



SWIM FOR FRUIT

Go For 2&5 Regional & Remote Aboriginal Communities Swimming & Lifesaving Program



REPORT COMPILED BY

ROYAL LIFE SAVING
WESTERN AUSTRALIA



SWIM FOR FRUIT

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EXECUTIVE SUMMARY

Chronic diseases account for 70% of the total gap in health outcomes between Aboriginal and non-Aboriginal Australians. Nutrition-related diseases, such as heart disease, Type 2 diabetes and renal disease continue to contribute to ill health among Aboriginal peoples and physical inactivity is the fourth leading risk factor for chronic disease in amongst this population group.

Participation in sport and recreation has many benefits relating to health such as reduced risk of chronic disease and better quality of life; and social benefits including improved connection within the community and reduced anti-social behavior.

Chronic disease and health expenditure

To address all of these factors, the Royal Life Saving Society WA (RLSSWA) has been working with swimming pools within the Pilbara region since 2009, to implement the Go for 2 & 5 Regional and Remote Aboriginal Communities Swimming Program "Swim for Fruit". The program aims to encourage children, particularly Aboriginal children, to participate in regular physical activity through swimming laps at the pool by providing fruit as an incentive for participation. In order to determine the effectiveness of the program an evaluation was undertaken in the Pilbara region with the aim of translating the evidence for broader use among the sport and recreation industry.

Findings from the current evaluation indicate that the program has been successful in engaging Aboriginal children in swimming and increasing fruit consumption. Enablers of the program included the strong relationships which pool managers have within the community, regular programming, targeting older children, trying different approaches, offering a wide variety of fruit as an incentive, being flexible but having a set start date, on-going promotion, community involvement and creating strong links with local schools. Barriers which limited participation included no parent supervision for those under 10 years, not knowing about the program, funding, access to fruit and transport to and from the pool.

Barriers which limited participation included the requirement for children under 10 years of age to be accompanied to the pool by an adult, children not being aware of the program, lack of funding to deliver the program, limited access to fresh fruit and transport to and from the pool.

BACKGROUND

In combating the high rates of chronic disease and health inequities among Aboriginal Australians, it's crucial for initiatives to focus on modifiable risk factors including physical inactivity and nutrition.

Aboriginal population and age structure

Aboriginal peoples represent 2.8% of the Australian population (Australian Bureau of Statistics, 2016a). Western Australia (WA) has more Aboriginal Australians than in Victoria, South Australia, Tasmania, Northern Territory and the Australian Capital Territory, with 12% of Aboriginal Australians located in WA (Australian Bureau of Statistics, 2016a).

In WA, 22% of Aboriginal Australians live in regional areas and 40% in remote and very remote areas (Australian Bureau of Statistics, 2016c). The age structure is much younger for Aboriginal Australians, with a higher proportion of those aged 0-4 years (11.3% compared to 6.1%), 5-14 years (22.7% compared to 12.2%) and 15-24 years (19.1% compared to 12.6%) than non-Aboriginal Australians (Australian Bureau of Statistics, 2016a).

Chronic disease and health expenditure

Chronic disease is the leading cause of ill health and death in Australia (Australian Government Australian Institute of Health and Welfare, 2016). Chronic diseases account for 70% of the total gap in health outcomes between Aboriginal and non-Aboriginal Australians, with Aboriginal Australians having higher rates and earlier onset of chronic disease compared to non-Aboriginal Australians (Government of Western Australia Department of Health, 2015). Although recent years have seen improvements in health outcomes for Aboriginal Australians, as a population group, they continue to experience greater health disadvantages with a lower life expectancy and higher prevalence of many chronic health conditions (Australian Government Australian Institute of Health and Welfare, 2016; Government of Western Australia Department of Health, 2015). In WA, the life expectancy for Aboriginal men and women is much shorter than the state average, by more than 15 and 13 years, respectively (Chronic Disease Prevention Directorate, 2017). In addition, Australians living in rural and remote areas had a lower life expectancy than those living in major cities, with remote and very remote areas having mortality rates 1.4 times greater than metropolitan areas (Australian Government Australian Institute of Health and Welfare, 2016).

Large gaps on many health measures exist between Aboriginal and non-Aboriginal Australians including higher rates of diabetes including prevalence, hospitalisation and death; poorer self-perceived health; higher rate of disability; women are twice as likely to die from complications of pregnancy or childbirth than non-Aboriginal women; and higher death rates from all potentially avoidable causes (Australian Government Australian Institute of Health and Welfare, 2016). Furthermore, health expenditure per person for Aboriginal Australians reflects this gap with the average annual expenditure for Aboriginal Australians twice the health expenditure per person for non-Aboriginal Australians. In WA, the health expenditure for Aboriginal people is 2.6 times the expenditure per person for non-Aboriginal (Australian Government Australian Institute of Health and Welfare, 2016).

Key lifestyle factors contributing to the disease burden in Aboriginal Australians

In Aboriginal Australians, chronic diseases are responsible for 64% of the total disease burden in Aboriginal populations (Australian Health Ministers' Advisory Council, 2017), and 80% of the mortality gap between Aboriginal people and non-Aboriginal Australians aged 35-74 years (Government of Western Australia Department of Health, 2015). Circulatory diseases (24%); neoplasms including cancer (21%); external causes including suicide and transport accidents (15%); endocrine, metabolic and nutritional disorders including diabetes (9%); and respiratory diseases (8%) were the leading causes of death during 2011–15 (Australian Health Ministers' Advisory Council, 2017). Contributing to the disease burden, key risk factors that continue to play a role include tobacco use (12% of the Aboriginal burden), dietary factors (10%), alcohol use (8%), high body mass index (8%), physical inactivity (6%), high blood pressure (5%) and high blood plasma glucose (5%) (Australian Health Ministers' Advisory Council, 2017). Importantly, these risk factors are modifiable through lifestyle changes including improving nutrition and incorporating daily physical activity (Australian Health Ministers' Advisory Council, 2017).

Remoteness plays a significant role in disease prevalence, with a lower life expectancy, higher rates of disease and injury, and more prevalent risky lifestyle behaviors such as smoking, insufficient physical activity, and risky alcohol consumption seen in Australians living in rural and remote areas compared to those people living in major cities (Australian Government Australian Institute of Health and Welfare, 2016). In WA, significantly higher rates of chronic diseases are seen in Aboriginal people living in "remote" and "very remote" areas (Government of Western Australia Department of Health, 2015). Social factors including a level of disadvantage with regards to educational and employment opportunities, income, access to goods and services, and poorer access to, and use of, health care services are all likely to contribute to this (Australian Government Australian Institute of Health and Welfare, 2016). In combatting the high rates of chronic disease among Aboriginal Australians, it's crucial for initiatives to focus on modifiable risk factors including physical activity and nutrition. As such this is included as a top priority in the WA Aboriginal Health and Wellbeing Framework 2015–2030 (Government of Western Australia Department of Health, 2015).

Nutrition in Aboriginal Australians

Nutrition-related diseases, such as heart disease, Type II diabetes and renal disease contribute to ill health among Aboriginal peoples and the development of nutrition-related diseases is influenced by environmental, behavioral, biological, social and hereditary factors (Chronic Disease Prevention Directorate, 2017). Specifically within Aboriginal communities, socioeconomic status and other risk factors including insulin resistance, glucose intolerance, obesity, hypertension, high blood triglycerides, perinatal and postnatal nutrition, and childhood nutrition pose further risk (Chronic Disease Prevention Directorate, 2017).

The 2012-13 National Health Survey found that discretionary foods which have little nutritional value made up 41% of total daily energy consumed by Aboriginal Australians in comparison to 35% for non-Aboriginal Australians (Chronic Disease Prevention Directorate, 2017). Alcohol consumption among Aboriginal consumers was double the consumption among non-Aboriginal consumers (Chronic Disease Prevention Directorate, 2017). Furthermore, the consumption of soft drinks, and flavoured mineral waters in children aged 2–3 years was three times higher in Aboriginal children compared to non-Aboriginal children (Chronic Disease Prevention Directorate, 2017). The consumption of fruit and soft drinks was also influenced by remoteness, with Aboriginal Australians living in non-remote areas more likely to consume fruit (49% compared with 35%, respectively) and soft drinks (39% compared with 32%, respectively) compared to those in remote areas (Australian Health Ministers' Advisory Council, 2017).

