

NANCY EDWARDS, EDITOR
SUSAN ROELOFS, ASSISTANT EDITOR

DEVELOPING A PROGRAM OF RESEARCH

An Essential Process for
a Successful Research Career

CHNET PRESS

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Australia's University of Newcastle's Interdisciplinary, Priority Research Centre for Physical Activity and Nutrition

Our Ten-Year Journey

**RONALD PLOTNIKOFF, CLARE COLLINS,
PHILIP MORGAN, MANOHAR GARG,
ROBIN CALLISTER, DAVID LUBANS,
AND NATASHA WHYTE**

Overview

Our Priority Research Centre for Physical Activity and Nutrition (PRC-PAN) takes a comprehensive and interdisciplinary approach to understanding physical activity and nutrition in relation to population health, with particular emphasis on education and health promotion strategies. The Centre aims to examine health promotion across the lifespan, by targeting general and “at risk” populations, across multiple levels (individual, social, organizational, population), and within various settings (schools, clinics, workplaces, communities). Research and training activities cover the spectrum of measurement, theory development, intervention building and testing, and dissemination. This chapter describes our ten-year journey in establishing a successful research centre.

Background

I (Ron Plotnikoff) completed my graduate work at the University of Newcastle in 1994 and then spent fifteen years in Canada (Universities of Ottawa and Alberta). I was recruited back to Newcastle in 2009 as Chair in Physical Activity and Population Health Education and to establish and direct a research centre in physical activity within the Faculty of Education and Arts. We (Plotnikoff, Philip Morgan, and David Lubans) were successful in receiving faculty-level funding for this initiative.

The University of Newcastle had growing research programs in physical activity and nutrition research across three faculties: (1) Education and Arts, (2) Health and Medicine, and (3) Science and Information Technology. The research areas included: education and health promotion in relation to physical activity and nutrition; clinical nutrition, nutrition and dietetics; dietary methodology, nutritional epidemiology, investigations into the role of dietary supplements and functional foods; objective measures of nutritional status; physical activity interventions; exercise physiology; and impact of nutrition and physical activity interventions on disease outcomes, including obesity, respiratory diseases (asthma, chronic obstructive pulmonary disease), cardiovascular disease, diabetes, arthritis, cancer, and brain disorders across various contexts and settings, including schools.

In 2010, six leading researchers (our Theme Leads listed below) developed a proposal for a Priority Research Centre for Physical Activity and Nutrition. We argued that this centre would place the University of Newcastle in an enviable position to offer unique interdisciplinary expertise and leadership by galvanizing educationalists, dietitians, nutritionists, biochemists, exercise physiologists, food scientists, public health researchers, and behavioural scientists, to combat the chronic-disease epidemic and related disease burden, thereby improving the health and quality of life of Australians. Such a centre would be one of Australia's first interdisciplinary research centres for both physical activity and nutrition. The intent of the Priority Research Centre was to build significant capacity aligned to the national and university's strategic directions in research, research training, and community partnerships. Our public health rationale for a Priority Research Centre included a number of core arguments outlined in table 13.1.

Table 13.1 Core Arguments Presented for the Need for a Priority Research Centre

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- Strong evidence from numerous prospective studies linking physical inactivity and poor nutrition with premature death and a growing number of chronic conditions.
-
- A graded linear relation between physical activity, diet quality, nutritional status, and overall health status.
-
- The prevalence of inactivity and poor nutrition is a major public health concern, which is amplified in disadvantaged populations.
-
- Despite the health benefits documented in physical activity and nutrition trials and through public health initiatives, a significant proportion of our population do not achieve public health guidelines for physical activity and healthy eating.
-
- Over the last twenty years, obesity rates have tripled in countries adopting a western lifestyle, with decreased physical activity and increased dietary intake as major contributing factors. Obesity is a major cause of preventable death in Australia, costing Australian society and governments billions of dollars per year.
-
- To successfully combat this epidemic, clinicians and health care systems require feasible, effective, and evidence-based treatment options that can be provided to large numbers of people.
-
- Reasons for the current status of, and trends related to, physical inactivity, poor nutrition, and obesity are complex and multi-factored, but can be explained in large part by: (1) modest efficacy of current prevention and treatment strategies, and (2) the fact that few interventions are scaled-up or disseminated.
-

We concluded our rationale by stating that the promotion of healthy lifestyles and prevention and treatment of obesity are clearly national concerns, as indicated by calls for input and action across Australia's most senior sectors of government, academia, and public health agencies. We also explained that our proposed Priority Research Centre would address one of the four national research priorities of the Australian federal government: Promoting and Maintaining Good Health. This national research priority is focused on promoting good health and well-being for all Australians. The priority goals include:

- a healthy start to life;
- aging well, aging productively;
- preventive health care; and
- strengthening Australia's social and economic fabric.

