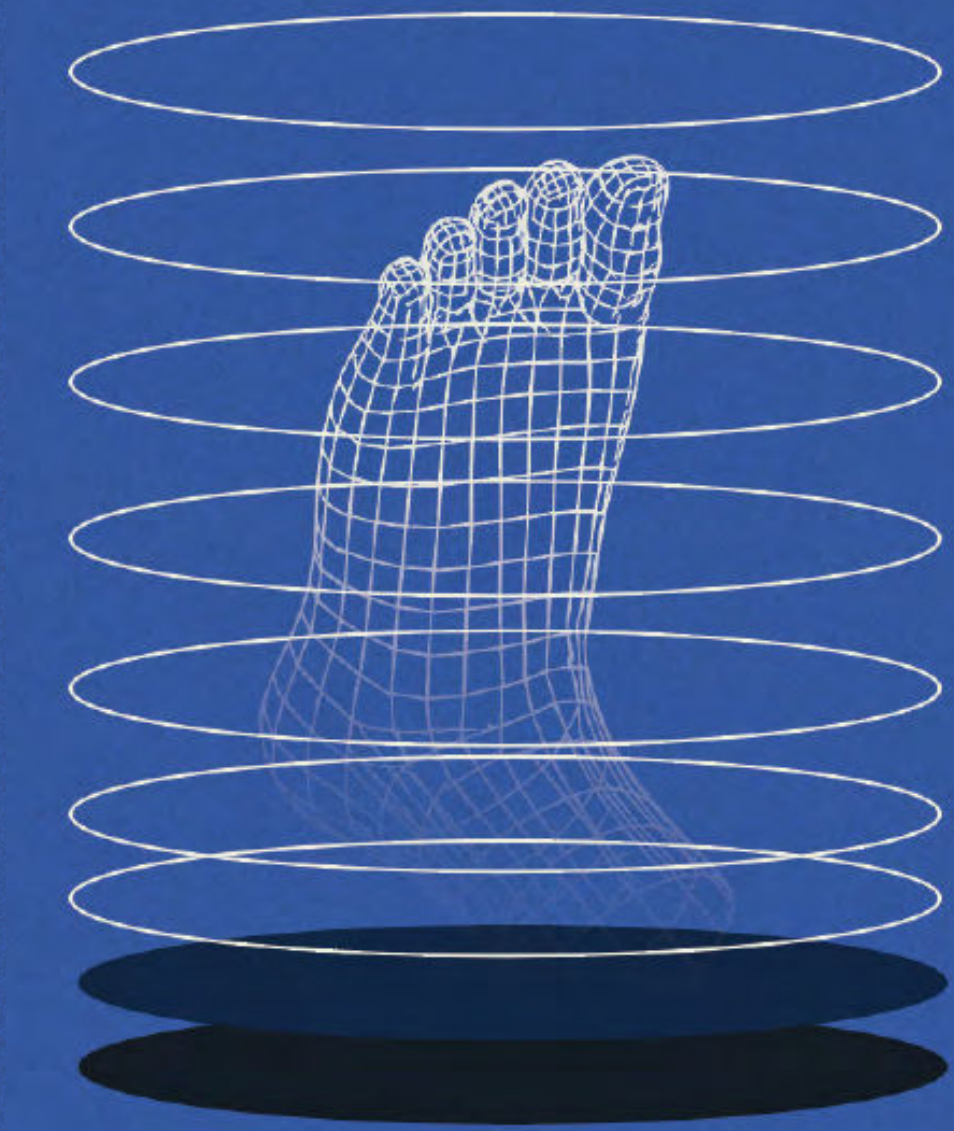
RESEARCH REPORT

Pitch-Side Imaging and Injury Management



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EXECUTIVE SUMMARY

This report investigates how AI-assisted, portable imaging technologies could address the challenges of managing foot and ankle injuries in sport, particularly in pitch-side contexts. Foot and ankle injuries remain a common risk across all levels of play, often resulting in disrupted performance, prolonged recovery, and long-term health impacts. Current pathways for diagnosis and return-to-play decisions are hindered by delays, reliance on subjective judgement, and limited access to timely imaging.

Through a combination of literature review, competitor benchmarking, surveys with athletes, coaches, and professionals, and targeted interviews, this research examined both the limitations of existing systems and the opportunities for innovation. Findings highlight athletes' and coaches' demand for clarity, reassurance, and quicker return-to-play guidance, while professionals prioritise accuracy, integration, and data security.

The study concludes that portable imaging devices should function as a decision-support tool, and the findings highlight opportunities for innovation in usability, speed, accuracy, and trust-building, offering critical design implications to guide future concept ideation and product development.

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AUTHENTICITY STATEMENT

This is to certify that to the best of my knowledge; the content of this report is my work. This report has not been submitted for any subject or other purposes. I certify that the intellectual content of this report is the product of my work and that all the assistance received in preparing this report and sources have been acknowledged.

AI USE STATEMENT

I have utilised Generative AI (ChatGPT, Otteri.ai, Midjourney) in this report to assist in various ways. The way I have used AI includes to assist in reducing word count, structure the report content, transcribe audio and producing one non statistic graphical elements.

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Date: 07/09/2025

Word Count: 4671

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INTRODUCTION

"It's the grand final, only a points difference to win. A player collapses after rolling their ankle. Coaches and other players gather, but the decision is unclear. Do they return to play, or is this the end of their season?"

PROJECT OVERVIEW

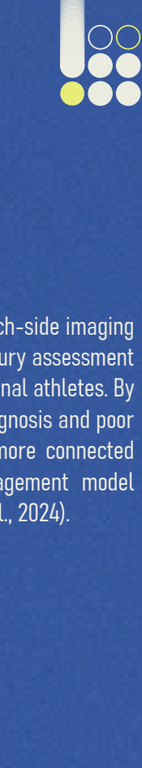
Sport is fast-paced, high-pressure and physically demanding at all levels. Athletes are often required to push beyond their limits, which increases the risk of injury. Injuries can happen in an instant, and decisions need to be made quickly and in real-time, often under pressure from competition schedules and performance expectations.

Between 2023–2024, AIHW reported about 62,100 sports injury-related hospitalisations nationwide, with males aged 15–19 most affected. Soft-tissue injuries such as sprains and strains made up around 18%, and lower-limb injuries accounted for a large share, roughly 157 per 100,000 in 15–24 year olds (AIHW, 2025).

The high injury rate suggests a need for real-time, pitch-side imaging, supported by the fact that delays in diagnostic imaging can worsen injuries (Gitto et al., 2024). Without timely scans, injuries like Achilles ruptures may be misjudged, leading to improper treatment and longer return-to-play times (Penningtonslaw, 2021).

PROJECT AIM

This project aims to examine how pitch-side imaging and decision-making can improve injury assessment and monitoring for elite and recreational athletes. By addressing delayed or inaccurate diagnosis and poor communication, it aims to build a more connected and responsive sports injury management model (Regnard & Guermazi, 2025; Gitto et al., 2024).



PROJECT STRUCTURE

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BACKGROUND

"The injuries we do and those we suffer are seldom weighed on the same scale."
- Aesop

Sports are deeply ingrained in Australian culture, nearly 85% of Australians aged 15 and over participated in some form of sport or physical activity at least once during 2023-24, and out of those people, 47% engaged at least three times a week (AIHW, 2025). However, this high participation rate comes with a significant burden; sports injuries.

PREVALENCE & IMPACT OF SPORTS INJURIES

2023–2024, AIHW reported about 62,100 sports injury-related hospitalisations nationwide with lower limbs being the most affected body parts, around 17,600 cases or 65 hospitalisations per 100,000 population (AIHW, 2025). Musculoskeletal injuries like strains and sprains are a leading cause of hospital admissions, resulting in long-term health consequences, reduced sports participation and substantial healthcare costs (NIH, 2023). Proper management of these injuries is critical since delays or mistakes in diagnosis can heighten the risk of reinjury and extend the time away from sports (Ardern et al., 2016).

CURRENT ASSESSMENT METHODS

Traditional methods for examination have relied on human interpretation, such as self-reported ability to return-to-play. Other often used clinical assessment tools include the Sport Concussion Assessment Tool (SCAT6), and general guidelines for evaluating injuries (Patricios et al., 2023). A traditional assessment is likely followed by imaging techniques like x-rays, MRI's, CT scans or ultrasound. While effective, these tools can be a long process, and do not facilitate on the spot imaging, meaning the player is required to visit a medical facility (NIH,2025).

EMERGING TECHNOLOGIES IN INJURY ASSESSMENT

In recent years, the emergence of point-of-care ultrasound (POCUS) devices has improved this limitation, enabling quicker on field assessments (NIH,2024). With the integration of advanced technology like AI powered diagnostics, AR, high-frequency probes and 3D/4D volumetric imaging, these can further enhance diagnostic accuracy and speed, assisting clinicians in interpreting imaging data and suggesting possible diagnoses (NIH, 2025).