Most Aboriginal children do not consume adequate daily fruit and vegetables, with 2014 data showing that 85% of Aboriginal children aged 2–14 years, and 97% of Aboriginal adults aged 15 years and over were not meeting recommended intakes of fruit and vegetables (Australian Government Australian Institute of Health and Welfare, 2016). Specifically relating to fruit intake, overall 22% of those 2-14 years and 58% of those aged 15 years and over did not consume the recommended two serves per day (Australian Government Australian Institute of Health and Welfare, 2016). Remoteness also contributed to whether Aboriginal people were meeting the guidelines with those living in remote areas consuming less serves of fruit than those living in non-remote areas (0.9 serves versus 1.3, respectively) (Australian Bureau of Statistics, 2016b). Overall, 22% of those aged 2-14 years and 58% of those aged 15 years and over did not consume the recommended two serves of fruit per day (Australian Government Australian Institute of Health and Welfare, 2016). Aboriginal people living in remote areas consumed less serves of fruit than those living in non-remote areas (0.9 serves versus 1.3, respectively) (Australian Bureau of Statistics, 2016b). Between 2012–13 and 2014–15 there was a positive increase in the proportion of non-remote Aboriginal Australians aged 12 years and over meeting the recommended daily fruit and vegetable intake (intake increased by 4% and 1.5%, respectively) (Chronic Disease Prevention Directorate, 2017). In WA, 37% of Aboriginal children aged 2-14 years reported eating one or less than one serve of fruit per day compared to 33% nationally (Australian Health Ministers' Advisory Council, 2017).

Food security in Aboriginals living in regional and remote communities

Food security is an issue faced by many Aboriginal Australians, and particularly those living in rural and remote areas due to poverty, low income, welfare dependence, limited access to affordable and healthy food supplies, predominantly in terms of perishable foods such as fresh fruit, vegetables and dairy foods, and high purchase prices (Browne, Laurence, & Thorpe, 2009; Chronic Disease Prevention Directorate, 2017; Davy, 2016). Aboriginal households are 2.5 times more likely to be in the lowest income bracket and the unemployment rate is three times higher than non-Aboriginal households (Davy, 2016). Other contributing factors include education level, house ownership and housing costs (Burns & Thomson, 2008; Davy, 2016). These factors all play a role in food security among Aboriginal people.

Statistics show that Aboriginal Australians were seven times more likely than non-Aboriginal Australians to go without food due to financial constraints in the previous 12 months (Chronic Disease Prevention Directorate, 2017). In addition, 36% of Aboriginal Australians living in remote areas and 20% of those in non-remote areas reported having run out of food in the last 12 months (Browne et al., 2009). A study by Thurber et al. (2017) found that low income, high food prices and pressures to support others commonly prevented carers in remote settings from providing adequate fruit and vegetables to their children despite being aware of the nutritional benefits. Specifically in WA, 22% of Aboriginal people reported running out of food, and in remote areas, almost 1 in 10 (9%) reported running out of food and not being able to afford more (Australian Health Ministers' Advisory Council, 2017). This can be particularly detrimental to growth, physical and socio-emotional development and learning potential in young children in both the short and longer term (Browne et al., 2009).

In addition to individual factors, environmental factors also influence the availability of affordable healthy food. Location, adverse weather and poor road conditions limit the availability of nutritious food in rural and remote areas of WA, with transport time and costs making nutritious food more expensive and of poorer quality the further the distance from Perth (Chronic Disease Prevention Directorate., 2017). As a result, among low socioeconomic groups, people tend to maximise calories per dollar spent on food. Subsequently energy-dense foods are often the lower cost option in comparison to healthier options such as lean meats, whole grains, fresh vegetables and fruits which are more costly (Chronic Disease Prevention Directorate, 2017). In 2013, a study showed that the cost of a healthy basket of food was 26% more in remote areas than in metropolitan areas of WA (Australian Health Ministers' Advisory Council, 2017). The Food Access and Cost Survey 2013, found that the cost of healthy foods increased by 4.7%, 10.0%, 8.8% and 7.0% in inner regional, outer regional, remote and very remote areas, respectively (Pollard, Savage, Landrigan, Hanbury, & Kerr, 2015). It also showed a lack of variety of fruit and vegetables available in the more remote areas of WA, with the exception of lettuce, onion, oranges and potatoes, and also found that quality decreased in remote and very remote locations (Pollard et al., 2015). Thus, individual and environmental factors dictate the quality of Aboriginal Australians' diets (Chronic Disease Prevention Directorate, 2017).

Physical activity levels in Aboriginal, regional and remote communities

In relation to modifiable risk factors, physical activity has been shown to reduce the risk of heart disease, high blood pressure, diabetes and the symptoms of depression, anxiety and stress (Australian Health Ministers' Advisory Council, 2017). The literature indicates that Aboriginal children in remote areas are more likely to be meeting the recommended physical activity guidelines with 82% of Aboriginal children aged 5–17 years in remote areas had participated in 60 minutes of physical activity (at least 150 minutes over 5 or more sessions) on the day prior compared to 48% in non-remote areas (Australian Health Ministers' Advisory Council, 2017). Within Australia, the rates of no or low physical activity are much higher in inner regional (70%) and outer regional, remote and very remote areas (72%) compared to major city areas (64%) (Australian Government Australian Institute of Health and Welfare, 2016). According to the guidelines, children aged 2-4 years require three hours of physical activity every day and those aged 5 -17 years require 60 minutes of moderate to vigorous physical activity daily for good health (Government of Western Australia Department of Health, 2015).

In terms of location, 48% of Aboriginal children aged 5–17 years in non-remote areas had undertaken a sufficient level of physical activity in the week prior (at least 150 minutes over 5 or more sessions). However, 82% of children in remote areas had participated in 60 minutes of physical activity on the day prior (Australian Health Ministers' Advisory Council, 2017). Aboriginal children were 1.4 times as likely as non-Aboriginal children to have met both the physical activity and screen-based guidelines in the three days prior (25% compared with 18%, respectively) (Australian Health Ministers' Advisory Council, 2017).

In 2014-15, 79% of Aboriginal children aged 4-14 years were reported to undertake at least 60 minutes of physical activity every day, which was slightly higher than national figures (74%). Although almost two-thirds of Aboriginal children aged 4-14 years had taken part in some form of physical activity or sport in past 12 months according to Australian Bureau of Statistics (2011b), continuing to reduce modifiable risk factors such physical inactivity is a top priority in the WA Aboriginal Health and Wellbeing Framework 2015–2030, to prevent chronic disease and close the gap in Aboriginal health (Government of Western Australia Department of Health, 2015).



Aboriginal participation in sport and recreation

Participation in sport and recreation has many benefits relating to health such as reduced risk of chronic disease and better quality of life; social benefits including improved connection within the community and reduced anti-social behavior; and economic benefits through providing business opportunities and reducing healthcare costs (Department of Local Government Sport and Cultural Industries, 2018; The Department of Sport and Recreation, 2009).

Aboriginal Australians face additional barriers that limit participation and access to sport (National Rural Health Alliance, 2011). The participation rate in sport and recreation for Aboriginal Australians is 30% compared to 65% for non-Aboriginal Australians (Department of Local Government Sport and Cultural Industries, 2018). Furthermore, fewer Aboriginal children participate in sport compared to non-Aboriginal children (69% and 74% boys; 51% and 55% girls aged 12–14 respectively) (Closing the Gap Clearinghouse., Australian Institute of Health and Welfare., & Australian Institute of Family Studies, 2011). Some of the barriers to participation in sport include culture such as the perceptions of health, inclusion of family or community, and concepts of time or structure; geographical location including physical location, environment, terrain and climate; and socioeconomic factors such as resources, accessibility, transport and costs (Henderson, 2009; Macniven et al., 2017; National Rural Health Alliance, 2011). These barriers also limit the impact of interventions aimed at Aboriginal people (Macniven et al., 2017). Reduced availability and frequency of services, and limited access to programs in remote areas, all impact on participation in physical activity (Macniven et al., 2017), along with high costs associated with affording sport equipment and fees (Macniven et al., 2017; National Rural Health Alliance, 2011). The Australian Bureau of Statistics (2011a) found that participation rates were lower for those in the lowest quartile for weekly income compared to those in the highest quartile for weekly income (45% versus 80%, respectively). Less access to healthcare professionals that can provide support and encouragement for participation in physical activity are also influential factors in Aboriginal participation in sport and recreational activities (Macniven et al., 2017; National Rural Health Alliance, 2011).

Benefits for Aboriginal children who participate in sport and recreation

Participation in sport and recreational activities provides a means to increasing physical activity among Aboriginal Australians and can also have both physical and mental health benefits (Dalton, Wilson, Evans, & Cochrane, 2015). Psychologically, regular exercise and sport can enhance feelings of control, improve self-concept, self-esteem and self-efficacy, and lead to more positive social interactions (Dalton et al., 2015). Research indicates a higher prevalence of reported psychological distress amongst Aboriginal Australians and that they are more likely to report health as being “Fair” or “Poor” and report higher levels of mental stress compared to non-Aboriginal Australians. This means that sport participation is likely to have a positive impact in improving Aboriginal health (Dalton et al., 2015). In a study by Dalton et al. (2015), Aboriginal people that participated in sport rated their health more frequently as “Excellent” or “Very good” and less frequently as “Fair” or “Poor” in comparison to non-participants. In the same study those who participated in sport more frequently had a Mental Health Kessler score indicating “No probable serious mental illness” and less likely to have a Mental Health Kessler score indicating “Probable serious mental illness” (Dalton et al., 2015). Participation in sport and recreation has also been associated with better academic performance and found to contribute to learning through opportunities to coach or umpire (The Department of Sport and Recreation, 2009).