We noted that the national Crawford Report (Independent Sport Panel, 2009) included a major recommendation to focus on the nation's fitness and participation in activity, including a focus on physical education within our schools.

We indicated that the Centre would also align with the National Health and Medical Research Council's strategic plan, which listed obesity as a major focus of its funding, and noted that the Department of Health and Ageing had recently announced major funding towards fostering healthy lifestyles and obesity reduction, with AUD \$72 million over four years and a linked national Quality Assurance Program, to support the initiative.

We also argued that the Priority Research Centre could act as a service provider for university employees in the promotion of healthy lifestyle behaviour change in physical activity and nutrition, contributing to the safe and healthy university goals and strategies set out in the NeW Futures plan of the university.

Our bid in 2010 for a university-supported, interdisciplinary centre was successful in the university's Priority Research competitive scheme, which provides infrastructure funding for highly selected centres within the university. Our internal and external peer reviewed proposal for a centre combining physical activity and nutrition across the entire university received very strong support from the university's senior administration (e.g., Deputy-Vice Chancellor-Research, Pro-Vice Chancellor of Education and Arts, Pro-Vice Chancellor of Health and Medicine, and Director of the Hunter Medical Research Institute, which is a partnership between the regional health authority and the university and facilitates collaborations between researchers to translate scientific advances into better clinical care). The Centre was successfully funded for five years, from 2011 to 2015, and was then renewed for another five years (2016 to 2020) after another application was awarded based on internal and external peer review and recommendation.

Priority Research Centre for Physical Activity and Nutrition Research Program

Our vision was to be recognized as an international leader in physical activity and nutrition research, training, and dissemination, with a unique focus on population health and education. The Centre's mission is to improve Australians' health and quality of life through evidence-based education and promotion of physical activity and nutrition, by advancing scientific

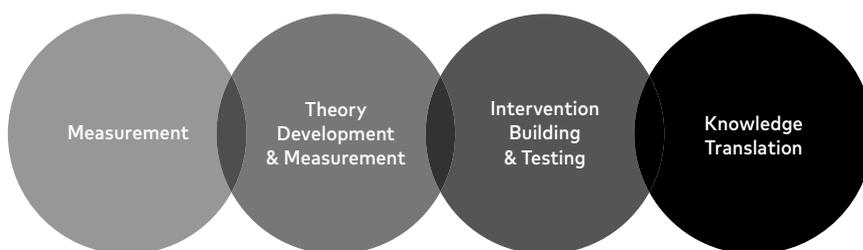
understanding of the interrelationships among its biological, psychosocial, behavioural, and environmental aspects.

The primary aim of the Priority Research Centre is to achieve high-quality research, training, and knowledge translation in the development and testing of efficacious and effective, theory-driven, multi-level, population-based physical activity and nutrition-related interventions (and natural experiments) that can ultimately be used and sustained in practice.

Distinctive Aspects

Our Priority Research Centre takes a comprehensive and interdisciplinary approach to understanding physical activity and nutrition for population health, with particular emphasis on education and health promotion strategies for chronic disease prevention, treatment, and well-being. The Centre aims to examine these interrelationships across the lifespan, by targeting “at risk” and general population groups, at multiple levels (individual, social, organizational, population) and within various settings (schools, clinics, workplaces, communities). We chose four research dimensions and presented these in a framework (see figure 13.1) showing that they were interrelated on a continuum. Research and training activities cover the spectrum of theory development and measurement, intervention building and testing, and knowledge transfer. Our group had expertise across all dimensions of this framework.

Figure 13.1 Research Framework for the Priority Research Centre for Physical Activity and Nutrition



RESEARCH FRAMEWORK

Target Populations: Children, Youth, Men, Women, Indigenous Groups, Families, Individuals with Obesity, and Adults with Cardiovascular Disease, Type 2 Diabetics, Cancer Groups, Low Socio-Economic Status, and General Population.

Levels: Individual, Social, Organisational, Community, Policy, and Physical Environments.

Settings: Schools, Medical Clinics, Workplaces, and Communities.

We also identified six interrelated research themes for our Centre:

1. Physical Activity and Population Health

Professor Ronald Plotnikoff (Lead)—The research conducted by members of the Physical Activity and Population Health theme takes a comprehensive and interdisciplinary approach to understanding physical activity and population health, with particular emphasis on education and health promotion strategies for chronic disease prevention, treatment, and well-being.