ISSUES WITH CURRENT PRACTICE

Despite these advancements, several gaps remain. Few tools currently offer real-time, on-field injury assessments, especially for foot and ankle injuries. AI diagnostic integration with athlete monitoring systems is still in its infancy. Additionally, most research focuses on elite athletes, leaving community and youth athletes underserved (AIHW, 2025). Accessible, rapid, and accurate diagnostic solutions across all sport levels are urgently needed.

Implementing innovative portable imaging devices for pitch-side injury assessment could enable faster diagnoses, better-informed decisions, and improved outcomes for athletes. These innovations would benefit elite athletes while making high-quality diagnostics accessible to community and youth sports, promoting inclusivity and equity in sports medicine (NIH, 2025).

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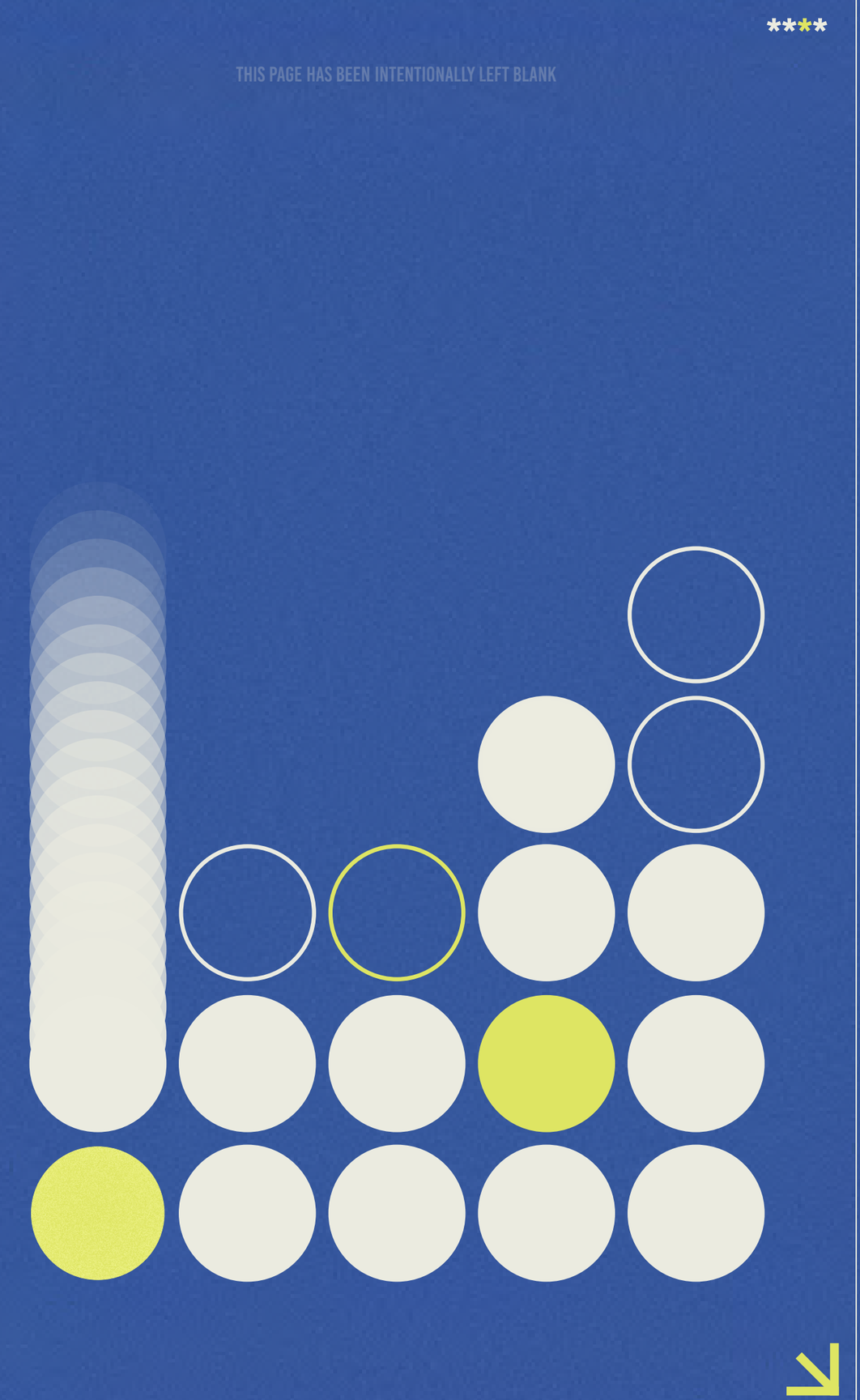
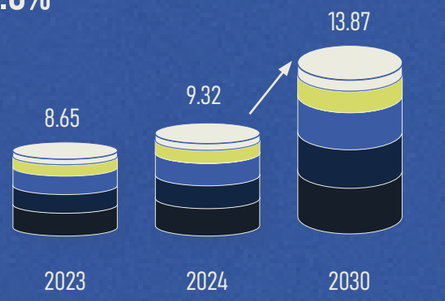


BENCHMARKING

Product benchmarking is a critical stage of the design process, it provides insight into a systematic comparison of medical imaging products currently available in the market, especially those used for musculoskeletal assessment in the context of pre and post injury. This process involves evaluating key product features, including diagnostic accuracy, portability, image quality, physical durability, cost and user experience, to assess strengths and limitations in clinical sports settings. Benchmarking highlights technological trends, gaps and potential opportunities for product innovation.

The global ultrasound market is projected to grow from $8.7 billion USD in 2024 to $14 billion USD by 2030, at a CAGR of 6.8% (MarketsandMarkets, 2025). Growth is being driven by technological advancements such as AI-powered diagnostics, portable devices and real-time imaging, which enable faster and more accurate assessments. A direct result of this innovation is the rise of point-of-care ultrasound (POCUS) systems, which are relevant in clinical environments, home diagnosis, sports medicine clinics and pitch-side environments, presenting opportunities for MSK assessment and management in real world settings (Grand View Research, 2024).

CAGR OF 2024-2030
6.8%



MARKET SIZE (USD BILLION)

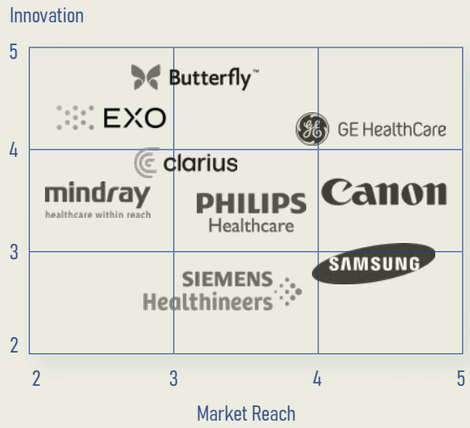
The market is dominated by a handful of multinational companies, these companies include GE Healthcare, Philips, Siemens Healthineers, Canon and Samsung Healthcare, which focus primarily in clinical grade imaging, hospital integration and reliability (Grand View Research, 2024). While their devices mainly operate within high-volume clinical settings, such as hospitals, there are an increasing number of portable and handheld solutions suitable for point-of-care use. Specialist start-ups including Clarius, Exo, and Butterfly Network are disrupting the market with affordable, app-based, wireless solutions ideal for sports and pitch-side applications. For example, Butterfly's iQ3 won Best Medical Technology at the 2024 Prix Galien USA Awards for its Ultrasound-on-Chip technology, AI-assisted imaging, and compact, portable design (Butterfly Network, 2024)..

Recent studies (Perez-Sanchez et al., 2024) have shown that no POCUS device excels across every application, therefore reinforcing the need for context-driven benchmarking. Experts say that the features that have been identified as the most critical factors when evaluating handheld devices include image quality, ease of use, portability, probe size and battery life. GE Vscan Air scored highest for ease-of-use, making it particularly suitable for rapid pitch-side deployment, while Philips Lumify and Mindray TE Air performed best for superficial and cardiac/neck imaging (The Ultrasound Journal, 2024).. All three devices were rated highly for overall image quality. Ease-of-use also strongly influenced purchase preference, with the Vscan Air being most likely selected for personal use due to its ergonomic, user-friendly design.

BENCHMARKING

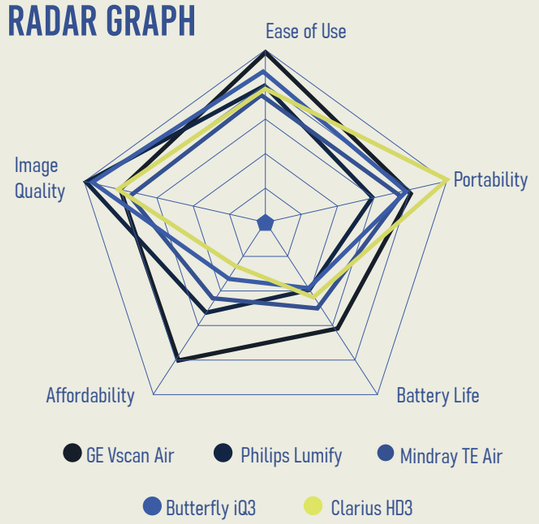
For pitch-side injury decision-making, the primary users, which are entry-level coaches and athletes, require products that are affordable, portable, easy to operate, reliable, and compatible with app-based interfaces. Comparing products against these criteria ensures that the chosen systems are accessible and effective in real-world sports environments, supporting accurate musculoskeletal assessment and injury management.

