


TAURITE TŪ

Achieving equitable injury
prevention outcomes for
ageing Māori

Hosted by Te Rūnanga o Ōtākou

**Funded by Health Research Council (HRC), Accident
Compensation Corporation (ACC), Ageing Well National Science Challenge**

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E kore e mau i a koe, he wae kai pakiaka.

You will not catch the feet accustomed to running amongst the roots.

Welcome to the Taurite Tū kaupapa

Note from Taurite Tū Ltd, Te Rūnanga o Ōtākou.

We are thrilled to share with you our journey and immense learnings which we have gathered on our pathway to supporting equitable hauora outcomes for Māori, specifically our ageing population.

We set out to address the lack of equitable health care in the falls prevention space, a need that was identified from within our hapū, and focused on developing an engaging falls prevention exercise programme for pakeke and kaumātua Māori. It needed to be something that our people resonated with, was embedded in te Ao Māori, and uplifted their overall wellbeing.

This is how Taurite Tū came about, guided by the needs and feedback from expertise within our hapū and community including those older adults living within our takiwā. Following the development of Taurite Tū and seeing the positive benefits Taurite Tū had on our pakeke and kaumātua, we were inspired to share this Kaupapa with others.

Since then, Taurite Tū has taken on an ahua of its own. Not only does it address falls risks for Māori, but the kaupapa has far greater reach into addressing other areas of wellbeing for ageing Māori, as kaupapa Māori projects tend to do. This report summarises the many of findings which surpass simply addressing injury prevention from a physical perspective, but explores the positive impacts of, for example, whakawhanaungatanga, en-

gaging in whakapapa, te Ao Māori, te reo Māori, mātauranga Māori, tikanga Māori and many other important areas which make up the overall hauora of Māori.

We have always been clear that Taurite Tū must remain Māori centric, so as not to put the kaupapa at risk of being 'watered-down' and losing its impact on pakeke and kaumātua Māori. As such, we have kept the mana of this kaupapa with Te Rūnanga o Ōtākou to ensure that the tikanga is upheld and the mātauranga Māori is protected.

We have seen and heard many of our pakeke and kaumātua Māori embrace this kaupapa entirely, a result of the positive impacts it has had on their physical, cultural and social wellbeing and more. It is their love of this kaupapa that has kept us going and driving this kaupapa forward.

We have been guided largely by aroha for our people and humbled by the uptake of this kaupapa within other areas around Aotearoa.

We hope you enjoy our report and encourage you to contact us if you wish to know more about this important kaupapa, our journey and the lessons we have learned along the way.

Tau ana te Tū! Taurite Tū!
MAURI ORA

Kā Whakamihī

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**EXECUTIVE
 SUMMARY**

Falls are a leading cause of injury for ageing Māori [1] and these injuries sustained following falls can have major consequences for ageing Māori [2-4].

Falls are preventable. Appropriately designed fall prevention classes have been demonstrated to reduce falls risk [5-11].

Evidence points to inequities of effective injury prevention and rehabilitative services being provided to older Māori [12,13]. While falls prevention programmes have been offered in Aotearoa for decades, provision of these programmes reaching Māori has been minimal. **No other evidence-based falls prevention exercise programme existed, prior to Taurite Tū, specifically designed to engage Māori** [14].

Te Rūnanga o Ōtākou (TRŌ) in collaboration with University of Otago falls and injury prevention researchers, have developed an effective falls prevention template for ageing Māori, Taurite Tū.

Taurite Tū is a kaupapa Māori falls prevention and wellness programme for our ageing

whānau, encompassing Mātauranga Māori and other evidence-based science, empowering Māori to age stronger.

A 2019 trial of Taurite Tū demonstrated statistically significant reductions in falls risks for Māori living in the Ōtākou takiwā and subsequent delivery of Taurite Tū has continued for kaumātua living in this area.

Based on our initial success, TRŌ was well poised to conduct research to assess applying Taurite Tū template within other areas and address barriers for successful falls prevention programmes being delivered for Māori.

This report is the outcome research funded by the Health Research Council (HRC) of New Zealand, Accident Compensation Corporation (ACC) and Ageing Well National Science Challenge: *Taurite Tū – Achieving equitable injury prevention outcomes for ageing Māori*.

The key points from this research have highlighted that:



Regular participation in Taurite Tū makes a positive difference for whānau Māori, with decreases in falls risk, increased whakawhanaungatanga, involvement in Te Ao Māori, and improved general wellness.

Taurite Tū is engaging for Māori – this is found in high attendance and retention rates for Māori aged 50+. Also, the feedback collected from participants was highly supportive of an engaging programme, Māori centric: by Māori, for Māori. This is important as we know that participation leads to decreased falls risk, so making it engaging means that Māori will get these benefits.

The framework for Taurite Tū delivery is transferable in different areas in Aotearoa: Taurite Tū positive benefits were seen in all areas across Aotearoa.

TE ARA O TAURITE TŪ

History of Taurite Tū: Te whakapapa
Rationale for research
Developing Taurite Tū
Taurite Tū: he whare tapere



History of Taurite Tū

Te whakapapa

Taurite Tū is a strength and balance wellness programme designed by Māori for Māori aged 50 plus and their whānau.

We use traditional Māori techniques to strengthen muscle, build balance and confidence and prevent the risk of falling by focusing on posture, breathing, strengthening, stretching, coordination, body awareness and pelvic floor muscles.

Other benefits of the programme include having a space for kaumātua and pakeke to build connection with each other, discuss life, and have some fun!

The concept of Taurite Tū first came to fruition at Ōtākou Marae, located on the Otago Peninsula, 25 kilometres from Dunedin City.

In 2008, Ūpoko of Te Rūnanga o Ōtākou (TRŌ) Edward Ellison put out a tono to our people to find solutions for kaumātua Māori who were not receiving targeted falls-prevention approaches.

Katrina Pōtiki Bryant is an uri of Ōtākou with 30 years clinical physiotherapy experience working in

Māori communities, and Associate Dean Māori-School of Physiotherapy at the University of Otago.

Katrina picked up the tono and, with the support of kaumātua Māori, Māori physiotherapists, and Māori movement experts in mau rākau (Māori martial arts), tī rākau (Māori stick games), poi, tākaro (games) and te whare tapere (Māori performing arts), she undertook research between 2019-2020 to develop a te Ao Māori falls prevention solution with equitable outcomes for ageing Māori, thanks to funding from the Health Research Council (HRC) Ngā Kanohi Kitea Project Grant.

Phase 1 was rolled out in 2020-21 with participants from Ōtākou, Puketeraki Marae in Karitane (north of Dunedin) and Ōtākou Health Clinic's Te Kāika, located in central Dunedin.

Phase 2 of Taurite Tū was adopted by six additional groups; four in southern Te Waipounamu, as well as two locations in Te Ika a Māui. This report focuses on Phase 1 and Phase 2 research results, jointly funded in 2022-23 by HRC, ACC, and NSC Ageing Well.

Since the conclusion of this research, Taurite Tū has expanded to 22 locations across Aotearoa me Te Waipounamu, transforming the lives of 450+ kaumātua Māori from Whangārei to Bluff.

Rationale for research

Preventing falls is important and achievable. Evidence demonstrates falls prevention exercise programmes can have impact on reducing falls risks and incidence [5-11]. The Otago Exercise Programme (OEP) is an individualised home-based programme targeted at those aged 80+ with a falls risk and is often delivered by a physiotherapist [15]. It has become an internationally acknowledged gold standard practice for reducing falls risk and incidence.

The Steady As You Go (SAYGo) exercise programme was adapted from the OEP to a group community delivery [16]. This programme uses a peer-led model where class participants are trained to safely deliver the classes in their communities. Research shows significant reduction in falls risk, and 27% reduction

in falls incidence [17] and also shows evidence that long-term participation decreased falls incidence to a greater extent than short term participation and may decrease the risk of injurious falls [18-19]. Cost-effectiveness analyses show exercise programmes preventing falls are good value for the health dollar [20-24]. SAYGo classes have been established since 2003, with over 3500 participants across New Zealand.

However, developers acknowledge very low participation rates of Māori at less than 5% [25].

Developing Taurite Tū

Best practices in falls prevention and tikanga Māori

Taurite Tū is a kaupapa Māori falls prevention exercise and wellness programme that is only offered to Māori and their whānau.

Taurite Tū was developed using the strong evidence base behind successful community exercise classes. Taurite Tū meets all specific criteria needed for falls prevention including a focus on strengthening lower leg muscles, challenges to balance for at least 1/3 of class, and baseline falls risk physical testing [26]. Importantly, Taurite Tū comes from a kaupapa Māori approach, with specific attention placed on being an engaging programme for Māori, connected and delivered out of Māori communities.

Development of Taurite Tū also gained from the generosity of SAYGo developers sharing their experiences of developing an effective community falls prevention programme. From this platform, expertise was drawn on from hapū and community members in areas such as tikanga, delivery of engaging Māori health initiatives, Māori movement practices (such as mau rākau, tī rākau, poi) and other relevant mātauranga Māori.

With a specific interest in engaging Māori into physiotherapy, both as a clinician and an educator, Katrina Pōtiki Bryant combined her 30 years experience in physiotherapy with her knowledge of Māori sciences to offer meaningful approaches with regards to posture, proprioception and sensory motor training, and importantly strength and balance, all impacting on reduction of falls. Additionally, Taurite Tū breathing exercises, coordination and pelvic floor exercises were also developed in an engaging way for Māori.

Moana Wesley, the poū manawa of Taurite Tū practice, is also an active member of Ōtākou Marae. She is considered the "manawa" (heart) of the Taurite Tū kaupapa given her being hau kāinga (at Ōtākou, her understanding of mātauranga and tikanga Kāi Tahu and her experience with establishing engaging processes for Māori. Together with Ms Bryant and the office Te Rūnanga o Ōtākou, they have established the core team working to grow and drive the Taurite Tū kaupapa.