2. Nutrition and Dietetics

Professor Clare Collins (Lead)—The research conducted by members of the Nutrition and Dietetics theme examines the contribution of diet, eating patterns (including the development and evaluation of new dietary assessment methods), and nutritional status to health and disease outcomes across various life stages, from childhood to pregnancy and older ages, and across medical conditions including heart disease and diabetes, with a strong focus on using new technologies.

3. Obesity

Professor Philip Morgan (Lead)—This theme focuses on developing and testing innovative lifestyle programs to prevent or treat obesity. Importantly, programs are designed and delivered to appeal to specific population subgroups (men, women, fathers, mothers, and children) in different settings (schools, communities, and workplaces).

4. Clinical and Experimental Nutrition

Professor Manohar Garg (Lead)—The research conducted by members of the Clinical and Experimental Nutrition theme goes beyond normal nutrition and examines the role (efficacy and safety) of dietary supplements and fortified foods in weight loss and maintenance, diabetes, asthma, mental health, heart disease, and physical activity.

5. Exercise Sciences

Professor Robin Callister (Lead)—The research conducted by members of the Exercise Sciences theme investigates the role of exercise in the prevention and treatment of many diseases, including diabetes, asthma, mental health, obesity, stroke, and other cardiovascular disease.

6. Physical Activity and Nutrition in Schools

Professor David Lubans (Lead)—The research conducted by members of the Physical Activity and Nutrition in Schools theme is primarily concerned with the development, evaluation, and dissemination of school-based physical activity and nutrition interventions.

Across these themes, we planned to address: chronic disease (cardiovascular disease, diabetes, and cancer), determinants of health, mental and social health, Indigenous populations, workplace, the built environment, public health policy, surveillance, dissemination, and knowledge translation. Notably, education and health promotion strategies are embedded in Themes 1, 2, 3, and 6. To enhance knowledge translation, partnering with stakeholders through all research facets of our projects was also emphasized.

Structure, Governance, and Members of the Centre

The Centre is co-supported by the Faculty of Education and Arts and the Faculty of Health and Medicine. The Centre currently has a membership of over fifty University of Newcastle researchers (ten principal and forty associate researchers) across four faculties of the university, and over fifty PhD candidates. Our work primarily falls into the following Australian Fields of Research domains: Human Movement and Sports Science, Nutrition and Dietetics, Public Health, and Health Education and Promotion.

The six themes provide the underlying structure of the Priority Research Centre, which has been an effective structure from the onset of the Centre. Each theme has a theme leader (at professorial level), from which the director and deputy directors are chosen (leadership team). In 2016, we added six deputy theme leaders (one per theme) to foster the leadership skills of our early-career researchers and mid-career researchers and to increase their inputs into each theme's research direction.

Membership for each theme comprises:

- the listed theme leader
- other theme leaders from the six listed themes
- other listed investigators
- listed associate researchers (mid- and early-career researchers)
- post-doctoral fellows
- PhD candidates

Theme leads are responsible for monitoring progress of their theme, executing processes developed by the Research Management Committee, fostering collaboration and integration of researchers, and developing collaborative research funding proposals. The themes also foster increased cross-collaboration, cross-mentoring, and cross-fertilization of research ideas throughout the Centre. The theme groups report to the Research Management Committee via the theme leader.

Terms of reference for the Research Management Committee stipulate that it is responsible for ensuring that the Centre achieves its vision and objectives within defined timelines. The six listed theme leaders (including the director and two deputy directors who are also theme leads) and the Centre coordinator make up the Research Management Committee. In an effort to further build leadership capacity, we added junior Centre members who are deputy theme leads as committee members in 2016. The Research Management Committee oversees and allocates the Centre's budget, advises on research directions, monitors progress of each research theme, identifies sources of project and infrastructure funding, monitors coordination and resourcing across research areas, develops processes for enhancing the quality of grant submissions (including peer review and support processes to maximize submission quality), and develops processes for fostering new local, national, and international collaborations. The committee also oversees all operational aspects of the Centre's work. This includes: recruitment and scholarship applications of post-doctoral fellows and PhD students; submissions of funding applications; development of early-career researchers' research and core competency goals; and planning of research symposia, meetings, and research dissemination strategies. The Research Management Committee meets every two months, or more frequently when required.

We also have an external advisory board, which meets annually to provide strategic direction to the Centre. The advisory board initially comprised a large group of individuals, including representatives from industry, government agencies, and academia, ex-officio members from the university, and the director and deputy directors of the Centre. Over the years, we have made the advisory board more focused; it now comprises a smaller group of individuals, which makes the organization of meetings more manageable. Our external board provides input on and advocates for a clear strategic direction for the Centre.