Aboriginal Australians are particularly vulnerable to social and structural disconnect (The Department of Sport and Recreation, 2009). A lack of social contact and activity has been linked to decreased levels of satisfaction with their communities and reduced well-being among youth living in rural areas (Davie, 2015). Furthermore, the likelihood of juvenile justice issues, homelessness and economic hardship when transitioning to adulthood is increased by disengagement with the community (Davie, 2015; Department of Local Government Sport and Cultural Industries, 2017). Physical activity and participation in sport has the potential to influence social and emotional well-being by reducing social isolation, providing a diversion from crime and anti-social behavior and providing social support leading to improved family, community and cultural connections (Department of Local Government Sport and Cultural Industries, 2017; Gray et al., 2013; The Department of Sport and Recreation, 2009; Thorpe, Anders, & Rowley, 2014).

Drowning and water safety awareness in Aboriginal, regional and remote communities

Drowning still remains the leading cause of preventable death for toddlers aged 0-4 years and is among the top ten leading causes of death nationally of children and young people (Chronic Disease Prevention Directorate, 2017; Wallis, Watt, Franklin, & Kimble, 2015).

Aboriginal Australians are 3.6 times more likely to drown than non-Aboriginal Australians, and drowning-related hospitalisations are higher for Aboriginal people of all ages compared to non-Aboriginal Australians (Chronic Disease Prevention Directorate, 2017; Wallis et al., 2015).

In WA, Aboriginal children are 8.6 times more likely to be involved in a fatal drowning incident than non-Aboriginal Australian children (Royal Life Saving Society of Western Australia, 2018). Strategies to reduce the risk of drowning include child drowning prevention programs, teaching rescue and resuscitation skills, learning to swim, preventing alcohol consumption and participation in aquatic activities, wearing a lifejacket when on water, raising awareness of the influence of pre-existing medical conditions, and partnering with relevant groups (Chronic Disease Prevention Directorate, 2017). Furthermore, in the World Drowning Report, recommended actions fall under three categories including community based action such as installing barriers, providing safe places away from water, teaching school aged children water safety and survival skills, training in rescue and resuscitation, and strengthening public awareness; policy and legislation such as enforcing safe boating regulations, managing flood risks and other hazards, coordinating drowning prevention with other sectors and developing a national water safety plan; and finally further research to address priority questions with well-designed studies (World Health Organisation, 2014).



STUDY AIMS AND OBJECTIVES

Whilst an unhealthy diet high in saturated fats and refined carbohydrates increases the risk of chronic diseases, regular exercise combined with the recommended intakes of fibre-rich foods such as fruit and vegetables can provide protection against chronic disease (Chronic Disease Prevention Directorate, 2017).

In order to address poor nutrition in WA, the WA Health Promotion Strategic Framework 2017–2021 priorities for healthier eating include fostering an environment that promotes and supports healthy eating patterns, increasing availability and accessibility of safe, nutritious, sustainable, and affordable food for all and increasing the knowledge, skills and confidence necessary to choose a healthy diet (Chronic Disease Prevention Directorate, 2017).

The poor health of and limited participation in physical activity in Aboriginal remote communities has been well documented, with Aboriginal children at higher risk of many diseases including skin, ear, eye and respiratory infections, as well as at a higher risk of and earlier onset of chronic disease later in life (Australian Institute of Health and Welfare, 2017). Aboriginal children also face socioeconomic disadvantage, poorer education outcomes and environmental disadvantages when living in rural and remote locations with reduced availability and frequency of services, and limited access to programs (Government of Western Australia Department of Health, 2015; Macniven et al., 2017).

Aboriginal Australians are at a 3.6 times greater risk of drowning than non-Aboriginal Australians, and hospitalisations following a non-fatal drowning incident are also higher for Aboriginal people of all ages compared to non-Aboriginal (Chronic Disease Prevention Directorate, 2017; Wallis et al., 2015). A recent review of childhood drowning in WA indicated that limited water safety awareness and low participation in swimming and water safety programs as key factors for drowning in children (Royal Life Saving Society of Western Australia, 2018). RLSSWA has been working with Aboriginal communities to implement swimming and water safety and drowning prevention strategies to improve the overall health of Aboriginal children and reduce the impact of drowning in these communities.

To address all of these factors, RLSSWA has been working with swimming pools within the Pilbara region since 2009 to run the Go for 2 & 5 Regional and Remote Aboriginal Communities Swimming Program “Swim for Fruit”. The program is currently run in thirteen pools within the Pilbara region including a number of remote Aboriginal communities. It aims to encourage children (particularly Aboriginal children) to participate in regular physical activity at the pool by providing incentives for participation. Children that participate are rewarded for their swimming efforts by received a healthy afternoon tea following each session.

Whilst anecdotal evidence suggests that the program has been successful in engaging Aboriginal children in participating in swimming and increasing fruit consumption, to date no formal evaluation has been performed to investigate the benefits of the program. The aim of this research study was to conduct an in-depth evaluation of the Swim for Fruit program within the Pilbara region to examine barriers and enablers to participation and its effectiveness in improving levels of physical activity and swimming skills development whilst improving consumption of fruit.

RESEARCH QUESTIONS

The following research questions were addressed to achieve the stated aims of the project:

1. Has participating in the Swim for Fruit program improved physical activity levels in participants?
2. Has the Swim for Fruit program improved swimming skills in participants?
3. Has the Swim for Fruit program increased consumption and the availability of fruit among participants?
4. What are the barriers and enablers to participation in the program?

PROJECT SIGNIFICANCE AND BENEFITS

Aboriginal people account for 13% of the population in the Pilbara region compared to the state average of 3.8%, and consists of a younger age structure than non-Aboriginal Australians living in this region (Rural Health West, 2016). The Socio-Economic Indexes for Areas (SEIFA) in the Pilbara ranges from 962 to 1060 (<1000 is correlated with a lower health status and increased factors relating to ill health), noting that Aboriginal people tend to more often be of low socioeconomic status and the SEIFA index for this region is based on an average across all Pilbara Local Government areas (Rural Health West, 2016). Water safety awareness and the ability to swim are central to the WA lifestyle. Our climate and diversity of waterways promote a range of social, recreational and sporting activities in, on and around the water. A lack of water safety awareness and swimming ability are barriers to participation in aquatic sporting pursuits. Around 6.4% of drowning deaths in Australia over the past 10 years involved Aboriginal Australians (Royal Life Saving Society of Western Australia, 2016).

The Pilbara region was identified as having the highest rate of drowning in of any region in WA in 2015-16 (Royal Life Saving Society of Western Australia, 2016). It is intended that this program will assist in supporting vulnerable and at-risk communities and address the health gaps faced by Aboriginal people in WA through targeting modifiable risk factors such as physical activity and nutrition, and through improving swimming and water safety skills. This evaluation was performed to provide guidance and recommendations to support the expansion of the program into other high-risk regions throughout WA. It also has allowed for improvements to be identified in order to further develop the current program to increase participation. Furthermore, the results will be applicable to other sport and recreation programs not only in the Pilbara region, but within WA to increase participation by Aboriginal children.



METHODOLOGY

A qualitative approach was employed to evaluate the Swim for Fruit (SFF) program to investigate whether the program had improved physical activity levels in participants, swimming skills and healthy eating through the consumption of fruit among participants and identify the barriers and enablers to participation in the program aimed at Aboriginal participants.

Study sample and selection

The SFF program is currently being implemented in six remote (Burringurrah, Jigalong, Yandeyarra, Bidyadanga, Warmun and Fitzroy Crossing) and twelve regional (Newman, Roebourne, Broome, Tom Price, Geraldton, Mullewa, Wyndham, Kununurra, Marble Bar, Onslow, Wickham, Halls Creek & Wiluna) swimming pools within the Pilbara and Kimberley regions. In 2016-17, there were 2,713 regional and 2,477 remote individual participants in the SFF program.

The study population was selected from the WA Pilbara region in the north-west of WA. There are around 23,500 Aboriginal people aged 5-19 years in WA, of which 2,100 are located in the Pilbara (Australian Bureau of Statistics., 2011). The inclusion criteria required pools to be located in the Pilbara region, be recognised as a RLSSWA Endorsed Swim School, have a high percentage of Aboriginal children attending the pool and have been running the SFF program for at least one season. The study sample consisted of seven out of the 13 pool pools located in the Pilbara region. Five pools were excluded as they were not currently running the program. All seven pool managers that were approached agreed to participating in the study. Convenience sampling of a homogeneity group was employed at the pools that met the inclusion criteria including two remote swimming pools (Jigalong and Yandeyarra), and five regional swimming pools (Roebourne, Tom Price, Marble Bar, Onslow and Wickham).

The participation numbers across the seven pools ranged from 4 to 24 participants per session. In 2016-17, a total of 2,045 participated in the program across the seven pools. Based on this, the sample consisted of at least five to ten participants and five to ten non-participants from each pool, which was deemed to be a representative sample according to Cresswell (1998) and Morse (1994). All participants that were approached by researchers at the yarning sessions participated in the semi-structured interviews. However, some children did not attend the pool on the day due to cultural events, being out of town and other reasons unknown.