Taurite Tū: he whare tapere

The outlay of Taurite Tū classes

The Taurite Tū programme consists of weekly group exercise classes for one hour. This is followed by one-hour shared kai, whakawhanaungatanga and health based kōrero.

Resources provided to each rohe to support group exercise programmes include equipment such as rākau, weights and poi, an accompanying descriptive soundtrack, website with videos and community engagement platforms such as weekly zoom class, community notice board and leaderboard.

Exercises for Taurite Tū classes are chosen from the soundtrack playlist, offering variation for each class. Taurite Tū exercises (see table 1) draw from evidence-based, falls prevention elements found in SAYGo and OEP. The exercises have been adapted to engage Māori by adding elements of mātauranga Māori, te reo Māori and tikanga Māori.

Table 1: The Overview of Taurite Tū Exercises

<p>1</p> <p>Karakia</p> <p>Classes begin and finish with karakia tīmatanga, karakia whakamutunga.</p>	<p>2</p> <p>Warm up</p> <p>Includes whakaoriori mihi ki ngā atua, tākaro/games, and a seated warm up with stretches using rākau.</p>	<p>3</p> <p>Posture exercise</p> <p>Includes exercises with rākau facilitating upright posture, body awareness,</p>
<p>4</p> <p>Balance challenges</p> <p>Balance challenging movements, progressively lessening base of support; tī rākau; manu waewae, kāpehu (compass) weight shifting exercises following journey of the sun.</p>	<p>5</p> <p>Coordination exercise</p> <p>Poi, safe practice dual tasking challenges.</p>	<p>6</p> <p>Leg strengthening</p> <p>Exercises based on OEP, optional resistance offered with ankle weights.</p>
<p>7</p> <p>Walking Practise</p> <p>Hīkoi a awa, emphasis on foot placement; step and turning practice.</p>	<p>8</p> <p>Warm down</p> <p>Pou stance, haka stance and combination of seated and standing stretches, slow movement to finish.</p>	<p>9</p> <p>Whakawhanaungatanga</p> <p>Following one hour exercise class, one hour of shared kai. Invited health professionals and social services attend for kōrero with participants, such as pharmacists, GPs, kaimirimiri/rongoā, nurses, etc. based on requests from the kaumātua.</p>



**I orea te tuatara ka
patu ki waho .**

A problem is solved by continuing to find solutions.

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TAURITE TŪ RESEARCH PROJECT

Project scope
Our people
Participants
Our research processes
Training
Resource development for rōpū

Project scope

Our overarching focus is on research that addresses inequitable access to health and wellbeing services for ageing Māori (i.e., Māori aged 65 years of age and over and the next generation of older Māori aged between 50 and 64 years of age).

The purpose of this document is to report on the outcomes of the 2021-23 project funded by HRC, ACC and Ageing Well National Science Challenge. The scope of this funding allowed for the following activities: *To assess the impact of Taurite Tū strength and balance exercise programme delivery on access to ACC falls injury prevention and rehabilitative services for ageing Māori.*

The report also speaks to our ongoing activities, hopes and aspirations for a sustainable future for Taurite Tū.

The project aims included:

1

To conduct a longitudinal assessment on impact on falls risk / injury prevention and delivery of current Taurite Tū programme delivery in TRŌ takiwā over a further 18 months.

2

To assess how to successfully apply Taurite Tū template within other areas /rohe outside of TRŌ, achieving positive impact on falls risk / injury prevention with Māori aged 50+.

Our people

Host Organisation

Te Rūnanga o Ōtākou (TRŌ) is the host of the Taurite Tū project and the home of the hapū of Kai Te Ruahikihiki, Kāi Te Pahi, Kāti Moki, Kāti Taoka and Kāti Hawea under the iwi of Waitaha, Rapuwai, Kāti Māmoē, Kāi Tahu.

Phase 1 Research partners

TRŌ Taurite Tū research team collaborated with Te Kāiika and Kāti Huirapa ki Puketeraki to deliver Phase 1 Taurite Tū research out of Ōtākou Marae, Puketeraki Marae and Te Kāiika gymnasium.

Phase 2 Research partners

Six rūnaka based Māori organisations were established to undergo this project. These were rūnaka and associated Māori Health organisations, including: Awarua Health and Social Services connected to Te Rūnanga o Awarua, Ngā Kete Mātauranga Pounamu Charitable Trust associated to Te Rūnanga o Ōraka-Aparima, Te Rūnanga o Hokonui, Tumai Ora delivering to whānau from Te Rūnanga o Moeraki and Te Rūnanga o Waihao, Ora Toa Health Services associated to Te Rūnanga o Toa Rangatira, Turanga Health associated to Te Rūnanga o Tūrangānui a Kiwa.

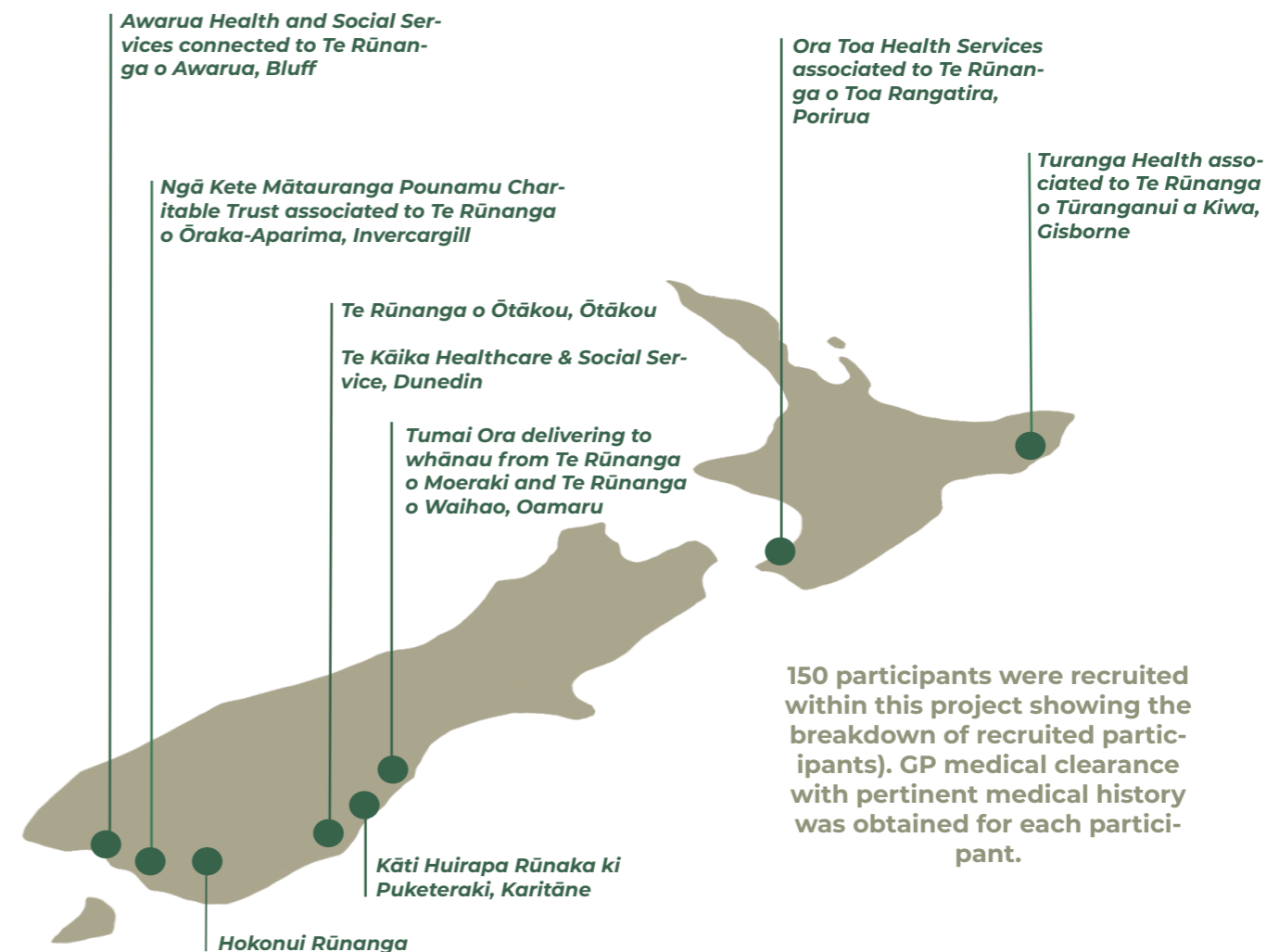


Diagram 1. The nine rohe in this research.

Participants

Te rōpū kaiārahi

Ultimately, it was the pakeke and kaumātua involved with this project who directed this research. Their feedback and input into the project are considered so important that collectively they are referred as the Rōpū Kaiārahi or guiding group. *This is also why their voice features so prominently throughout this report.*

Participants were Māori aged 50+ and their whānau and were largely recruited through established kaumātua groups, whānau, community, rūnaka networks, referring GPs, health professionals, social services, and word of mouth.

Phase 1	
Area	Number recruited
Ōtakou	16
Puketeraki	9
Te Kāiika	33
Phase 2	
Area	Number recruited
Awarua	12
Hokonui	21
Ngā Kete	17
Ora Toa	21
Turunga	12
Tumai Ora	9

Table 2: Number of Participants recruited in each.

Our research process

This project used overarching Kaupapa Māori Research (KMR) methodology [27-29] looking at the impact of Phase 1: 18-month trial of weekly classes within existing TRŌ and Phase 2: training and delivering nine-month trial within new areas.

Ethics approval for Taurite Tū research was received by the Southern Health and Disability Ethics Committee (SHDEC).

Quantitative Research

Pre- and post- trial physical tests assessed falls risk with participants. These tests were aligned with gold standard, international falls risk research [26].

