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EXECUTIVE SUMMARY

Whether through participation, spectatorship, or community engagement, sport has the potential to improve health outcomes, empower individuals, and unite communities. Yet despite the physical, mental, social, and economic benefits associated with sport and associated physical activities, access and engagement can be challenging and sub-optimal for many. The purpose of this White Paper is to showcase Western Sydney University's current research, engagement, and partnership activities; highlight several key challenges associated with sport engagement and the broader sport industry; and to explore potential opportunities for sport, health, and society in a post COVID-19 era.

These opportunities are underpinned by three guiding principles:

1. Meaningful engagement
2. Impactful research
3. Mutual benefit

Our mission is to create environments and opportunities that empower individuals and communities to enhance their health, wellbeing, and connectedness through sport and associated activities.

KEY DEFINITIONS

Active recreation: Activities engaged in for the purpose of relaxation, health and wellbeing or enjoyment with the primary activity requiring physical exertion, and the primary focus on human activity [1].

Physical activity: Any form of bodily movement performed by skeletal muscles that results in energy expenditure [2].

Noncommunicable diseases (NCDs): Or chronic diseases, tend to be of long duration and are the result of a combination of genetic, physiological, environmental, and behavioural factors. The main types of NCDs are cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes [3].

Sport: A human activity involving physical exertion and skill as the primary focus of the activity, with elements of competition where rules and patterns of behaviour governing the activity exist formally through organisations and is generally recognised as a sport [1].

INTRODUCTION

Australia has long been recognised as a sporting, physically active, and healthy nation, with a rich history of sporting success. From Edwin Flack’s gold medal in the first Olympic Games of the Modern era to Cathy Freeman’s history-making performance in the Women’s 400 Metres at the 2000 Olympics, AND John Aloisi’s winning penalty goal against Uruguay in the 2006 FIFA World Cup Playoffs, these events are etched into our national history, and showcase the capacity of sport to unite a nation. In 2018, Australia’s commitment to sport and physical activity was demonstrated through the development of Australia’s first national sporting plan, *Sport 2030* [4]. The vision set out in this plan is “to be the world’s most active and healthy sporting nation, known for its integrity and sporting success” (p. 4).

Whether through participation, spectatorship, or community engagement, sport has the potential to improve health outcomes, empower individuals, and unite communities. In 2019, 90.5% of Australian adults reported participating in sport or physical activity at least once per year [5]. Regular participation in sport and physical activities can assist with weight management, reduce the risk of chronic diseases such as cardiovascular disease and type 2 diabetes [6, 7], and improve mental health outcomes [8]. In fact, the United Kingdom’s Chief Medical Officers, in their 2019 Physical Activity Guidelines (p. 3), posited that

“if physical activity were a drug, we would refer to it as a miracle cure, due to the great many illnesses it can prevent and help treat” [9]. At a societal level these benefits can have large economic benefits associated with higher work productivity, less workdays lost to ill health, and lowered health care costs. The 2017 Intergenerational Review of Australian Sport (p. 7) revealed that sport “provides combined economic, health and education benefits of \$83 billion to Australia annually” [10].

Sport is also acknowledged as having the capacity to build community belonging and

engagement through the deep social and psychological connections sport fans form with their team [11, 12]. Professional sporting organisations are in an optimal position to engage their communities in meaningful ways to promote health, deliver strong social messages, and to take an unequivocal stand on societal issues such as discrimination, violence, and racism. Sport for development can promote equity, help build communities, and change lives by taking guidance from the United Nation’s **Sustainable Development Goals** [13].