In addition to the existing six themes and research framework described above, in 2017 we established Six Pillars as part of an overarching and underpinning capacity-building group. Importantly, these pillars (outlined in table 13.2) are based on operationalizing the university's 2017

NeW Futures strategic plan within the context of the Priority Research Centre's vision (University of Newcastle, n.d.).

Table 13.2 The Priority Research Centre's Six Pillars for Capacity Building

Dimension	Definition	Examples of Strategies
Impact	Research making a difference in disciplines and society, and dissemination of research	Grant writing seminars and workshops Access sites to Centre publications Workshops for writing policy briefs from our research Examining ways to increase followers on the Centre's Twitter feed, Centre newsletters Logos and branding
Internationalization	Fostering international collaborations including visiting fellows, students, and interns	Strategies to improve international visitors' experiences such as assistance with visas and an accommodation and visitor's guide
Sustainability	Capacity building, high-quality training and mentoring, succession planning, ongoing research excellence, sustainable funding, and self-reliance	Workshops and seminars delivered to PhDs and staff Survey of career needs Theme exchange of staff and students for cross- and up-skilling
Equity/Social Justice	Equitable participation and access to support and resources for all Centre members Research that recognizes and addresses social inequities, and targets vulnerable minority groups	Survey of staff to identify research conducted by the Centre addressing equity and diversity Equity policies in place for meetings and forums
Innovation and Interdisciplinarity	Novel, world-class, and interdisciplinary research and engagement	Journal club meetings Innovation awards Analysis of cross-theme collaboration Tracking of the Centre's interdisciplinary publications and successful grants
Community Engagement	Engaging with stakeholders, giving back to the public	Community forums, Centre research volunteer registry Displays and activities at university and Hunter Medical Research Institute community open days

Financial Support and Allocation

An annual base budget is essential for the work of our Centre. It is important to explicitly demonstrate how the Priority Research Centre addresses the University of Newcastle's strategic directions (University of Newcastle, 2013), as the university provides our base funding. The Centre receives annual base funding to the sum of approximately AUD \$400,000. This pool of funds comes from various university sources, including annual operating budgets from: (1) the central research office; (2) the Faculty of Education and Arts and the Faculty of Medicine and Public Health; and (3) the Hunter Medical Research Institute's Cardiovascular Program. In addition, Priority Research Centres have priority access to internal funding schemes provided by the University of Newcastle, such as visiting fellowships, graduate scholarships, and post-doctoral fellowships.

The allocation of funds within the Centre has changed over the years. During the Centre's first few years, funds were dispersed across a number of areas, including Centre management (i.e., Centre manager salary, an annual research symposium and retreat); salary expenses for post-doctoral fellows, early- and mid-career research support (i.e., travel-related expenses to attend national or international conferences); and project seed funding and other competitive strategies, as well as base funds for each of the six themes.

The allocation of funds has changed as the needs of the Centre have evolved and as the Centre has become more successful in receiving external grant funding. These external grant funds include budgetary items such as PhD and post-doctoral awards, and research assistant and project manager positions. As a result, the base funding allocations have been modified accordingly. However, every year four key areas still remain a priority within these allocations: (1) the Centre co-ordinator's salary; (2) theme-led base funding allocation (equally distributed across the six themes); (3) a small allocation to support the Centre's early- and mid-career researchers; and (4) a portion for the Priority Research Centre director's discretionary fund, to be spent on such things as strategic initiatives and an annual retreat.

More recently, a fifth infrastructure support component has been included in the yearly allocation to cover the yearly maintenance costs of key Centre-related pieces of equipment (e.g., a dexta machine, to measure body composition) as well as yearly subscription fees for research-related software (e.g., Qualtrics survey software).

Through the support of the university, each member of each theme is required and encouraged to apply for competitive external grant funding schemes to major national and international bodies. We have been

successful in receiving funding from the National Health and Medical Research Council of Australia, the Australian Research Council, and the Bill and Melinda Gates Foundation, as well as other public sector, industry, and philanthropic sources.

In 2017, the Centre received an annual base funding of just over AUD \$350,000, whereas the amount received in successful research funding over the same year was over AUD \$8.9 million. This substantially exceeded the goal placed on the Priority Research Centres by the university of a four-to-one funding ratio (four external dollars secured for every dollar of internal funding provided to the Centre by the university).

Building Leadership and Succession Planning for the Centre

It is very important to build leadership capacity among researchers. A research centre such as ours is well placed to proactively do so. This leadership capacity is critical to ensure that the existing strengths in a field of research continue to grow and develop, and that succession planning is under way. We have deliberately built leadership capacity through mentorship, by creating incremental leadership roles that are reflected in our governance structure, and through a range of engagement opportunities for researchers at different career stages.