COMPANY MATRIX



As shown in the company matrix, GE Healthcare dominates in market reach, while Butterfly leads in innovation but lacks comparable reach. No company dominates both. The opportunity lies in uniting innovation with distribution. To compare these products, the table below highlights key features such as image quality, portability, and ease of use.

RADAR GRAPH



SUMMARY

The benchmarking of handheld ultrasound devices highlights gaps and opportunities in the market. GE Vscan Air and Philips Lumify excel in ease of use, with GE also leading in battery life and affordability. Clarius HD3 offers superior portability but at a higher cost, while image quality is strongest in Philips Lumify and Mindray TE Air. No device excels across all metrics, revealing opportunities for balanced innovation. Key areas include energy-efficient batteries, cost-effective portable designs, and AI-assisted enhancements to improve image quality.

The market favors a versatile, accessible device that combines high performance, portability, and affordability, particularly for real-time, pitch-side use.

PRODUCT COMPARISON

Device	Company	Image Quality	Ease of Use	Portability	Probe Size	Battery Life	App Integration	Cost (AUD)	End User Suitability
GE Vscan Air	GE Healthcare	High	Very High	High	Small	~ 3 hours	Yes	$4500	High
Philips Lumify	Philips	Very High	High	Medium	Medium	~ 2 hours	Yes	$3800	Medium
Mindray TE Air	Mindray	High	High	High	Small	~ 2.5 hours	Yes	$3500	High
Butterfly iQ3	Butterfly Network	Very High	High	High	Small	~ 2 hours	Yes	$3200	Medium
Clarius HD3	Clarius Mobile	High	High	Very High	Small	~ 2.5 hours	Yes	$3000	High
Exo Iris	Exo	High	Medium	High	Small	~ 3 hours	Yes	$2800	Medium

RESEARCH

METHOD & METHODOLOGIES

After the secondary research and benchmarking stage has been completed, primary research is the next integral part of the design process. This section outlines the primary research undertaken to investigate how primary stakeholders such as athletes, coaches, and healthcare professionals perceive and adopt the applicability of sports injury assessment technologies.

This project employed a qualitative and quantitative research approach supported by surveys and semi-structured interviews, as it enables the capture of nuanced experiences and perspectives rather than just numerical data (Creswell, 2007). These methods provide a breadth of responses and depth of insights. Combining the two allowed for triangulation, improving the credibility of findings (Carter et al., 2014). These methods were also adopted for their capacity to capture not only factual information, but also the underlying perceptions, behaviours, physiological and psychological factors that influence user adoption of new sports injury assessment tools.

RESEARCH APPROACH

This study followed an exploratory qualitative research approach, chosen to capture diverse perspectives on the adoption of emerging decision-making technologies for musculoskeletal (MSK) injuries. Qualitative approaches are particularly effective in investigating attitudes, behaviours, and perceptions that may not be easily measured numerically (Creswell, 2007). The research aimed to investigate two complementary dimensions: (1) the experiences and attitudes of end-users (athletes and coaches) toward injury monitoring and new imaging tools, and (2) the perspectives of professionals (physiotherapists, surgeons, exercise scientists, sonographers, biomedical engineers) who work directly with injury assessment and rehabilitation.

The decision to split end-users and professionals into separate participant groups was deliberate. This comparative lens allowed the research to highlight contrasts between the lived realities of those who sustain and manage injuries, and the systemic or technical challenges faced by those who deliver care. This duality is essential in understanding adoption, as user willingness is often shaped not only by psychological and physiological factors, but also by the accessibility of services and integration into existing clinical practice. An exploratory approach was also necessary because portable imaging for sports injury decision-making is an emerging field, with limited established research on user adoption in the Australian context. By keeping the research approach open and flexible, the study was able to capture a wide range of insights without being constrained by rigid experimental controls (Patton, 1999; Noble & Smith, 2015).

All interview questions in this project were developed after the survey had been designed, ensuring that the topics explored in the survey directly informed the interviews. This approach created a clear connection between the two sampling methods, with interviews generating rich narrative insights that expanded upon the themes identified in survey responses (Tenny, 2022).

RESEARCH

PARTICIPANT RECRUITMENT

Survey participants were selected based on their involvement in sports and injury management, with industry experts providing suggestions and advice on who to contact. The end-user survey received 13 responses: 10 players, 1 coach, and 2 both players and coaches, primarily from community, amateur, and semi-professional levels, mostly involved in team sports or running. Surveys were distributed via email to sporting clubs, QUT Sport emails in competition venues, and postings on Reddit and other relevant online platforms.

The professional survey received 5 responses from physiotherapists, surgeons, and exercise scientists. Interviews included a biomedical engineer, a foot and ankle sonographer, and exercise scientists, capturing both technical expertise and practical user experiences.

LIMITATIONS

Both surveys and interviews have inherent limitations. Surveys relied on self-reported data, which may introduce recall bias and reduce the nuance of responses. The relatively small number of participants (13 end-users, 5 professionals) may limit generalisability and increase sampling bias (Wetzel et al., 2016). Interviews, while providing rich qualitative insights, are susceptible to interviewer bias, variability in depth, and differences in interview environments (online, in-person) (Taylor-Powell, 2000). Additionally, thematic analysis of responses introduces subjectivity in interpretation (Noble & Smith, 2015). Despite these limitations, triangulating surveys and interviews, and using an iterative approach, strengthened the validity and reliability of findings.

CONCLUSION

The combination of surveys and semi-structured interviews, supported by an iterative and triangulated approach, has provided a rich dataset capturing both end-user experiences and professional perspectives on sports injury assessment technologies. These findings highlight key trends, barriers, and opportunities in technology adoption, which will now be explored in the analysis and discussion. The subsequent section interprets these insights using thematic analysis to identify patterns and contrasts between user groups, ensuring that conclusions are grounded in both the qualitative data and existing literature (Creswell, 2007; Noble & Smith, 2015; Carter et al., 2014).

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ANALYSIS

This section of the report analyses the primary data across all stakeholders (athletes/coaches and industry professionals). The surveys were distributed amongst a breadth of perspectives across end-users and practitioners, complimenting the depth of insight gained later through interviews. The analysis is structured to outline participant demographics before exploring key themes, and insights. The findings provide a comparative understanding of how sports-related injury assessment is currently navigated and where opportunities for design may lie.

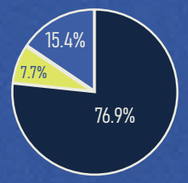
SURVEYS

Survey responses were exported into spreadsheets for a systematic analysis. Quantitative data was organised into percentage-based summaries and visualised through an array of graphs, while open-ended qualitative responses underwent a thematic coding process to identify recurring patterns and sentiments. This mixed analysis approach enabled the integration of numerical trends with the nuance of participant perspectives, ensuring both measurable outcomes and lived experiences were captured. Univariate analysis was applied to establish baseline frequencies across individual variables, with selective bi-variate comparisons (e.g., athletes vs coaches, or years of professional experience vs technology adoption) conducted to highlight differences between groups. Limitations must be acknowledged, including the modest sample size, potential selection bias due to distribution through existing networks, and uneven representation across sporting levels. These factors may restrict the generalisability of results but nonetheless provide valuable directional insights for this study.

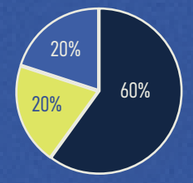
DEMOGRAPHICS

The demographic of the 13 participants was fairly diverse, the coaches and athletes represented a mix of community and semi-professional levels across various sports such as basketball, rugby, running and contact sports. 70% of respondents competed at a community or recreational level, whereas another 15% competed at a semi-professional level. Coaches reflected primarily amateur contexts, working with youth and adult teams. On the professional side, there were 5 respondents 60% represented physiotherapists, and the rest were surgeon, and exercise scientists. This combination of end-user and clinical viewpoints provided both lived experiences of injury and practitioner insights into treatment and rehabilitation pathways. A high proportion of all respondents had encountered sports injuries in their role, positioning them as experienced stakeholders in injury management.

