

Chair Chi Plus

Craigcare Berwick



PILOT STUDY REPORT

Prepared by
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Relate, create and innovate .. for Aged Care

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Trish Cox
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Executive Summary

Within the current context and drivers of the Aged Care sector, and based on significant research studies outlining the potential benefits of Tai Chi for the elderly, Chris Bennett developed the Chair Chi program for residents in Aged Care facilities. Chair Chi consists of activities adapted from Tai Chi that can be done sitting down, and to date Chris has delivered more than 750 of these sessions for residents in local aged care facilities in Melbourne.

Following the success of this program, the Chair Chi Plus program was subsequently developed with the purpose of improving overall wellbeing – physically, psychologically, emotionally and socially. The program also had the following key aims:

- To increase leg strength
- To improve balance
- To achieve a cardiovascular workout
- To enhance emotional and psychological wellbeing

One of Chris's Chair Chi clients is Craigcare Berwick, a purpose built aged care facility, with both nursing home and hostel, located 40 minutes east of the Melbourne CBD. Thanks to the willingness of this facility to participate in the study and the generous support of their staff, a six week Chair Chi Plus pilot program was implemented at the facility.

The Chair Chi Plus pilot program is unique. As far as we are aware, this is the very first time in Australia – perhaps even globally – that a program with the structure and combined elements of Chair Chi Plus has been delivered in an aged care setting, particularly for residents with more complex care needs.

Six residents volunteered to participate in the pilot program. The only requirement was that they were able to stand and walk, with or without the aid of a walker. Their ages ranged between 81 and 96, all were on various medications for physical or cognitive reasons, and half of the group used a walker while the other half did not.

The program consisted of 16 sessions, held over six weeks. It was comprised of a series of activities, based on Tai Chi, designed to enhance balance, leg strength and cardiovascular fitness. Activities began gently, increasing in duration and intensity over the course of the six weeks. A positive and encouraging approach was taken throughout so residents were able to finish each session with a sense of achievement.

During every session participants' pulse rates were recorded three times – at the start (resting pulse), at the mid-point and at the end of the session – to assess



the level of cardiovascular workout achieved. Other measures were recorded related to the length of time each resident could sustain a particular activity and or the number of steps he or she could take during a 'tai chi walk'.

Feedback from residents was sought, both at the end of Chair Chi Plus sessions and at completion of the whole program.

A staff member from Craigcare Berwick was present in each session to assist. These staff members were interviewed to obtain their feedback on the session and the interviews were transcribed. A longer interview was conducted with the Craigcare Berwick Lifestyle Coordinator on completion of the program. This was also recorded and transcribed.

This report initially explains the Chair Chi and Chair Chi Plus programs, outlining some of the background research informing their development. It then covers the purpose, aims, structure and methodology of the Chair Chi Plus Pilot Study.

Outcomes of the pilot (both quantitative and qualitative) are presented and discussed as well as the achievements of the program, significant factors contributing to its success and some problematic issues that were encountered along the way. Recommendations are also made for program improvement to overcome or avoid these issues, should Chair Chi Plus be implemented elsewhere.

The limitations of this pilot study (for example the size of group, relatively short duration of the program and other issues related to data collection) are such that only tentative conclusions may be drawn in relation to its longer term gains or benefits.

Nevertheless there is significant evidence to suggest that participants were able to reach an enhanced (but still safe) level of cardiovascular workout, increase the length of time they could stand unaided and gain some improvement in their balance. It was also evident that their enthusiasm and level of engagement remained high throughout the program – higher than staff had anticipated.

The conclusion of this pilot study is that Chair Chi Plus can potentially provide significant benefits for residents in an aged care facility and would be a worthwhile program to consider as part of an overall exercise and wellbeing strategy.



Introduction & Background

The Aged Care Context

Various reforms and policy changes have impacted providers in the Aged Care sector over many years. There were home and community care reforms in the 1980s, then reforms for intensive care services at home and residential aged care in the 1990s. In more recent times Community Packaged Care, the NDIS and other governmental initiatives have required providers to respond and adapt yet again.

However the major theme of all these reforms has remained much the same – there has been an ever-increasing emphasis on a healthier and more active lifestyle for all those who are entering the last phases of life.

As the National Aged Care Alliance stated in their 2013 *Blueprint for Aged Care Reform*, the prevailing vision is that *“Every older Australian is able to live with dignity and independence, in a place of their choosing with a choice of appropriate and affordable support and care services as and when they need them.”*

Whether our older citizens are choosing to continue living in their own homes, with community service support, or to re-home in alternative supported or residential accommodation, their needs are being served by a wide range of providers in an ever-evolving and vibrant Aged Care Sector that is dedicated to making their final years as enjoyable, active and healthy as possible.

From his experience in delivering Chair Chi sessions in aged care facilities, here in Melbourne, Chris Bennett observed this first hand, particularly in his contact with Lifestyle Coordinators, Diversional Therapists and other staff who are committed to providing a wide range of activities and community involvement opportunities for residents.

What is Chair Chi?

Chair Chi is a person centred approach designed to meet the physical, emotional, and psychological needs of both low care and high care residents in aged care centres. It's based on specific gentle movements that are adapted from Tai Chi and performed while seated on a chair, and it uses practical and easy to understand concepts based on the Yin Yang philosophy. It also draws on the framework of Appreciative Intelligence.



Why Chair Chi?

There have been a number of studies demonstrating the advantages and benefits elderly people can gain from Tai Chi activities - including “seated Tai Chi”, which is the core of the Chair Chi program.

For example, Tai Chi has been found to reduce stress and anxiety. One pilot study (Esch et. al. 2007¹) concluded that subjective health increased and stress decreased (objectively and subjectively) during Tai Chi practice.

Another study (Wang et. al., 2010²) concluded that *Tai Chi appears to be associated with improvements in psychological well-being including reduced stress, anxiety, depression and mood disturbance, and increased self-esteem.*

The impact of Tai Chi on health-related quality of life has also been investigated. For example one such study, originally published in Chinese, (Lee et. al. 2009³), found there were statistically significant health benefits from Tai Chi for nursing home residents which indicated “*support for its use in this population to improve HQQOL*” (health-related quality of life.) They concluded that *Tai Chi has unique characteristics as a health exercise that is particularly suitable for nursing home residents’.*

Yet another study by Shin et.al (2015)⁴ found that *Tai Chi exercise improved endothelial dysfunction and arterial stiffness in elderly women with rheumatoid arthritis, suggesting that it can be a useful behavioral strategy for CVD prevention in patients with RA.*

And finally, a randomised controlled trial conducted by Chen-Yuan Hsu at Griffith University in New South Wales in 2012⁵, found that the use of a seated Tai Chi exercise program for a group of residents in a long term care facility produced a

¹ Esch T, Duckstein J, Welke J, Braun V., *Mind/body techniques for physiological and psychological stress reduction: stress management via Tai Chi training - a pilot study* (2007) Medical Science Monitor 2007 Nov;13(11): CR488-497