Qualitative Research

A kaupapa Māori research tool, Te Whakaaro Pōkare Visual Tool (see diagram 2),

was used to facilitate pre- and post-trial interviews. Te Whakaaro Pōkare Visual Tool allows participants to define the elements important to their waiora/overall wellbeing, assessing broader aspects of wellbeing from a Te Ao Māori perspective and has been used successfully in research [30-31].

We conducted pre-trial interviews, asking what wellness was for them, so we knew what to consider with respect to community needs within different rohe/areas. These interviews also allowed kaimahi in each rohe to create trusting relationships with participants and get a deeper understanding of how to support participating kaumātua.

Post-trial interviews were also conducted with kaumātua in all rohe, to analyse the impact of participating in Taurite Tū.

These qualitative and quantitative approaches had been used to successfully conduct initial Taurite Tū research and we further adapted some processes to be fit for purpose for conducting research around Aotearoa.

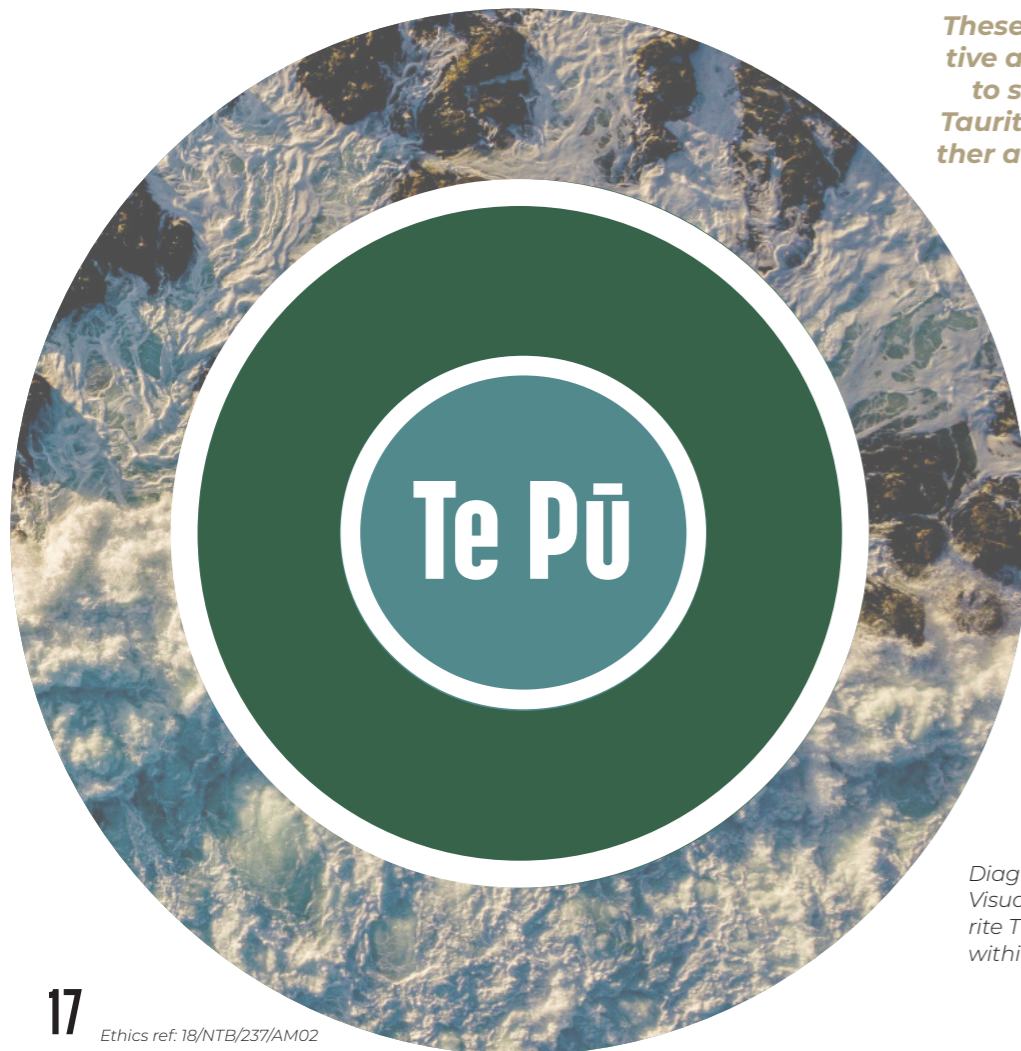


Diagram 2. Te Whakaaro Pōkare Visual Tool: KMR tool used in Taurite Tū research to facilitate kōrero within interviews rohe [30-31].



Training

Research Training

35+ research assistants and research staff were employed and trained to support the Taurite Tū project. New research processes were implemented and required some upskilling and support for staff involved. Recognising the collaborating Māori organisations had not conducted Taurite Tū research previously, we held multiple training wānanga for kaimahi to upskill whānau and support this research.

Training on delivery of Taurite Tū exercise classes

TRŌ research staff provided training sessions for all instructors involved in delivering Taurite Tū classes for this project, with specific focus on mātauranga Māori and falls prevention elements. These training sessions occurred alongside site visits of all venues where Taurite Tū classes were being held, to ensure venues met appropriate health and safety requirements.

Resource development for rohe

Resources to support Research: Resources developed to support the research included multiple presentations, booklets, online resources and a secure, internet-based data storage platform access. Fortnightly Zoom hui were also used to support research teams achieving research milestones (especially useful through interruptions secondary to COVID-19). Rohe were supplied with research data collection tools, documents, and data collection platform.

Resources to support Taurite Tū Class delivery: TRŌ also provided exercise equipment and other resources to support the Taurite Tū research and ex-

ercise class delivery in each rohe including: exercise equipment (rākau, ankle weights, poi, blocks), instructional videos, soundtrack recordings, instructional manuals and T-shirts for participating pakeke and kaumātua.

Taurite Tū soundtracks were developed specifically for this research to reflect the difference in the mita o te reo Māori or dialect of Māori between rohe. A soundtrack was recorded in mita o Kāi Tahu and used for the eight southern rohe in the Kāi Tahu takiwā, and a pan-reo Māori soundtrack recorded for the two northern rohe.

**Mā mua ka kite a muri,
mā muri ka ora a mua.**

*Those who lead give sight to those who follow,
those who follow give life to those who lead.*

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NGĀ KITENGA RANGAHAU

Our learnings

Oranga tinana: Taurite Tū leads to physical benefits and injury prevention
Māori Community engagement in Taurite Tū

Our learnings

Being guided by our kaumātua in this Taurite Tū research, has been fundamental to its success. We discovered many insights from conducting this research, some we never expected to come from a falls prevention programme.

Those findings have opened new doors for not only physical improvement in the tinana of our kaumātua, but also the broader outcomes around cultural healing, cultural connection, and even building community and purpose for our elders. This report outlines the key findings

from the 2021-2023 Taurite Tū project and discusses extending the impact of Taurite Tū for kaumātua Māori.

Given the voices of the pakeke and kaumātua Māori were so central to this project, the TRŌ Taurite Tū research team mindfully included quotes from the participants throughout this report.

Summary of Taurite Tū research findings on addressing equitable outcomes for Māori.

1

Taurite Tū enhanced independent living for kaumātua

The science and mātauranga Māori woven into Taurite Tū sets a solid foundation that has naturally led to positive physical impacts for kaumātua involved in this project, importantly reduction in falls risks and injuries.

2

Strong Māori community engagement with Taurite Tū

Creating a programme for kaumātua by kaumātua sowed the seeds for success of Taurite Tū, making it something they want to be part of. Involving Māori organisations is more likely to provide environments where kaumātua can express their mana, also lends to the programmes' engaging nature.

3

Taurite Tū Kaupapa is transferable

These research findings were experienced for Māori across many rohe, demonstrating the versatility of Taurite Tū to be useful for whānau, hapū, and iwi throughout Aotearoa. Taurite Tū research team is committed to expanding the reach of Taurite Tū to address the inequitable provision of falls prevention programmes that work for ageing Māori.

Oranga Tinana

Taurite Tū leads to Physical Benefits and Injury Prevention

*"He rawe tēnei kaupapa, mo te mea whakapakiri tinana mo te katoa,"
This Programme is awesome, for exercising the body, for everything*

- quote from a participant.

Participation in Taurite Tū programme led improved physical elements related to reducing falls for Māori aged 50+ in the Phase 1 and Phase 2 trials. This was supported by results from quantitative falls risk physical tests and qualitative interviews. The results indicate positive reduction of falls risk in the longitudinal trial and reproducibility of the Taurite Tū template and associated positive benefits into other rohe, addressing the main aims of this research.

Quantitative: Physical measurement outcomes

Assessment of the impact of Taurite Tū on falls risk was done using standard physical tests (TUG, STS, 4-point balance testing). These are used as best practice tests within falls prevention for outcome measures of interventions within clinical practice and research [26]. We worked with phase 1 and 2 organisations to collect kaumātua measures from pre-trial and post-trial tests.

Quantitative data analysis of the paired sample t-tests of pre- and post- trial falls risk physical tests were performed by University of Otago falls researcher, Lara Vliestra (see appendix). Results from both the Phase 1 and Phase 2 trials indicate statistically significant improvements between pre and post-trial measurements in all three falls risks (leg strength, balance, and walking speed).