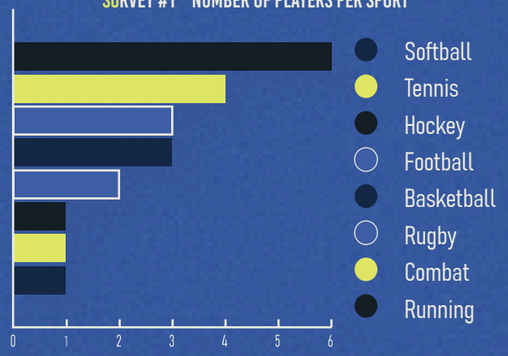
SURVEY #1



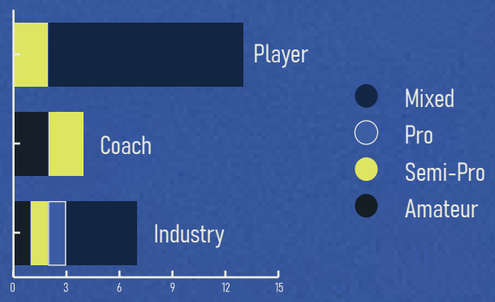
SURVEY #2



SURVEY #1 NUMBER OF PLAYERS PER SPORT



SURVEY #1 & #2 LEVEL OF SPORTING COMPETITION

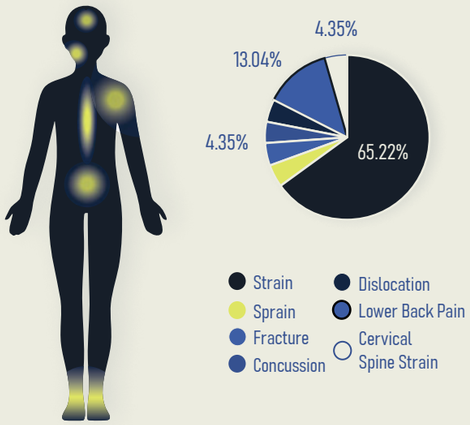


ANALYSIS

INJURY INCIDENCE & MANAGEMENT

85% of players reported prior injuries, most commonly muscle strains and ligament sprains, with some dislocations, concussions, and fractures. Coaches noted overuse injuries (tendonitis, sprains) as frequent in their teams. Players were asked what challenges they incurred after their injury, with 45% expressing difficulty with access to diagnostic imaging and 70% experiencing anxiety prior to clinical diagnosis and related to cost, booking time, or public system wait lists. Professionals reinforced these patterns, frequently diagnosing ankle sprains, stress fractures, and syndesmosis injuries. They emphasised the difficulty of managing complex cases where multiple structures were affected, and echoed the frustration of referral delays that restricted timely diagnosis. Together, these findings suggest a reliance on sequential, traditional care pathways, which can create uncertainty in return-to-play decisions and slow rehabilitation progress.

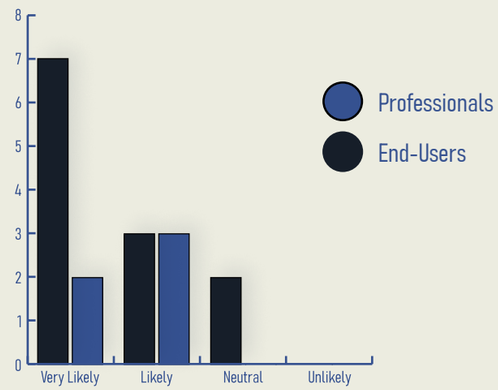
SURVEY #1 & #2 MOST COMMON INJURIES



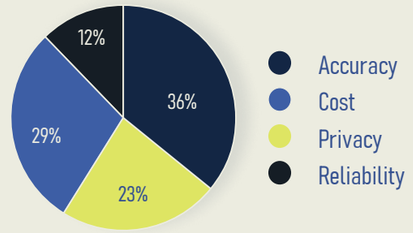
TECHNOLOGY ADOPTION

When asked about new imaging tools, athletes and coaches expressed high interest in portable ultrasound and AI-assisted devices, with most respondents indicating they would be likely or very likely to adopt them. Barriers included cost, ease of use, and concerns around accuracy or privacy. Professionals showed cautious optimism: while recognising the potential of portable imaging to accelerate decisions and track progress, they emphasised the risk of misdiagnosis and the need for specialist oversight. Many supported safeguards such as requiring secondary review for serious injuries. This contrast highlights both strong user demand for accessible technology and professional insistence on validation and integration into established clinical workflows.

SURVEY #1 & #2 LIKELINESS OF ADOPTING NEW TECHNOLOGY



SURVEY #1 & #2 BARRIERS OF ADOPTION

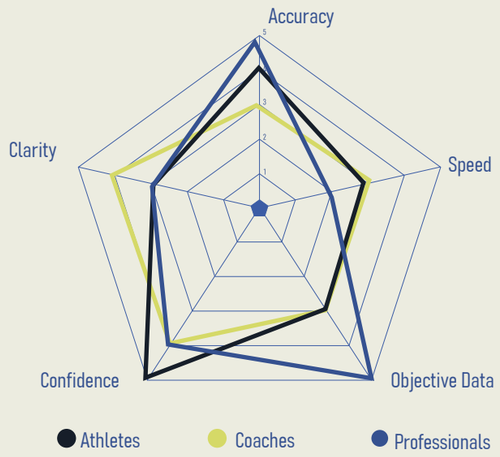


ANALYSIS

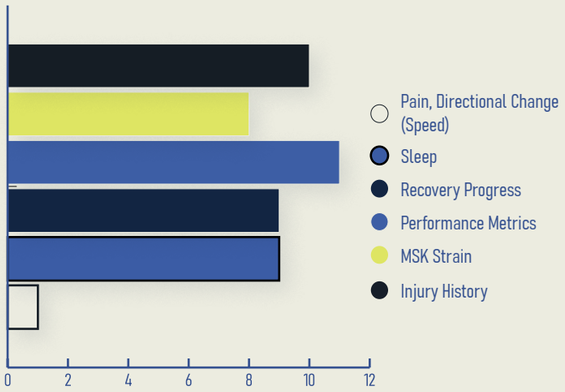
PERCEPTION & NEEDS

Across both cohorts, respondents consistently prioritised speed, accuracy, and clarity in injury assessment. Athletes emphasised personal reassurance and confidence in their recovery, often reporting anxiety or uncertainty before receiving a formal diagnosis. Coaches valued tools that would improve return-to-play decision-making and reduce reliance on player self-reporting. Professionals, meanwhile, placed particular importance on objective, measurable data to engage patients, track rehabilitation progress, and support education. They viewed patient understanding as critical to long-term outcomes and sought tools that could provide reliable, repeatable metrics such as range of motion, loading, and functional performance. These findings position portable, user-friendly imaging and monitoring systems as attractive solutions, provided they are clinically robust and seamlessly integrated into practice.

SURVEY #1 & #2 KEY NEEDS OF ADOPTED TECHNOLOGY



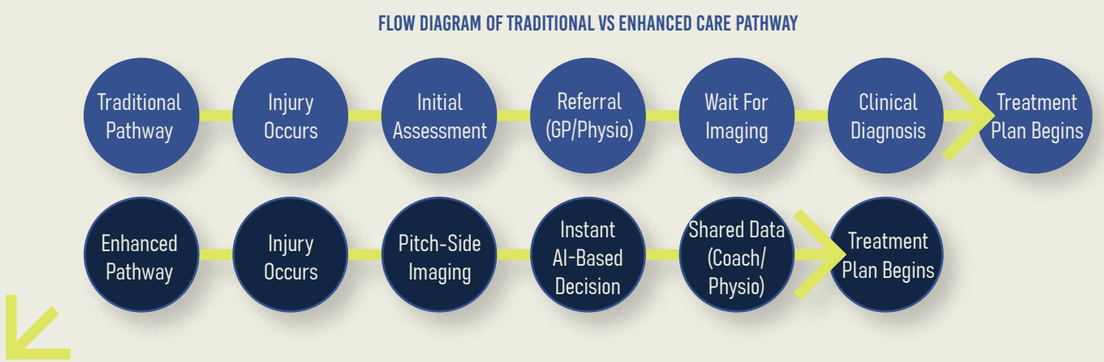
SURVEY #1 MEASUREABLE NEEDS OF END USERS



SUMMARY

Overall, the survey analysis revealed high injury prevalence, particularly in the lower limbs, alongside systemic barriers in accessing timely diagnostics. Both athletes/coaches and professionals recognised the potential value of portable and AI-assisted technologies, though their perspectives diverged: end-users demonstrated enthusiasm for tools that provide instant reassurance and improve return-to-play confidence, while professionals adopted a more cautious stance, emphasising accuracy, oversight, and clinical integration. These complementary insights underscore a clear design opportunity: creating solutions that balance usability and accessibility for athletes with the rigour and reliability demanded by professionals.

FLOW DIAGRAM OF TRADITIONAL VS ENHANCED CARE PATHWAY



ANALYSIS

INTERVIEWS

Insights from the surveys helped shape the focus of the interviews, allowing for deeper exploration of key experiences, perceptions, and challenges. Semi-structured interviews were conducted with 3 stakeholders to build on survey findings, and the analysis of these interviews informed a feedback loop for refining future questions and approaches. The interviews were transcribed using Otter.ai and edited for clarity. Data were analysed using thematic analysis (Braun & Clarke, 2006), with initial coding of repeated concepts and quotes. Coding was refined through multiple iterations to ensure reliability and accurately capture recurring insights.