² Wang C., Bannuru R., Ramel J., Kupelnick B., Scott T., Schmid C.H., *Tai Chi on psychological well-being: systematic review and meta-analysis* (2010) BMC Complementary and Alternative Medicine BMC series 2010 10:23

³ Lee L.y., Lee D.T., Woo J., *Tai Chi and health-related quality of life in nursing home residents.* (2009) Journal of Nursing Scholarship 2009 Mar;41(1):35-43

⁴ Shin J., Lee Y., Soon G.K., Bo Y.C., Hye-Soon L., So-Young B., *The beneficial effects of Tai Chi exercise on endothelial function and arterial stiffness in elderly women with rheumatoid arthritis* (2015) Arthritis Research & Therapy 2015 17:380

⁵ Hsu, Chen-Yuan, *The Effect of Tai Chi on Quality of Life of Older People Living in Long - Term Care and Using Wheelchairs for Mobility: A Randomized Controlled Trial (RCT)* (2012), School of Nursing and Midwifery, Griffith University NSW.



significant improvement in their quality of life, a reduction in their level of depression and fatigue, an increase in self-efficacy compared with those who had no seated Tai Chi intervention.

These are just a few of an increasing number of research studies arguing for the benefits of Tai Chi for the elderly. While many of them recommend further research, particularly longitudinal studies looking at longer-term benefit, there is a growing body of evidence that Tai Chi – or activities based on Tai Chi – can have a significant and highly positive influence on the health and wellbeing of elderly aged care residents in a number of ways.

Our Chair Chi program was therefore developed as a person centred approach that would be beneficial for all residents in aged care centres, whatever their level of physical or cognitive capacity. The program is more than just an 'exercise' – it is designed to engage, enthuse and empower the participants.

The response from both residents and staff to Chair Chi sessions has been very positive, indicating these are both enjoyable and of benefit for residents:

Chair Chi is something everybody can do. Chris is great with the residents, explaining the exercises and the benefits well. The great thing about Chair Chi is it is low impact (exercise) in a chair. It is great for all residents but even those that have mobility problems can participate actively. It has the biggest turnout out of all our exercise classes. They enjoy it and return. (Chereyne Colby - Lifestyle Co-ordinator - Willowbrooke Aged Care Hostel)

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First time I joined in with the residents I felt so relaxed afterwards - that's all you think about at that time, that is where your focus is, you just put all your other thoughts aside. You feel very refreshed afterwards! It gives another slant on exercises we do, different, good to have that variety. I don't have to ask the residents twice to attend Chair Chi because they really enjoy it, they feel good every time. Overall they look forward to it and that's a bonus. When I say Chair Chi, residents say make sure I come down. (Rosalie Morrissey (Lifestyle Co-ordinator - John R. Hannah Aged Care Facility)

Our residents tell us how much they enjoy your sessions and we the staff can see their keen interest and the benefit these classes bring to them. They love the fact that they can remain seated and that is of great benefit to our wheelchair bound residents. (Debra Filippini, Lifestyle, Bupa Care Services Donvale)

Our residents tell us how much they enjoy your sessions and we the staff can see their keen interest and the benefit these classes bring to them



Falls Prevention and Tai Chi

One of the challenges facing residential aged care facilities is the prevention of falls – a significant risk factor for older citizens:

*As you grow older, changes in your body such as vision problems, weakening muscles and stiffening joints can increase your chances of falling. Falls can also be a sign of a new health problem, medication side effects or balance problems. Even short-term illnesses (such as the flu and other infections) or surgery can temporarily increase the risk of falling.*⁶

Falls are the leading cause of deaths from injury for people aged 65 and over. And health system costs due to injuries from falls reached \$100 million per year in 2005, exceeding the cost of road injuries.⁷

The Australian Commission on Safety and Quality in Health Care (ACSQHC) *“recognises that falls and fall-related injuries are a significant problem in Australian hospitals, residential aged care facilities (RACFs), and the general Australian community, due to the ageing population, the incidence of falls, and the negative impacts of falls for both individuals and organisations”*.⁸

Based on several research studies⁹, The ACSQHC recommends the following strategies for common falls risk factors related to balance and mobility issues:

- Use supervised and individualised balance and gait exercises as part of a multifactorial intervention to reduce the risk of falls and fractures in residential aged care facility residents.

⁶ Source: My Aged Care: <http://www.myagedcare.gov.au/healthy-and-active-ageing/preventing-falls-in-elderly>

⁷ Australian Government Home & Community Care, *The National Slips and Falls Prevention Project Learning Resource for HACC Workers* (2005)

⁸ Australian Commission for Safety and Quality in Health Care, *Implementation Guide for Preventing Falls and Harm from Falls in Older People for Hospitals and Residential Aged Care Facilities* (2009)

⁹ Research studies: a) Sherrington C, Whitney J, Lord S, Herbert R, Cumming R and Close J (2008). *Effective exercise for the prevention of falls: a systematic review and meta - analysis*. Journal of the American Geriatrics Society 56(12):2234–2243. 83; b) Lord S, Castell S, Corcoran J, Dayhew J, Matters B, Shan A and Williams P (2003). *The effect of group exercise on physical functioning and falls in frail older people living in retirement villages: a randomized controlled trial*. Journal of the American Geriatrics Society 51(12):1685–1692. c) Schnelle J, Kapur K, Alessi C, Osterweil D, Beck J, Al-Samarrai N, Ouslander J and Schnelle J (2003). *Does an exercise and incontinence intervention save healthcare costs in a nursing home population?*, Journal of the American Geriatrics Society 51(2):161–1



- Consider using gait, balance and functional coordination exercises as single interventions¹⁰

Recent research studies indicate that Tai Chi – which is a ‘supervised and individualized balance and gait exercise’ – can be a beneficial activity in prevention of falls in the elderly.

For example, in 2005, Li et. al. (2005)¹¹ evaluated the efficacy of a 6-month Tai Chi intervention for decreasing the number of falls and the risk for falling in older persons. They found that *“A three-times-per-week, 6-month Tai Chi program is effective in decreasing the number of falls, the risk for falling, and the fear of falling, and it improves functional balance and physical performance in physically inactive persons aged 70 years or older.”*

Liu and Frank (2010)¹² reviewed 19 different studies conducted between 2000 and 2007 and concluded that Tai Chi *may be an economic and effective exercise program for improving balance and balance confidence in older adults.*

Jimenez-Martin et.al. (2013)¹³ also studied the effects and outcomes of 27 random controlled studies, analysing the factors affecting balance. They concluded that *Tai Chi improves both static and dynamic balance and has a positive effect on those factors that influence balance.*

Development of the Chair Chi Plus Pilot Study

Given the success and popularity of the Chair Chi sessions in aged care facilities, Chris Bennett decided to approach an existing client, by whom he was engaged to deliver Chair Chi sessions, and conduct a pilot study incorporating exercises based on Tai Chi to help improve gait and balance – and therefore reduce the risk of falls – for a small sample of residents, as well as to provide an aerobic workout. Participants would be volunteers, invited from residents who could stand and walk to at least a limited extent – with or without the aid of a walker.