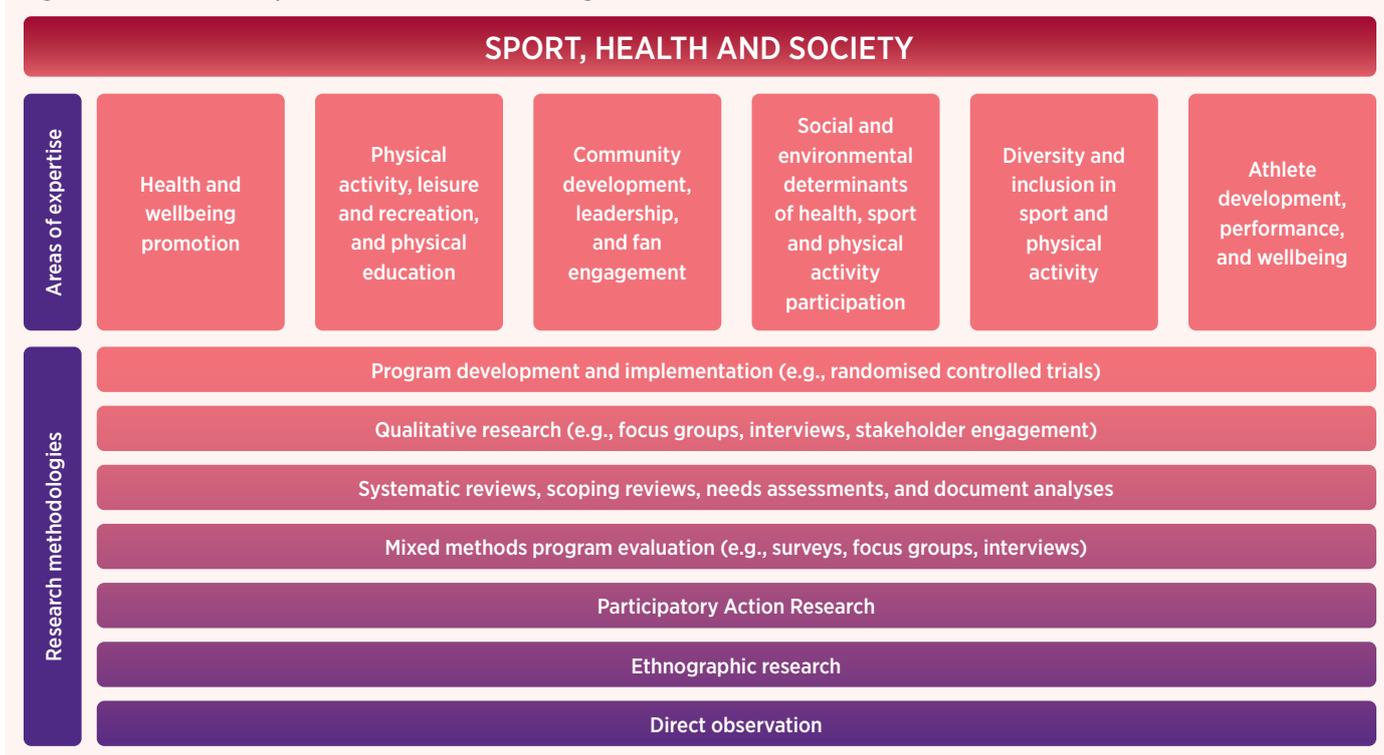


Western Sydney is a thriving, culturally diverse region, comprising several priority growth areas including South-Western Sydney and the City of Parramatta. The exponential population growth and rich diversity of the region present a range of opportunities for the enhancement of health, wellbeing, and social inclusion. At Western Sydney University, we work collaboratively across the sport, health, industry, and community sectors to harness the appeal and power of sport and physical

activity to improve health, social, and societal outcomes in our local region. Our expertise (Figure 1) spans disciplines including health science, education, sociology, exercise science and sport management, and our research is community focused, evidence-based, and impact-driven. At Western, we are committed to ensuring that the social, cultural, and health benefits of engagement in physical activity, active recreation, and sport are truly available to all. Our mission is to create environments

and opportunities that empower individuals and communities to enhance their physical health, wellbeing, and social connections through sport and other physical activities. Our expertise and extensive network of partners and collaborators enables us to develop robust, evidence-based solutions to address key health and societal challenges with local and global relevance.

Figure 1. Broad areas of expertise and research methodologies



CURRENT CHALLENGES

We have identified four key health challenges that can be addressed through soundly designed programs in sport OR via support from the sport sector (for example professional franchises or government agencies) OR through sport policy changes.

The four key challenges are:

1. Sub-optimal physical activity and sport participation on a local and global scale, especially in marginalised and underserved groups.
2. Engaging hard-to-reach, hardly-reached, underserved, and diverse population groups for health promotion.
3. Lack of evidence-based and formally evaluated community programs in sport and physical activity, particularly those that claim health or development outcomes
4. Sport and physical activity engagement in a post-COVID-19 era.

CHALLENGE 1. Sub-optimal physical activity and sport participation

HOW MUCH PHYSICAL ACTIVITY DO WE NEED?

Adults (18-64 years)

-  150 to 300 minutes per week
-  75 to 150 minutes per week
-  An equivalent combination per week.

Older adults (65 years and over)

-  30 minutes on most, preferably all days.

Children and young people (5-17 years)

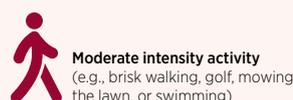
-  60 minutes of moderate to vigorous intensity physical activity per day.

Preschoolers (3-5 years)

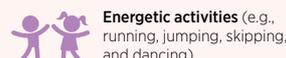
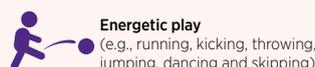
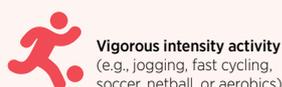
-  At least 180 minutes of physical activity per day, including 60 minutes of energetic play.

Toddlers (1-2 years)

-  At least 180 minutes of various physical activities per day, including energetic activities.



DEPARTMENT OF HEALTH (2014).



Despite the well-established health and social benefits associated with sport and physical activity participation, adults, children, and young people are insufficiently active, globally. Recognising this and the associated deleterious health outcomes associated with insufficient activity, the World Health Organization included a goal of a 10% relative reduction in the prevalence of insufficient physical activity in their Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013-2020 [14]. Despite this, and 2020 having already passed, insufficient physical activity remains both a national and global public health concern [15].