Area	Number recruited
30 Sit To Stand	Mean difference was 2.33 more sit to stands. Minimal clinically important difference (MCID) for this test is 2 sit to stands. $p < 0.05$
One legged stand	Pre to post mean difference was 2.5 seconds. Statistically significant increase in balance $p = 0.002$. MCID = 2.0 secs
Timed Up and Go (TUG)	Pre to post mean difference was 1.60 seconds faster. This was statistically significant $p < 0.05$. MCID > 1.4 secs

Table 3: Statistical analysis from quantitative measurements full data set

ACC survey

A report summarising the results directly related to a survey assessing barriers/facilitators for ageing Māori to ACC services has been submitted to ACC for their information. There were some findings, however, which are useful to this report, shedding light on additional impacts of Taurite Tū. According to results from this survey, improvements in injury rates and rehabilitation rates were noted in the ACC survey following participation in the Taurite Tū trial:

Reduced number of Injuries

53.5% of participants in the initial survey identified they had suffered an injury, compared with 31% of participants in the post-trial surveys.

Falls cause most injuries

The most common mechanism of injury being reported by participants was injuries sustained following falls. This is in line with other evidence around injuries in older adults.

Reduced Falls

Importantly the number of injuries from falls also improved following the trial. 25.9% of the pre-trial survey participants identified they had suffered an injury following a fall, compared with 14.9% of the participants sustaining fall related injuries in the post-trial.

Reduced rates of treatment required

Similarly, the rates of those who reported receiving rehabilitation and/or treatment in the past year of any kind for an injury or medical event were dramatically less in the post-trial surveys (29% compared with 58% in the pre-trial survey). This is probably largely related to less injuries reported following the Taurite Tū trial.

These results, alongside the findings on reduced falls risk within the trial results, support the positive impact from participating in Taurite Tū exercise classes has on reducing injury rates within kaumātua Māori.

Qualitative: The experiences of Kaumātua

Analysis of the post-trial qualitative interviews and focus group hui demonstrated positive participant feedback around Taurite Tū exercises on their Oranga Tinana, or their physical wellbeing. This included increased strength and balance, improved ability to walk and other physical gains contributing to active lives of our kaumātua. Many also spoke about aspirational goals for their physical well-being. Oranga Tinana has three key themes including Taurite Tū impact on Strength and Balance, Knowledge and Awareness, and Less Impact from Falls.

"I enjoy coming here every Wednesday. When I leave here, I feel like I can climb Mount Everest!"

Subtheme 1: Strength, Balance and Walking, other physical improvements

Kaumātua noted improvements in the known factors that reduce risks of falling: leg strength, balance and ambulation speed [26]. This supported them to feel more confident in many of the activities of daily living, and hobbies. Below are examples of the ways that our kaumātua felt themselves to be stronger and more balanced and the impact that has had for their overall wellbeing.

Improvements in lower limb strength were notable:

“The programme has helped so much in my strength and being able to get the strength up which I haven’t had for a long time.”

“I found the strengthening exercises have been really good. Sitting to stand used to be really hard but now I’m getting better at it.”

People often are unaware of their limitations with balance until they challenge their balance. Kaumātua often expressed surprise at discovering they had issues with balance whilst performing the Taurite exercises. Seeing the improvements in balance was a key motivating factor for many to attend class, focussed on being more stable.

“The balancing exercises were a real challenge for me. Never could stand on one foot only with support, now I am ace at it! I might stumble now and then.”

“I didn’t know about the deterioration in my legs! One side sort of got wobbly and all the exercise we’re doing now showed me that if we keep doing all these exercises it will come right. At the moment, I can feel my legs buzzing from all the work we’re doing it to.”

Many kaumātua reported improvements with walking, some reporting walking further, some more stable and some faster.

“More confident with balance, feeling safer walking without using aids all the time.”
“I could run a marathon now!”

Increases in fitness and stamina are additional physical improvements noted by some kaumātua.

“My fitness has improved; I can do more.”
“(I have) more stamina, can stand the whole class.”

Participants also stated that they have been motivated to generally be more active following being part of Taurite Tū. The participants are encouraged to also exercise outside of class and there were many examples of this within the interviews.

“I’ve been showing my whānau movements at home to help strengthen their bodies.”
“I find myself using some of these exercises when I’m around town, waiting for the buses, the balancing acts. Just the footwork, moving enjoy them.”

Taurite Tū classes had contributed to kaumātua feeling less stiff, increased flexibility and able to move with ease:

“It keeps you moving, use it or lose it. It has limbered me up.”
“Also, the stretching and twisting and looking behind, like when driving – I used to get stiff in my neck but now I’m more flexible. Little by little, day by day things are improving.”

With these increases in strength, balance and walking, kaumātua noticed an improvement in their ability to independently undertake more activities at home:

“For me, I can now stand up and sit down without 1,2,3 and up (rocking in seat to stand). Balance was a big one for me...and in the future I want to be climbing up ladders and doing my own stuff in my whare.”
“...the last shelf [in my kitchen] I used to need a step and now I don’t.”

Being able to participate in certain activities deemed important by the kaumātua was also an engaging factor for many. Increased ability to garden featured strongly in the interviews:

“I’ve gotta keep going, I’ve gotta go mutton birding next year. This is a good thing [the programme] even if it’s just being there and trying to do what you can.”
“I can do my gardening now. Kneeling down and getting up, my legs are much stronger – it’s really helping.”

Participating kaumātua also commented on how Taurite Tū has helped managing other conditions and pain.

“All those exercises I’m doing compliment my Parkinson’s... Compliment the exercises that I’ve been asked to do by my physio and doctors.”

“I have found that some of my medical symptoms that I did have, have very much improved.”
“I found it helps with my pain and I take less medication for pain relief”

Taurite Tū incorporates additional exercises such as breathing exercises and pelvic floor exercises and kaumātua noted physical benefits from these.

“Doing the exercises helped me with my breathing.”
“Well I feel the benefit - sadly I had an issue with a urinary infection, I don’t think if I had been doing [the pelvic floor exercises] that I would have made the toilet. I know quite a number of women our age who have those issues.”

Some kaumātua stated that Taurite Tū allowed them to exercise when they would not be normally able to participate because of certain conditions including arthritis and other conditions.

“I have found the soundtrack is awesome, I am blind and I can still do the exercises because it is spoken so clearly”

“When I had my last injection [for chemo] my feet used to be permanently numb. I had to wear these high shoes because I couldn’t feel the ground, but now a lot of that numbness is gone because of me doing this stuff, so it’s helping me heaps.”

Kaimahi also noted physical improvements in participating kaumātua. They mention this often in reports and regular zoom hui throughout the entire project.

Subtheme 2: Body awareness and Proprioception

Kaumātua reported that Taurite Tū has helped them become more aware of their body in terms of posture and proprioception. Many have reported that Taurite Tū has made them aware of their movements and body positions in their day-to-day activities. This can be very important with regards to falls prevention, especially with regards to posture, body awareness and foot placement:

“It’s helped in quite a few ways. I’m, more aware of how to walk, and not to walk into things and be careful.”

“My balance at times was not very good but I’ve learnt to take my time rather than rushing around. I need to stop and focus instead of running around. The balance exercises have made me more aware of just taking pressure off.”

They also noted Taurite Tū classes provided useful challenges to coordination. The use of poi, tī rākau, tākaro/games and other exercises challenged body and mind dexterity, including hand-eye coordination.

“The exercises, they’re not necessarily easy, they make you think.”
“Feeding my brain as well as my body.”

Subtheme 3: Less impact from Falls

Having awareness in their tinana shows the kaumātua are considering activities before undertaking them. Importantly many commented on catching themselves and preventing falls, stopping before they have a slip, trip or fall and they attribute it to participating in Taurite Tū classes:

“I catch myself all the time picking my feet up because of what we have practiced in class. I know that has stopped me from having a number of falls”.

“It’s helped me to balance. Not that I’m perfect standing on one leg but I can do it. I’ve stopped all the trips. I used to trip badly. Now I don’t trip over my own feet. I’ve got more energy and it’s a programme that I can do every day without tiring myself out.”

“I’ve learnt how to bend correctly, stop myself from falling. I just about had a crash and I was really embarrassed – but it was good I was able to go with the roll and use my balance. I’m happy.”

Participating Kaumātua still experienced falls whilst being part of this falls prevention kaupapa, however importantly Taurite Tū offered an opportunity to rehabilitate following sustaining injuries from falls. The exercises are perfect to progressively return to normal activities and physiotherapists, associated to the various classes, are accessible for additional individualised treatment if required.

“I had a fall and you know all the exercises they gave me [at the hospital], well we do them in class!”
“I thought I was good and did not need these classes but then I tripped on the tow bar and I remembered the high lifting knees in class, and I thought well I do need these exercises!”

Discussion on Physical Benefits

Oranga Tinana

In line with the evidence in falls prevention research, we know that improved strength, walking speed and balance, and awareness of one’s body (proprioception) can reduce falls risks and prevent falls. For our programme, this is Oranga Tinana, physical wellness, and the associated broader aspects of wellness this contributes to: spiritually, socially and mentally.

Physical benefits lead to increased ability to perform activities and remain independent

Kaumātua Māori within the project expressed appreciation for being able to perform desired activities following experiencing these physical benefits from Taurite Tū. Continuing to participate in activities has the added benefits of continued increases in strength, as well as broader wellness benefits. Whilst staying connected with others is often important, remaining independent is a very strong motivator for keeping strong, agile and injury free.

Decreased Falls Risk

Regular participation in Taurite Tū contributes to decreased risk of falls. Both our use of standardised data collection, and more importantly listening to the impact in kaumātua’s own words indicate that Taurite Tū addresses the core physiological aspects leading to reduction of falls risks and increased injury prevention. Taurite Tū additionally offers a platform to progressively strengthen and return to normal activities if injuries are sustained, from a fall or otherwise.

Taurite Tū is an accessible pathway to injury prevention and treatment for ageing Māori

Taurite Tū serves as a platform offering accessible injury prevention and rehabilitation services targeted specially for ageing Māori, an underserved community. Associated physiotherapists to the programme and trained instructors within Māori communities support high quality delivery of this evidence-based programme.

Māori Community Engagement in Taurite Tū

The Taurite Tū programme is something that Māori want to participate in. Taurite Tū template offers a solution specifically minimising barriers and enhancing accessibility for ageing Māori.