¹⁰ Australian Commission for Safety and Quality in Health Care, *Implementation Guide for Preventing Falls and Harm from Falls in Older People for Hospitals and Residential Aged Care Facilities* (2009)

¹¹ Li F., Harmer P. Fisher J., McAuley E., Chaumeton N., Eckstrom E., Wilson L., *Tai Chi and Fall Reductions in Older Adults: A Randomized Controlled Trial*, Journal of Gerontology: Medical Sciences (2005), Vol. 60A, No. 2, 187–194

¹² Liu, Hao PhD, PT, Frank, Adam PhD; *Tai Chi as a Balance Improvement Exercise for Older Adults: A Systematic Review* (2010), Journal of Geriatric Physical Therapy, July/September 2010 - Volume 33 - Issue 3 - p 103–109

¹³ Jimenez-Martin PJ, Melendez-Ortega A, Albers U, Schofield D. A review of Tai Chi Chuan and parameters related to balance. Eur. J. Integr. Med. 2013 Dec;5(6):469–475.



The pilot program would also include some measurement and evaluation of the outcomes and impact of the exercises for participants.

The combination of chair, standing and walking Chi exercises would also give the program a greater degree of flexibility for those who were unable to stand for long periods of time such as would be required in a normal Tai Chi class

Craigcare Berwick

Craigcare Berwick is a purpose built aged care facility, with both nursing home and hostel, located 40 minutes east of the Melbourne CBD. It is one of Chris's regular Chair Chi clients and, as their website says, *is a close knit community within a community and this spirit fills the facility with laughter and fellowship*. An ideal setting for the Chair Chi Plus pilot program.

Chris therefore approached Craigcare Berwick, with the proposal to conduct a six week Chair Chi Plus pilot program with a selected group of residents. The Lifestyle Coordinator and staff responded very positively to the idea and permission was obtained from management for the program to go ahead.

The Pilot Program at Craigcare

A more detailed overview of this program is provided below. However it must also be added here that the pilot program at Craigcare is unique. As far as we are aware, this is the very first time in Australia – perhaps even globally – that a program with the structure and combined elements of Chair Chi Plus has been delivered in an aged care setting, particularly for residents with more complex care needs.

It is therefore a credit to Craigcare Berwick, management and staff, who were not only prepared to allow the program to take place in their facility but also actively supported it and contributed time and effort to making it a success.

About Chris Bennett

Chris partners with a colleague, Sue James, as BJ Seminars International. Together they provide a range of services and programs for clients in all age groups across corporate, small business, education, sporting and community sectors – specialising in work with the Aged Care sector.

Sue's many years of experience in facilitation and Appreciative Inquiry and Chris's many years of experience with Tai Chi led to the creation of the process they use in their work – the AQ-KQ® framework, a unique combination of Appreciative Intelligence® and Kinaesthetic Intelligence, drawing on both Appreciative Inquiry and Tai Chi.



Together they provide facilitation, consultancy and training services such areas as community engagement, leadership development, performance management, strategic planning, teamwork and wellbeing.

Foundations of their work include a commitment to strength-based approaches – focusing on possibilities rather than problems – and a belief in the wisdom and innate capacity of people to determine their own future

Chris has an extensive background in speaking, training, facilitating and coaching in personal and professional development and wellbeing.

His ability to engage and energise people of diverse backgrounds, cultures and ages is recognised and appreciated by the clients with whom he works.

He draws on a wide range of skills and experience, including over 28 years as a practitioner and teacher of Tai Chi.

At the time of writing this report, Chris has delivered more than 750 Chair Chi sessions over the last three years for aged care residents at all levels of physical and mental capacity, including in dementia units, in over 20 aged care centres in the eastern suburbs of Melbourne.

He has also delivered public and on-site Chair Chi training workshops for aged care staff Australia-wide.

Memberships:

- Australian Institute of Training and Development (AITD)
- WUSHU and Tai Chi Practitioners' Association Inc.



The Chair Chi Plus Pilot Program

Overall Purpose

- To improve overall wellbeing – physically, psychologically, emotionally and socially.

Key Aims

- To increase leg strength
- To improve balance
- To achieve an aerobic/cardiovascular workout
- To enhance emotional and psychological wellbeing

Structure & Methodology

Group Size

The final size of the participant group was small, as it was based on the number of volunteers who would like to take part and were able to make a commitment to the six week program, as well as those who could stand and walk with or without a walker. However this also made the group manageable in size, given staff workloads and also the need to record data during each session, including pulse rates.

Equipment

Very little equipment was needed for the program. Participants required chairs for the seated exercises, an available free wall space (for the standing exercises) and sufficient room for movement and walking.

Chi Exercises

These were seated Chi Kung (energy work) exercises (stationary) involving a series of warm up exercises and both slow and rapid arm movements

Tai Chi Stances

This segment of each session involved two basic Tai Chi stances (standing). The first was standing supported by a wall, the second was an unsupported stance – both without a walker.

The wall stance was used to support balance and increase leg strength. It was also a way of aligning the body in a correct posture to avoid knee problems.

Walkers were placed in front and nearby for the residents who used them, for both the wall stance and free standing activities, in case they needed to hold on



for balance. They did occasionally use the walker for support in the free standing activity but were encouraged to stand free without support.

Embrace the Tree (Sitting Posture)

In this activity, residents were seated and raised their arms in front of them as if they were 'embracing a tree'. The Embrace the Tree posture helps to build patience, endurance and concentration. It also develops the strength of the arms.

Tai Chi Walking

Tai Chi walking is a special form of exercise done by Tai Chi practitioners. This was adapted to take into consideration the age and physical capacities of the participants. Tai Chi walking is done very slowly and in for this study included pauses to strengthen legs and improve balance.

Under careful observation during the program it was considered a maximum of 12 steps was a safe but challenging target considering the age and condition of the participants.

For safety reasons, given the fact there were only the facilitator and one staff member present to assist, residents who customarily used walkers also used them in this activity.

Pulse Rate

To test for cardiovascular fitness, participant pulse rates were taken three times:

1. Resting – before start of session
2. Mid Pulse – about half way through
3. End Pulse – at end of session

During the period of time it took to take the pulse of participants at the mid-point and end point, active arm movements was included in the session for everyone other than the person whose pulse was being taken at that moment. This was to ensure cardiovascular activity was sustained.

A formula was then applied to the recorded pulse rates to check for the level of aerobic/cardiovascular workout attained.

There are a number of different methods and formulae available. The one we used for the Chair Chi Pilot Study is an approach recommended by the American Heart Association¹⁴.

¹⁴ American Heart Association, *Target Heart Rates*. Source: <http://www.heart.org/>



This is a commonly used method to gauge whether a physical activity has resulted in a cardiovascular workout:

1. Subtract your age from 220 – this is a maximum workout.
2. Then calculate 50% and 85% of that number as a safe work out range.
3. Take the pulse for 10 seconds and multiply the result by 6
4. Check the number obtained from step one, to see where it is on the scale.