Recruitment

Pools managers from eligible pools were contacted and invited to participate in a structured phone interview at a time convenient for them. Participants and non-participants from the same swimming pools were recruited via an invitation to a community BBQ and yarn session held at each pool on days when the SFF program was running.

Children were only included if they were a local to the area. Consent was obtained from parents and guardians where possible. The information sheets and consent form can be found in Appendix 1 and 2, respectively. No personal or identifiable information was collected from the children and therefore, where parents were not present at the pool to sign a consent form, consent was implied by willingness to speak with researchers and answer general questions about the program. All children aged 5 – 15 years present at the pool were approached, informed of the research and asked if they were willing to speak with the researchers.

Data collection and management

The qualitative data collection occurred in two parts, a structured phone interview with the pool managers (Appendix 3) and semi-structured face to face yarnning session at the local swimming pool with participants (Appendix 4) and non-participants (Appendix 5) that regularly attended the pool. The phone interview consisted of mostly open-ended questions to allow for more in-depth responses and to facilitate discussion.

Researchers visited each of the swimming pools involved in the research study and spent time participating in programs run at the pool and then conducted semi-structured interviews with program participants during the afternoon in an informal manner.

This allowed researchers to build rapport with the children and to create a more relaxed environment to encourage truthful responses and meaningful discussion. The interviewers were both females aged in their mid-twenties with formal university qualifications in a relevant area of study. The interviewers were not known to the participants or pool managers prior to conducting the interviews. However, pool managers did inform the children that the interviewers would be attending the swimming pool for a yarn during their SFF session and provided them with the information about why they were participating in the yarnning sessions. Data was collected via notes taken during the interviews which were transcribed at the end of each yarnning session or directly after the phone interview. Photos were taken of the children participating in the program, if parents were available to provide consent for the photo. No audio recordings were taken during the interviews for ethical reasons. Data was entered and stored on a password protected Microsoft Excel spreadsheet only accessible by the research team.

Data analysis

Data collected was transcribed and analysis of the transcriptions occurred according to the thematic approach by Braun and Clarke (2006), using an inductive method. Data was analysed manually using Microsoft Excel to systematically sort and code the data. Two researchers both independently reviewed and coded the data, and then after in-depth discussions determined the most appropriate codes for each of the responses.

Below: Participants that attended the yarnning session at Onslow Aquatic Session.



RESULTS

Pool manager interviews

Each pool implemented the program in a slightly different manner. Most employed an unstructured and flexible approach (n=5) when running the program and was often ad-hoc when participants were present at the pool. Two pools employed a more structured approach offering the program on specific days and times.

All pools implemented lap swimming as part of the program. In addition to swimming laps, some pools also included sports such as water polo (n=4), activities using pool inflatables (n=2), competitions (n=2) and survival skills sessions (n=1). One pool adjusted the laps required to receive the fruit incentive based on the age of the child. There were a range of strategies used to promote the program as outlined in Table 1.

Table 1. Methods of advertising the program

Method	Number of pools	Method	Number of pools
Word of mouth	5	Posters	2
Facebook	3	Engaging older kids	1
Community groups	4	Local schools	1
Pool visitors	4	Newspaper	1
Youth Group	3	Elders	1

All pools mentioned that the program was important as it encouraged healthy eating by offering healthy food choices and increasing fruit consumption (n=6), fruit unavailable at local shops or was expensive which limited access (n=1) and reducing sugar intake (n=2). As stated by one pool manager *"[the impact of the program is] Huge, fruits are not cheap here and there isn't much fruit at the local shops. The price puts people off buying it and some of the kids didn't even know what a nectarine was"*. Program benefits are outlined in Table 2. Suggested improvements for delivery of the program included having more structure and content available for pool managers (n=3), linking the program with local schools to improve participation (n=1), making transport available (n=1), more funding (n=1). Some managers stated that there was nothing was needed to improve the program (n=2).

Table 2. Benefits of the Swim for Fruit program

	Benefit observed	Number of pools
Healthy eating	Improved access to fruit	1
	Eating habits	3
Physical activity	Increased physical activity	4
	Swimming skills	4
	Improved fitness	4
Other benefits	Competitive	4
	Pride & confidence	2
	Social engagement	2
	Fun & games	1
	Safety awareness	1

Pools had between 4 – 25 regular participants in the SFF program, and 90-100% of participants were Aboriginal children (n=5), with the exception of one pool which had 40% of participants identify as Aboriginal. Managers reported that participation rates were affected by the weather (n=1), community and cultural events (n=2) and people being out of town (n=1). Reasons why children did not participate in the program are outlined in Table 3. One pool found that Aboriginal children tended to stop participating once they reached high school however, a steady participation rate was seen in primary school children. This is consistent with general program participation and swimming pool attendance data across the aquatics industry. Two pools did not observe any changes in the participation rate over time.

Table 3. Possible reasons for not participating in the Swim for Fruit program

	Number of pools
Cultural events	2
Do their own thing and seen as "Not cool"	2
Out of town	1
Weather	1
Too young	1
Transport	1
Not sure	1

In terms of engaging other visitors to the pool for physical activity, two pools reported that the program was effective in engaging new pool users, two said it was hit and miss, one said that having fruit provided an added incentive and others weren't sure (n=2). All pools stated, except for one that any program is worthwhile (n=5). One pool mentioned it would be good to have a similar program specifically targeting teenagers to increase their participation.

Pool managers suggested the following advice to other pools looking at running the program; to promote the program widely and with other programs (n=4) to encourage participation; keep an unstructured and flexible approach but have a set start date (n=2); and have a rewards system in place and try something different (n=5). Other comments included that the program is a good way to build relationships with Aboriginal kids in the community and that it was important to offer a wide variety of different fruits to keep kids engaged in the program. While some pools reported that there were already a number of other programs running within the community, others reported that additional programs such as aquatic competitions, river safety programs and programs that targeted teenagers would be of benefit.

Program participant yarning sessions

Forty-two SFF participants (thirty-eight Aboriginal children) aged between 6-15 years, participated in the yarning sessions. Results were similar between regional and remote pools, therefore are reported on collectively. Most children visited the pool everyday (n=13) or almost every day (n=6). The most common reasons for visiting the pool included to cool down (n=14) and getting fruit as part of the SFF program (n=13). All of the children that responded to questions relating to swimming ability felt that the program had improved their swimming skills (n=20). Most of the participants didn't suggest any improvements for the program (n=14), however seven participants from the same pool stated that having a bouncy castle would improve the program and one participant said that separating the older kids from the younger ones would improve participation in the program. Other improvements are outlined in Table 4.

Table 4. Suggested improvements for the Swim for Fruit program

	Number of children
Bouncy castle/inflatables	7
More free time/unstructured play	1
Separate older & younger kids	1
Having more weekend activities	1
Making it more social	1
Having more people	1
More food	1
Don't know	1

Most children ate fruit everyday (n=17) or 3-4 times per week (n=6). Two children stated they did not eat much fruit. Fruit was eaten at the pool (n=24), home (n=22) or at school through the Crunch and Sip, and the School Breakfast Program (n=21). Other sports that were popular are outlined in Table 5. Commonly reported reasons for participation in these other sports included they are good at it, for social engagement and they had fun, to keep healthy and active, excitement and they had been doing it for a long time.

Table 5. Popular sports other than swimming in those that participated in the program

	Number of children•
Basketball	27
Volleyball	10
Soccer	9
AFL	7
Running	5
Dodgeball	2
Skateboarding	1
Netball	1
Tee ball	1
Bull riding	1
BMX	1

* Missing data = 1



Non-participant yarning sessions

Thirty-six non-participants (thirty-one Aboriginal children) aged 6-17 years were interviewed from the regional pools. No non-participants attended the yarn sessions at the remote pools, however, the pools managers inferred that this is likely due to being a remote community where the majority of children do participate in the program. Most children attended the pool everyday (n=8) or almost every day (n=1) but did not participate in SFF. Others never attended the pool (n=4), attended once a week (n=3) or 2-3 times per week (n=3). Reasons for not participating in the SFF program are outlined in Table 6.

Table 6. Reasons for not participating in the program

	Number of children
Hadn't heard of the program	28
Doesn't like swimming	4
They didn't enough time	1
Friends don't participate	1
Injury	1

When asked what would make them want to participate, most said they would if they knew about the program (n=9). Five participants said that they weren't interested in the program and nothing would make them want to participate. Other common reasons were that they needed a parent to go with them as part of the pool's supervision requirements and better swimming ability.

Most of the children ate fruit everyday (n=15), and others never (n=4) or a few times per week (n=2). Fruit was consumed at school (n=16) and home (n=8). Six stated they liked swimming when asked what sports they enjoyed. Other sports that were popular are outlined in Table 7.

Table 7. Popular sports other than swimming in those that didn't participated in the program

	Number of children
Basketball	13
Motorbike/BMX	3
Tae kwon do	2
Soccer	2
Tee ball	2
Fishing	1
Athletics	1
Skatepark	1
Trampoline	1

Some of the comments around why they participate in these sports included for excitement and adrenaline, to keep fit, for fun, social engagement, to make friends and that it was free to participate.





