An evaluation of the Arthritis and Osteoporosis Victoria Waves program

Executive summary 2014

Arthritis VICTORIA
inc. OSTEOPOROSIS VICTORIA

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Acknowledgements

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Executive summary

Worldwide, the prevalence and burden of musculoskeletal conditions is high. They are the leading cause of persistent pain, disability and reduced health-related quality of life (1). Exercise in warm water pools is commonly used by people with arthritis and musculoskeletal conditions. It is widely accepted amongst both consumers and health care professionals that exercise in warm water is an effective way to ease pain, improve the mobility of joints and improve function in people with musculoskeletal conditions. This is supported by past research (2).

This report presents the findings of a collaborative study between Arthritis and Osteoporosis Victoria and Monash University. It provides information on changes in pain, joint stiffness, physical function and health-related quality of life reported by people who have participated in Waves warm water exercise classes delivered by Arthritis and Osteoporosis Victoria. Information was gained by surveying people attending the classes before they commenced classes and 12 weeks later. A group of similar consumers who had not previously participated in Waves classes were also surveyed. This design enabled the impact of classes on pain, joint stiffness, physical function and health-related quality of life to be assessed. The aim of this study was, therefore, to explore if people participating in the Waves classes experience similar improvements to those reported in prior published studies. Information on the Waves participants' perceptions of the value, impact and accessibility of the classes was also collected. The findings of this study can be used to support ongoing development and delivery of peer-led exercise classes in warm water pools. The target audience for this document is Arthritis and Osteoporosis Victoria, class leaders, class participants, other providers of warm water exercise and health professionals recommending appropriate forms of exercise for people with musculoskeletal conditions.

Waves program

The Waves program provides peer-led exercise classes in warm water pools for people with arthritis and other musculoskeletal conditions. Classes promote general fitness through aerobic exercises, and physical function through strength and flexibility exercises. More recently, classes have also adopted balance exercises to mitigate the risk of falls—a frequent event in this population (3). Classes are delivered by trained volunteers at different aquatic centres across Victoria in indoor pools and include a maximum of 20 participants.

The Waves evaluation

This impact study was part of a three-stage project that also incorporated a systematic review of literature to determine the best-practice evidence for warm water exercise for people with musculoskeletal conditions (2) and delivery of this information to Waves leaders in interactive workshops. The key findings from the systematic review were:

- The research evidence suggests warm water exercise has beneficial effects on pain, physical function and health-related quality of life in adults with musculoskeletal conditions.
- The benefits achieved in the warm water exercise group appeared comparable to those achieved with land-based exercise.
- Gaps remain in our understanding of the characteristics (e.g. frequency, duration, intensity and exercises) of warm water exercise programs that provide the most benefit. However, based on the current evidence, successful programs appear to include two sessions of 60 minutes duration per week, run for at least 6 weeks, target strengthening of hip and knee

extensors using resistance and weight-bearing exercises, and include moderate intensity aerobic exercise.

What did the impact study involve?

The impact study involved 82 people, with 43 people who participated in Wave classes — 'Waves participants', and a similar group of 39 consumers who were not participating in Waves classes or any other formal exercise programs— 'control participants'. To measure the effects of participation in the Waves classes on pain, joint stiffness, physical function and health-related quality of life, each Waves participant was asked to complete two surveys at two different time points: initially prior to them starting the Waves program; and then again 12-weeks after this. The control participants also completed the two surveys at the same two time points. Changes in pain, joint stiffness, physical function and health-related quality of life over the 12-week period reported by the Waves participants were compared with those same outcomes reported in control participants.

What did we find?

Participation in Waves classes achieves minor improvements in symptoms and functional impairment

This study identified that participating in the Waves classes provides several benefits to people with arthritis or other musculoskeletal conditions. Waves participants reported improvements in pain, joint stiffness, physical function, mobility, daily activities and feelings of anxiety and depression, however these improvements did not reach statistical significance[1]. It is likely that the small, yet diverse sample of people included reduced the ability to detect statistically significant changes in the other outcomes measured.

The Waves participants included in this study also reported statistically significant improvements in their overall health state scores as measured by the EQ-5D health-related quality of life assessment. The other domains of health-related quality of life assessed remained stable for both groups over the 12-week follow-up. However, scores were high in the first set of questionnaires suggesting there was minimal opportunity to further improve these domains.

Greater improvements may be achieved if Waves classes are more frequent, self-practice facilitated and class attendance improved

In comparison to prior studies which have reported statistically significant improvements in outcomes similar to that evaluated in this study, the Waves classes are less intensive. In the systematic review that was completed as stage 1 of this evaluation project, three studies of warm water exercise were found to have significant positive impacts on pain (2). In two of these three studies, the warm water exercise program was delivered twice per week (4, 5) and one study provided a class three times per week (6). In comparison, Waves participants typically attend one class per week. This lower dosage of exercise may be a factor contributing to smaller improvements than those reported by prior studies. Strategies to increase exercise dosage within existing resources include facilitating self-practice of warm water exercise outside of Waves classes by

[1] Statistical significance refers to a mathematical technique used in research studies to determine whether the results of a study are likely to be true (i.e. the likelihood that a result is caused by something other than chance).

providing participants with an education and exercise pamphlet and leaders promoting the value of self-practice.