Our Centre has been successful in fostering the careers of both early- and mid-career researchers. For example, one of the deputy directors (Philip Morgan) and one of the theme leads (David Lubans), who are now full professors, were initially early-career researchers when the Centre began. Additionally, Professors Clare Collins (National Health and Medical Research Council Senior Research Fellow) and David Lubans (Australian Research Council, Future Fellow) have been awarded highly competitive national fellowships. Experience in these senior research positions helps provide the succession for future leadership of the Centre.

Our Centre is training high-calibre PhD graduates who are gaining opportunities to progress their careers locally and overseas. Some of these individuals have remained with our research centre, while others have relocated to other universities in Australia or elsewhere. Links to other academic centres are important not only for career development but also to extend links between our Centre and other institutions. For example, Melinda Hutchesson and Myles Young (who both completed their PhDs and post-doctoral fellowships at the Centre) were awarded research fellowships by the Heart Foundation of Australia. Both are currently deputy theme leaders within the Centre. A number of our PhD graduates have completed post-doctoral fellowships in the USA and Europe. These and

other previous PhD graduates and post-doctoral fellows who have garnered academic positions in Australian universities are still linked to and collaborating with the Centre. As will be discussed in the next section, these collaborative links provide the necessary base for replicating our research studies and scaling-up our interventions, two areas that have become an essential thrust of our work.

Our Centre's PhD training success is due to the high quality and collaborative supervisory skills of our theme leaders. For example, Clare Collins, Manohar Garg, Philip Morgan, Robin Callister, and David Lubans have all received faculty and/or university Research Higher Degree candidate supervision awards. In addition to recruiting post-doctoral fellows from other national and international universities, whenever financially possible, we also create post-doctoral positions within the Centre to provide opportunities for our PhD students' training and development in their early years. Seven of the Centre's recent PhD graduates have been funded on two- to three-year post-doctoral fellowship schemes.

The Six Pillar co-leads are all early- to mid-career researchers; they are given responsibility to lead the future direction of the Centre under the supervision of the theme leaders. This mentoring model provides the opportunity for the junior members of the Centre to take on senior leadership roles now and in the future, supporting their career progression.

Our Priority Research Centre group also attracts highly successful early- and mid-career researchers from other universities to increase our capabilities and capacity. For example, Mitch Duncan transferred his Heart Foundation of Australia Fellowship from another university to the University of Newcastle, bringing with him new expertise in sleep behaviours and physical activity. Tamara Bucher, who held two highly competitive Swiss nutrition fellowships from the Consumer Science and Food Behaviour Unit at the Swiss Federal Institute of Technology in Zurich, Switzerland, now holds a post-doctoral research fellow appointment in our School of Health Sciences, Faculty of Health and Medicine.

Training of PhDs and Post-Doctoral Fellows

Although there is flexibility with work schedules, our trainees are expected to be fully committed to their research training. It was important to establish this expectation from the Centre's onset, and many years later this is still the "normative culture." The Centre has both a PhD and a post-doctoral fellowship office, with academic and research staff directly nearby in the same location.

Each PhD student has one primary supervisor and two to three co-supervisors, normally comprising a combination of the Centre's theme leads, with post-doctoral fellows and junior academics assisting in the mentoring and supervision process to build their supervisory experience. Most students complete their thesis by publication (series of published papers), which is mutually beneficial for the student, academic staff, and the university. Many of the thesis topics are interdisciplinary in nature.

PhD students and post-doctoral fellows are also provided ample opportunities to co-author papers and grant applications, including opportunities to work at other centres across the university, throughout the country, or internationally for a few weeks or months to gain relevant experience. Our Centre also has a formal supportive education group for our PhD students and post-doctoral fellows, which is led by one of the Centre's mid-career investigators (Mitch Duncan). This group is one way we are operationalizing a key pillar strategy (sustainability) by providing assistance with developing funding applications and internal review. The group also conducts a regular seminar series, allowing trainees to present and get timely feedback on their work.

The Centre provides a host of other support structures for this group, such as: seed funding for pilot studies, administrative support, access to the Centre's principal investigators, visiting scholars, research forums and retreats, seminars, and targeted workshops. These help equip trainees with critical skills for future employment that complement skills they require to complete their PhD. A unique aspect of our Centre is the ongoing partnership with the New South Wales Department of Education whereby a number of our PhD students have received funding from the department to disseminate successful interventions through the delivery of professional learning workshops for teachers in New South Wales schools.