Although the vast majority of Australians are reported to engage with sport or physical activity at least once per year [5], 55% of Australian adults fail to reach the recommended 150 minutes of moderate to vigorous intensity physical activity per

week [16]. In 2011-2012, only 26% of children aged 5-12 years and approximately 8% of children aged 13-17 years met physical activity guidelines of 60 minutes of moderate to vigorous intensity physical activity per day [17]. Physical activity and sport participation rates tend to decline in adolescence, with a particularly sharp decline in participation for females [18, 19]. For girls, barriers to sport and physical activity participation can include lack of time, competing priorities (such as education), lack of confidence, and the influence of peers, family, and teachers [20-22]. Rates of physical activity and sport participation remain notoriously low for middle-aged and older women, women from particular ethnic and cultural groups, low income families, and members of LGBTIQ+ groups. For example, as El Masri and colleagues [23] have shown, women from culturally and linguistically diverse backgrounds are likely to experience additional barriers to physical

activity participation, including cultural and religious factors, language barriers, and the influence of the migratory experience and acculturation.

The challenges associated with levels of physical activity engagement are profound and solutions do not exist at a superficial level. Rather, solutions will have to tackle more entrenched social concerns and challenges. At Western Sydney University, we consider it our responsibility, as part of the local community, to help sport play a part in addressing some of the concerns around low physical activity engagement through targeted evidence-based programs.



CHALLENGE 2: Engaging hard-to-reach, hardly-reached, underserved and diverse population groups for health promotion

Sokol and Fisher [24] suggested that local health services experience serious challenges in engaging what they refer to as hardly reached individuals and communities. 'Hardly-reached' is a term growing in popularity as a consequence of its seemingly more positive tone over more conventional terms such as 'hard-to-reach' or 'disadvantaged', which Wallace, Farmer and McCosker [25] suggest implies stigma or even blame. It is not clear whether such implications are true or otherwise. It can be stated, however, that health inequalities underpin access to and use of health and support services, and that certain population sub-groups within our society experience poorer health outcomes because of these inequalities [26]. This emphasis on 'hardly-reached' perhaps switches the focus onto providers to better understand why their services are not fully and, in some cases, hardly reached.

Sydney is recognised as being among the ten most culturally diverse cities in the world. Much of Sydney's diversity can be found in the west and south-west; the parts of the city that are growing most rapidly in terms of population and consequently, economically. Western Sydney is a thriving, culturally diverse region and hence the challenges and opportunities discussed in this White Paper have highly important local urgency, as well

as global relevance. The Western Sydney region comprises several priority growth areas, including South-Western Sydney (SWS), which is expected to see substantial population growth over the next 20 years [27], and the City of Parramatta. Indicative of the rapid current and predicted growth, by 2041, the population of Parramatta is set to grow by over 80%, with some estimates even higher [28]. With this exponential growth comes new challenges and opportunities to improve health and quality of life.

Despite the vibrancy, growth, and increased economic activity and opportunities, the Western Sydney region also includes some of the most disadvantaged local government areas in New South Wales (NSW) – these are sometimes referred to as 'pockets of disadvantage' [27, 29]. It is widely acknowledged that social disadvantage is usually associated with poor health outcomes [30]. For instance, rates of overweight, obesity, and diabetes are higher in this region's Primary Health Network catchments than in the inner-city catchments [31]. Further, despite cancer being a leading cause of disease and death in Australia, rates of participation in preventative screening programs are low and SWS has some of the lowest breast, bowel, and cervical cancer screening participation rates in NSW [27]. Men tend to have lower bowel cancer screening

rates in comparison to women across all age ranges, and report seeing a GP less frequently than women (6.8 vs 8.6 times per year). Rates of high or very high psychological distress are also higher in Western Sydney in comparison to other areas of metropolitan Sydney, and the number of suicide deaths reported in metropolitan Sydney are highest in Western Sydney and SWS [27].

These disparities in health outcomes highlight a clear need for innovative and inclusive health promotion approaches that engage those in some of the most disadvantaged local areas. There is, however, no one-size-fits-all approach to health promotion, and educating individuals is often not enough to enact behaviour change or health service engagement. It is now well understood that the social determinants of health as described by Wilkinson and Marmot [32] are profound in shaping people's health status. The circumstances and social conditions in which people live, grow, age, and work, are the most important determinants of good or ill health [33]. Hence disadvantage, poverty, and marginalisation are key factors in shaping health.



CHALLENGE 3: Lack of evidence-based and formally evaluated community programs in sport and physical activity

Australian sporting organisations, from the grassroots to elite level, develop and deliver a range of community sport and physical activity engagement initiatives to promote health, improve educational outcomes, and enhance social cohesion. Although sporting organisations are contributing to their communities in a variety of ways, there are very few that are formally evaluating and effectively reporting on program outcomes. As a result, the effectiveness and impact of community engagement initiatives on health, wellness, and social outcomes are largely unknown. The lack of evidence-based programs and evaluation data may be due to a lack of personnel and capacity to develop, deliver, and evaluate programs; or it may come from a lack of expertise and evaluation experience within the organisation. Despite these reasons, the fact remains that the lack of evaluation does not allow funders, stakeholders, and community groups to make the best use of their resources.