DISCUSSION

In the WA Aboriginal Health and Well-being Framework, a key strategy to improving Aboriginal health and addressing the health gaps is to address risk factors that contribute to poor health outcomes (Government of Western Australia Department of Health, 2015).

Targeting children at young age is important for establishing healthy behaviours and habits that will lay the foundation for lifelong health. The lifespan consists of five key transition periods, one of which includes the childhood health and development period which is made up of the years from birth to early teens. During this age, developmental milestones are reached where good nutrition, regular physical activity, positive mental health and prevention of obesity are suggested among other factors as top priorities in ensuring lifelong health (Government of Western Australia Department of Health, 2015). Based on this, the SFF program addressed multiple risk factors for poor health outcomes including nutrition and food security through offering fruit as a healthy incentive for participation, increasing physical activity through utilising the local swimming pool for lap swimming, and reducing drowning risk through providing swimming and water safety skills through lap swimming. Furthermore, the program specifically targeted children aged from 5 – 15 years where they are at an appropriate age to develop lifelong healthy behaviors.

Program benefits:

- Engaging Aboriginal children
- Increasing fruit consumption
- Improving physical activity levels
- Social engagement

From the evaluation, it was evident that the program was successful in improving healthy eating through increasing fruit consumption and decreasing sugar consumption, as well as increasing knowledge on different types of fruit, as commented by one pool manager *“Fruit’s not cheap here and there isn’t much fruit at the local shops. The price puts people off buying it and some of the kids didn’t even know what a nectarine was”*. The program was also successful in improving physical activity levels, swimming skills and water safety skills, as mentioned by one pool manager *“fitness and eating habits were improved. Safety awareness was increased and a few of the children have rescued each other from the flash floods so the program has helped with that. They look out for their mates. Better swimming technique, swimming further and complete more laps”*.

In addition, some unexpected outcomes were seen in that the program benefitted children’s confidence, social engagement by completing activities in teams and they had fun and showed pride in having to earn the fruit. As commented by one parent *“Thank you so much for introducing this program. Since the children have been getting fruit their behaviour is better & their manners have improved, and it’s had a lot of benefits for the community”*.

The evaluation was mostly qualitative and did not assess actual knowledge and awareness quantitatively in the children, which has been identified as a limitation of the research. While this was outside the scope for this project, it should be a focus for further research in this area. In addition, whilst researchers created a fun, safe and social setting for the yarn sessions, the accuracy of the information was relied upon the children providing truthful answers to questions and when participating in the yarn sessions which may have caused some bias in the results.

Program enablers:

- Flexible programming
- Ensure the program is community based and run by local community members
- Focus program on what the kids enjoy e.g. swimming
- Offer a reward for participation that is valued by participants
- Create a fun, safe and social environment
- Include a competitive aspect to the program
- Work with other community groups to promote participation
- Interconnect with Australian Aboriginal culture
- Ongoing promotion within the community

From the literature, community based programs can be effective in targeting modifiable risk factors such as diet and physical activity and reducing the incidence of chronic disease (Closing the Gap Clearinghouse. et al., 2011). Whilst community based and managed programs tend to be effective, most Aboriginal community based programs struggle to be sustained for five years or longer due to social and economic issues, with only one program identified in the Healthy Lifestyle Programs for Physical Activity and Nutrition Report 2011, the Looma Healthy Lifestyle Project successfully operating for more than 18 years (Closing the Gap Clearinghouse. et al., 2011).

When developing programs for Aboriginal people, culture and its role in a healthy lifestyle needs to be considered, as healthy eating and physical activity have been found to be interconnected with Australian Aboriginal culture (Crowe, Stanley, Probst, & McMahon, 2017). Furthermore, building meaningful relationships and connecting Australian Aboriginal children to cultural practices is vital in their emotional wellbeing (Crowe et al., 2017). In order to ensure the SFF program met community values, the program was discussed extensively among the regional and remote pools community network, and each pool took a slightly different approach to implementing the program ensuring that the program met community values. For example, some pools ran the program on weekends and others in the afternoon on weekdays to coincide with community events and school events.

In an attempt to bridge the health gap, a number of programs have been implemented across Australia. The Australian Indigenous HealthInfoNet (2018) identified over 50 physical activity programs available to Aboriginal people across Australia, specifically targeting Aboriginal Australians (Australian Indigenous HealthInfoNet, 2018). There were also more than 17 programs aimed at improving food security and nutrition, specifically for Aboriginal communities (Australian Indigenous HealthInfoNet, 2018; Browne et al., 2009). Specifically, in a review by Macniven et al. (2017) that investigated programs offered to Aboriginal Australians that aimed to increase physical activity in Australia, over 100 programs were identified, 24 of which were based in WA. The majority of the programs were community based (Macniven et al., 2017). Of the programs offered to young people, the majority aimed to increase physical activity, however there were a number of programs that also incorporated lifestyle and nutrition elements with physical activity (Macniven et al., 2017). In WA, there were 11 rural and remote programs identified; one swimming and water safety program; six that promoted a healthy lifestyle alongside physical activity, one that encouraged physical activity and healthy food and drink consumption in schools and two that focused on physical activity and participation in sport (Macniven et al., 2017). One of the major limitations of these programs offered in Australia is very few evaluations of the programs are published, and some were not evaluated at all (Macniven et al., 2017). The strength of the SFF program, is the extensive evaluation that has been completed to find out more about the why children do and don't participate in the program. The evaluation has also identified the strengths and weaknesses of the program which will allow for further improvements to be made. Whilst, the evaluation is specifically for SFF, the principles and findings are applicable to other programs and sports, and dissemination of these results to the Department of Local Government, Sport and Recreation and at the 22nd Annual North West Pool Managers Aquatic Seminar allowed for greater reach and sharing of knowledge to benefit the broader community.

Another study found that program failure is often due to a lack of cultural awareness and not taking into account community values such as 'fly in and fly out' delivery of programs which does not lead to meaningful relationships within the community (Davie, 2015). This was a major strength of utilising the local pool for delivery of a health intervention, capitalising on the children's love for swimming. Pool managers are based within the community and can build meaningful relationships with the children that attend the pool, parents and also members of the broader community. These relationships are vital to ensuring that the program is meeting community needs and the rapport pool managers have within the community also helps to increase participation leading to a more successful program. When asked what advice they would give to other pools looking at running the program, one pool manager commented *"Highly recommend, good way to interact with children. Shy Indigenous don't really interact so it's a good way for pool managers to build a relationship with the children and encourage them to be healthy"*.

Aspects of the program that were reported to work well was having regular programming and a reward system in place to encourage participation. Targeting older children was a successful strategy among some communities as the younger children would get involved if the older children did. On-going promotion was extremely important and linking with high schools, as this helped to ensure the children knew about the program and captured participation from those children that do not regularly swim at the pool. It was also important for pools to be flexible with running the program to ensure greater participation as Aboriginal children do not always come to the pool at the same time every day. These aspects can be applied to increasing participation in any sporting context.

Whilst the program was successful overall, there were children that did not participate because they didn't like swimming, hadn't heard of the program, had an injury and were under 10 years and needed parent supervision. We also found that some children were more interested in other sports instead of swimming. For example basketball was very popular among all the communities included in the evaluation. One way to combat which may be to incorporate other sports into the program or create an aquatic version of the sport instead of just lap swimming, which may encourage participation by those who are not currently participating in the program. This highlights the importance of understanding community values when implementing a community-based program. In these communities, schools often had a no school, no pool policy which was successful in increasing school attendance, but also lead to some children not participating in the program as they had skipped school. Another barrier to participation in one community was transport due to the location of the pool. If children went to the pool after school and missed the bus they were not able to get transport home.

Program barriers:

- Children having other interests
- Transport to & from the pool
- Age - being too young & requiring adult supervision
- Not knowing about the program
- Injury

Schools in most of the areas where SFF was running also have the Crunch and Sip, and the School Breakfast Program where students are provided with fruit at school. This overlaps with SFF where children are also provided with fruit, however, as suggested by one pool, offering a variety of different fruits provided more of a benefit to children. This provided an added incentive as they were getting to eat something different and also helped improve participants knowledge of different fruits.

Results from a study Pettigrew, Jongenelis, Pratt, Wright, and Myers (2018) investigated the acceptability of introducing vegetables into the Crunch and Sip program at schools instead of fruit. If this initiative were to be implemented it would complement the SFF program with children getting vegetables at school and fruit after school at the pool. Regardless, by offering the SFF alongside school programs assists in reinforcing the healthy eating messages and encourage greater knowledge and awareness. In addition, working with local schools and linking in the program with the school curriculum were other improvements that could be made to improve participation rates.



RECOMMENDATIONS FOR SWIM FOR FRUIT

- **Further research**

Ongoing annual program evaluation is needed to ensure the continued improvements and effectiveness of the program. Future research focusing on investigating children's level of awareness and knowledge of healthy eating, swimming skill development and the impacts of physical activity is recommended to be able to quantify the benefits.