Of note, our Centre also hosts undergraduate and postgraduate trainees from a number of European and North American universities, enriching the Centre's training environment. A Dual Award PhD initiative with Wageningen University, the Netherlands, is another example of a formal mechanism for graduate training that fosters linkages between academic research units.

Fostering Collegiality and a Supportive Environment

We (theme leads) attempt to lead by example in a number of ways. In line with the university's strategic direction, values, and beliefs, the Centre

provides a positive and vibrant environment whereby staff, students, and visitors are encouraged and provided with opportunities to create a healthy work-life balance. For example, we provide flexible working hours to allow members to juggle personal and family commitments, such as dropping off and collecting children at school or daycare and attending school-related events, and being physically active. In addition, we encourage and provide a supportive cultural environment for the variety of students and researchers who visit the Centre from around the world. We role-model healthy eating and incorporate physical activity in fun and creative ways during the workday, including walking and standing meetings, as well as in our social celebrations. The Centre runs staff forums every two months for all Centre members (staff and students) to celebrate our successes, share information, and provide another opportunity for collaboration and networking. A bell is rung for informal stop-work catch-ups for work- or personal-related announcements. Everyone drops what they are doing for a few minutes to hear the news and updates. This incorporates a stretch break away from desks and computers, and provides an opportunity for informal interaction amongst the themes. This is one of the benefits of having most of the Centre members in close proximity under one roof. We also provide Centre apparel (e.g., shirts and jackets) with a Centre logo to provide a sense of professionalism, identification, and team unity.

The theme leads extend an open door policy to members of the Centre and encourage and provide opportunities for their staff's and students' professional development through collaboration on grants and publications, attendance at national and international conferences, and taking relevant courses provided to the university's staff and researchers.

How the Research Program Has Evolved

Over the past decade, there has been a significant shift towards knowledge translation and implementation science for scaled-up lifestyle health interventions. Our external funding models (via the health and education sectors) have been driving this important and needed change. A core feature of our Centre's research projects involves partnering with government, industry, and community organizations. We have been successful in receiving research and partnership funding grants for the replication and dissemination, and broader scale-up, of a number of our published efficacy intervention trials. For example:

- Healthy Dads, Healthy Kids is a world-first program aimed at engaging fathers in positive lifestyle role modelling and effective parenting strategies to improve the physical activity and dietary behaviours of both themselves and their children. Healthy Dads, Healthy Kids started as a pilot program at the University of Newcastle (2008), progressed to a community-based trial (2010–11), and then transitioned to community scale-up (2014). Since 2009, Healthy Dads, Healthy Kids has engaged five hundred families, including over nine hundred kids. More than thirty community forums and conferences have been conducted; ten facilitators and five community managers have been appointed and trained to deliver the program in their communities. In 2015, Healthy Dads, Healthy Kids was successful in an application to the UK National Institute for Health Research for a cultural adaptation in Birmingham, with the University of Birmingham and the UK Fatherhood Institute in London. In 2016, Healthy Dads, Healthy Kids received funding from the National Heart, Lung, and Blood Institute Planning Grant with Baylor College of Medicine to adapt the program to a Latino population in Texas. This program is also being adapted in Belgium and in a trial with fathers in Scottish prisons.
- Professor David Lubans and his research team are transforming the delivery of physical activity in Australian schools. For example, the iPLAY (Internet-based Professional Learning to help teachers support Activity in Youth) intervention is now being disseminated in more than a hundred elementary schools. Another example is the Resistance Training for Teens program, which has been designed to improve adolescents' muscular fitness and provide them with the knowledge, motivation, and skills to engage in a range of lifelong physical activities. The Australian Research Council and the New South Wales Department of Education provided funding to develop, evaluate, and disseminate the intervention in the state's secondary schools. To date, more than 352 teachers from 190 secondary schools have received training to deliver the Resistance Training for Teens program.
- Led by Professor Collins, the Healthy Eating Quiz™ (HEQ) is a brief, freely available, online dietary self-assessment tool. The HEQ™ translates an extensively validated diet quality index, the Australian Recommended Food Score developed by the Nutrition and Dietetics theme, into a community resource. The Australian Recommended Food Score provides the research that informs the HEQ™. First launched in 2012 with support from the University of Newcastle commercialization arm, Newcastle

Innovation, over 300,000 individuals have completed the HEQ™, and it has been linked as a tool within many of our project websites as well as endorsed and hosted by other professional organization websites, such as the Dietitians' Association of Australia. These activities led to success in a multi-year partnership grant with a major regional health insurance foundation to further develop it as a nutrition resource for the community.