Creating a strength and balance programme that is effective AND draws Māori in to be involved is imperative when looking at achieving equitable outcomes in falls prevention for Māori.

Results from the interviews in Taurite Tū research explain why kaumātua remained committed to attending Taurite Tū and are further outlined below.

Takata ako ana i te kāika, te tura-ka ki te marae, tau ana.

A person nurtured in the community contributes strongly to society.

Quantitative: Attendance data shows Māori communities enjoyed being part of Taurite Tū

"I love it. I love coming. I'm fitter. A lot happier and a lot healthier. Thank you everybody it's awesome."

Quantitative results from this project demonstrate that Taurite Tū template is an engaging programme for Māori aged 50+. This was supported by the Phase 1 and 2 trial attendance data collected by all classes, providing clear information available to calculate attendance and retention rates, indicating level of engagement of kaumātua.

Attending regularly

In order to experience the benefits of participation within a community exercise programme the evidence points to needing attend regularly (for at least a 10-week period.) Attendance rates were high for the phase 1 and 2 trials.

Attendance	Rate
Phase 1	75%
Phase 2	68%
Overall attendance	79%

Table 4: Attendance Rates in the Phase 1 and 2

These attendance rates were impressive especially given the trial was hugely impacted by the COVID-19 pandemic. Commencing earlier, the Phase 1 Trial was much more impacted by COVID-19 pandemic, as many of the restrictions caused disruptions early in the trial. Reasons for non-attendance were also collated by research team, providing insight in the daily lives lived by our kaumātua Māori. Other reasons for nonattendance included illness, injuries, medical appointments and surgery, employment, looking after mokopuna, birding on Titi Islands, away visiting whānau or on holiday, whānau bereavements and tangihanga, and forgetting about class.

There are many other reasons for non-attendance which indicate that many of our elderly Māori remain active within their communities. Many of the participants lead very active, busy lives -often socially committed and employed. Many are also slowing down in their lives and are isolated much of the time.

Staying on the kaupapa

Another clear indicator of engagement were the retention rates of participant, those who stayed on the kaupapa throughout the nine-month and eighteen-month trials. Again, given major impactful events, participants largely stuck with the Taurite Tū kaupapa throughout the trial within each Taurite Tū roopu. This is very encouraging.

Retention	Rate
Phase 1	79.61%
Phase 2	86.35%
Overall attendance	86.40%

Table 5: Numbers of participants involved throughout full Phase 1 and 2 trials.

In this case also, there were many valid reasons for participants to withdraw from the project, including work commitments clashing with class, moving onto other physical activities (e.g. line dancing), choosing to not be immunised against COVID-19, progressing health issues and surgery, and moving out of area into care facilities. Unfortunately, some of our participants also passed away during the trial.

Qualitative: What Kaumātua had to say about Taurite Tū

The engaging nature of Taurite Tū was also supported by the qualitative results. Taurite Tū is kaupapa Māori both in its design and its delivery. The delivery adapted to engage Māori by adding elements of te ao Māori: te reo, tikaka, karakia, waiata, mihimihi, whakawhanaukataka, and mātauranga Māori.

Being steeped in te ao Māori, Taurite Tū has been described by the kaumātua as a vehicle for them to meet their needs in terms of:



Subtheme 1: Wāhi haumarū / Safe spaces

Having awareness in their tinana shows the kaumātua are considering activities before undertaking them. Importantly many commented on catching themselves and preventing falls, stopping before they have a slip, trip or fall and they attribute it to participating in Taurite Tū classes:

This theme relates to participants acknowledging the important ways Taurite Tū was delivered in a manner which is culturally and physically safe, with aroha. Cultural safe spaces are created in Te Ao Māori by governing tikanga Māori practices. Many of our kaumātua appreciated having opportunities to practice tikanga within the Taurite Tū programme.

"I like the fact it's done in te reo. I really like the fact that it opens with karakia."

Many expressed a sense of belonging and connectedness to the kaupapa because of the culturally safe venues used for the Taurite Tū programme, even if they had not had many opportunities to be involved with Te Ao Māori in the past. Being alongside other Māori also gives a sense of security to participate:

"I quite like to location – the Marae where we do it, cos I think it helps you connect to the wairua."around you."

"I like the venue of Taurite Tū at the marae, for me it's a spiritual feeling. There's a feeling of this doesn't belong to an organisation it belongs to all of us."

Another core reason that Māori organisations were chosen to deliver the Taurite Tū research is Māori organisations staff often have a genuine aroha and understanding of the value of kaumātua Māori. They provided special care and attention to delivering services specifically targeting and engaging for kaumātua Māori. This was articulated within the qualitative data:

"They explain things very well and they have a nice rapport with kaumātua which I think is very, very helpful."

"Our instructors sort of add a bit of balance because they set the programme and I think there's a seriousness and there's a balance so there's a nice structure to the programme."

"I feel that it is wonderful. I feel privileged to be a part of it, because of the fellowship, the warmth and the love."

Kaumātua also expressed a sense of safety knowing that the Taurite Tū programme was designed by experts in physiotherapy and mātauranga Māori, expertise required to allow them to exercise in a safe way whilst also being challenged. They also appreciated the expertise held by the trained kaimahi/instructors, allowing the participants to feel safe in their exercises:

"This class provides far more comprehensive forms of exercise this class provides far more comprehensive forms of exercise...it's challenging but it's more beneficial than what I get down at the physio at the hospital."

"I enjoy the exercises and that's going gentle, and you take it our own pace and if you're tired you don't have be forced to stay on and do it."

"They are aware of your needs and your weaknesses. The programme is designed around you."

Subtheme 2: Cultural Wellbeing

For many ageing Māori 50+, they have been robbed of their access and experience to Māori identity. Providing Taurite Tū classes which are embedded in te Ao Māori perspectives allowed participants to connect and embrace their cultural identity. Given Taurite Tū kaupapa is specifically targeted towards whānau Māori, incorporating wellbeing aspects by connecting to Te Ao Māori can be important for encouraging our Māori whānau engage and benefit broadly.

One aspect supporting cultural wellbeing within Taurite Tū kaupapa was increased exposure to te reo Māori, in a safe and gentle way. In some areas, the Taurite Tū classes have peaked interests in attending reo Māori classes. For one roopu, nearly half the participants enrolled in te reo Māori classes together!

"I like the inclusion of the reo... the use of Māori words."

"There's quite a few who don't know their te reo, but they feel comfortable because they're encouraged by the instructors to say, nah it's fine, we'll learn."

"Reo Māori is very calming and soothing."

Mātauranga Māori is core within Taurite Tū and is also what sets Taurite Tū aside as a true model of Māori Health. Māori movement practices steeped in Te Ao Māori such as whakao-rori, tī rākau, mau rākau, poi, waewae manu, kāpehu alongside supporting tikanga, kawa, karakia, and waiata are amongst many of the elements which contribute to Taurite Tū being a Māori model of wellbeing. Many kaumātua valued using practices tūturu/authentic to te Ao Māori, encouraging them to be involved in Taurite Tū:

“The exercise that we do with the poi and mau rākau is awesome because it’s new.”
“I love the poi. Oh, I’m trying to learn it... I want a whole song like you know like with the sticks as well. I love the sticks.”

Taurite Tū classes allowed the kaumātua to feel the mauri of te Ao Māori and Māori and to be keen participants in it.

“So, like with breathing and listening to te reo and the also the narration, the gods, the talking that one’s quite good cause everyone’s listening so everyone flows together with the timing and people listening and the way he talks.”

“It’s not just about the movement. It’s taken time. We have to allow her time to have karakia. We’ve got wairua now, you can see it when she (the facilitator) does ngā manawa Māori.”
“But mainly the Māori essence of exercises that I’ve never had the opportunity to enjoy up until now.”

Provision of kai, a cup of tea and healthy snacks following the classes, is an essential part of tikanga Māori embraced within the kaupapa. This practice is not only to provide nourishment, but also serves tikanga purposes and a chance for whakawhanaungatanga. The acknowledgement of gratitude for the kai time was another very common theme that encouraged participation.

“It’s motivating, encompassing, and great kai!”

Supporting tangihanga is one of the noted cultural aspects, valued and appreciated by participants of Taurite Tū. One participant passed away and this had a huge impact on the roopu he belonged to. To his tangi, his Taurite Tū classmates chose to wear their Taurite Tū tee shirts and practised a waiata to sing at the tangi. This is one way participating in Taurite Tū supports ability to express and experience cultural wellbeing.

Subtheme 3: Whakawhanaungatanga / Kinship and Making Connections

“Taurite Tū provides an opportunity to be with a group. I’m over the moon! I feel wanted there [at Taurite Tū].”

Within te Ao Māori, whakawhanaungatanga is also a key aspect. Getting together regularly provided opportunities for kaumātua to develop deeper, supportive relationships within Taurite Tū participation. Kaumātua acknowledged new connections were created and old friendships reunited within Taurite Tū. This was one the most strikingly important aspects throughout the qualitative feedback, creating enthusiasm for them to attend:

“I love meeting people. I love the encouragement we seem to give to each other. I always feel very encouraged. I feel that the care we give to one another is outstanding. It’s just beautiful.”
“I like coming here – sitting beside my bro here. He gives me manaaki. It’s an awesome bunch of kaumātua here that support me.”

Being able to support each other through involvement in Taurite Tū, especially sharing experiences with other Māori at the same stage of live, was expressed on multiple occasions within the kōrero in the interviews as a benefit to participating:

“I feel really good...accepting where we are in life and knowing there is other people with the same issues gives you the sense of ‘I’m not alone.’”
“I love coming to the programme because I have met and journeyed through this programme with other people and people my own age.”

Developing confidence to be around other people was another element which participants expressed was an engaging element of this kaupapa Māori programme:

“Confidence, awesome – great programme. Feels easy, atmosphere, social aspect. Can we have it more often?”
“Given me more confidence around others.”