For example:

1. $220 - 85\text{years} = 135$
2. $50\% \text{ of } 135 = 67.5$
 $85\% \text{ of } 135 = 114.75$
So a safe workout range is between 67.5 – 114.75 for an 85 year old person
3. If pulse count in 10 seconds is (for example) 12, then $12 \times 6 = 72$ per minute
4. This figure falls in the range of 67.5 – 114.75 i.e. just above a minimum workout rate for cardiovascular fitness

This method of calculating cardiovascular fitness is of course not an exact science, but it is a guide for assessing the impact of a physical activity.

It was a more practical option for the Chair Chi Plus program, which would be delivered in a location without convenient access to more sophisticated measuring equipment, such as would be available in a dedicated medical or sporting facility.

It was also chosen in part because it recommends a lower 'minimum work out' level than some of the other methods available and it was felt this would be a safer minimum target for the participants, considering their ages and various medical conditions.

Other Structural Information

Date Commenced: 25-3-15

Date Completed: 30-4-15

Duration: 6 weeks

Duration of session: 30 minutes

Scheduled: 4.00pm-4.30pm *

Sessions per week: 3 **

Total Sessions: 16

Participants: 6 ***

Staff Assistants: Trish (9 sessions), Cassie (4 sessions), Ann (1 session), Janine (1 session), Marie (1 session)



Notes:

* The time was not ideal because of the 'sundown effect' common to aged care, but was the only time slot that fitted with Chris's Chair Chi commitments and other activities booked for residents at Craigcare.

** Participants also attended their regular fortnightly Chair Chi sessions. During those two weeks it was decided to deliver only two Chair Chi Plus sessions in order not to overtire them

*** Some of the participants had been doing Chair Chi for 2 years so they were familiar with some of the sitting exercises

Low to High Intensity

Exercise intensity was increased by gradual increments over the course of the program, with an extra cardiovascular block of activity introduced at session 9, at the half way point of the program. This extra activity was designed to increase the cardiovascular workout rate.

Participants

Staff were asked to identify residents who would be suitable for the program and invite them to participate. The main criterion was that they were able to stand and walk, either with or without a walker.

Six residents volunteered so the pilot program consisted of three males and three females, aged between 81 and 96. Half of the group used walkers, and the other half did not:

Name	Age	Uses walker	Ongoing Medication	Attendance
Participant 1	96	Yes	Resource, Sustagen, Metoprolol, Maxolon, Paracetamol, Multivitamins	10/16*
Participant 2	94	Yes	Warfarin, Vitamin D, Lasix, Fish Oil	16/16
Participant 3	81	No	Zyprexa, Somac, Lexapro, Furosemide, Vitamin. D	9/16**
Participant 4	89	No	Metoprolol, Amlodine, Oxazepam, Risperdal	16/16
Participant 5	83	No	Risperdal	16/16
Participant 6	81	Yes	Novomix, Creston, Digoxin	16/16

Reasons for non-attendance:

* Participant 1: 'not feeling up to it'

** Participant 3 family visits and a doctor's appointment

In addition to the above six residents, two others (one of whom has acute anxiety) joined in the sessions from time to time as guests, even though they were not part of the study. They came and went at different points during the



sessions, depending on how they were feeling from moment to moment. Statistics were recorded for the participant with anxiety when she attended, but were not included in this report as they were not consistently available. No statistics were recorded for the second guest participant as she was wheel chair bound.

Physical and cognitive issues affecting members of this group are: short term memory loss (severe in one case); dementia; Alzheimer's (severe in one instance); and heart conditions (one with a pacemaker). Four of the six are affected by Sundowner Syndrome.

All participants are under medication for various conditions. Among these, nutritional supplements such as Resource, Sustagen or Multivitamins were not considered to cause concerns in relation to the delivery or outcomes of Chair Chi Plus activities. However the purpose as well as the potential side effects of other medications needed to be considered when delivering or evaluating the impact of the Chair Chi Plus pilot.

It is understood all medications are carefully administered and monitored by staff at the facility and the residents' doctors, to ensure maximum health benefits and minimal or zero side effects in each case. However it was important to design Chair Chi Plus activities in such a way that they would not risk exacerbating or triggering any of the potential side effects of medication.

Information about the above medications and their potential side effects (both common and less common) can be found in Appendix A of this report. From a longer list of possible side effects, we have listed only those more relevant to the Chair Chi Plus Pilot Study. (For example, such side effects as skin rashes, changes in menstruation, black stools or sexual dysfunction and disinterest have not been included in the list, as these were unlikely to be directly connected to any of the Chair Chi Plus activities.)

Given the other potential physical or psychological side effects of the various medications, it was particularly important through the Chair Chi Plus program to:

- Begin all activities gently, increasing only gradually in intensity
- Monitor participant responses carefully at all times, to avoid strain or difficulty
- Maintain a positive and encouraging approach throughout to prevent anxiety or nervousness
- Ensure each resident could participate in any of the activities to whatever level he or she felt comfortable and could stop at any time if pain or discomfort occurred
- Ensure every participant could be successful and finish each session with a sense of achievement





Outcomes of the Pilot Program

Quantitative Data

Raw data collected during the course of the program is provided in Appendix D. This section of the report provides a summary of those outcomes.

Wall Stance

Session	Goal (Seconds)	P1	P2	P3	P4	P5	P6
1	20	20	20	20	20	20	20
2	20	N/A	20	20	20	20	20
3	20	N/A	20	20	20	20	20
4	30	30	30	N/A	30	30	30
5	30	N/A	30	30	30	30	30
6	45	N/A	45	45	45	45	45
7	45	N/A	45	N/A	45	45	45
8	45	45	45	N/A	45	45	45
9	60	N/A	60	N/A	60	60	60
10	60	60	60	60	60	60	60
11	75	75	75	N/A	75	75	75
12	75	75	75	75	75	75	75
13	75	75	75	75	75	75	75
14	90	90	90	90	90	90	90
15	90	90	90	N/A	90	90	90
16	90	90	90	N/A	90	90	90

Tai Chi Walk

Session	Goal (Steps)	P1	P2	P3	P4	P5	P6
1	5	5	5	5	5	5	5
2	5	N/A	5	5	5	5	5
3	5	N/A	5	5	5	5	5
4	7	7	7	N/A	7	7	3
5	7	N/A	7	7	7	7	7
6	10	N/A	10	10	10	10	3
7	10	N/A	10	N/A	10	10	2
8	10	10	10	N/A	10	10	3
9	12	N/A	5	N/A	12	12	N/A
10	12	12	8	5	12	12	3
11	12	12	12	N/A	12	12	2
12	12	12	12	6	12	12	2
13	12	12	12	12	12	12	2
14	12	8	12	12	12	12	2
15	12	12	6	N/A	12	12	2
16	12	12	12	N/A	12	12	4

Note: For safety reasons, as only one staff was present, P1, P2 and P6 continued to use their walkers for this activity.