The growing concept of corporate social responsibility suggests that corporations are not only to be held accountable for the consequences of their business activities from an economic perspective, but to take responsibility for the social and environmental implications of those activities. In recent years, the idea of corporate social responsibility has gained momentum and professional sport organisations are increasingly 'promoting health' within their respective communities [34]. Aligning with this, corporate and industry partners are also showing an increased commitment to social and societal outcomes of their activities, with many

partnering with sporting organisations to deliver socially responsible community engagement initiatives. At times, these programs may be perceived as "box ticking" exercises, with little interest in the outcomes of the programs. However, from experience at Western Sydney University, it is possible for corporate, sport, and industry partners to work collaboratively to achieve social change and enhance health and wellbeing in their respective communities.

The lack of expertise and evaluation experience is likely to create challenges for community sport and the case for health promotion. Large institutions such as Sport Australia give attention to health promotion and wellbeing and see these as 'products' of sport, these products are often the subject of social marketing campaigns. The role of community sport from a social responsibility perspective has not been widely researched, yet, community sport has been identified as an important setting that provides social and mental health benefits through sport participation. Of interest, a study by Roberston and colleagues [35] found, using a Delphi method, high social responsibility scores were required for safeguarding from harm, and creating inclusive settings, both of which are consistent with the idea of this White Paper.

CHALLENGE 4: Sport and physical activity engagement in a post-covid-19 era

On January 30, 2020, the World Health Organization declared the COVID-19 pandemic a public health emergency of international concern. The global health, social, and economic impact of the pandemic has been devastating, and evidence suggests this public health crisis has led to increased rates of depression, anxiety, and loneliness [36, 37]. While many countries including Australia, New Zealand, the United Kingdom, and the United States introduced various stay at home orders as a strategy to stop the spread of COVID-19, exercise was deemed essential and one of the few acceptable reasons for leaving home. With the shutdown of organised sport competitions, gyms, fitness centres, and social clubs, came a need for safe, socially distanced, and innovative approaches to physical activity. Whether as a distraction from the crisis, a method of dealing with stress or anxiety, or a regular habit, paradoxically, the pandemic introduced new opportunities and motivations for physical activity engagement. Data from a recent AusPlay report indicate that the number of Australians who became more active on purpose increased in April 2020, when COVID-19 restrictions were first introduced [5], and this change was more pronounced in those aged under 35 years and those aged 55 and over. Changes in motivations for physical activity participation also changed, with more people reporting physical health or fitness, psychological or mental health, and social reasons as their top motivations in the period from April to June 2020 [5].

From grassroots to the elite level, the COVID-19 pandemic has undoubtedly changed the global sporting landscape, with the New York Times [38] even going as far as asking whether the COVID-19 pandemic signalled the “end of sports as we know them?” Australia’s national sporting organisations, professional teams, and community clubs were all impacted by lockdowns and the cancellation of matches, competitions, and major sporting events. In Australia, the National Rugby League (NRL), Australian Football League (AFL), and A-League (Soccer) competitions were all suspended in March 2020, while the AFL Women’s competition and all remaining Cricket matches were cancelled outright. Other competitions such as the Super Rugby and Super Netball were postponed indefinitely. These postponements and cancellations all led to significantly reduced revenue, substantial job losses across the sector, and uncertainty about the future of Australian sport. Under strict biosecurity measures, several professional sporting competitions including the NRL and AFL resumed in late 2020, with most games played behind closed doors without spectators.

The Australian Institute of Sport developed a comprehensive framework for rebooting sport in a COVID-19 environment [39], and 2021 saw elite athletes, recreational sport participants, and sporting organisations start the transition back to stadiums, courts, and fields across the country. As the COVID-19 pandemic continues to evolve, there is a need for professional and community-based sporting organisations to reassess and potentially refocus their engagement activities. With reduced community staff and funding cuts across the sector, planning for collaborative, multi-sector approaches to health promotion and community engagement is crucial to success in community engagement.



OPPORTUNITIES:

COLLABORATION, EVIDENCE, MUTUAL BENEFIT

At Western, we work collaboratively with a diverse range of partners to drive a robust evidence-based research agenda to strengthen communities and contribute to a healthier society. Our scope of research practice and methodology is broad and can be tailored to answer key community, national, and international questions in response to unique health, social, and business challenges. Our goal is to bridge the gap between sport and research by building new collaborative partnerships with key stakeholders and deepening those that currently exist. Organisations are obliged to be socially responsible, but the approach many take could be more attuned to the specific needs of the local community. The projects that follow in this White Paper are leading examples of our collaborative approach and commitment to research impact. Our expertise is well placed to develop robust, evidence-based community engagement programs, program evaluation, corporate responsibility designs, and community sports business partnerships that are sustainable and mutually beneficial. Our extensive network of partners across the sport, health, research, education, and industry sectors supports and extends the impact of our research.