The kaimahi also understand how important this support system becomes for the kaumātua.

“Majority of kaumātua only miss class if there is a real reason, the participants are good at encouraging and pulling each other up if not attending without a reason.”

Subtheme 4: Mental Wellbeing / Oranga Hinengaro

The kaumātua discussed the impact that Taurite Tū has had on their hinengaro (mental health). The mental wellness benefits included reports of positive attitudes and a sense of achievement from being part of classes, even eliminating worries.

“There’s lots of humour through the course of the exercise group and it’s great to be able to participate. When I leave here, I feel I have achieved something.”
“Doing stuff gets the memory working. Sometimes it shuts down and I’ve got to really think but coming here helps me to take away that fear.”

There was also kōrero about the positive atmosphere of the group and a sense of achievement after class, especially when they experienced physical improvements. During the physical testing is often when they get to see these improvements, and the tests proved to be very motivating for some. The tests have since become embedded within the delivery of Taurite Tū outside of the research as the participants were motivated when seeing their own progress.

“I noticed the mood of the class has changed. Positivity increased when they get good test results, when can see improvements in balance.”

For some participants, attending class provides them purpose in their day, some expressed Taurite Tū was the highlight of their week.

“Good for routine. It gets you out of bed.”
“It gives me a purpose to get up, get washed and get clean clothes on... I really enjoy this.”

Some of the Taurite Tū practice was centred around calming, almost meditative practice with breathing control and focus on body awareness. Kaumātua also noted the benefits this had for their mental wellbeing.

“So, people’s mood that come in and they might come in all angry and everything like that but once they’re there, boom, gone.”

These positive benefits experienced by Māori whānau in the mental wellbeing space, added a motivating factor to engaging Māori into Taurite Tū and a sense of confidence.

“Mentally and physically it’s good. I find I am getting a lot better. Just being able to stand with one foot up without feeling like I’m going to wobble... I feel revitalised. I didn’t have the confidence before.”

Subtheme 5: Fun and at own pace

Embracing playful and fun elements within kaupapa is often an essential part of life as Māori. Enjoyment, not being too serious and having fun was also identified within the interviews as a major drawcard for continued involvement within the injury prevention programme.

“I’ve been finding this programme quite hilarious, actually. A lot of fun, I mean, I think that’s what it’s all about. Having a bit of fun with the rest of the people...”

“We have a laugh. Group is made up of so many different characters... There’s a sense of joy, there’s a sense of knowledge, there’s a sense of being a part of (a group).”

“I enjoy the games. Some of these exercises are hard, it sounds serious, but it isn’t. We have a laugh. And if we make mistakes it doesn’t matter.”

Being able to do the exercises as able and at their own pace is another point which kaumātua acknowledged that encourages them to keep on attending.

“I don’t have to speed up and keep up with the rest of the class.”
“I enjoy the exercises and that’s going gentle, and you take it our own pace and if you’re tired you don’t have be forced to stay on and do it.”

Subtheme 6: Gaining Further Insight on Hauora Issues

Kaumātua also acknowledged the benefits towards their increased health literacy and awareness from information within the exercise classes and from the various visiting health professionals (such as pharmacists, podiatrists, nurses, etc) present at kai time. They acknowledged that this was also a drawcard for continued participation and an important part of Taurite Tū for some:

“The programme has been very beneficial for me, and I find that all the exercises and the kōrero have been very good for me.”

Discussion on Māori engagement

Taurite Tū is engaging for older Māori

Beneficial impacts of participation in falls prevention programmes require consistent attendance and retention rates. The quantitative results of this research (attendance data) demonstrate that older Māori engage well with the Taurite Tū kaupapa, additionally the qualitative results indicate why they commit to attending. Not only is the attending routinely important, offering regular opportunities to get together is one of the most engaging parts of Taurite Tū; a feedback system which sets up a successful approach to injury prevention for ageing Māori.

Broader wellbeing

Using the Whakaaro Pōkare Visual Tool to facilitate the interviews allowed for the teasing out of broader elements of wellbeing experienced by Taurite Tū participants beyond physical, as relates to a Māori model of wellbeing. These broader wellbeing benefits (spiritual, connectedness and mental wellbeing) alongside the those related to the tinana, all were expressed within the feedback as being impacted positively by being involved in Taurite Tū, both for Māori participants and kaimahi. Taurite Tū also provided an avenue for kaumātua to reconnect and serve communities in their role as kaumātua. This was one of the multiple factors from feedback received in this research which highlighted reasons kaumātua remained so involved in Taurite Tū.

Aroha ki te tangata / Māori organisations

Importantly, delivering directly out of Māori organisations such as rūnanga is important for accessible and relevant services for Māori. This has set Taurite Tū apart from most other falls prevention research and delivery, a for-Māori-by-Māori approach. These organisations are more likely to understand te Ao Māori elements such as aroha, awhina, te reo Māori, and having good relationships within Māori communities.

Taurite Tū research being delivered by marae and Māori health organisations was intentional, to ensure the kaupapa remained tūturu and nestled in te ao Māori. Delivering this project in Māori spaces that embed outcome measurements that include hauora Māori perspectives and prioritising mātauranga Māori created a safe, mana enhancing space for kaumātua. The feedback from kaumātua tells us

that this aspect of Taurite Tū has helped to achieve retention and engagement rates.

Addition of kawa specific to rohe

Not understanding this variance within iwi, taking “a one shoe fits all” approach can present major barriers to care access for Māori and is vital for Māori engagement and uptake of injury prevention and rehabilitative initiatives. Embedded within the Māori communities they serve, Māori organisations often understand the political and cultural landscapes within these communities and more equipped to reflect regional variations.

Taurite Tū delivery through Māori organisations allowed for the adaptations to Taurite Tū delivery, reflecting variance in tikanga, kawa and reo existing. Many kaumātua requested local variations to be applied and seeing Taurite Tū adapt based on their feedback was empowering to them. This is another engaging benefit of delivering Taurite Tū through Māori organisations.

Taurite Tū is engaging for Kaimahi Māori: Many organisations partnering in this project had never been previously involved in health research. The TRŌ Taurite Tū team trained 35 Kaimahi (research assistants and instructors) over multiple wānanga to upskill them on research methods and Taurite Tū exercise delivery. Fortnightly online conference calls also supported the success of the research. This connectivity between all the areas involved in this research led to the creation of the “Taurite Tū whānau”.

Experiences for these kaimahi was captured in an associated research project conducted by two Māori physiotherapy students in 2022 (funded by the University of Otago Falls Network, Tū Ora). They interviewed kaimahi to assess the experiences of being involved in Taurite Tū research. Results described many benefits for kaimahi involved in this research experienced including: increased connection to te Ao Māori, improved use of te Reo Māori and mātauranga Māori, and strengthened connections to Māori communities they serve. This is a huge outcome for one Māori organisation (TRŌ) to have supported such health research and workforce capacity within other Māori organisations.

**He raki tā matawhāiti, he
raki tā matawhānui.**

*A person with narrow vision has a restricted horizon; a person with wide
vision sees many opportunities.*

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IMPLEMENTATION OF RESEARCH FINDINGS FOR IMPACT

Taurite Tū is transferable

This report highlights the beneficial outcomes Taurite Tū wellness programme offered. These benefits were experienced within both the Phase 1 trial (original groups with Te Rūnanga o Ōtākou takiwā) and Phase 2 trials (other areas in southern Ngāi Tahu takiwā and in other iwi in Te Ika o Maui.)

Results in Phase 1

(longitudinal study) demonstrate the programme continues to be engaging and promote beneficial hauora outcomes for kaumātua Māori over extended periods of delivery.

Results from Phase 2

specifically demonstrate the Taurite Tū research and exercise delivery template can be successfully used in other areas of Aotearoa.

Given these findings and the understanding that there is a gap for accessible injury prevention and rehabilitative services targeting ageing Māori, TRŌ Taurite Tū research team felt a deep responsibility to spread access of Taurite Tū template for further reach around Aotearoa.

Translating research into Practice

Taurite Tū Ltd was established as a charitable company, under the umbrella of TRŌ, to pursue the implementation of the research results widely.

Taurite Tū across the motu

ACC co-funded TRŌ Taurite Tū research, to find equitable solutions for ageing Māori accessing ACC injury prevention and rehabilitative services. The results from this research have supported Taurite Tū template as a viable solution here. Through much work and communication between PI and key ACC staff involved in promoting improved ACC services for Māori, a contract was signed with ACC and TRŌ Taurite Tū Ltd in March 2023 to support Taurite Tū programme delivery into 15 new rohe/areas across Aotearoa to 450+ kaumātua. Currently, ACC is funding the delivery of Taurite Tū template within 12 new areas throughout Aotearoa (Whangārei, Tauranga, Hamilton, Taranaki, Whanganui, Wairoa, Hastings, Napier, Hokitika, Ōtautahi, Rāpaki, Arowhenua) and 2 of the Phase 2

rohe (Turanga Health and Ora Toa).

WellSouth (southern PHO) also identified the benefits of Taurite Tū research and delivery for the Māori communities within their area they serve. They contacted the Taurite Tū Ltd to see how they could support the continuation and growth of the kaupapa within their catchment area. In May 2023 Well South agreed to fund the continued delivery of Taurite Tū seven southern Taurite Tū roopu involved in this research) and one new roopu. WellSouth are also hoping to use Taurite Tū as a model of care for addressing long term conditions. This is exciting that a kaupapa Māori model of delivery is being held up as a potential model for other communities.

As of July 2022, 22 Māori organisations delivering Taurite Tū to kaumātua Māori around Aotearoa. These organisations have all been trained and prepared with resources. Feedback from the new group delivering Taurite Tū additionally indicate the benefits of the programme are transferable.