Free Standing

Session	Goal (Seconds)	P1	P2	P3	P4	P5	P6
1	60	60	60	35	60	60	13
2	60	N/A	23	60	60	60	16
3	60	N/A	60	60	60	60	12
4	75	75	75	N/A	75	75	13
5	75	N/A	75	55	75	75	55
6	90	N/A	90	90	90	90	90
7	90	N/A	87	N/A	90	90	60
8	90	90	90	N/A	90	90	50
9	65	N/A	65	N/A	65	65	65
10	105	105	105	105	105	105	105
11	120	120	120	N/A	120	120	120
12	120	120	120	50, 70	120	120	54
13	120	120	120	120	120	120	120
14	150	150	122	68, 70	150	150	69
15	150	150	150	N/A	150	150	150
16	150	150	150	N/A	150	150	150

Note:

- Session 9: Facilitator made an error. 65 seconds was used and recorded for the target, whereas it should have been 105 seconds.
- P2: on occasions used her walker for support, though not in all sessions
- P1: also used a walker in a number of sessions to keep her balance when standing unsupported.
- P3: the two figures for sessions 12 and 14 relate to the fact that she stood unsupported for a number of seconds, sat for short moment, then stood again for the remaining time
- P6 needed support due to a lack of confidence in standing without a walker. He managed to achieve most of the goals for the activity, but held the facilitator's arm as he stood to enable him to attempt the exercise. For example in Session 6, he was supported for 65 of the 90 seconds. (See raw data for further details)

Embrace the Tree (Sitting Posture)

For this activity the duration of the posture was increased gradually from 20 seconds in the first three sessions through to a total of 90 seconds in the final three sessions.

As can be seen from the raw data (Appendix D), all participants achieved the goal set for every session. While sitting with one's arms raised, as if 'embracing a tree', may not at first glance seem to be difficult, it is actually more challenging than it appears. Results indicated that both concentration and arm strength increased over the six weeks of the program. In fact, in one of the final sessions the oldest participant, P1, at 96 years old was delighted to find that she was able to outlast the staff member in attendance!



Cardiovascular Workout

Charts below show the level of cardiovascular workout achieved by each participant over the course of the sessions he/she attended.

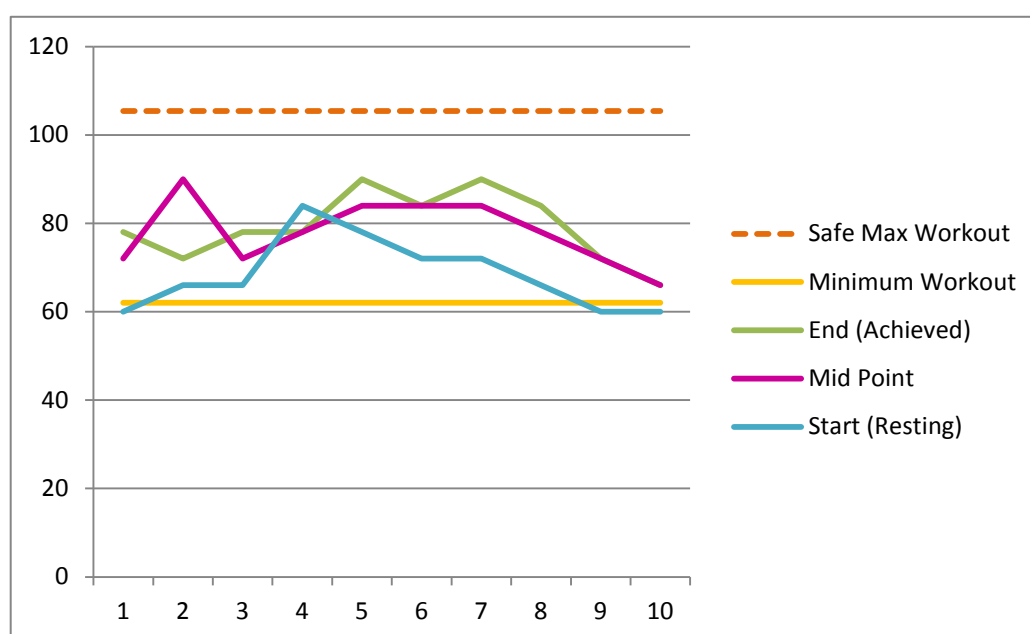
The Y axis in each case represents the pulse rate; the X axis represents the session number. (The latter varies from 9 to 16 according to how many sessions the resident attended)

On each graph is shown:

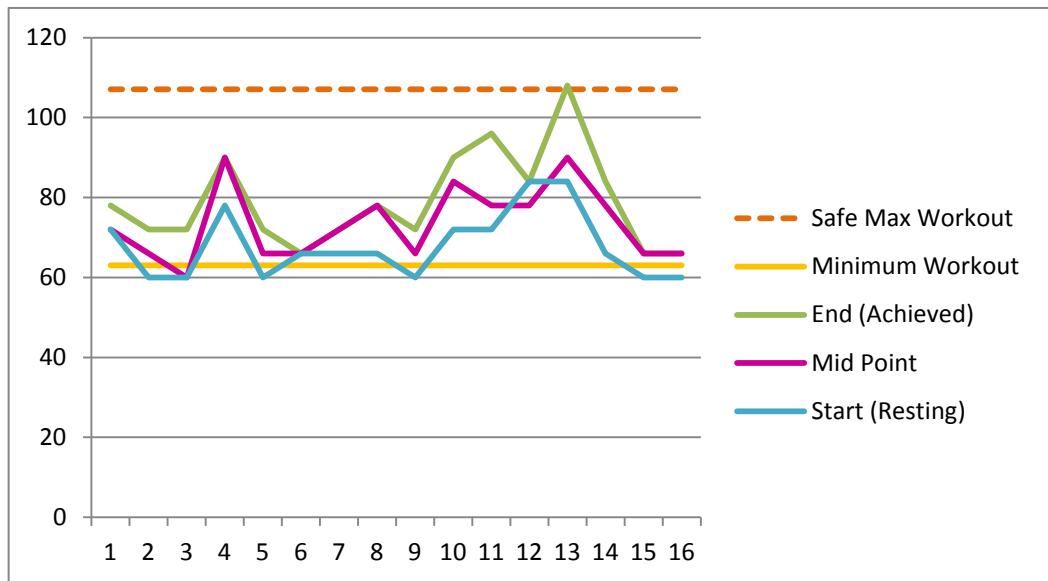
- Safe Max Workout: maximum pulse rate for a safe workout level
- Minimum Workout : minimum pulse rate that would demonstrate cardiovascular workout has taken place
- End (Achieved): pulse rate taken at end of session, indicating the level of aerobic workout achieved
- Mid Point: pulse taken at mid-point of session
- Start (Resting): resting pulse rate taken at the start of the session

In the majority of cases residents reached the minimum work out rate for an aerobic workout by the mid-point and either sustained or increased that rate by the end of the session.