ACCESS & TURNAROUND TIMES

All three participants noted that delays in diagnosis and treatment significantly disrupt rehabilitation. Participant 1 stressed that many amateur athletes delay seeking imaging because of time, cost, or inconvenience, which leads to extended recovery periods. Participant 2 added that even when imaging is performed, operator technique and consistency can slow down accurate assessments. Participant 3 emphasised that while technology could streamline processes, there must also be a focus on making systems accessible and usable in real-world clinical environments.

"Clients often delay or avoid imaging altogether because it's just too much hassle, and that really impacts their rehab." (Participant 1 - Exercise Scientist)

"Mate, shearwave elastography is powerful, but it's also sensitive, positioning and dorsiflexion angles need to be spot on, which can slow things down." (Participant 2 - Sonographer)

MISDIAGNOSIS & HUMAN ERROR

A recurring theme across the interviews was the risk of misdiagnosis due to inconsistent interpretation of clinical data. Participant 1 explained that tendon and ligament injuries are often misunderstood, with human error being a major limitation. Participant 3 reinforced this point, stating that the real challenge lies not only in collecting data but in ensuring that it is meaningful and trusted by clinicians. This revealed a gap where AI-assisted tools could play a role in reducing variability and error.

"The severity of tendon or ligament strains is often misinterpreted, misdiagnosis usually comes down to incorrect data interpretation." (Participant 1 - Exercise Scientist)

"It's all about capturing accurate data, making it meaningful, and ensuring safety. How do you take raw data and turn it into something a human can trust and act on?" (Participant 3 - Biomedical Engineer)

TENDON MECHANICS & RETURN-TO-PLAY

Participant 2 provided valuable insights into the biomechanics of tendon healing, emphasising that the Achilles behaves like a cable; precise in its recovery and highly dependent on blood flow. He noted that vascularity is one of the strongest predictors of healing and return-to-play safety. Emerging imaging techniques such as shearwave elastography allow clinicians to track stiffness and readiness for load, which could help reduce the risk of re-rupture. These findings support the potential for new devices to focus on objective measures such as stiffness, vascularity, and dorsiflexion range in order to inform return-to-play decisions.

*"Achilles is like a cable, you know, it's strong but it has to heal in a very specific way, and blood flow is critical for that process." (*Participant 2 - *Sonographer)*

*"For tendons, you want them to be hard, ready to take load again. That's what shearwave elastography lets you see." (*Participant 2 - *Sonographer)*

ANALYSIS

TECHNOLOGY POTENTIAL, REGULATION & DEVICE DESIGN

When discussing technological opportunities, all participants recognised the value of objective, integrated systems. Participant 3 emphasised the importance of collaboration between engineers, designers, and clinicians to build tools that are both technically robust and intuitive to use. Participant 1 highlighted the need for portable imaging solutions and faster turnaround times to better support athletes' rehabilitation journeys. Participant 2 suggested that combining imaging metrics with treatment history (such as autologous tenocyte injections) could allow for a more comprehensive assessment of tendon readiness. Importantly, Participant 3 also pointed out that the way such a system is positioned has regulatory implications: if the AI is framed as a "decision-support" tool rather than a diagnostic device, it may avoid some of the stricter FDA approval pathways. This insight highlights not only the technical challenges but also the strategic considerations required for bringing new sports med technologies to market.

"If it's getting too big, identify one thing to diagnose. Pick one and develop it as much as possible." (Participant 3)

"A portable or in-house imaging system would make a massive difference, quicker assessments mean quicker returns." (Participant 1)

"If you call it a diagnostic device, you're in for all the FDA approvals and regulations. But if you if can call it a decision-making tool, then you've got more room to move." (Participant 3)

CONCLUSION

The three interviews collectively identified clear opportunities and challenges in sports injury assessment. Delays in access, risk of misdiagnosis, and lack of standardisation remain persistent barriers, while advancements in imaging and AI provide promising avenues for innovation. A strong emphasis was placed on the Achilles tendon as a focal case study, where tendon mechanics, vascularity, and stiffness are central indicators of healing. Future solutions will need to balance technical precision with usability, integrating objective imaging data into streamlined, accessible systems that clinicians trust and athletes can rely on.

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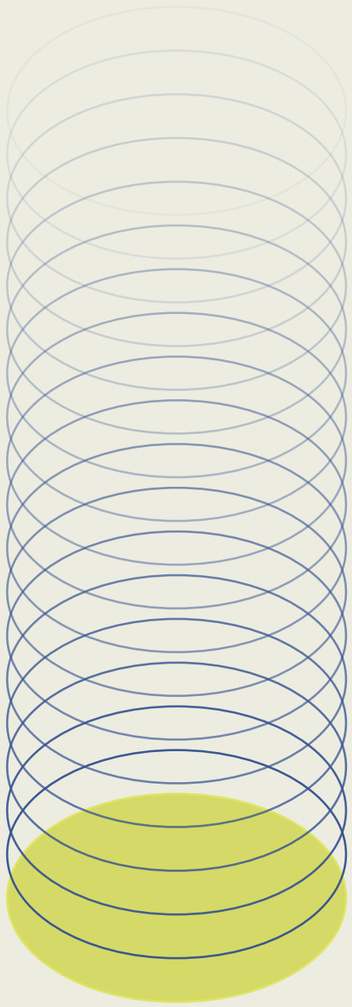

DISCUSSION

This research explored how AI-assisted, portable imaging technologies could improve the diagnosis and management of foot and ankle injuries in sport, with a focus on enhancing return-to-play decisions. The literature review highlighted persistent issues in current care pathways, including reliance on subjective assessments, delays in accessing diagnostic imaging, and uncertainty around return-to-play outcomes. These gaps informed primary research with athletes, coaches, and industry professionals.

Survey findings revealed that athletes and coaches experience frustration with delayed diagnosis and inconsistent access to medical support, often relying on self-assessment or limited first-aid input. They expressed strong interest in portable imaging tools that could provide reassurance, clarity, and confidence in recovery decisions. Professionals supported innovation but emphasised diagnostic accuracy, clinical integration, and data security. Interviews reinforced that AI-assisted devices should act as decision-support tools, augmenting rather than replacing professional expertise. Framing such technology as a decision-making aid rather than a diagnostic replacement was suggested as a strategy to ensure adoption while maintaining professional oversight.

When both cohorts' perspectives are considered together, convergence and divergence emerge. Both groups valued improved data and preventative insight, recognising the limitations of current pathways. Athletes and coaches prioritised clarity, guidance, and confidence in return-to-play decisions, while professionals emphasised reliability, accuracy, and clinical rigour. This duality highlights that successful technological interventions must balance athlete-centred usability with professional-level validation.

The findings demonstrate that while there is strong willingness among end-users to adopt portable AI-assisted imaging, adoption is contingent on meeting specific conditions: devices must be accurate, clinically validated, secure, and integrated into existing workflows. By evidencing these stakeholder-specific needs, the study clarifies both the demand for rapid, accessible imaging and the criteria required for adoption in sporting and clinical contexts.

In summary, AI-assisted portable imaging has significant potential to transform sports injury management. By bridging the needs of athletes, coaches, and professionals, such tools could reduce delays, enhance confidence, and contribute to safer and more efficient return-to-play outcomes. These insights provide a foundation for concept development, ensuring future designs balance usability, clinical rigour, and ethical considerations, ultimately supporting more effective, equitable, and evidence-informed sports medicine practices.

DISCUSSION

DESIGN IMPLICATIONS

The findings of this study highlight several critical implications for the design of AI-assisted, portable imaging devices for sports injury management. These implications span both technical performance and human-centred considerations, revealing how design can bridge the gap between clinical rigour and on-field usability. By addressing the issues of access, accuracy, and trust identified in this research, opportunities arise to reimagine injury assessment as a more integrated and responsive process.

TIMELINESS

A central problem evident across both cohorts was the delay and subjectivity of current diagnostic pathways. Athletes and coaches described long wait times for imaging and inconsistent decision-making based on pain tolerance or first-aid advice, while professionals noted barriers in referrals and access to advanced scans. These delays introduce unnecessary uncertainty, creating risks of premature return-to-play. From a design perspective, this underscores the need for portable, rapid, and objective imaging tools that can be deployed in sporting contexts to minimise downtime and improve confidence in decision-making.

ADOPTION

Survey data and interviews also revealed barriers to adoption, including concerns over accuracy, cost, usability, and data privacy. Athletes expressed scepticism towards AI making unsupervised judgments, while professionals were wary of tools that might undermine rather than support their clinical expertise. This signals a crucial design opportunity: devices must not seek to replace medical professionals but rather evolve into decision-support tools, providing objective data that coaches and athletes can interpret with confidence, while still deferring to clinical validation. For example, one interviewee suggested that the real value lies in transforming the device into a system that assists with return-to-play decisions, shifting the focus from diagnosis alone to practical guidance.

DUALITY

Opportunities also exist in designing for dual user groups. Athletes and coaches prioritised reassurance, clarity, and confidence in injury assessment, while professionals demanded accuracy, validity, and seamless integration with existing practices. A successful design must therefore be scalable in usability, intuitive enough for community-level coaches to operate, yet robust and clinically reliable enough for physiotherapists and sports physicians to trust. This dual-functionality could be achieved through tiered interfaces or adaptive feedback modes tailored to the expertise of the user.