- **Program delivery**

SFF is effective in promoting healthy eating and physical activity, having high engagement with Aboriginal children. Seeking opportunities to expand the program to other regions, particularly remote communities with high populations of Aboriginal children would have great benefits to the children's health and the broader community by keeping them engaged in a healthy lifestyle.

- **Fruit as an incentive**

Fruit, particularly when offering a wide variety of different types of fruit, was found to be an appropriate and valued incentive for children that encourages participation. Furthermore, adding a competitive element to the program also engaged participation as it was found from the evaluation that Aboriginal children enjoyed competing and showed pride in having to earning the fruit as a reward.

- **Wide and on-going promotion**

Pool managers used a wide range of methods to promote the program however, it is evident that promotion cannot just rely on word of mouth. Having a planned communication strategy, as well as engaging community members as ambassadors and linking with local youth groups and high schools is recommended to extend the reach.

- **Develop a clear program delivery guide**

It is important to be flexible in the delivery as each regional and remote community is likely to be different and what works for one community may not work for another. With this in mind and given the high staff turnover in these areas and intended expansion of the program, it is important to have a clear, documented guideline of program delivery options including a communication strategy to ensure consistency of delivery across different regions. This should be developed in consultation with pool managers and program staff.

RECOMMENDATIONS FOR OTHER COMMUNITY SPORT AND RECREATION PROGRAMS

- **Have a reward system in place**

Having a reward system in place that is appropriate and valued encourages participation.

- **Promote, promote, promote**

One of the barriers identified to participation was that the kids didn't know about the program. Therefore, it is important to use multiple channels to promote the program and ensure that promotion is wide reaching and ongoing to extend the reach and gain interest in the program.

- **Consult with community**

It is important to work with the community to ensure the program meets community values. In addition, linking the program to local Aboriginal cultural values and utilising community members to run the program is crucial in engaging participation, as they are likely to have strong relationships within the community to enable participation. Likewise, it is essential to work with other community groups such as local schools to align programming and as an avenue to encourage participation.

- **Keep program delivery flexible**

It is important to have a flexible approach to program delivery to allow it to meet the changing needs and expectations of the community. This is particularly important in regional and remote communities, where cultural events and people coming in and out of town tend to affect participation rates. While flexible delivery is key to program success, it is also important to have set program start dates and consistent delivery to encourage ongoing participation.

- **Have clear program objectives and a guide in place**

To ensure consistency of delivery and with Whilst the delivery may be flexible, it's also important to have a clear guide and objectives for the program.



CONCLUSION

From the current evaluation it is evident that the SFF program has been successful in engaging Aboriginal children in swimming and increasing fruit consumption and physical activity levels. This research was important to improve the SFF program delivery however, also provides guidance to other programs promoting participation in sport and recreation to improve nutrition and physical activity outcomes.

The relationships which pool managers have within the community, regular and flexible programming, trying different approaches, offering a wide variety of fruit as an incentive, ongoing promotion, getting the community involved and linking with local schools were factors which enabled participation in the program. Barriers included no parent supervision for those under 10 years, not knowing about the program, funding, access to fruit and transport to and from the pool, all which limited participation. Ongoing annual program evaluation is important to ensure the continued improvement of the program and to identify areas which need to be addressed as they arise. Further research to quantify the benefits of the program is priority in order to determine the impact of the program within regional and remote communities.

PERSONAL BENEFITS

In terms of personal benefits of being able to receive the Dr Heather MacGowan Scholarship, this has been extremely valuable in my career development. During my studies I have learnt about the health disadvantages of Aboriginal and Culturally and Linguistically Diverse Populations, and since studying have also completed additional training in Cultural Competency as well as attended workshops on performing research in Aboriginal communities, but to date have not yet had the opportunity to work within Aboriginal communities.

To be able to apply what I have learnt in a practical sense, has allowed me to further develop my skills in communicating with Aboriginal people and carrying out research in Aboriginal communities. It has also allowed me to see and experience firsthand the health disadvantages faced by Aboriginal children living in regional and remote communities and being provided with the opportunity to perform research which will greatly benefit these communities has been very rewarding. In addition to carrying out the research, having the opportunity to attend a National Public Health Conference and present at the 22nd Annual North West Pool Managers Aquatic Seminar has provided me with the opportunity to learn from more experienced researchers in Aboriginal health and to network and build relationships with other researchers and professionals working with the aquatics industry who I may be able to collaborate with in the future. Through presenting the findings it allowed me to gain feedback from the audience on the information we collected and to identify the direction of future research to address the gaps and improve the SFF program.

KEY FINDINGS FROM CONFERENCE ATTENDANCE

As part of the Dr Heather MacGowan Scholarship, I attended the Public Health Prevention Conference from 2-4th May 2018 at the Sydney Boulevard hotel. The conference themes were Systems thinking; Translation of research and evidence into action; and Advocacy and where efforts should be focused in order to strengthen prevention with the vision “We can do more, and we must”.

This conference was very empowering and allowed me to see the importance of program evaluation and translating the findings ensuring that other professionals within sport and recreation, health promotion and research can benefit from the evaluation findings, having a much greater impact outside of for the sole purpose of improving the program. In attending this conference, I also got to attend presentations on the evaluation of other programs being run by health promotion professionals around Australia. Through attending these presentations, I was able to validate the methodology used to evaluate the Swim for Fruit program and think about the program more broadly. One program I found very interesting was the Go 4 Fun program run with Aboriginal families in NSW.

This program has been running since 2009 to help support the adoption of a healthy lifestyle in families with overweight and obese children. This program targeted a similar population to Swim for Fruit and the evaluation was similar in that they used semi-structured interviews with participants to find out the acceptability of the program. Lastly, I benefitted greatly from attending this conference by being able to network with other professionals in health promotion from a range of different fields.

I also attended and presented at the 22nd Annual North West Pool Managers Aquatic Seminar on the 18th May 2018. Being able to attend the conference allowed me to meet professionals working with the aquatics industry, learn more about the aquatics industry as an ideal place for health interventions to take place and promote the SFF program to regional pool managers who are not currently running the program. By presenting the results at the conference, this created discussion between pool managers and I was able to gain feedback on the SFF and the direction of future research in this area to improve the program.

Below: Attendees at the 22nd Annual North West Pool Managers Aquatic Seminar on 18th May 2018



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APPENDICES

Appendix 1: Participant Information Sheet



Royal Life Saving

THE ROYAL LIFE SAVING SOCIETY WESTERN AUSTRALIA INC

Swim for Fruit Research Project

What is the Swim for Fruit Program?

The Royal Life Saving Society has been working with the local Swimming Pools to run the 'Swim for Fruit' program. The program is designed to encourage children to participate in regular physical activity as well as increase their intake of fruit. Children will participate in swimming at the pool and they will fruit as a reward for participating.



Why is the program being run?

We think that the program will improve the children's health by reducing their risk of chronic disease. Physical activity is important to reduce the risk of obesity, heart disease, high blood pressure, diabetes and the symptoms of depression, anxiety and stress (WHO, 2010). In addition, by providing fruit the children will be gaining additional serves of fruit which provide nutrients that are protective of chronic diseases. In the most recent data, only 68.1% of children aged 2-18 years met the guidelines for recommended daily serves of fruit (Australian Bureau of Statistics, 2015) and children living in remote and rural areas are less likely to meet the recommended serves of fruit than metropolitan areas. Therefore, we believe this program will provide health benefits to children who participate.

How will this research project be done?

A person from Royal Life Saving or the local Pool Manager will talk to children who have done the program about why they like the program and what they have learned. They will also talk to children who haven't done the program about what they like about the pool, why they haven't done the Swim for Fruit program, what other sports they do in the community and why they like these sports.



Department of
Local Government, Sport
and Cultural Industries



Saving Lives+❤️





Royal Life Saving

THE ROYAL LIFE SAVING SOCIETY WESTERN AUSTRALIA INC

What will Royal Life Saving do with the information they collect?

All the information collected from people will be kept safe and will not be shown to anyone else unless we have permission to do so. We will also write about all the information we collect in a report. We will show this report to the pool manager and other community members and check that the community is happy with the report before we show it to anyone else. No names of any person who been involved in the study will be used in the report unless that person themselves requests for their name be used.

Does my child have to take part on the project?

No, it is your choice whether your child takes part in the research project or not. It is your choice to say yes or no.

Who can I talk to about this project?

If you have any questions or want to know anything more about this project you can talk to the your Pool Manager. Or you can phone Lauren Nimmo who works at the Royal Life Saving office in Perth. Lauren's phone number is (08) 9383 8201.



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Consent to participate in Swim for Fruit Research Project Review

I _____ (your name) as the parent/guardian of _____ (child's name) provide my consent for their participation in the Swim for Fruit research project review at _____ Swimming Pool.

Please read the information sheet on the Information sheet provided before you confirm your participation. If you are happy for your child to participate, please complete the declaration below.

Declaration to participate

If you agree to the following statements, please sign below.

- I have read the information sheet about the Swim for Fruit Research Project Review
- I understand the purpose of this research project and how the data will be collected
- I understand that a member from Royal Life Saving WA or the pool manager will talk to my child about the program
- I understand that the information collected during this research will be used to improve the swim for fruit program
- I understand that I am able to withdraw my child from the research project at any point

Name: _____

Signature: _____

Date: _____

Who can I talk to about this project?