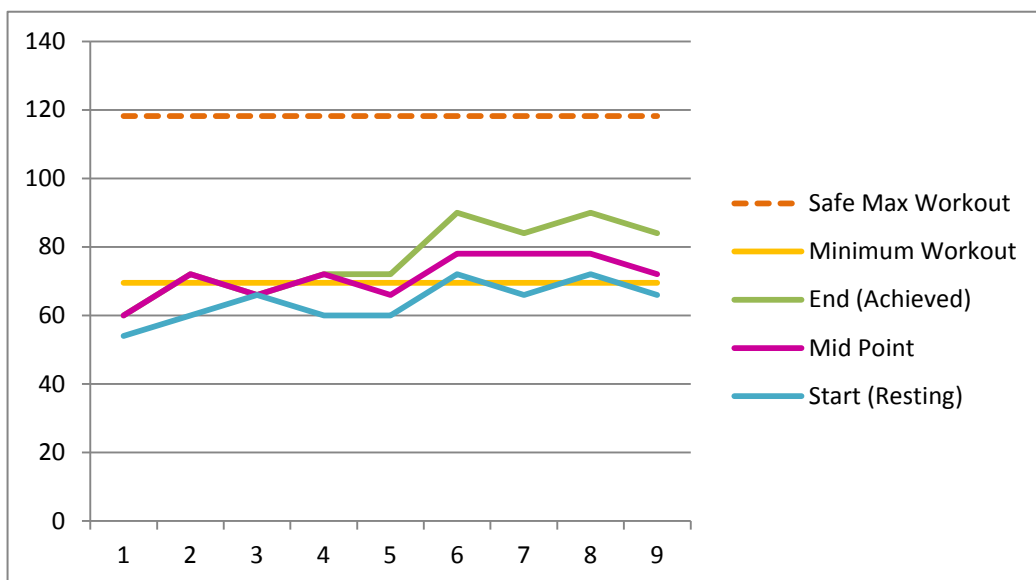
Participant 1 (aged 96)



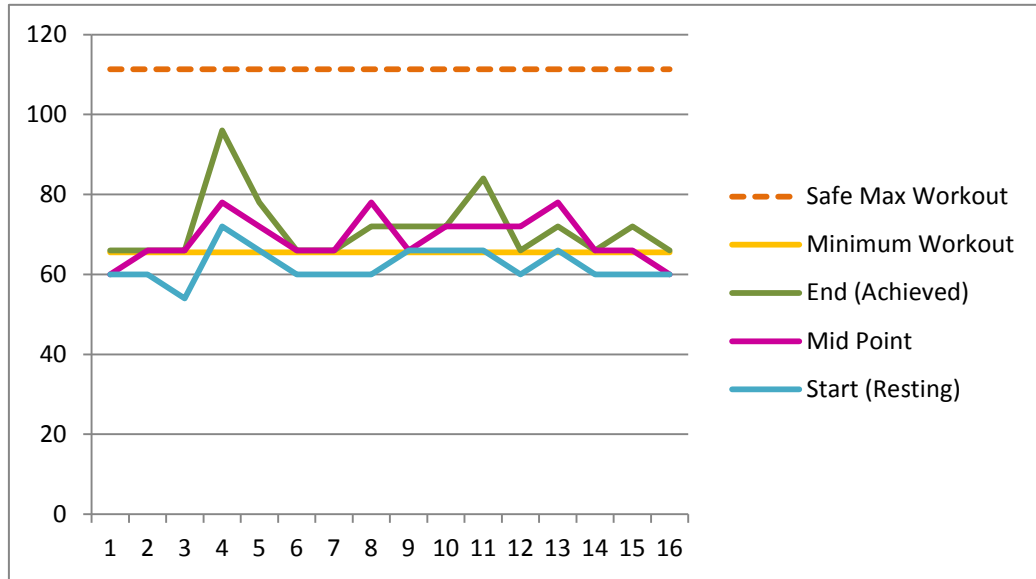
Participant 2 (aged 94)



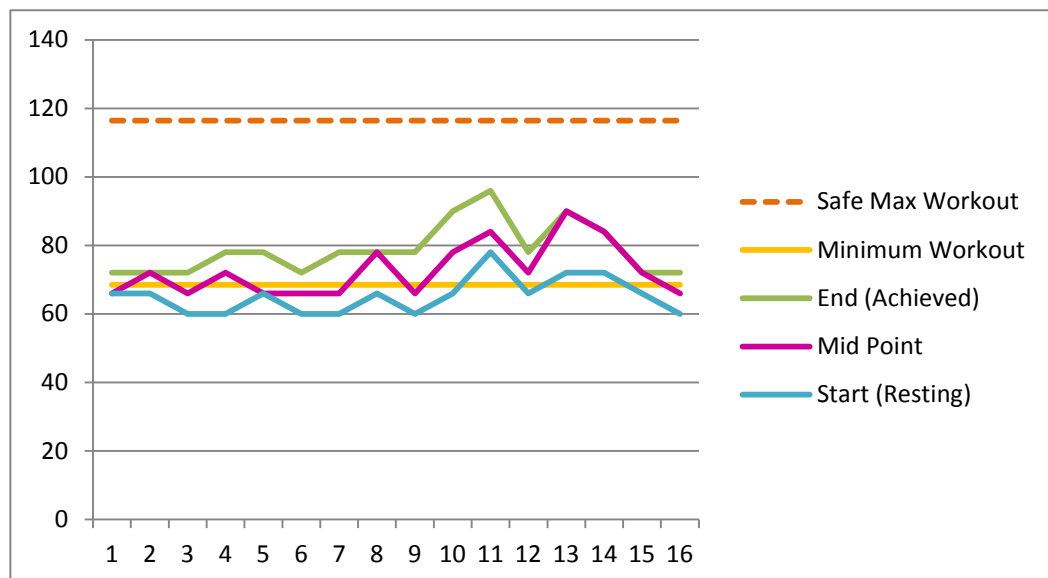
Participant 3 (aged 81)



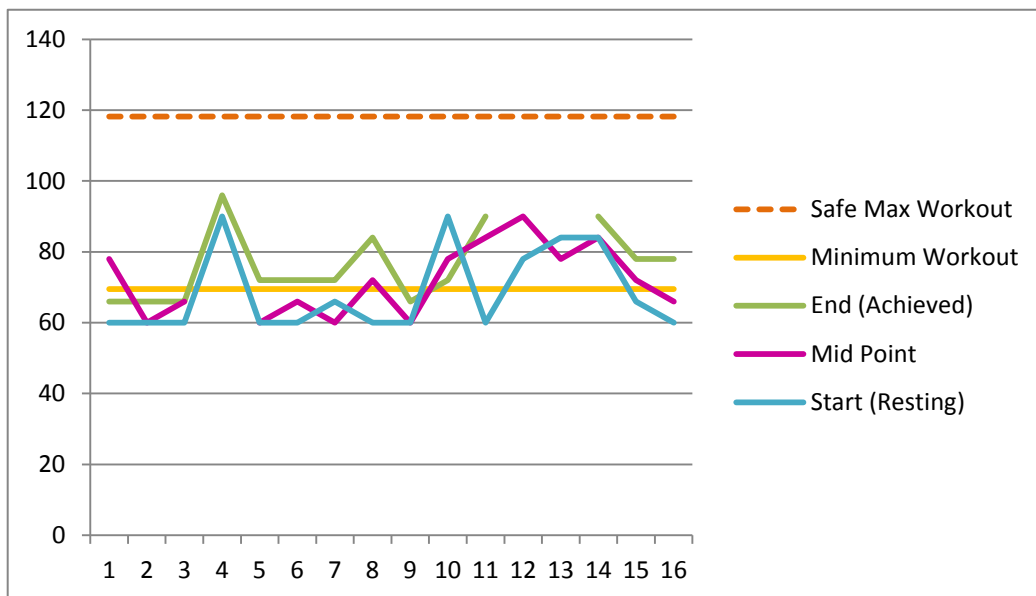
Participant 4 (aged 89)