- Led by Professor Garg, the InsuTAG™ is a novel, physiologically relevant predictor of insulin resistance and metabolic syndrome that has attracted worldwide attention. Further utility of InsuTAG™ as a predictor of type 2 diabetes has been validated using the AusDiabetes database, involving over eleven thousand participants. An InsuTAG™ mobile app and medical device, using a blood sample from a finger prick, are currently under development as well.
- Led by Professor Callister, an individualized home- and community-based exercise program for people who have had a stroke led to improvements in walking endurance and cardio-respiratory fitness. These improvements may contribute to the prevention of second strokes and other cardiovascular events. The local area health service is now determining how it can adapt the program for implementation by its community stroke team.
- Led by Professors Plotnikoff and Lubans, eCoFit is a successful, innovative, multi-component intervention that integrates smartphone technology, social support, and the outdoor physical environment (outdoor gyms and trails) to promote physical activity. We have partnered with regional councils that are currently installing outdoor gym equipment and fitness trails. We have received a National Health and Medical Research Council partnership grant to replicate and disseminate the eCoFit program across the regional communities.

Monitoring and Evaluating Progress and Impact

Each year, we produce a detailed annual report, which serves a number of purposes. It provides an opportunity to review the year with senior administration at our annual meeting; to monitor our progress against that of other centres at the university; to explore renewal of internal funding; to review and update the targets for our Centre at our Research Management Committee's meetings and annual retreats; and to disseminate our achievements to the broader community.

We set annual performance targets and use corresponding metrics to indicate how well we have done in meeting these targets in our annual reports (see table 13.3 for some of our 2017 indicators and achievements). Each year we aim to increase (by at least 10 percent) our external research income, salary awards, publications, and PhD and post-doctoral fellowship completions. Furthermore, theme leads present at least one national or international academic conference paper per year and make at least one oral or written (e.g., newsletter article) presentation to partner, practice, or stakeholder groups per year. We also aim to secure a National Health and Medical Research Council Centre of Excellence by 2019. In recent years, we have emphasized reporting on the quality of our research and on its impact and translation outcomes, using metrics for publication citations, media Altmetrics, and policy changes.

The country's Excellence for Research in Australia evaluation, which is based on external funding, PhD completions, and the quality and quantity of publications, is conducted every few years and is a source of esteem for universities that attain in the highest possible category a score of 5, which is regarded as "well above world standard." The Centre's research was the major contributor to the university receiving ratings of 5 in the 2012 Excellence scores for both the Human Movement and Sport Sciences and Nutrition and Dietetics field of research codes. It is worth noting that in 2014 we were the only regional university to achieve these 5 ratings for both these codes of research, and one of only two universities in all of Australia. We also received scores of 5 for both fields in 2016.

Table 13.3 The Priority Research Centre for Physical Activity and Nutrition 2017 Annual Report Highlights

Indicators	Achievements (examples)
Research Funding	39 externally funded grants awarded/commenced with 9 x Category 1 grants (including 8 National Health and Medical Research Council), 7 x Category 2 grants, and 23 x Category 3 grants (over AUD \$8.9 million in total)
Peer Reviewed Journal Publications	141 unique journal articles [co-]authored by our 10 Named Research Investigators
PhD Completions	9 PhD completions supervised by our 10 Named Research Investigators

Indicators	Achievements (examples)
Supervision	Over 50 current PhD students being supervised by our 10 Named Research Investigators
Collaborations	11 public seminars hosted with international collaborators
Innovation/ Commercialization	<p>Professor Manohar Garg's group invented a novel surrogate marker for Metabolic Syndrome and Insulin Resistance called InsuTAG, which was trademarked and registered in 2017.</p> <p>Development and testing of new portion-sized estimation tools that have been trademarked: ServAR and IFU, led by Professor Clare Collins, Dr. Megan Rollo, and Dr. Tamara Bucher.</p> <p>The Centre's first Massive Open Online Course commenced in 2017: The Science of Weight Loss (led by Professor Clare Collins and Associate Professor Tracy Burrows), which enrolled over 45,000 people from 181 countries.</p>
Academic Promotions	4 Centre female researchers were promoted to senior lecturer or associate professor.
Major Academic Awards	<p>Professor Clare Collins: Senior Researcher of the Year Award, Hunter Medical Research Institute</p> <p>Professor David Lubans: Mid-Career Researcher of the Year Award (Hunter Medical Research Institute)</p>
Visiting International Academics and Interns	The Centre hosted 13 international visiting academics from the USA, Canada, the Netherlands, Denmark, Slovenia, and Hong Kong, including 11 public seminars/presentations delivered by international academics. In addition, the Centre hosted 11 international interns at the Centre, from the USA, the Netherlands, and Belgium.
Collaboration with Leading Universities	The Centre is currently collaborating with 11 universities in the top 200 globally.