REQUIREMENTS

Several design requirements emerge directly from the findings. Devices must prioritise speed, delivering near instant results in high-pressure sporting environments. They must ensure accuracy, ideally validated against existing gold-standard imaging. Outputs should be presented with clarity, using simple visuals or traffic light style risk indicators to reduce uncertainty. Confidence-building features are equally important, providing educational support and reassurance to both athletes and coaches. Objective data tracking, such as strain levels, load, or range of motion would enable progress monitoring across rehabilitation timelines. Finally, privacy, security, and affordability remain essential considerations to encourage adoption across both elite and community sport.

These implications point towards a future where portable imaging is not confined to hospitals or clinics, but integrated directly into the sporting ecosystem. The role of design extends beyond technical feasibility to include cultural acceptance and trust-building, ensuring technology complements rather than competes with human expertise. In doing so, innovation can move from providing static diagnoses to delivering dynamic, actionable insights, transforming how injury assessment, recovery, and return-to-play decisions are made in sport.

CONCLUSION

This research explored how AI-assisted, portable imaging technologies could enhance the diagnosis and management of foot and ankle injuries in sport, with a focus on improving return-to-play decisions. The literature review identified persistent gaps in current care pathways, including reliance on subjective assessments, delays in accessing imaging, and uncertainty around return-to-play outcomes. These gaps informed primary research with athletes, coaches, and professionals.

Survey results highlighted athletes' and coaches' frustration with delayed diagnosis and inconsistent access to medical support, often relying on self-assessment or limited first-aid input. Participants expressed strong interest in portable imaging tools that could provide reassurance, clarity, and confidence in recovery decisions. Industry professionals supported innovation but emphasised the importance of diagnostic accuracy, seamless clinical integration, and data security. Interviews reinforced that AI-assisted devices should serve as decision-support tools, augmenting rather than replacing professional expertise.

Overall, the findings clarify both the demand for faster, accessible imaging and the conditions required for adoption. Portable AI-assisted imaging has the potential to reduce delays, improve confidence, and contribute to safer, more efficient return-to-play outcomes. By addressing the needs of athletes, coaches, and professionals, these insights provide a foundation for concept ideation and product development, ensuring future designs balance usability, clinical rigour, and ethical considerations in sports injury management.

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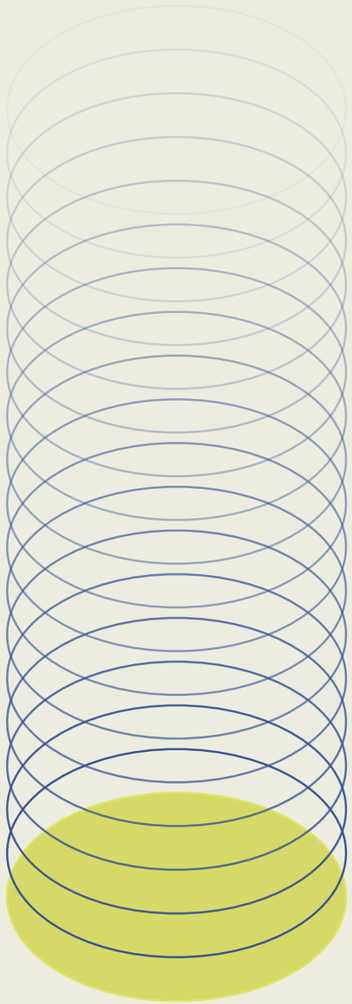

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APPENDIX

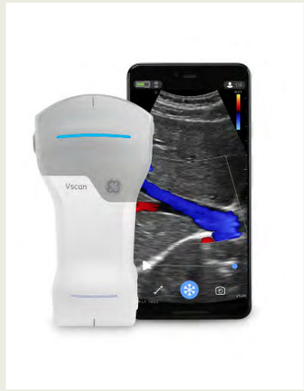
PRODUCT BENCHMARKING TABLE
POCUS DEVICES

Device	Company	Image Quality	Portability	Ease of Use	Probe Size	Battery Life	App Integration	Cost (AUD)	End-User Suitability
GE Vscan Air	GE Healthcare	High	High	High	Small	~3 hours	Yes	$4,500	High
Philips Lumify	Philips Healthcare	Very High	High	High	Medium	~2 hours	Yes	$3,800	Medium
Mindray TE Air	Mindray	High	High	High	Small	~2.5 hours	Yes	$3,500	High
Butterfly iQ3	Butterfly Network	Very High	High	High	Small	~2 hours	Yes	$3,200	Medium
Clarius HD3	Clarius Mobile Health	High	High	Very High	Small	~2.5 hours	Yes	$3,000	High
Exo Iris	Exo	High	High	High	Small	~3 hours	Yes	$2,800	Medium
Kosmos	EchoNous	High	High	High	Small	~3 hours	Yes	$3,000	Medium
SonoEye Chison	Chison Medical	High	High	High	Small	~3 hours	Yes	$2,500	Medium
SonoSite iViz	Fujifilm	High	High	High	Small	~3 hours	Yes	$4,000	High
Youkey Q7	Youkey	High	High	Medium	Small	~3 hours	Yes	$2,200	Medium
DRSONO	DRSONO	High	High	High	Small	~3 hours	Yes	$2,500	Medium
TodoPocus L20	TodoPocus	High	High	High	Small	~3 hours	Yes	$2,000	Medium
GE Vscan Air SL	GE Healthcare	High	High	Very High	Small	~3 hours	Yes	$4,800	High
Philips Lumify C5-2	Philips Healthcare	Very High	High	High	Medium	~2 hours	Yes	$4,000	Medium
Mindray TE Air i3P	Mindray	Very High	High	High	Small	~3 hours	Yes	$3,800	High
Butterfly iQ+	Butterfly Network	High	High	High	Small	~2 hours	Yes	$2,800	Medium
Clarius C3HD3	Clarius Mobile Health	High	Very High	High	Small	~2.5 hours	Yes	$3,200	High
EchoNous Kosmos	EchoNous	High	High	High	Small	~3 hours	Yes	$3,000	Medium
Chison SonoEye	Chison Medical	High	High	High	Small	~3 hours	Yes	$2,500	Medium
Fujifilm Arietta 70	Fujifilm	Very High	Medium	High	Medium	~4 hours	Yes	$6,000	High

PRODUCT BENCHMARKING TABLE
NON-POCUS DEVICES

Device	Company	Image Quality / Accuracy	Portability	Ease of Use	Probe / Sensor Size	Battery Life / Power	App / Software Integration	Cost (AUD)	End-User Suitability
GE Logiq E10	GE Healthcare	Very High	Medium	Medium	AC Powered	Yes	Yes	$80,000	Clinicians
Philips EPIQ 7	Philips Healthcare	Very High	Medium	Medium	AC Powered	Yes	Yes	$75,000	Clinicians
Canon Aplio i800	Canon Medical	Very High	Medium	Medium	AC Powered	Yes	Yes	$78,000	Clinicians
Mindray M9	Mindray	High	Medium	Medium	AC / Battery (~2h)	Yes	Yes	$45,000	Clinicians
Delsys Trigno Avanti	Delsys	High (EMG Accuracy)	High	High	Small Sensors	~12 hrs	Yes	$20,000	Rehab / Research
Noraxon MyoMotion	Noraxon	High	Medium	Medium	Medium Sensors	~6 hrs	Yes	$30,000	Rehab / Sports Science
Biodex System 4 Pro	Biodex	High (Isokinetic Testing)	Low	Medium	N/A	AC Powered	Yes	$45,000	Clinicians / Rehab
Motus Knee/Ankle Rehab	Motus Rehabilitation	Medium	High	High	N/A	Battery / AC	Yes	$3,500	Rehab / Athletes
Tekscan F-Scan	Tekscan	High (Plantar Pressure)	Medium	Medium	Insole Sensors	~8 hrs	Yes	$12,000	Clinicians / Athletes
Xsens MVN Analyze	Xsens	High (Motion Capture)	Medium	Medium	Full Body Suit	~8 hrs	Yes	$50,000	Rehab / Sports Science
ValedoMotion	Hocoma	Medium	High	High	Wearable Sensors	~5 hrs	Yes	$2,800	Clinic / Home Rehab
ForceFrame Rehab System	Kinetic Concepts	High	Low	Medium	N/A	AC Powered	Yes	$40,000	Clinicians / Rehab
Xtracare Motion Pod	Xtracare	Medium	High	Medium	Small Sensors	~6 hrs	Yes	$3,500	Rehab / Athletes
AlterG Anti-Gravity Treadmill	AlterG	N/A (Gait Support)	High	Low	N/A	AC Powered	Yes	$80,000	Rehab / Athletes
HydroWorx 2000	HydroWorx	N/A (Aquatic Therapy)	Low	Medium	N/A	AC Powered	Yes	$55000	Rehab / Athletes
GaitSmart	GaitSmart	High (Gait Analysis)	High	High	Small Sensors	~8 hrs	Yes	$18000	Rehab / Clinics
MotionMetrix	MotionMetrix	High (3D Motion Capture)	Medium	Medium	Sensors / Cameras	AC Powered	Yes	$60000	Rehab / Sports Science
OptiTrack Motive	OptiTrack	High	Low	Medium	Camera-based System	AC Powered	Yes	$45,000	Rehab / Research
HUR SmartBalance	HUR	Medium	Medium	High	N/A	AC Powered	Yes	$12,000	Rehab / Clinics
RehaGait	RehaGait	High	High	High	Small Sensors	~6-8 hrs	Yes	$10,500	Rehab / Clinics