Participant 5 (aged 83)



Participant 6 (aged 81)



Notes:

- Session 4: left went to the toilet, so mid-point pulse was not taken
- Sessions 12 & 13: needed to leave the session before the end-point pulse was taken

Qualitative Data

Confidence and Balance

Based on observation, staff who attended the sessions were asked to give a score out of 10 for the degree of confidence and balance exhibited by each resident. Ratings were given at the end of every session except Session 10 (due to lack of time when the session ended).

These ratings were all recorded in the raw data (See Appendix D), but have not been included in the Quantitative Data section above because they were subjective assessments provided by different staff members in the different sessions.

If the same staff member had done the assessment each time, perhaps some tentative qualitative information could be drawn from the figures. However ultimately, given the different assessors, there were too many subjective variables to make these assessments significant or useful in reporting outcomes of the program.



Feedback from Residents

Feedback was sought from the six program participants at the end of each session. They were asked for a short comment – just a word or two – about how they felt. These brief comments are recorded in Appendix C.

Responses covered a wide spectrum from “okay” and “all right” to “half way round the moon and on top of the world”. Other than expressing some feelings of tiredness or a ‘twinge’ or two (both understandable, given the workout they’d had) participants were positive about the sessions.

Residents were also invited to contribute additional comments after the conclusion of the program, about how they felt about being actively involved in and completing it. These comments were forwarded in an email to Chris by the Lifestyle Coordinator:

Participant 1 said she felt proud and a sense of accomplishment at the age of 96 and is feeling more relaxed.

Participant 2 said she continues with Chair Chi exercises every day in her room. Her daughter is also supportive and does them with her when visiting every afternoon.

Participant 3 commented that it “helps me to walk stronger and helps me to still go out with my husband”.

Participant 5 shared the fact he has a sense of achievement.

Participant 6 said it “makes me feel strong and my joints not so stiff.”

Feedback from Staff Attending the Sessions

A brief interview was held at the end of 12 of the 16 session with the staff member who had attended and assisted. This was a new idea for the program, introduced after the first three sessions. In one of the remaining sessions, no time remained at the end to do the interview.

The interviews were recorded (with staff permission) and transcribed. Full transcriptions are in Appendix D of this report.

These interviews were able to provide the program facilitator, Chris Bennett, with valuable feedback about how the program was progressing, as well as helpful insights for making beneficial adjustments on the way. For example, Trish’s feedback at the end of Session 6 confirmed improvements he’d made to his instructional method for the Tai Chi Walking activity. And Cass’s comment after Session 13 emphasised the benefit of having a staff member helping, by also modeling the activity for the residents.



One consistent theme in the interviews is the fact that all the residents enjoyed the sessions and were keen to attend. As one staff member commented:

"You get no arguments from these six they are all keen to come – you just tell them Chair Chi 4.00 o'clock, top end and they are all there. You don't even have to fetch them. They take themselves so that's good."

And from a different staff member on another occasion:

"They were all keen to go. They had just come back from a bus trip late. I thought they would be too tired, but they were keen to go. There was no resistance whatsoever – I thought that was encouraging."

Another consistent theme was that the staff observed considerable improvement in the capacity of the residents to complete the activities:

"I'd say Participant 6 really excelled today I was impressive to see him do the stance for that long."

"You can see the improvement – drastically see the improvement from the start. Because I've not been here for a few days over the last few weeks, I've really noticed who has stepped up and who hasn't, because I've not been here all the time. You can see how improved they all are from where they were so that was good."

Staff also observed the commitment and focus of residents during the course of the program. For example:

"Participant 4 really concentrated hard, I haven't seen him do that before in other areas so he was really listening to every word you said."

"I noticed that their postures were excellent especially for strength and balance it was certainly challenging but in a calm way which was excellent."

"They picked up very well where they stand up against the wall with the knees bent. I think they all got that off to a fine art. Even people like Participant 6 who found it difficult to balance when we first started has got that one worked out, so that was very good for him today."

"There wasn't one that didn't know what you were talking about. That's quite something. Even though you come every fortnight, it was impressive to have six people that knew what you were talking about – you said one word – tree."



Interview with the Lifestyle Coordinator

On completion of the program an extensive interview was conducted with Kathleen Saffin, Diversional Therapist and Lifestyle Coordinator at Craigcare Berwick. This interview was also recorded and transcribed. (See Appendix D).

Kathleen echoed comments made by staff during the course of the program, saying how much the residents enjoyed it and were committed to participating:

“Nobody said that they were tired; they wanted to. And ‘yes, I remember going there’. That was amazing because some of our residents have got short term memory loss. But it wasn’t like it was going to an exercise program – it was going for relaxation. They said that “it’s fun to go” and “look forward to it”. So it was generally very positive in relation to an exercise program, where the residents will often say ‘I don’t want to do exercises’.”

The commitment of residents to the program was highlighted: *“to have that continuity three times a week for six weeks – it’s a big commitment. The residents weren’t probably aware of it, but they certainly were committed.”*

When asked what she had noticed about individual residents, Kathleen said:

“Well, certainly things they have said to me. A lot stronger in themselves and they feel confident. They still realise their boundaries, but they said they feel a lot more confident. So from that point of view, looking at the confidence of the residents when it comes to mobility is important as well. And within this program we’ve had ... nobody has had any mishaps or falls.”

She also commented on the positive impact the Chair Chi Plus program had for residents who customarily might display signs of “Sundowners’ Syndrome”:

“Four of those people from that session (Chair Chi Plus) do show sundowners. When that routine is happening every day at 4 o’clock, when they knew the Chair Chi was on, there was no display of that.”

One of the other elements of the program she felt was important was related to the emotional or social aspect: *“From the emotional point of view I think it was the nurturing that Chair Chi produces; that feeling of being wanted, that feeling of importance, of being connected with the program.”*

One further issue was mentioned that is not specifically related to the Chair Chi Plus program alone, but is significant for any external provider of services and programs for an aged care facility – the importance of consistency and punctuality.