Western Sydney University's role as a research leader is not only to lead the robust research required to develop sustainable solutions, but also to broker the engagement of multiple contributors to problem solving the larger challenges. **Knowledge translation is not simply a question of implementation science but of knowledge brokering such that the right solutions are tailored for the right communities at the right time.**

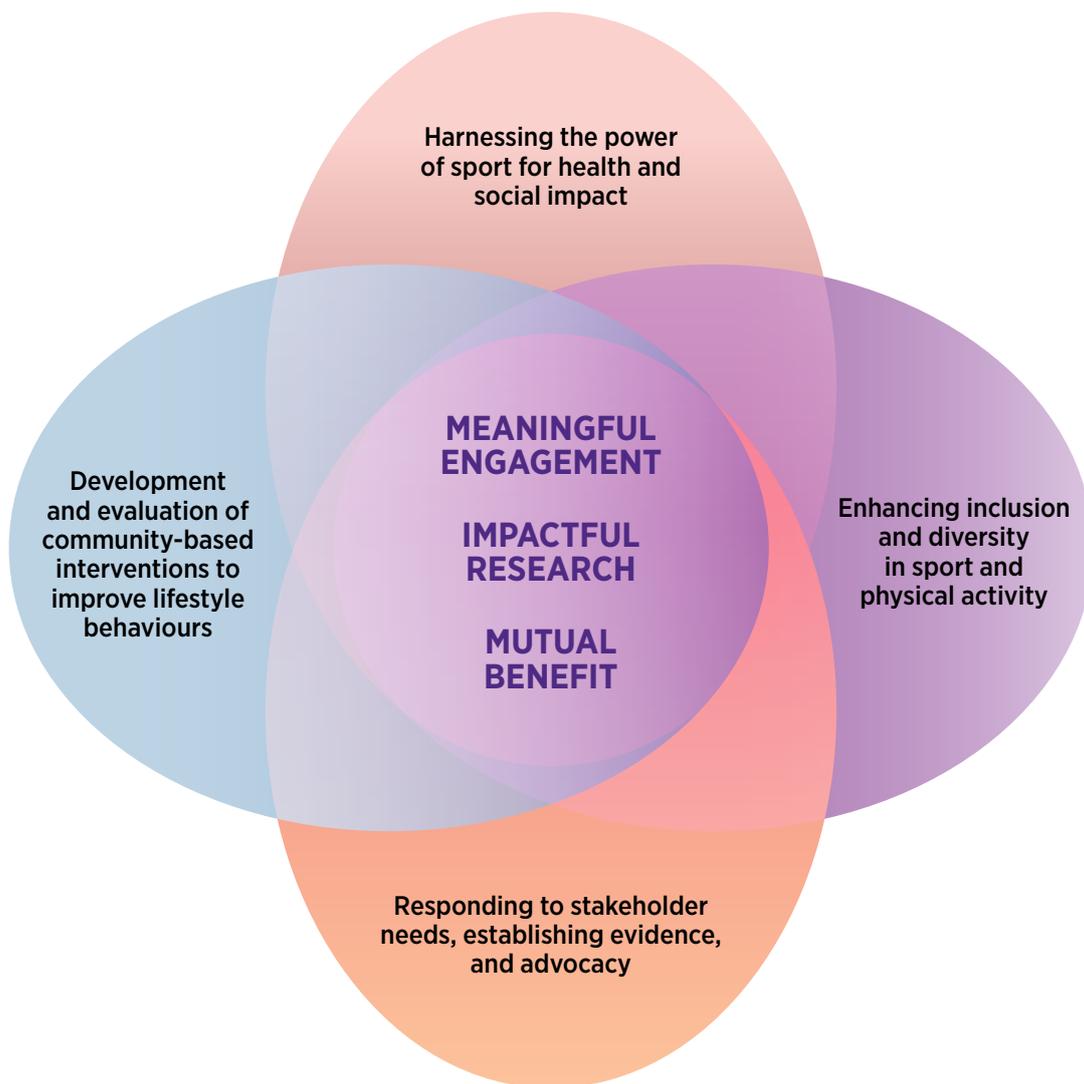
To highlight the importance of working collaboratively, there is increasing emphasis on research impact. This encourages researchers to work in collaboration with communities, rather than conducting research on or about communities. The Australian Research Council [40] defined research impact as "the contribution that research makes to the economy, society, environment or culture, beyond the contribution to academic

research". Engagement and impact are at the heart of our research, and we have a strong commitment to support and promote the principles of the United Nations Sustainable Development Goals (SDGs). Western Sydney University is internationally recognised for its work in this area having been ranked 17th in the world in the Times Higher Education (THE) University Impact Rankings. Consistent with this, and in response to the challenges articulated in this White Paper, and framed by our extensive track record in sport and physical activity engagement, we have identified four intersecting themes reflecting key opportunities that are highly relevant to the sport and community sectors in Western Sydney, and a broader national and international context. Each theme is underpinned by our research expertise and three key guiding principles:

1. *Meaningful engagement:* Working with sporting organisations and community partners to engage sport and physical activity participants, sports fans, and community members in activities that promote physical and mental health, empowerment, belonging and inclusion.
2. *Impactful research:* Using evidence-informed approaches that are community-driven, and positioned to have long-term, real-world impact beyond the academy.
3. *Mutual benefit:* Co-designing programs of research that align with organisational strategic goals, and address community and national health priorities and social issues.