If you have any questions or want to know more about the research project, you can contact Lauren Nimmo, details below.

Lauren Nimmo
Manager Health Promotion and Research
P: (08) 9383 8201
E: lnimmo@royallifesavingwa.com.au



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Pool Manager Interview Guide

Name	
Pool Name	

Q1 – How did you implement the Swim for Fruit program at your centre?

Prompt

- How many days per week?
- Was it scheduled or flexible?
- What time of year did the program run?
- School holidays or during term?

Q2 – What days and times did you run the program?

	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Morning							
Afternoon							

(Write the times in each box that applies)

Q3 – Describe how important you think the program is to the community?

Q4 – What aspects of the Swim for Fruit program need to be improved?





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Q11 - Do you think the program increased participation in those that did not regularly swim at your centre?

Q12 – Why do you think children did not participate?

Q13 – Based on running this program, what advice would you give to other centres who are thinking about implementing the program?



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Q5 – How many children regularly participated in the program? _____

Q6 – What percentage were indigenous?

Q7 – Did participation rate change over time? If yes, how?

Q8 – How did you encourage participation?

Prompt

- How was it promoted?
- Did you have any links with local schools?
- Did you use local community groups?

Q9 – How did the children benefit from participating in the program?

Q10 - Do you think the program was effective in encouraging participation in physical activity?



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Q14 – Do you think it would be worthwhile introducing other programs similar to Swim for Fruit in your area?

End of survey.



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Participant Interview Guide

Pool Name	
Number of participants present for interview	
Age of participants	
Gender of participant	

1. How often do you come to the pool? E.g. everyday, once a week, etc.?
2. What do you like most about coming to the pool and swimming? e.g. getting to eat fruit, playing with friends, cooling down from the heat etc.???
3. Do you feel like you can swim better since you have been swimming and playing games at the pool and eating fruit (swim for fruit program)?
4. Is there anything the pool can do to make the activities more fun?
5. How often do you eat fruit? e.g. everyday, once a week, etc.???
6. Where do you eat fruit? e.g. at home, at school, at the pool, etc.???
7. (If they don't) Why don't you eat fruit? e.g. don't like the taste, don't have any, etc.???
8. What are your favourite sports to play or what do you like doing outside of school?



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Non-participant Interview Guide

Pool Name	
Number of non-participants present for interview	
Age of non-participants	
Gender of non-participant	

1. How often do you come to the pool? E.g. everyday, once a week, etc.?
2. Why didn't you participate in the swimming and games at the pool and eat fruit (swim for fruit program)?
3. What things would make you want to do come to the pool and swim or play water sports?
4. How often do you eat fruit? e.g. everyday, once a week, etc.???
5. Where do you eat fruit? e.g. at home, at school, at the pool, etc.???
6. (If they don't) Why don't you eat fruit? e.g. don't like the taste, don't have any, etc.???
7. What other things do you like to do when you're not at school?
8. What are your favourite sports to play?



Appendix 6: Examples of written announcements

Written announcement 9 February 2017 on Royal Life Saving Society of WA website:

Royal Life Saving

Home News Community Swim for Fruit receives a scholarship boost

Swim for Fruit receives a scholarship boost

9 February 2017

Royal Life Saving Society WA's Inclusion Officer, Jessica Cruickshank was recently awarded the Dr Heather MacGowan OAM Scholarship for a proposal to research our popular Go for 2 and 3 Swim for Fruit program which is conducted across WA's Pilbara region.

Sport and Recreation Minister Mia Davies, who is a Vice Patron for Royal Life Saving Society WA says Ms Cruickshank was chosen for the annual scholarship because the work she proposes to do is vitally important, and will increase water safety awareness for communities where it's most needed.

"Water safety awareness and the ability to swim are central to our Western Australian lifestyle, whether you live on the coast or swim at your local pool," Ms Davies said. "Jessica will receive \$9,600 to research this program and will share her results so all sports in the region can benefit from her work."

Royal Life Saving Society WA delivers the Go for 2 and 3 Swim for Fruit program at seven pools across the Pilbara region, including a number of remote Aboriginal communities. It aims to encourage children aged five to 17 to participate in regular physical activity at the pool by providing participation incentives such as a healthy afternoon tea.

As part of her scholarship work, Ms Cruickshank will travel to the World Conference on Drowning Prevention in Canada to engage with international leaders in the aquatic industry and network and connect her findings to various international organisations.

Written announcement 8 February 2017 in Pilbara News and North West Telegraph, South Hedland:

Pilbara News, Pilbara WA
08 Feb 2017, by Taylor Amonini

General News, page 15 - 165.00 cm²
Regional - circulation 9,930 (-W-)

ID 724963942 BRIEF WATERSAFE INDEX 1

North West Telegraph, South Hedland WA
08 Feb 2017, by Taylor Amonini

General News, page 14 - 205.00 cm²
Regional - circulation 9,930 (-W-)

ID 724970351 BRIEF WATERSAFE INDEX 1 PA1



Sport and Recreation Minister Mia Davies, scholarship recipient Jessica Cruickshank and Royal Life Saving Society WA chief executive Peter Leaversuch. Picture: Gareth Andersen

Scholarship to help water safety lessons prove fruitful

Taylor Amonini

A \$9600 scholarship has been awarded for research in the Pilbara to improve water safety awareness and the popular Swim for Fruit program.

Royal Life Saving Society WA's Jessica Cruickshank was awarded the Dr Heather MacGowan OAM Scholarship last week for her proposal to research the popular swim program

in remote Aboriginal communities. It aims to encourage children aged five-17 to participate in regular physical activity at the pool by providing participation incentives such as a healthy afternoon tea.

"The research I will be doing is an in-depth evaluation of the program in the Pilbara region," Ms Cruickshank said.

"In particular I'll be examining the barriers in participation and effec-

Scholarship to help water safety lessons bear fruit

Taylor Amonini

A \$9600 scholarship has been awarded for research in the Pilbara to improve water safety awareness and the popular Swim for Fruit program.

Royal Life Saving Society WA's Jessica Cruickshank was awarded the Dr Heather MacGowan OAM Scholarship last week for her proposal to research the popular swim program being rolled out in the Pilbara.

The Swim for Fruit program is delivered by RLSSWA in seven pools in the Pilbara region, including a number of remote Aboriginal communities.

It aims to encourage children aged five to 17 to participate in regular physical activity at the pool by providing participation incentives such as a healthy afternoon tea.

Ms Cruickshank said she was honoured to be awarded the scholarship and to have the

support of the Department of Sport and Recreation.

"Dr MacGowan is a life member of the Royal Life Saving Society and it's an absolute honour to continue on her legacy and put the scholarship towards something she was passionate about," she said.

Sport and Recreation Minister Mia Davies said Ms Cruickshank would receive \$9600 to research the Swim for Fruit program and would share her results so all sports in the region could benefit from her work.

"The research I will be doing is an in-depth evaluation of the program in the Pilbara region. In particular I'll be examining the barriers in participation and effectiveness of the program," Ms Cruickshank said.

"I'll be looking at the effect the program has in improving the levels of physical activity, knowledge of healthy eating and swimming skills develop-

ment."

The minister, who is vice-patron for the RLSSWA, said the program would increase water safety awareness in communities where it was most needed.

"Water safety awareness and the ability to swim are central to our WA lifestyle," Ms Davies said. "It's important that everyone can swim and is safe around water."

The program will be rolled out in Newman, Tom Price, Jigalong, Karratha, Wickham, Yandeyarra and Marble Bar.