Taurite Tū research contributed to field of Physiotherapy

As a physiotherapy-based exercise programme Taurite Tū provides opportunities, particularly Māori physiotherapists, to offer kaupapa Māori solutions within their physiotherapy practice. As for the research, all roopu delivering Taurite Tū have a physiotherapist involved with the programme, promoting access to additional treatment and rehabilitation services for kaumātua Māori. Given Ms Bryant (PI) is also employed at University of Otago School of Physiotherapy has allowed results from this research contract to disseminated directly to physiotherapists. Ms Bryant has incorporated Taurite Tū programme and kaupapa Māori research techniques into the undergraduate and post graduate curriculum and programmes.

Further Development

Te Aka Whai Ora funding has been established for to further develop Taurite Tū exercises and facilitate resources being made to support regional variations for groups delivering Taurite Tū, set for 2023-24.

Additionally, Ms Bryant was awarded a University of Otago Research Grant (UORG) in 2022 to further research the potential of slow performing mau rākau to be incorporated into Taurite Tū. This additional research will contribute to

physiotherapy biomechanical research by piloting tikanga Māori research processes and contributing kaupapa Māori and mātauranga Māori learnings.

Collaborations have been established with an international indigenous researchers involved in the use of indigenous movement patterns within wellness programs. These connections are being pursued to work together, Taurite Tū researchers encouraging others to promote use of traditional indigenous practices as modern-day solutions for indigenous people.

Sustainability

Taurite Tū research supports an engaging programme for Māori requires long term delivery, with research participants acknowledging they are not interested in participating in short term programmes.

As outlined in the injury prevention literature, the Wren reports [12-13], to be successful in addressing inequities experienced by Māori, a successful programme must be supported for a 3-5-year period for equitable solutions to be realised.

Based the outcomes from this research and developments in implementation, Taurite Tū Ltd are working on a sustainability model for Taurite Tū.



Mā te kimi ka kite, Mā te kite ka mōhio, Mā te mōhio ka mārama.

Discover and know. Know and become enlightened.

Conclusion

There are many benefits that have come out of this research and delivery of Taurite Tū. The research results have contributed to Taurite Tū being supported to be implemented further throughout Aotearoa, the positive benefits reaching many more pakeke and kaumātua Māori.

This is a huge outcome resulting from the investment of HRC, ACC and Ageing Well National science challenge. Te Rūnanga o Ōtākou Taurite Tū Ltd acknowledge this opportunity and remain committed to developing and sharing programme for broader reach, driven to work towards equitable outcomes for Māori.

Locations marked:

- Te Whare Ora Tikipunga, Whangārei*
- Huria Trust, Tauranga*
- Rauawaawa Kāumātua Charitable Trust, Hamilton*
- Albatross Enterprise, Taranaki*
- Nga Tai o te Awa, Whanganui*
- Turunga Health, Gisbourne*
- Wairoa Kahungunu Exec, Wairoa*
- Te Kupenga Hauora, Napier*
- He pua mā Katoa, Hastings*
- Ora Toa, Porirua*
- Te Rūnanga o Ngāti Waewae, Hokitika*
- Tu Pouakai, Christchurch*
- Rāpaki/Lyttleton*
- Arowhenua, Temuka*
- Tumai Ora Whānau Services, Oamaru and lower Waitaki*
- Kāti Huirapa Rūnaka ki Puketeraki, Karitane*
- Uruuruwhenua, Cromwell*
- Te Rūnanga o Ōtākou and Te Kāika, Dunedin*
- Hokonui Rūnanga, Gore*
- Ngā Kete, Invercargill*
- Awarua, Bluff*



22 Locations delivering Taurite Tū

Diagram 3. Locations delivering Taurite Tū

This proposed sustainability plan aims to achieve ongoing impact and greater reach, and is early working on steps towards Māori organisations sustainably delivering Taurite Tū:

- 1 Kaitiakitaka**
TRŌ Taurite Tū Ltd have responsibility over Taurite Tū template, supporting other roopu by sharing Taurite Tū resources. TRŌ Taurite Tū Ltd do so through the tikanga and processes developed through Taurite Tū research and implementation, for which Taurite Tū Ltd act as the kaitiaki. Funding sustained by TRŌ supports the establishment of the Taurite Tū within other roopu- training and equipment.
- 2 Mana Motuhake**
Self-determination within each rohe to establish their own kawa and means of engagement specific to the takiwā, rohe and Māori community and the Māori organisations delivering Taurite Tū. Taurite Tū Ltd and funding continue to support other rohe delivery of Taurite Tū.
- 3 Tino rangatiratanga**
Sustainability is aimed to be established long term also beyond equity funding of 5 years as it becomes fully embedded in business as usual, into the Māori organisations delivering Taurite Tū.



TAURITE TŪ PHOTOS



Katrina Bryant with kaimahi and participant filming exercises.



Ora Toa participants and kaimahi.



Nga Kete kaimahi.



Kaumātua and kaimahi at Turanga Health.



Kai at Ngā Kete.



Ōtākou whānau walk around harbour.



Te Kāika Class in action.



Former Television Presenter Ollie Ohlson.



Nga Kete Participant.



Ōtākou whānau practicing poi.



Members of the Taurite Tū whānu in front of Tamatea, whareniui at Ōtākou marae.



Ora Toa Taurite Tū participants from Porirua.



Former television presenter Ollie Ohlson, left, and Taurite Tū Pou Manawa Meana Wesley record the Taurite Tū soundtracks in the Kāi Tahu mīta and a pan-Māori mīta at the University of Otago School of Performing Arts recording studios, supported by sound engineering skills of technician, Stephen Stedman.



Nga Kete participant.



ACC visit Te Kāika classes.

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Glossary

(Translations from Te Aka Māori Dictionary).

Hau kaik	<i>Kāi Tahu version of 'hau kainga' meaning local people of a marae</i>
Hikoi a awa	<i>River walking</i>
Hui	<i>Meeting</i>
Kaimahi	<i>Staff</i>
Kaimirimiri	<i>Masseuse</i>
Kaitiakitanga	<i>Guardianship / stewardship</i>
Kāpehu	<i>Compass</i>
Karakia	<i>Chant / prayer</i>
Karakia timatanga	<i>Opening prayer</i>
Karakia whakamutunga	<i>Closing prayer</i>
Matauranga / matauraka	<i>Knowledge</i>
Mau rakau	<i>Māori weaponry</i>
Mita	<i>Dialect</i>
Poi	<i>Traditional Māori exercise</i>
Pou manawa	<i>The heart / essence of the kaupapa</i>
Rongoā	<i>Remedy</i>
Takiwā	<i>Territory / region / district</i>
Te ao Māori	<i>The Māori world</i>
Te reo Māori	<i>The Māori language</i>
Ti rakau	<i>Stick game</i>
Tikanga	<i>Customs</i>
Tuturu	<i>Authentic</i>
Waewae manu	<i>Bird legs</i>
Wānanga / wānaka	<i>Seminar / conference</i>
Whakaoriori	<i>Lullaby</i>

Appendix one

Hui/Conference Presentations

2021

September 8 2021. Rūnaka based research - working alongside Rūnaka towards equitable outcomes. Presenter: Ms Katrina Pōtiki Bryant. Otago Spotlight Series: Achieving Health Equity from Research.

December 3 2021. Taurite Tū: Rūnaka driven research and delivery of community strength and balance and wellness programme engaging kaumatua Māori. Plenary Speaker: Ms Katrina Pōtiki Bryant. ANZ Falls Prevention Society 9th Biennial Australian and New Zealand Falls Prevention virtual conference.

2022

February 14 2022. Collaboration with Kaumātua Māori in research from a Kaupapa Māori perspective. Invited speaker: Katrina Pōtiki Bryant. Collaboration For Ageing Research (CARE) virtual symposium, University of Otago.

March 24-25, 2022 Community research response in Aotearoa New Zealand to COVID19 restrictions. Keynote Speaker at Virtual Conference held by University of Saskatchewan, Canada: Collaborating for Health and Wellness: Rehabilitation Research Including the Impacts of COVID-19. <https://medicine.usask.ca/events/2022/03/2021-collaborating-for-health-and-wellness-virtual-conference.php>

April 1-3 2022 Taurite Tū: Rūnaka based health research and delivery addressing equitable outcomes for our Kaumātua Māori. Invited speaker: Ms Katrina Pōtiki Bryant. New Zealand Rehabilitation Association (NZRA) 2021/22 Achieving Equity in Rehabilitation Conference.

May 15th 2022. Taurite Tū Kaupapa Māori Response to Falls Prevention. Invited speaker: Ms Katrina Pōtiki Bryant. Physiotherapy New Zealand Māori Partnership roopu, Tae Ora Tinana, Whanangatanga hui.

May 29-31 2022. Taurite Tū- indigenous strength and balance programme effective for falls prevention for Māori populations. Invited speaker: Ms Katrina Pōtiki Bryant. Native American and Indigenous Studies Association (NAISA) Conference 2022 - Regional Gathering Brisbane, University of Queensland NAISA Conference 2022 - University of Queensland (uq.edu.au)

September 7-10 2022. The Impact of Culture on research: A New Zealand perspective. Online Presenter: Katrina Pōtiki Bryant. International Continence Society (ICS) 2022 conference, Vienna <https://www.ics.org/2022/session/7403>

October 19th 2022. Kaupapa Māori approaches Towards Achieving Equity. Invited speaker: Ms Katrina Pōtiki Bryant. New Zealand Rehabilitation Association online conference, Achieving Equity in Rehabilitation.