Note *examples of impact and translation achievements are contained in the above section.*

Challenges and Future Opportunities for Sustainability and Growth

One of our biggest challenges is space, a common problem in universities. With our successful targeted growth rates, we have now outgrown our space and are looking for new premises where we can continue to be co-located. An important factor contributing to our Centre's interdisciplinary successes and our collegial normative culture has been the co-location of our primary team. In our experience, being in the same physical location is paramount for successful interdisciplinary research, but this does become challenging with the rapid growth of a research centre.

Our Centre continues to grow each year in terms of research and training outcomes. We are currently exceeding a 10 percent annual target growth rate, which can become a risk if adequate infrastructure is not put in place. Our approach to alleviating this potential concern is providing post-doctoral fellows and junior academics with opportunities for leadership roles as part of the Centre structure, pillar initiative, and governance. This is also mutually beneficial, in that these individuals are gaining invaluable experience that will help shape their career pathways as they are mentored by senior Centre researchers; while having them take on such roles helps alleviate the work volume of the theme leaders, who are working to capacity.

We strive to attain a balanced mix of gender, career levels, and disciplines among our core investigators by capitalizing on university and external gender and early-career schemes. Fifty percent of our ten current investigators have also secured salary awards. A number of these external awards augment existing university appointments. This provides a further mechanism by which to leverage additional post-doctoral fellows to build the research capacity of the Centre.

We continue to seek and apply for all types of research funding, publish in the top quartile of field-specific journals, and have our PhD students complete on time (i.e., within 3.5 years). However, successfully competing for external funding at times feels like a lottery. Patience and perseverance are required. The collegiality, mutual support, and mentorship provided through a research centre can help researchers bounce back when grant submissions are not successful.

Lessons Learned

There is no formula for building a successful research centre. However, we think a number of factors have contributed to our successes. In no particular order, these include the following:

1. Garnering strong support from university senior administrators and external stakeholders for the strategic directions of the research centre. As administrators and partners change over time, this support must not be taken for granted, but rather be reinforced and renewed.
 2. Building strong regional community engagement and partnerships for scale-up of our interventions.
 3. Having faculty, staff, and trainees located under the same roof, in one physical premises. The benefits of co-location will be realized by putting mechanisms in place for effective communication among all staff and trainees.
 4. Applying for external research funding, and ensuring that expectations for the research centre's members regarding grant submissions are explicit. However, it is important to recognize and plan for the unpredictable ebbs and flows in external funding. Having core funds and an annual base budget will ease the troughs in external funding that are bound to occur.
 5. Mentoring the next generation of researchers and providing skills for career progression. This is essential to advance a field of research and is an element of succession planning for the leadership of a research centre.
 6. Setting the norms for a collegial, committed, and positive work ethic so as to create an environment where people are excited to come to work. It is also important to celebrate the successes (both personal and work-related) of those in the Centre.
 7. Effectively utilising the media (including social media) and branding recognition (e.g., a Centre logo, Centre apparel) to enhance collegiality and recruitment.
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Conclusion

Given the high prevalence of physical inactivity and poor diet in our population, it is safe to say that research into physical activity and nutrition will be required for decades to come. We have found that a research centre with base funding can substantially advance work in this field. It takes an aligned vision, targeted implementation strategies, and deliberate attention to the workplace culture to achieve the potential of a research centre.

References

- Independent Sport Panel. (2009). *The future of sport in Australia* (The Crawford Review). Australia: Government of Australia. Retrieved from <http://apo.org.au/system/files/19766/apo-nid19766-38741.pdf>
- University of Newcastle. (2013). *NeW Futures strategic plan 2016–2025*. Retrieved from <https://www.newcastle.edu.au/about-uon/our-university/vision-and-strategic-direction/new-futures-strategic-plan-2016-2025>
- University of Newcastle. (n.d.). Priority Research Centre for Physical Activity and Nutrition. Retrieved June 18, 2018, from <https://www.newcastle.edu.au/research-and-innovation/centre/cpan/about-us>

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Abbreviations

IDRC	International Development Research Centre
CIHR	Canadian Institutes of Health Research
HIV/AIDS	HIV and AIDS. Human immunodeficiency virus and acquired immunodeficiency syndrome
NGO	Non-governmental organization
PhD	Doctor of Philosophy
UK	United Kingdom
US	United States
UNICEF	United Nations Children's Fund
WHO	World Health Organization