Over the 10-11 week period that Waves classes were offered (dependent on the length of the term), on average participants attended 7 of the possible 10-11 classes (minimum number attended = 2, maximum = 10). The modest levels of attendance at Waves classes may also have contributed to the smaller improvements in effects observed. Reasons for non-attendance were not recorded. However, it is likely that illness over the winter months, vacations and family commitments may have prevented Waves participants from attending classes. The number of participants included in this study was too small to permit meaningful sub-group analysis across high and low attendees. This would be a valuable analysis to conduct in future studies given a large enough sample is obtained.

Waves participants perceive that the classes are enjoyable, acceptable and an effective strategy for managing their condition

There were high levels of satisfaction reported by Waves participants for the program:

- over 90% of participants reported that the Waves classes were enjoyable and would recommend the classes to others;
- more than 90% of participants plan to continue attending Waves classes; and
- more than 90% of the participants agreed that the class format is suitable for their condition.

Suggestions for improvement related to increased consistency of class content across leaders, better monitoring of post-class effects and communicating the purpose and safety of balance exercises

Maximising the delivery of a consistent set of exercises across classes has the potential to optimise outcomes as it facilitates participants mastering exercises so they are performed correctly. Waves leaders are currently encouraged to ensure a large proportion of the class contains exercises with which participants are familiar. Whilst inclusion of novel exercises is not discouraged—this has benefits such as keeping classes interesting and promoting the acquisition of new skills—there needs to be a focus on consistency rather than diversity. Encouraging leaders to 'check-in' with other leaders to compare class content and program staff auditing classes more frequently may facilitate greater consistency in exercises delivered across classes.

Leaders need to be reminded to continuously check-in with participants at the start of classes as this is an important strategy to monitor how individuals have responded to the specific exercises and intensity of the previous classes. This assists individuals to minimise negative effects such as excessive fatigue or muscle soreness and to exercise at a level that they perceive to be most beneficial for them.

Falls and fall injuries among adults aged 45 years or older with arthritis are more frequent than in people of a similar age without arthritis (3). Preventing falls is therefore a priority for this population and exercise is a well-established strategy to achieve this. To be effective at reducing falls risk, balance exercises should provide a moderate to high challenge to balance (7). The pool is an ideal environment to practise challenging balance exercises as there is a low risk of injury if the person loses their balance whilst performing the exercise. To increase participants' understanding of the purpose of balance exercises, leaders could be encouraged to communicate to participants the need for balance exercises to be challenging to ensure they are most effective. Further, participants

should be reassured that the most likely consequence of overbalancing is to get their hair wet rather than suffering any injury. As with all exercises included in the Waves program, participants may chose not to perform balance exercises if they are not comfortable in doing so.

In summary, the key messages that emerged from this impact study are:

- the Waves warm water exercise program provides minor improvements in symptoms and functional impairments in people with arthritis and other musculoskeletal conditions;
- there is an opportunity to achieve greater impacts by offering more frequent classes to increase class attendance and encouraging self-practice; and
- the majority of participants find the Waves warm water exercise program enjoyable, easily accessible and beneficial to their health.

Where to from here?

The information gained from this study can be used to inform the planning and development of the Waves program. Key recommendations relating to program development include:

- exploring reasons for modest class attendance and strategies to improve this;
- following up participants up 1 year after they completed their baseline surveys to gain insights into long-term outcomes;
- if the satisfaction survey is used again, consider adding a question regarding maintenance of the participants' symptoms rather than focusing on improvement;
- implementing strategies to increase the frequency of performing warm water exercise outside of Waves classes such as: providing education and an exercise pamphlet, and leaders promoting the value of self-practice;
- Waves leaders should be reminded to communicate with participants at the start of each class to determine whether there were any adverse effects from the previous class;
- Waves leaders should provide confirmation to participants about the safety of the exercises being performed especially exercises that aim to challenge balance;
- Waves leaders should 'check-in' more frequently with other leaders to compare class content to facilitate greater consistency in exercises delivered across classes sessions; and
- program staff could facilitate consistency in exercises provided by leaders by auditing classes more frequently.

This study provides a comprehensive overview of the effectiveness of the Waves warm water exercise program provided by Arthritis and Osteoporosis Victoria. On the basis of the findings presented in this report, it appears that the Waves program can decrease the burden of arthritis and other musculoskeletal conditions by decreasing pain and joint stiffness, and improving physical function. Findings from this study can be used by Arthritis and Osteoporosis Victoria to promote the benefits of warm water exercise and the need for further evaluation.

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