These themes and principles are presented in figure 2.

Figure 2. Intersecting themes and guiding principles



THEME 1: Harnessing the power of sport for health and social impact

Engaging individuals through sport in all its forms and via all levels (from recreational to professional) may provide opportunities to educate and empower individuals to improve lifestyle behaviours such as physical activity and dietary intake, engage in activities that support mental wellbeing, and regularly engage with health and support services and GPs. Sports leaders under these conditions can function as what is known as boundary spanners [41] and can be defined as ‘reaching across borders to build relationships, interconnections, and interdependencies in order to manage complex problems’ [42]. Western researchers have worked with many industry partners to deliver innovative approaches that address complex community needs. The following examples illustrate this type of work.



EXAMPLE 1. *Tackling men's health through Rugby League: Active Breed*

Lead Researcher: Dr Emma George

Partners and funders: Canterbury-Bankstown Bulldogs, South Western Sydney Primary Health Network, Diabetes NSW & ACT, University of Newcastle, Stirling University. Blooms the Chemist, Canterbury League Club.

Background and aim: Australian men experience a range of poor health outcomes, including high rates of chronic disease, and overweight and obesity [43]. Rates of physical activity and fruit and vegetable consumption are sub-optimal [16], and mental ill health has been identified as a key men's health priority area [44]. Active Breed is a 12-week men's health and weight loss program delivered in partnership with the Canterbury-Bankstown Bulldogs to address local and national health priorities including overweight and obesity, diabetes, mental health, domestic violence awareness and health literacy.

Findings and impact: Over 100 male Rugby League fans have participated in Active Breed since 2018, and the program has enhanced the health and wellbeing of men, their families, and the broader community. Positive outcomes for men include significant weight loss and reduction in waist circumference, increased physical activity and health service engagement, and improvements in mental health. Partners and children of program completers also reported improved family relationships, better understanding of nutrition, mental health, and respectful relationships, and more family-based physical activity.

EXAMPLE 2. *Increasing coaching opportunities and enhancing health in Aboriginal and Torres Strait Islander communities: Coaching Unlimited*

Lead Researcher: Dr Andrew Bennie

Partners and funders: Netball NSW, Football NSW, Macquarie University, University of New South Wales, Gilbert + Tobin, Eldon and Anne Foote Trust

Background and aim: Research shows that Aboriginal and Torres Strait Islander sport coaches can have a profound impact on the lives of their athletes within and beyond the sports setting. However, there are very few programs that utilise sport coaches as health promoting agents within Aboriginal and Torres Strait Islander communities. Coaching Unlimited is a national coach education program created in collaboration with Aboriginal and Torres Strait Islander communities and national sport organisations to deliver formal coach accreditation training in a variety of sports.

Findings and impact: Coaching Unlimited goes beyond initial coach accreditation by providing research-led educational programs that develop knowledge and skills in meaningful areas such as nutrition, socioemotional wellbeing, mentoring, health promotion, and cultural connectedness. This is the first program of its kind to provide opportunities for Aboriginal and Torres Strait Islander peoples, demonstrable outcomes are tangible coaching qualifications the delivery of frontline health messages through coaches into Aboriginal and Torres Strait Islander communities.

THEME 2: Enhancing inclusion and diversity in sport and physical activity

Sport can be understood as a cultural asset and is an integral part of both Australian culture and identity. Much of our work confirms the institutional arrangements that act as barriers to create more open and welcoming environments to those wishing to play sport but feel unwanted because of the way they identify, or the group of which they are a part.



EXAMPLE 1. *Enhancing LGBTIQ+ Inclusion in Australian Sports Organisations*

Lead Researchers: Dr Ryan Storr and Professor Tony Rossi

Partners and funders: Cricket Victoria, Cricket Australia, Tennis Australia, Sport Australia

Background and aim: Lesbian, gay, bisexual, transgender/gender diverse, intersex and queer communities (LGBTIQ+) face complex barriers and challenges to engagement and participation in sport. In recent years, the Australian sport sector has begun to consider how organisations might facilitate and promote the inclusion of LGBTIQ+ people in sporting environments.

Findings and impact: Western researchers are exploring how the health and wellbeing of LGBTIQ+ communities in Australia can be improved through the medium of sport. Working with a range of funders, and project partners, researchers have helped develop policies and resources for the sport sector focused on the inclusion of trans and gender diverse people. These resources are the first of their kind to be developed and implemented on a national scale and will assist clubs and sports organisations in providing welcoming environments for trans and gender diverse people.

