The project is following a rigorous clinical redesign methodology provided by the NSW Health Agency for Clinical Innovation, which engages executives, clinicians and patients in a thorough redesign framework. Phases of this methodology are: initiation, diagnostics (assessment of current processes and issues), solution design, implementation and evaluation. Preliminary results (focus groups, interviews) show that staff are very keen to tackle this issue but are disillusioned by several barriers to providing effective treatment: their time, supporting resources and patient family characteristics (such as motivation). Patients report frustration with the accessibility of services and consistency of information delivery. Further data collection is underway.

Redesigning the delivery of weight management services in close consultation with staff and patients ensures that a consistent and co-ordinated approach to childhood obesity management can be successfully implemented and ultimately reduce childhood obesity rates.

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Examining the role of EXERCISE Time-Of-DAY for weight loss and associated health outcomes: Study protocol for a randomised controlled trial (EXERCISE-TODAY)

Paige G. Brooker[1,*], Sjaan R. Gomersall[1], Neil A. King[2], Michael D. Leveritt[1]

[1] *Human Movement and Nutrition Sciences, The University of Queensland, St Lucia, QLD, Australia*
[2] *School of Exercise and Nutrition Sciences, Queensland University of Technology, Kelvin Grove, QLD, Australia*

Background: Although the broad health benefits of exercise are well-documented, the benefits for weight loss vary, and this may be due, in part, to compliance. The time-of-day that people exercise could have an influence on the efficacy of exercise for weight loss, through improved compliance and/or physiological benefits. However, there is currently no evidence to support a 'best' time-of-day for exercise to maximise efficacy. This abstract describes a protocol to compare the effects of morning vs evening exercise on weight loss and selected health outcomes.

Aims: To determine whether morning or evening exercise is more beneficial for weight loss and health benefits.

Design: A target sample of 95 insufficiently active, overweight adults aged 18—60 years will be recruited for a 12-week intervention and randomised to one of three groups: (i) morning exercise; (ii) evening exercise; or (iii) waitlist control. Exercise groups will be prescribed self-paced brisk-walking or running on a treadmill for 50 min. There will be 5 supervised sessions per week for the first 4 weeks, followed by 8 weeks of combined supervised and unsupervised sessions. Physiological and physical tests, and questionnaires will be administered to participants at baseline, mid- and post-intervention, and at 3- and 6-month follow-up. These include: body composition analysis, dietary intake and eating behaviour, objectively measured physical activity, use of time, resting metabolic rate, cardiorespiratory fitness, sleeping behaviour, chronobiology, exercise enjoyment, and blood lipid profiles.

Preliminary data will be available for the conference.

Conclusion: If, by manipulating the time-of-day at which exercise is prescribed, we can identify favourable changes in the way people restructure their time, adhere better to the programme, and improve their diet and associated eating behaviours, recommendations could be developed to promote exercise at a certain time-of-day. This is the first study of its kind, addressing a critical gap in the literature.

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Learning to track systems change using causal loop diagrams

Andrew Brown[1,*], Lynne Millar[1], Peter S. Hovmand[2], Jill Kuhlberg[1], Penny Love[1], Phoebe Nagorcka-Smith[1], Megan Odenthal[2], Brynle Owen[1], Jillian Whelan[1], Steve Allender[1]

[1] *Deakin University, Geelong, Victoria, Australia*
[2] *Washington University in St. Louis, St. Louis, MO, United States*

Introduction: Group model building (GMB) responds to the complexity of obesity through community engagement techniques that help participants develop causal loop diagrams (CLDs), which present the variables and relationships

driving the complex problem. While the construction of CLDs is well documented in the literature, it is less clear how a community can use a CLD to measure changes in a system and evaluate obesity prevention interventions after initial GMB sessions. The aim of this paper is to present how a community used a CLD to track the underlying system changes resulting from implementing a healthy eating curriculum in a school.

Method: In a regional community in Victoria, subsequent to initial GMB sessions where a community-led CLD of the determinants of obesity was developed, a one-hour GMB session ($n = 7$) was conducted to track implementation strategies. Participants brainstormed the steps to implement a healthy eating curriculum in a school and named variables impacted by each step (e.g. leaders attending a workshop impacts leaders' engagement), thereby transforming transient actions into variables. Participants then drew a CLD representing the connections between their identified variables and the resulting feedback loops. Finally, this intervention CLD was then mapped onto the initial CLD.

Results: The CLD summarising changes in the system contained eight new variables, 19 new connections, and two feedback loops. Participants expressed that this exercise helped them consider how feedback loops might inform addressing any future issues that arise related to the intervention. They also noted that identifying the underlying structure helped them to consider more deeply why implementing the healthy curriculum was successful and how they might replicate that success.

Conclusion: This study presents a promising new technique to capture interventions as feedback structure, allowing practitioners to document systems change, share their findings and strengthen their systems thinking skills to build more effective interventions.

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System dynamics modelling to increase water consumption in a community

Andrew Brown*, Jake Kays, Lynne Millar, Steve Allender

Deakin University, Geelong, Victoria, Australia

Introduction: The use of qualitative system diagrams to understand obesity as a complex problem is well documented in the literature, but the use of simulation modelling to support community-based obesity prevention work is less developed. Simulation modelling can be time and resource intensive; requiring expertise in modelling, extensive data collection, and ongoing input and engagement from key stakeholders who understand the problem. Despite these drawbacks, simulation offers benefits beyond what can be achieved in qualitative models, such as what if analysis for trial interventions, deeper insight into causality, and quantification of relationships. The aim of this paper is to present a system dynamics simulation model built with the input of a community in order to understand key drivers of water consumption.

Methods: Water consumption was identified as an important leverage point in an obesity prevention initiative in regional Victoria. A qualitative map of the drivers underlying water consumption was developed over a two-hour group model building session including a community working group, community members, and a representative from the local water company. A simulation model based on the qualitative map was developed with supplementary data taken from previously published obesity models and ongoing input from the working group.

Results: The model has sectors that account for marketing of sugar sweetened beverages, access to public water, habitual sugar sweetened beverage consumption, and taste of tap water in the community. The participants of the GMB expressed that the modelling was useful for clarifying the multiple contributing factors to water consumption. It also successfully engaged a representative of the local water company who expressed interest in ongoing collaboration to promote water consumption.

Conclusion: The creation of this simulation model demonstrated a novel approach to quantifying the relative importance and feasibility of leverage points in a community-based setting for a public health problem.

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