APPENDIX



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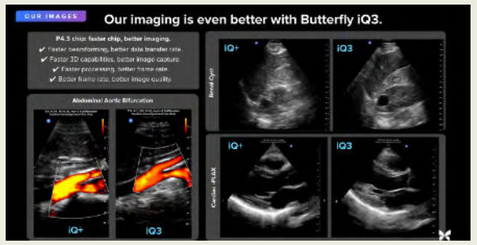

APPENDIX

SURVEY QUESTIONS (ATHLETES)

Section	Question	Answer Type	Purpose	Order Purpose
Consent	Are you 18 years of age or older?	Yes/No	Eligibility check	Screening – first
Consent	Have you read and understood the Participant Information for Capstone Research Project?	Yes/No	Informed consent	Screening
Consent	Do you voluntarily agree to participate in this survey?	Yes/No	Ethics compliance	Screening
About You	Are you a: Player / Coach / Both	Single choice	Identify cohort; enable branching	Routing
Player – Demographics	If Player, please select your sport(s)	Multiple select (+Other)	Sporting background	Context
Player – Demographics	If Player, what is your level of play?	Single choice	Experience level	Context
Coach – Demographics	If Coach, what is your level of coaching?	Single choice	Coaching level	Context
Coach – Demographics	If you are a coach, please specify the age group and level of the team(s) you coach	Short answer	Team profile	Context
Coach – Injury Burden	As a coach, what is the average injury rate among your players per season?	Single choice	Injury incidence perception	Problem sizing
Coach – Injury Types	As a coach, which types of injuries occur most frequently in your team? (Select all that apply)	Multiple select (+Other)	Common injuries	Problem sizing
Coach – Monitoring	Do you currently monitor your players' musculoskeletal condition throughout the season?	Single choice	Current practice baseline	Benchmark
Coach – Monitoring	If yes, how do you currently monitor your players' musculoskeletal condition throughout the season?	Short answer	Methods in use	Benchmark detail
Coach – Assessment	How are injuries currently assessed during games and training?	Short answer	Pitch-side assessment pathways	Pathway mapping
Coach – Roles	Who is involved in monitoring your players' musculoskeletal conditions?	Short answer	Stakeholders involved	Pathway mapping
Coach – Timing	At what point during the season do injuries tend to occur most often?	Single choice	Temporal patterns	Context
Coach – Limitations	What limitations do you face in determining whether a player can continue?	Short answer	Decision constraints	Barrier identification
Coach – Consultation	How often do you consult with physiotherapists, doctors, or other medical staff about player injuries during a season?	Single choice	Care coordination	Benchmark
Coach – Estimation Error	Have you experienced situations where an injury was either underestimated or overestimated during a game? If so, how was this managed?	Short answer	Risk recognition & management	Barrier identification
Coach – Instant Imaging	Would instant imaging technology influence return-to-play decisions and reduce risk?	Yes/No/Unsure	Perceived value of imaging	Value proposition
Coach – Tools	What types of technology or tools do you currently use to monitor player health and injury recovery?	Multiple select	Tech baseline	Benchmark
Coach – Centralised System	How important is a centralised injury tracking system accessible to coaches, medical staff, and players?	Likert (1-pt)	Shared data need	Opportunity sizing
Coach – Investment	Would you invest in an AI diagnostic/monitoring device if it was proven to reduce player downtime?	Yes/No	Willingness to pay/adopt	Adoption signal
Player – Activity	As a player, how often are you physically active in sport, training, or competition?	Single choice	Activity exposure	Context
Player – Activity	As a player, on average how many sports or athletic events do you participate in per year?	Single choice	Exposure volume	Context
Player – Season Load	As a player, how many games are in a season for your respective sport?	Short answer	Season length	Context
Player – Season Load	As a player, how often do you compete in a season?	Short answer	Competition frequency	Context
Player – Injury Experience	Have you experienced a sports-related injury during a season?	Yes/No	Injury prevalence	Entry to injury section
Player – Injury Count	If yes, how many injuries have you had in that time?	Single choice	Burden of injury	Problem sizing
Player – Injury Types	What types of injuries do you most commonly experience? (Select all that apply)	Multiple select (+Other)	Common injury patterns	Problem sizing
Player – Monitoring	Do you currently track or monitor your musculoskeletal health during the season?	Single choice	Self-monitoring baseline	Benchmark
Player – Monitoring	If yes, what methods do you use to track or monitor your musculoskeletal health during the season?	Short answer	Methods in use	Benchmark detail
Player – Motivation	What motivates you to avoid injury?	Short answer	Motivational drivers	Design insight
Player – Imaging History	Have you ever required an X-ray, MRI, Ultrasound, CT-Scan or other?	Yes/No/Unsure	Prior imaging experience	Context
Player – Imaging Details	If so, which one have you had, and why?	Short answer	Modalities & indications	Context detail
Player – Imaging Pathway	How do you usually access medical imaging after an injury?	Single choice	Pathway mapping	Barrier identification
Player – Imaging Timeliness	From your experience, how easy or difficult is it to get timely imaging after an injury?	Likert (5-pt)	Access delays	Barrier identification
Player – Delay Factors	What factors delay diagnosis or treatment, for you?	Short answer	Bottlenecks	Barrier identification
Player – Confidence	How important is reassurance and understanding of the injury in your recovery confidence?	Likert (4-pt)	Role of reassurance	Design insight
Player – Uncertainty	How often do you experience uncertainty or anxiety about the severity of an injury before getting a diagnosis?	Likert (5-pt)	Pre-diagnosis anxiety	Design insight
Player – Support Gap	What kind of support or information do you feel was/is lacking during your injury recovery process?	Short answer	Information gaps	Design insight
Player – Communication	How do you communicate with your healthcare providers and coaches during injury recovery?	Multiple select	Current channels	Integration mapping
Player – Communication Pref	What ways would you prefer to communicate?	Short answer	Preferred channels	Design insight
Player – AI Openness	If it was available, would you use AI diagnostic technology that helps monitor your musculoskeletal system?	Yes/No/Maybe	Openness to AI	Adoption signal
Player – Data Sharing	How comfortable would you be with your assessment results from an AI diagnostic tool being shared directly with you	Likert (5-pt)	Data sharing comfort	Privacy/Trust
Player – AI Concerns	If any, what concerns do you have about relying on AI or technology for injury diagnosis and monitoring? (Select all th	Multiple select (+Other)	Perceived risks	Barrier identification
Player – Prevention Tech	If a technology could help you prevent injuries by tracking muscle strain, fatigue, and movement patterns, how likely w	Likert (4-pt)	Preventative adoption	Adoption signal
Player – Tech Openness	How open are you to using technology to assist with injury prevention and recovery?	Likert (4-pt)	General openness	Adoption signal
Player – Real-time Value	How important do you think real-time data is for improving athlete performance and safety?	Likert (4-pt)	Real-time data value	Feature priority
Player – Data Types	What sports-related data do you think is most valuable to track? (Select all that apply)	Multiple select (+Other)	Data priorities	Feature priority
Player – Desired Features	If yes, which products or technologies have you heard about or used?	Long answer	Feature wishlist	Design insight
Player – Privacy Concern	If any, what features would you like to see in a sports injury monitoring device, system or app?	Likert (4-pt)	Privacy risk tolerance	Barrier identification
Player – Predictive Likelihood	How concerned are you about the privacy and security of your personal health and performance data?	Likert (4-pt)	Predictive adoption	Adoption signal
Player – Adoption Factors	If technology could predict potential injuries before they happen, how likely would you be to use it?	Multiple select	Adoption drivers	Design insight
Player – Market Awareness	What factors would most influence your decision to adopt new injury prevention or monitoring technology? (Select all that apply)	Yes/No/Maybe	Market awareness	Benchmark
Player – Product Examples	Are you aware of any injury assessment or monitoring products currently available on the market?	Short answer	Reference products	Benchmark detail
Player – Product Strengths	If yes, which products or technologies have you heard about or used?	Short answer	What works	Benchmark insight
Player – Product Gaps	In your opinion, what features do these products do well?	Short answer	Improvement areas	Benchmark insight
Player – New Tool Interest	What do you think could be improved in the current products or technologies available for injury assessment or monitoring?	Single choice	Intent to adopt	Adoption signal
	Would you be interested in using a new AI-assisted injury assessment tool if it addressed the limitations you've experienced with current products?			