EXAMPLE 2. *Engaging Arab-Australian women in physical activity*

Lead Researcher: Dr Aymen El Masri

Partners: Tripoli and Mena Association, Bankstown Women's Health Centre

Background and aim: Approximately 26% of the Australian population is born overseas, yet traditional physical activity programs are often difficult for migrants and culturally and linguistically diverse populations to access and engage with. In collaboration with key stakeholders in Western Sydney, Aymen El Masri and his team responded to this need by developing a culturally tailored physical activity program for Arab-Australian women living in Western Sydney [45]. The program, which was held fortnightly at local community centres, was shaped by formative research with the Arab-Australian community [46] and comprehensive reviews of existing literature [23, 47].

Findings and impact: The program was shown to be feasible and acceptable, and highlighted important considerations for recruitment and intervention design and delivery. These findings will help to inform future, large-scale physical activity programs for Arab-Australian women.

THEME 3: Responding to stakeholder needs, establishing evidence, Advocacy

Western Sydney University is deeply embedded in its local communities. This enables Western to be highly sensitive to the needs, interests and ambitions of various sporting groups, clubs, and institutions, and to undertake research on their behalf or in partnership. Importantly this research is of national importance, broadly applicable, and directly relevant to other organisations, regions, and associations.

EXAMPLE 1. *Empowering communities in the Pacific: Tennis Australia's Females in Tennis (FiT) Plan*

Lead Researcher: Dr Katherine Raw

Partners and funders: Tennis Australia and Sport Australia

Background and aim: Rates of physical activity sport participation are lower in women in comparison to men, with a rapid decline in participation during girls' teenage years. Aligning with Tennis Australia's *Women and Girls Strategy*, the aim of this Tennis Australia initiative was to increase female engagement in tennis in the Pacific, by addressing high dropout rates and low numbers of female coaches, and reducing financial barriers to female participation in areas of low accessibility and or socio-economic status. Western researchers evaluated the impact of this initiative through a series of semi-structured interviews and document analysis.

Findings and impact: The evaluation found high levels of enjoyment, development of social networks, inclusivity within the clubs and, solid foundations for gender equity, there were also notable challenges. Included among them were lack of role models, lack or absence of female specific programs, resistance to change within the club structure, and poor retention. These challenges will be addressed in the subsequent phases of this project.



EXAMPLE 2. *Enhancing the sport fan experience*

Lead Researcher: Dr Jess Richards

Funders: Parramatta Eels National Rugby League Club

Background and aim: On 22nd April 2019 nearly 30,000 people attended the first match at the new Bankwest stadium, signalling a new beginning for the Parramatta Eels. Critical for fans of any sport, but particularly professional sport franchises, is preservation of a club's history and traditions and a strong sense of the 'next generation'. When clubs are moved to new home grounds, there is a strong imperative to provide a high-quality match day experience to create a sense of 'belonging' to this new space. The aim of this study was to understand how the Eels could enhance the fan experience at their new home stadium.

Findings and impact: Data were collected at seven matches (every 2019 home game) with a survey sample size of 343 respondents, 84 hours of observations and 20 in-depth interviews with Parramatta fans. Three key messages were apparent in the data. Clubs need to: (1) build a relationship with their fans, (2) create a 'festival' atmosphere, and (3) stimulate the senses. This study identified and described how fans perceived and rated the stadium such that success and opportunities for improvement could be calibrated. These findings will inform professional sports clubs as they grapple with ways to retain and engage their fan base.

EXAMPLE 3. *Elite Athlete Wellbeing*

Lead Researchers: Dr Neil Hall and Samuel Lane

Partners and funders: One Wellbeing, National Rugby League, the Professional Footballers Association.

Background and aim: Optimal levels of wellbeing can facilitate peak athletic performance, however, athlete wellbeing can often be overlooked in high-performance environments. In partnership with One Wellbeing, the NRL, and the Professional Footballers Association, Western researchers, Dr Neil Hall and Samuel Lane are exploring the elements that contribute to the wellbeing of elite and professional athletes.

Findings and impact: Drawing on data from 132 professional athletes and 36 player development managers, across the five leading Australian top-division sporting codes (AFL, NRL, A-League, Super Rugby, and Cricket Australia), this project explored the key practical and nuanced factors that shape professional athletes' engagement in tertiary education programs and how this might impact on-field performance, commercial brand, and overall player wellbeing. Through this work, a One Wellbeing 'mental wellbeing' module has been developed as part of the training delivered to professional athletes. Further work includes research into the effectiveness of education policies for player development and career pathway planning.

THEME 4. Development and evaluation of community-based intervention to improve lifestyle behaviours

Noncommunicable diseases such as diabetes and heart disease are leading causes of mortality, nationally and globally [3, 14, 30]. Engagement in healthy lifestyle behaviours, such as physical activity and healthy eating, can reduce noncommunicable disease risk, while also promoting positive physical and mental health outcomes. Western has led a number of well-funded and impactful initiatives that have targeted such healthy lifestyle behaviours, with further work underway.