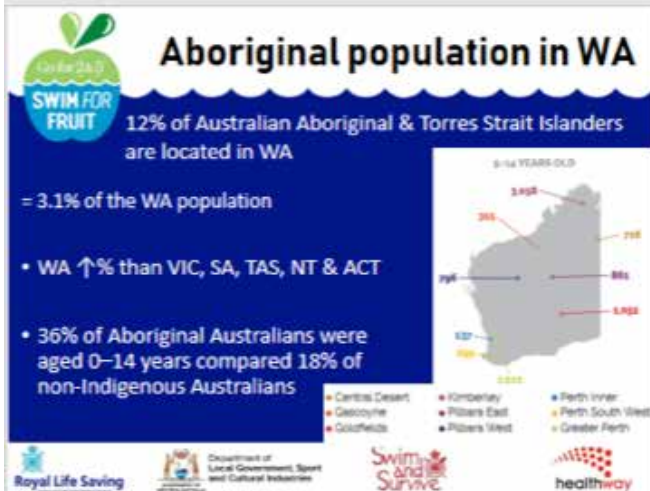




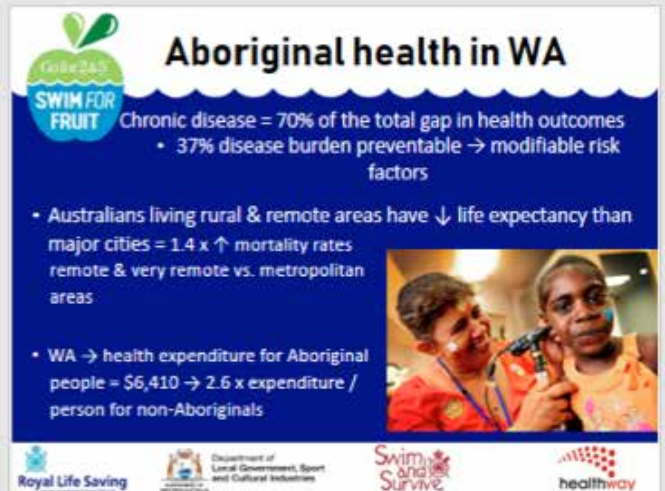
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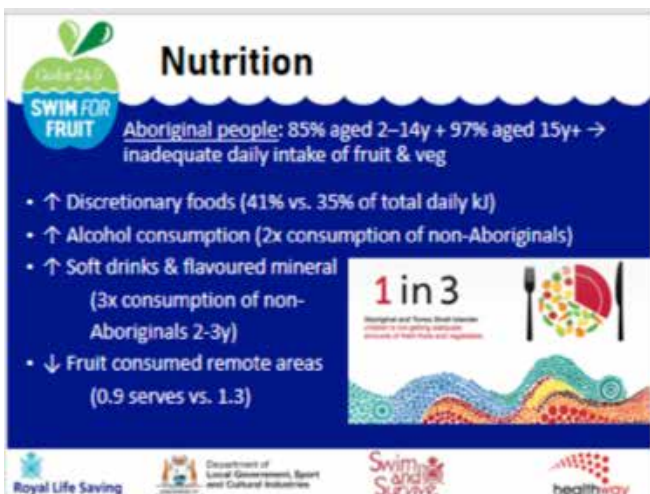
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5




6

Physical Activity

Physical Activity - 5-17 years

- 48% Aboriginal people → non-remote areas undertake sufficient physical activity
- 82% Aboriginal people → remote areas participated - 60 min physical activity
- Physical Activity PRIORITY → Aboriginal Health and Wellbeing Framework 2019-2030

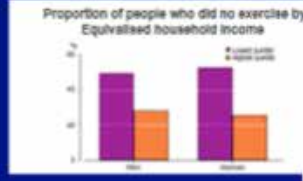
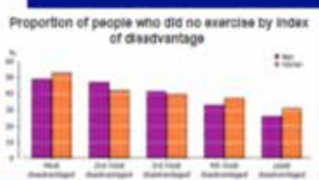


Remoteness	Physically inactive	Average vigorous exercise/week
Major Cities of Australia*	29%	134 minutes
Inner Regional Australia*	46%	116 minutes
Outer regional, remote & very remote*	50%	113 minutes
Overall Australia*	42%	129 minutes

*All ages

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Physical Activity

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Risk factors remoteness

Health risk factors	Major cities	Inner regional	Outer regional/ Remote
Current daily smoker	19%	11%	21%
Overweight or obese	21%	30%	49%
Low/low levels of exercise	64%	80%	72%
Exceed lifetime alcohol risk guideline	10%	10%	23%
High blood pressure	32%	27%	24%

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Australia's health

Figure 4.4.2: Graphical representation of the overlap between selected risk factors for chronic disease, people aged 18 and over, 2011-12



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Sport & Recreation

Sport & Recreation

- 30% Aboriginal people vs. 65% non-Aboriginal participate in sport
- Aboriginal people remote & very remote areas ↓ access to indoor facilities & swimming pools
- ↓ quartile for weekly income = ↓ participation rate (↓ quartile = 45% participation vs. ↑ quartile = 80% participation)



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Drowning

- Aboriginal people 3.6 x ↑ likely to drown than non-Aboriginal Australians
- WA: Aboriginal children 8.6 x ↑ likely → involved in a fatal drowning incident
- 2.6/100,000 Aboriginal vs. 0.3/100,000 Non-Aboriginal children



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Closing the gap

Very complex, requiring comprehensive approach →

- Targeting modifiable risk factors – Nutrition & Physical Activity
- Targeting children - Critical for establishing healthy cognitive & emotional processes.
 - 1st 3y of life - child's brain grows 25% → 90% of its adult size
 - Younger age structure = opportunity to help adopt healthy lives = ↓ gap in long-term health outcomes



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What programs are in WA?

450+ programs in WA specifically for Aboriginal people

Physical Activity:

- AUS: ≈ 240+ programs
- WA: ≈ 50+ targeted → Aboriginal

Nutrition & Food Security:

- AUS: ≈ 60+ programs
- WA: ≈ 17+ targeted → Aboriginal



*Limitation: Very few evaluations of the programs are published, & some not evaluated at all!



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What doesn't work?

Most community based programs for Aboriginal people struggle to be sustained for 5+ years

- Lack of cultural awareness
- Account for community values
- 'Fly in & fly out' delivery of programs - does not lead → meaningful relationships within the community



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What is Swim for Fruit?

Go for 2 & 5 Regional and Remote Aboriginal Communities Swimming Program

Aim: Encourage Aboriginal children to participate in regular physical activity at the pool by providing fruit as an incentive for participation

Where: 6 x remote & 12 x regional in Pilbara region
= 2713 regional & 2477 remote children in 2016-17

What: Children swim laps, participate in water sports, competitions & perform survival skills → Fruit as a reward



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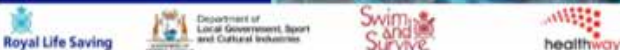


Why is Swim for Fruit needed?

Addresses multiple aspects of factors contributing → poor health:

- Physical activity → prevent heart disease, high blood pressure,
- Nutrition → diabetes, renal disease & symptoms of depression, anxiety and stress
- Food security
- Swimming & water safety → prevent drowning

• Pool Managers have the ability to BUILD meaningful relationships within the community



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Benefits of Swim for Fruit

- ✓ Improved healthy eating by ↑ fruit consumption & ↓ sugar intake
- ✓ Improved swimming skills
- ✓ Improved safety awareness
- ✓ Improved physical activity
- ✓ Improved mental health

Other benefits: ↑ Confidence, fun, play games, teamwork & pride in earning fruit



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What the participants thought

32 x interviewed (28 Aboriginal children)

- Most attended the pool everyday (n=13)
 - Cooling down (n=14)
 - Fruit (n=12)
 - Playing with friends (n=5)
 - Swimming laps (n=5)
- Almost all said they could swim better (n=20)
- Most ate fruit everyday (n=16) & some 3-4 times per week (n=3)
- Fruit consumed at pool (n=24), home (n=22) & school (n=15) **those that said 3-4 times per week only attended the pool 3-4 per week.*




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What non-participants thought

26 x interviewed (22 Aboriginal children)

- Most attended the pool everyday (n=8)
- Reasons for not participating –
 - Hadn't heard of it (n=20)
 - Injury (n=1)
 - Don't like swimming (n=4)
- How to get them to participate – interested (n=9) & nothing (n=5)
- Most ate fruit everyday (n=15), a few times per week (n=2) & never (n=4)
- Fruit consumed at home (n=16) & school (n=8)



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What pool managers thought

- Structured days (n=2) & times vs. flexible approach (n=5) - Laps & sports, survival skills, inflatables or competitions
- Participation: Short-term – weather, community & cultural events & Long-term – Out of town & going to high school
- Advertised:
 - Word of mouth (n=4)
 - pool visitors (n=4)
 - youth groups (n=3)
 - posters (n=3)
 - Facebook (n=3)
- Other comments:
 - ↑ other visitors to the pool (n=3) & worthwhile introducing similar programs (n=5)



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Improvements

- Separate younger & older kids
- Have a bouncy castle?
- Work with schools
- More structure
- Too broad
- More incentives
- Transport
- Funding
- Access to fruit



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22

Recommendations

"Thank you so much for introducing this program. Since the children have been getting fruit their behaviour is better & their manners have improved, & its had a lot of benefits for the community" – Parent from Marble Bar

- Regular programming
- Reward system in place
- Target older children
- Try something different
- Offer wide variety of different fruits
- Unstructured & flexible but have a set start date
- Way to build relationships with aboriginal kids
- Ongoing promotion – widely, not just word of mouth
- Community involvement & link closely with local schools



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What next?

Research outcomes presented as case study for Aboriginal engagement in sport →

RLSSWA → Review Swim for Fruit program delivery methods & seek additional funding for delivery in other locations

"INVESTING TIME & SKILLS IN THE KIDS IS WHERE WE HAVE TO START"



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Thank you to all pool managers running Swim for Fruit!



Special thank you for participating in the evaluation—

- David Lucas (Jigalong)
- David Clarke (Marble Bar)
- John Beard & Andrew Price (Onslow)
- Matthew Parsons (Roebourne)
- Jen Aberle (Tom Price)
- Ben Mullane (Wickham)
- Sandra McKenzie (Yandeyarra)



Suggested citation

Ridge, A., & Nimmo, L. (2018). Swim for Fruit Evaluation. Western Australia: Royal Life Saving Society of Western Australia.



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