Nov 15 2022. Te Rangiratanga Kaumātua: Kaupapa Māori Strength and Balance Programme for Falls Prevention. Katrina Pōtiki Bryant, Anne Robinson, Nadine Young, Tammi Topi, Tarah Ah Kiau Invited speaker at National Kaumātua Service Provider Hui. Whanganui

2023

June 2-4 2023. Indigenous Leadership: Reimagining Health Education for and with Indigenous Communities. Invited Speakers: Oka Sanerivi, Ms Katrina Pōtiki Bryant, Ms Nomusa Ntinga. World Physiotherapy Congress 2023. https://wp2023.world.physio/?_ga=2.219338396.461570861.1690760733-683518512.1686634537#/programme/session/da7ad0c0-3ed1-4500-1346-010000000018 https://world.physio/sites/default/files/2022-07/PressRelease_WorldPhysio2023_FS.pdf

Non-conference lectures and presentations

2022

May 2022 Taurite Tū, an initiative for kaumatua Guest Speaker, Teaching into Māori health paper, MAOH 301, University of Otago Bachelor of Health Sciences

Oct 21st 2022 Taurite Tū- Kaupapa Māori Evidence Based solution. Presentation to National GPNZ Māori Health Leaders Roopu hui at WellSouth, Otepoti.

Meetings/Workshops/Wānaka

2021

May 19th-21st 2021 Phase 2 Initial Wānaka for Phase 2 Researchers. Ōtākou Marae

June 9th-11th 2021. Development Hui Phase 1 researchers, Ōtākou Marae

2022

November 10th 2022. Taurite Tū Hui for all researchers involved HRC/ACC/AW Research Project 2021-2023. Achieving Equity For Ageing Māori. Ōtākou Mārae.

2023

July 2022. Dissemination hui with all participating rohe and participants to ascertain the accuracy of the research results. Occurred at research venues including; Ora Toa premises, Tomairangi Marae, Ōtākou Marae, Te Kāika Gymnasium, Puketeraki Marae, Tumai Ora Premises, Hokonui Marae.

2021-2023

Fortnightly and Monthly Taurite Tū zoom meetings with Phase 1 and 2 research teams throughout trial. Online.

Advisory positions

Katrina Pōtiki Bryant, Health Research Council 2022 Ngā Kanohi Kitea, Project and Training Grant Assessment Panel

Moana Wesley, advisor on Tū Ora Otago Falls Network and advisor on University of Otago Research Grant; Kaupapa Māori Research approach to assessing biomechanics of Mau Rākau sequences for lower limb musculature strengthening useful for falls prevention- a pilot study.

Committee memberships

Katrina Pōtiki Bryant, Co-Director University of Otago, Otago Falls Network <https://www.otago.ac.nz/research/centres/otago0244591.html>

Katrina Pōtiki Bryant, Board Member of New Zealand Association of Gerontology

Training

2021

June 29th 2021. Interviewing Training using Te Pū Wānaka/Zui. Presented online by Ms Katrina Pōtiki Bryant to all Phase 2 research Assistants.

August 3, 11th 2021. Southern Rohe Instructor Training at Hokonui (For Hokonui, Awarua, Ngā Kete, Waitaki), and Southern site visits

July 27- 28th 2021. Northern Rohe Instructor Training and site visits Turanga Health/ Ora Toa September 21st 2021. Thematic Analysis Training. Wānaka/Zui online.

Media engagements

April 7th 2021 New Zealand Health Research Council press release about recipients of funding achieving equity for aging Māori <https://hrc.govt.nz/news-and-events/recipients-three-partnership-programme-rfps-announced>

April 16th 2021 ACC press release. Kaupapa Māori research underway with 2.3 million joint funding. <https://www.acc.co.nz/newsroom/stories/kaupapa-Māori-research-underway-with-2-3m-joint-funding/>

August 4th 2021 Appearance on Radio Southland MANA show, Promoting Taurite Tū research in the South. Ms Tia Taiaroa (Taurite tū Project Manager) and Ms Katrina Pōtiki Bryant (Taurite tū Project Lead).

April 21 2022 Kaumātua Relay Their Way. Article in The Star Newspaper. The return of Taurite Tū to gathering together after a period of time isolating around the Omicron outbreak. The kaumatua came together for fundraising for Cancer Society relay for life.

8th June 2022 Interview on Radio Watea about Current Taurite Tū research and HRC Ngā Kanohi Kitea Grants <https://waateanews.com/tag/paakiwaha/page/452/>

June 22 2022 HRC Boosts access to community research funding. HRC promotion of the Taurite Tū research to promote Kanohi Kitea grant funding. Taurite Tū kaupapa. <https://www.hrc.govt.nz/news-and-events/hrc-boosts-access-community-research-funding>

July 15 2022 Elders Standing Strong- article about Taurite Tū participant in Ngā Kete in Daily Encourager <https://www.tauritetu.co.nz/news/article-elders-standing-strong-together/>

April 13th 2023. Kaupapa Strength Classes go National. The Star Newspaper. <https://www.odt.co.nz/the-star/strength-classes-go-national>

29th March 2023. Wellsouth Partners with Taurite Tū to improve the lives of kaumatua. Wellsouth newsletter <https://wellsouth.nz/community/news/view/wellsouth-partners-with-taurite-tu-to-improve-the-lives-of-kaumatua-Māori>

29th March 2023.NZDoctor article about Wellsouth partnering iwth Taurite Tū <https://www.nzdoctor.co.nz/article/wellsouth-partners-taurite-tu-improve-lives-kaumatua-Māori>

National Science Challenge Ageing website. Highlights the Taurite Tū research <https://www.ageingwellchallenge.co.nz/research/taurite-tu/>

New Zealand Health Research Council website <https://hrc.govt.nz/resources/research-repository/taurite-tu-achieving-equitable-injury-prevention-outcomes-ageing>

Centre for Health, Activity and Rehabilitation Research (CHARR) University of Otago Falls Research page <https://www.otago.ac.nz/physio/research/otago828490.html>

Appendix two

Researcher collaborations

Prof. Reg Urbanowski, University of Manitoba; Research collaboration; indigenous approaches for physiotherapy and physiotherapy curriculum.

Dr Mele Look, University of Hawai'i; Continued collaboration looking at Hula, Mau Rakāu and other indigenous exercises used in rehabilitation.

Professor Nancy Longnecker, University of Otago; Research collaboration: Providing Culturally Safe resources for travelling National Science Challenge Ageing Well exhibition and Culturally Safe approaches to research collaboration in Science Communication.

Data Analysis of Physical Tests Assessing Falls Risk

Full sample: A significant decrease in TUG time, a significant increase in number of sit to stand a significant increase in balance 3 and balance 4.

	Pre					Post					p-value
	N	Mean	Std. error	Std. dev	95%CI	N	Mean	Std. error	Std. dev	95%CI	
TUG	118	11.30	0.48	5.26	10.35-12.26	118	9.70	0.42	4.52	8.88-10.53	<0.00
STS	118	11.58	0.42	4.53	10.75-12.40	118	14.20	0.44	4.82	13.33-15.08	<0.00
Balance 1	118	9.83	0.12	1.29	9.59-10.07	118	10.00	0.00	0.00	10.00-10.00	0.1582
Balance2	118	9.65	0.17	1.82	9.32-9.98	118	9.98	0.02	0.18	9.95-10.02	0.0507
Balance3	118	8.34	0.29	3.15	7.76-8.91	118	9.49	0.17	1.85	9.15-9.82	<0.00
Balance4	118	4.98	0.36	3.89	4.27-5.69	118	7.27	0.33	3.61	6.62-7.93	<0.00

Phase 1: A significant decrease in TUG time, a significant increase in number of sit to stand a significant increase in balance 3 and balance 4.

	Pre					Post					p-value
	N	Mean	Std. error	Std. dev	95%CI	N	Mean	Std. error	Std. dev	95%CI	
TUG	40	10.91	0.63	3.96	9.64-12.17	40	8.97	0.52	3.31	7.91-10.02	<0.00
STS	40	11.5	0.83	5.26	9.82-13.18	40	14.7	0.88	5.54	12.93-16.47	<0.00
Balance1	40	9.5	0.35	2.21	8.79-10.21	40	10.00	0.00	0.00	10.00-10.00	0.1599
Balance2	40	9.5	0.35	2.21	8.79-10.21	40	9.95	0.05	0.32	9.85-10.05	0.2117
Balance3	40	7.87	0.59	3.76	6.67-9.08	40	9.47	0.29	1.81	8.89-10.05	0.0029
Balance4	40	5.14	0.66	4.15	3.81-6.47	40	7.08	0.56	3.54	5.95-8.22	0.0002

Phase 2: A significant decrease in TUG time, a significant increase in number of sit to stand a significant increase in balance 3 and balance 4.

	Pre					Post					p-value
	N	Mean	Std. error	Std. dev	95%CI	N	Mean	Std. error	Std. dev	95%CI	
TUG	78	11.51	0.66	5.83	10.19-12.82	78	10.08	0.57	5.01	8.95-11.21	<0.00
STS	78	11.62	0.47	4.14	10.68-12.55	78	13.95	0.50	4.42	12.95-14.94	<0.00
Balance1	78	10.00	0.00	0.00	10.00-10.00	78	10.00	0.00	0.00	10.00-10.00	-
Balance2	78	9.73	0.18	1.59	9.37-10.09	78	10.00	0.00	0.00	10.00-10.00	0.1349
Balance3	78	8.57	0.32	2.78	7.95-9.20	78	9.49	0.21	1.88	9.07-9.92	0.0002
Balance4	78	4.89	0.43	3.77	4.05-5.75	78	7.37	0.41	3.66	6.55-8.19	<0.00



**Principal Investigator of
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Ms Bryant has been a practicing physiotherapist since 1995. She is driven to address equity for Māori accessing services, with a special interest for integrating indigenous movement practices into rehabilitation. Ms Bryant is the Associate Dean Māori and Lecturer at the University of Otago School of Physiotherapy, supporting Kaupapa Māori Research. She is also employed by Te Rūnanga o Ōtākou Taurite Tū Ltd as Project Lead, overseeing Taurite Tū research and delivery across Aotearoa.





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