EXAMPLE 1. *WALK 2.0: Using web 2.0 applications to promote physical activity*

Lead researcher: Professor Gregory Kolt

Partners and funders: Central Queensland University, Kansas State University, University of British Columbia, Flinders University, University of Alberta, University of Newcastle, National Health and Medical Research Council

Background and aim: Internet-based interventions are commonly used to promote healthy lifestyle behaviours due to their reach and accessibility. Through a randomised controlled trial comparing a web 2.0 application (WALK 2.0), a web 1.0 application (10,000 Steps), and a paper-based logbook, this study investigated the effectiveness of a Web 2.0-based intervention on physical activity behaviour, and the impact on website usage and engagement.

Findings and impact: Physical activity increased in the web 2.0 and paper-based logbook groups at 3-month and 12-month follow-up, but this change was not sustained at 18-month follow-up. The web 2.0 application had greater website engagement, and future research should explore opportunities to harness this level of engagement to increase and sustain physical activity levels in insufficiently active adults [48].

EXAMPLE 2. *Using web and mobile-applications to improve physical activity and healthy eating in middle-aged males*

Lead researcher: Professor Gregory Kolt

Partners and funders: University of Newcastle, Central Queensland University, Kansas State University, University of British Columbia, CSIRO, Flinders University, University of Alberta, Queensland Health

Background and aim: Innovative and broad-reaching strategies to engage men in physical activity and healthy eating are needed. Interventions delivered using information technology are highly accessible, and provide opportunities for networking and behaviour change tracking. The aim of this study was to examine the effectiveness of a 9-month IT-based intervention (ManUp) to improve physical activity, dietary intake and health literacy in middle-aged men.

Findings and impact: Men (n = 301) were randomly allocated into an IT (ManUp) or print-based group. The intervention was effective in increasing physical activity and improving dietary behaviours, though there were no significant differences between the IT or print-based group, suggesting that both approaches could be effective in enhancing lifestyle behaviours in middle-aged men.

FUTURE DIRECTIONS & OPPORTUNITIES

We continue to collaborate with our current partners from the sport, health, community, and corporate sectors. We are keen to involve new partners as we seek to develop the major themes, the key approaches that are critical to the outcomes of our work.

In partnership with sport, health, community, and industry partners, we aim to achieve the following goals in the next 1-3 years.

- Increased engagement in sport and physical activity, with a core focus on women and girls, and underserved, marginalised, and culturally diverse communities.
- Enhanced diversity and inclusion in sport and physical activity, including increased opportunities for sport participation, enhanced pathways for professional athletes.
- Increased industry and community engagement leading to growth in collaborative research partnerships, student placement opportunities, and publications co-authored with industry and community partners. Publications will include traditional academic outputs (e.g., scientific journal articles) and industry-focused reports to facilitate timely implementation.
- Delivery of professional development events to upskill national and local sporting organisations in program design, evaluation, and reporting.

In addition to these tangible outcomes, we also seek to consolidate several projects to build on several existing strengths and capabilities outlined in this White Paper.

MEN'S HEALTH

We are advancing our work in men's health, particularly though the realm of sport and communities. Western's *Centre for Male Health* has been established to consolidate our strengths across research; community engagement; and policy, advocacy, and information provision. Much of our work is already founded upon the recognised health challenges for men (e.g., mental wellbeing, high incidence of overweight and obesity, and fewer visits to and take up of health services). Through the newly established *Centre for Male Health*, our work will expand to include explore other professional sport settings, community sport environments, workplaces, and communities as the conduit for supporting and enhancing men's health across the lifespan.

ENGAGEMENT WITH UNDERREPRESENTED COMMUNITIES

Our work with marginalised and hardly reached communities will extend with projects with LGBTIQ+, CALD and Migrant groups across a range of sports and physical activity contexts. Building upon work with Tennis Australia, and local community organisations, we will continue to focus on increasing physical activity and sport participation to enhance the health and wellbeing of women and girls. Our work with Indigenous communities will continue with the recognition of the health promotion benefit in a more expansive Aboriginal and Torres Strait Islander coach development program.

A RESPONSIVE, MULTI-DISCIPLINARY NETWORK OF SCHOLARS

The sports industry often works on short time frames with a need for just-in-time solutions. As we emerge from the COVID-19 pandemic, sports organisations will be required to rebuild and in some cases, rethink their approach to community engagement. Our team of researchers and scholars is well placed to support the work of the industry by providing evidence-based solutions to practical problems.

As highlighted in this White Paper, our researchers are involved in a diverse range of collaborative research projects and community engagement initiatives. Our capability framework is underpinned by our extensive experience and expertise across the sector, broad-reaching networks, funding success, and multi-method approaches to evidence-based solutions. The strategic and mutual benefits available through working with our highly adaptable team are community and industry wide. By working together, we can harness the power of sport for meaningful change.

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