APPENDIX

SURVEY QUESTIONS (PROFESSIONAL)

Section	Question	Answer Type	Purpose	Order Purpose
Consent	Are you 18 years of age or older?	Yes/No	Eligibility check	Screening – first
Consent	Have you read and understood the Participant Information?	Yes/No	Informed consent	Screening
Consent	Do you voluntarily agree to participate?	Yes/No	Ethics compliance	Screening
Background	What is your primary profession?	Single choice	Identify professional role	Segmentation
Background	How many years have you been working in your profession?	Single choice	Establish experience level	Segmentation
Background	Can you describe a typical day in your role?	Long answer	Provide role context & tasks	Context
Background	What type of athletes or clients do you primarily work with?	Multiple select	Capture client mix	Segmentation
Workload & Exposure	How often do you assess or treat foot and ankle injuries?	Single choice	Establish workload exposure	Context
Workload & Exposure	What is the most common injury you assess in your profession?	Short answer	Identify common caseload	Context
Workload & Exposure	What is the most common foot injury you assess in your profession?	Short answer	Identify specific foot/ankle issues	Context
Imaging Access	How often do you encounter delays in imaging that affect your timelines?	Likert (5-pt)	Measure access delays	Barrier identification
Imaging Access	In your experience, which injuries are most commonly misdiagnosed or require secondary imaging for clarification?	Long answer	Identify diagnostic uncertainty	Barrier identification
Rehab Metrics	In your experience, which joint movements or loading metrics are most important to assess during rehabilitation?	Long answer	Identify key outcome measures	Feature priority
Progress Tracking	What methods or tools do you currently use to track patient progress?	Multiple select	Benchmark existing tools	Benchmark
Tool Effectiveness	How effective do you feel your current tools are for diagnosing and managing musculoskeletal injuries?	Single choice	Measure perceived effectiveness	Benchmark
Process Challenges	What are the main challenges or limitations you face with the current diagnostic process?	Long answer	Identify process pain points	Barrier identification
Early Intervention	Are there any recurring issues you see in patients that could be prevented with earlier intervention?	Long answer	Identify preventable patterns	Opportunity identification
Recovery Drivers	What factors do you think most influence a patient's recovery timeline?	Long answer	Explore determinants of recovery	Design insight
Patient Education	How important is patient education in achieving long-term outcomes? (1–5)	Likert (1–5)	Measure education priority	Design insight
Engagement	Do you find patients are more engaged when they can see measurable data?	Single choice	Measure value of measurable data	Design insight
Technology in Practice	What role does technology currently play in your assessment and treatment process?	Long answer	Establish current integration	Context
Technology in Practice	Are there tools and technologies you wish you had access to in your work?	Yes/No	Identify unmet needs	Opportunity identification
Technology in Practice	If yes, could you provide an example?	Long answer	Provide detail on unmet needs	Opportunity identification
Technology Evaluation	How do you evaluate whether a new device or tool is worth integrating?	Long answer	Identify evaluation criteria	Adoption framework
Familiarity	How familiar are you with portable or point-of-care imaging devices?	Single choice	Measure baseline knowledge	Segmentation
Clinical Impact	How do you think real-time/on-demand imaging at the point of injury could impact your clinical decisions?	Long answer	Explore clinical impact	Design insight
Rehab Data	What types of data or feedback from imaging devices would be most valuable during rehabilitation?	Long answer	Identify valuable metrics	Feature priority
Prevention	Do you think portable imaging devices could improve injury prevention?	Yes/No/Maybe	Explore preventative potential	Design insight
Prevention	Do you think pitch-side monitoring systems could improve injury prevention?	Yes/No/Maybe	Explore preventative potential	Design insight
Prevention	If yes, please explain how.	Long answer	Gather examples	Design insight
AI & Data Integration	Would you use AI diagnostics, imaging, monitoring and tracking technology if available?	Yes/No/Maybe	Assess adoption likelihood	Adoption insight
AI & Data Integration	Do you see potential risks in relying on AI-assisted imaging without specialist interpretation?	Multiple choice	Identify risks	Barrier identification
AI & Data Integration	What safeguards or processes would you want in place for AI-assisted diagnostics?	Long answer	Identify safeguards	Adoption framework
AI & Data Integration	What features would you like to see in a next-generation system?	Long answer	Capture feature requests	Feature priority
Future Outlook	Do you believe advancements in sports health technology will significantly change your practice in the next 5 years?	Single choice	Predict adoption trends	Context
Market Awareness	Are you aware of any injury assessment or monitoring products currently available?	Yes/No	Measure awareness	Benchmark
Market Awareness	If yes, which products or technologies have you heard about or used?	Short answer	Identify awareness baseline	Benchmark
Market Awareness	In your opinion, what features do these products do well?	Short answer	Identify strengths	Benchmark
Market Awareness	What do you think could be improved in the current products?	Short answer	Identify weaknesses	Benchmark
Adoption	Would you be interested in using a new AI-assisted injury assessment tool if it addressed current limitations?	Yes/Maybe/No	Assess adoption interest	Adoption insight
Additional	Please share any additional comments, suggestions, or concerns.	Long answer	Gather final insights	Open feedback
Future Outlook	How do you see your profession evolving over the next 5–10 years?	Long answer	Capture professional outlook	Context
Future Outlook	What innovations or research areas will have the most impact in your field?	Long answer	Identify key innovations	Context
Future Outlook	Are there gaps in current methods needing urgent attention?	Long answer	Identify research gaps	Research gap
Advice	What advice would you give to new professionals entering your field?	Long answer	Capture professional advice	Context
Motivation	What keeps you motivated in your work?	Long answer	Explore motivation	Context
Change	If you could change one thing about your profession, what would it be?	Long answer	Capture challenges/opportunities	Opportunity identification

APPENDIX

SUMMARY OF TRANSCRIPT WITH BRENDAN

Standard recording 10

Transcript

https://otter.ai/u/IuhUzZ10HYz-u4ttho4uiD8NZqv8?view=summary

Brendan, a therapy assistant with a bachelor's in exercise science, provides therapeutic interventions under the NDIS for a diverse range of clients, including amateur athletes, pediatric patients, and the aging population. Common injuries he encounters include ankle instability, hamstring strains, and ankle sprains. He discussed a case where a basketball player delayed treatment, affecting rehab. Misdiagnoses often occur due to incorrect data interpretation. Brendan uses manual methods like observations and benchmark testing to track patient progress. He believes better diagnostic tools and imaging clinics could improve injury management and prevention. He supports AI diagnostics if data security is ensured.

Action Items

- [ ] Explore the feasibility of providing an in-house or portable imaging clinic to improve access and reduce the time between injury and assessment.
- [ ] Investigate the use of AI-assisted imaging and diagnostics, ensuring data security and proper interpretation of the results.
- [ ] Identify ways to improve the turnaround time between injury and assessment to minimize disruption to the client's everyday life.

Outline

Brendan's Role and Responsibilities

- Speaker 2, Brendan, introduces himself as an exercise therapy assistant with a bachelor's degree in exercise science.
- Brendan describes his typical day, which involves providing therapeutic interventions under the NDIS in the community.
- He works with a diverse range of clients, including amateur athletes, recreational participants, pediatric clients, and the aging population.
- Brendan mentions that his clients often participate in sports events at least once a week.

Common Injuries and Demographics

- Brendan identifies ankle instability and hamstring injuries as common among his clients, with the latter being prevalent across all age groups.

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- He notes that ankle sprains and Achilles tendon issues are frequently observed in his practice.
- The injuries are distributed evenly across different age groups, with recreational athletes being particularly prone to injuries.
- Brendan emphasizes the importance of balance and strength rebuilding in his therapeutic interventions.

Case Scenario and Diagnosis Challenges

- Brendan shares a case where a basketball player delayed seeking medical attention for an ankle injury, which limited their rehabilitation.
- He discusses the common misdiagnosis of tendon and ligament injuries, which can be due to the severity being misinterpreted or incorrect data interpretation.
- Brendan highlights the need for better diagnostic tools to accurately assess and manage musculoskeletal injuries.
- He mentions the importance of secure data handling to ensure confidentiality and accurate diagnosis.

Assessment and Tracking Methods

- Brendan explains his methods for tracking patient progress, including observations, testing, and benchmarking.
- He uses various tools like pen and paper, Excel, and Word documents to record and reference patient data.
- The effectiveness of current tools for diagnosing and managing injuries is assessed, with Brendan noting room for improvement.
- He believes that better diagnosis would lead to more accurate rehabilitation programs and faster recovery times.

Limitations and Technological Needs

- Brendan identifies human interpretation of data as a significant limitation in current diagnostic processes.
- He expresses a desire for better imaging clinics, either portable or in-house, to improve access and reduce limitations.
- Brendan supports the idea of using AI diagnostics and imaging monitoring technology if data security and interpretation are ensured.
- He emphasizes the importance of confidentiality in handling client data to maintain trust and integrity in the health service.

Future Improvements and Market Awareness

- Brendan suggests that turnaround time for injury assessment and monitoring could be improved to reduce disruption to clients' lives.