This is not only of benefit for those residents who, for various medical or psychological reasons, require a consistent routine; it is also crucial to support busy staff - who need to juggle the various demands of their day-to-day work:

“And the staff who were helping and coordinating, they knew you were going to be here at 3.30 or 3.40 and it was going to be done in the time frame. It was also important. With the time frame, you started on time, you finished on time. ... Staff in aged care facilities are very focused on the time they [have] to prepare their day to make sure their programs [are] being done, the documentation [is] completed. Knowing that the Chair Chi Plus was going to be in place as such and such a time, and knowing it was going to be finished at such and such a time ... That’s important for everybody because if we were running late then that reflects back onto dinner time [a domino effect] Exactly, yes.”

Facilitator Observations

The sessions were held in a smaller room than the usual room where Chair Chi sessions are held each fortnight. This reduced the noise and potential for interruption. It also had the advantage of differentiating the program from the regular fortnightly Chair Chi sessions, making it a special program for those who participated.

“I had to take great care when introducing new skills such as the standing and walking exercises to make sure they were performed safely and correctly. I observed (facial expressions, breathing rate) closely for any discomfort when certain exercises were increased in duration and rapidity during the session. This was critical to the success of the program because of the participants’ ages (81-96) and the various physical, psychological and memory impairments within the group.”

A half-hour session was appropriate and manageable for the participants, because the intensity and duration of certain exercises increased over the six weeks. Previously they had only experienced a Chair Chi session (all seated exercises) over a one hour period.

It was vital to create an atmosphere that was friendly, positive, encouraging and fun – and at the same time be assertive enough to push them gently beyond what they perceived their limits to be. This was important because the duration and repetitions of certain skills were increased over the six week program.

The terminology used to describe the activity during the session was also important. The word Chi was emphasised as much as possible because that’s the core component of the program, and the word ‘exercise’ was used less frequently because it has connotations of ‘having to workout’.



Evaluation of the Pilot Program

What Was Achieved

Increased Leg Strength

Leg strength did increase for all participants according to the wall stance, free standing and Tai Chi walking data.

In the wall stance each participant was able to go from 20 seconds to 90 seconds over the course of the program without the support of a walker.

In the free standing activity four of the six participants achieved all the set targets, increasing their time from 60 seconds to 150 seconds over the sixteen sessions. One participant achieved set targets for six out of the sixteen sessions, and one achieved the set targets in five of the nine sessions attended.

In the Tai Chi walking five of the six participants improved significantly from being able to walk 5 steps to walking 12 steps. Only one participant could not reach the set target in most sessions.

Balance was improved

The data in the free standing exercise indicate that balance improved for most participants, as they were able to stand unsupported for increasing lengths of time.

In the Tai Chi walking exercise there was evidence that balance did improve for the 3 participants who did not use walkers as support, because they were able to increase the number of steps they took over the course of the program. An improvement in balance could not realistically be determined for the 3 participants who used walkers to support themselves in this walking exercise.

Staff observational ratings given straight after each session did not demonstrate a significant improvement in balance for most participants. However, as indicated above, these assessments were subjective and also depended on how each resident was feeling (in general) on the day.

Achieved a Cardiovascular Workout

With very few exceptions, in every session all participants showed an increase in pulse rate from start of the session to the end, demonstrating an increase in cardiovascular activity.



In the majority of cases residents reached the minimum work out rate for an aerobic workout by the mid-point of the session and either sustained or increased that rate by the end of the session

It is interesting to note from the data that the two participants who most consistently achieved a more effective workout were the two oldest residents in the group.

It must also be added here that the data can only be regarded as indicative, as there were variables that would have affected its accuracy:

- The formula used to obtain the data, as indicated above, is a guide only rather than a scientifically validated measure.
- The resting pulse rate may have been affected by the 35 metre walk to the room where the sessions were held, as residents had already had some exercise (a significant degree of exercise for some of them) prior to the pulse rate being recorded.
- Pulses were taken by hand by different staff, as well as the session facilitator, and this may have produced inconsistencies. Even one beat not registered or missed could have made a significant difference and affected the results.
- Some residents were on medication that could have affected heart and pulse rates

Enhanced Emotional/Psychological Wellbeing

According to the feedback from participants, staff and family members, emotional and psychological wellbeing were enhanced over the six week program.

Participants were asked to comment at the end of each session how they were feeling. Comments ranged from “a bit tired” all the way to “wonderland”, with a few commenting on ‘feeling the workout’ in one way or another.

However even stronger evidence that this aim of the program was achieved comes from the observations of staff who work with the residents on a daily basis.

“It was good to see them actually improving and to hear them believe they're improving too. Encouragement – it spurs them on. Participant 1 – I think she was quite elated with your response that time.”

“They all looked they were having a good time. Some of them were very keen to follow your instructions. Participant 4 really concentrated hard, I haven't seen him do that before in other areas so he was really listening to every word you said. And others were just looking like they had a good time and proud of how you



were praising them and encouraging them. As we all left they said, 'so next Wednesday, next Wednesday', they had something to look forward to so that's important"

Success Factors

There were several factors that contributed to the success of the program:

- Staff willing to assist by preparing participants beforehand, helping during the sessions and providing feedback afterwards
- Having sessions that were fun and entertaining
- Assertive teaching from the teacher
- Setting achievable targets during each session
- Providing feedback to the participants during the sessions
- Positive and encouraging atmosphere
- Having five different staff members helping out on different occasions was also very beneficial as there were five additional perspectives for feedback

Issues Encountered

Timing of the sessions

A 4:00 pm time slot is certainly not ideal for aged care residents, particularly considering the impact of Sundowner Syndrome for some. On this occasion it was unavoidable as this was the only time Chris was available to run the sessions, given his Chair Chi commitments elsewhere.

Given the timing, the attendance and commitment of almost all participants in the program was very impressive.

Distractions and interruptions

These are fairly unavoidable in any busy centre, whether in an aged care residence or any other environment, where a number of people are gathered together in the one place. Participants became distracted at times by staff or other residents who were walking past or talking during the session. In addition, the two 'guest participants', one with acute anxiety and the other with an intellectual disability, could be a distracting influence on the group by wandering in and out or asking a stream of questions.

To overcome this issue, Chris needed to keep the group focused on him by talking to them if he noticed their attention had been diverted, in order to bring their focus back to the activity.



Recording data while also running the sessions

There was considerable challenge in having to record pulse rates three times over the half hour period, as well as teach. This was unavoidable because, although a staff member was present to assist, Chris also needed to be involved directing the pulse taking and recording it as a component of the program.

Variables affecting cardiovascular workout data

As outlined under program achievements above, there were several other variables that possibly affected cardiovascular workout rates and the accuracy of the collected data. These included the distance residents needed to walk to the session, medications they were taking that might have impacted their pulse rates and the level of experience staff members had in taking pulses.

Recommendations for Improvement

Based on the experiences of this initial pilot program, the following recommendations would help to ensure maximum benefit from the program for participants and (if this study is to be replicated) enable more accurate data collection:

- Hold the sessions either mid-morning or early afternoon, rather than in the late afternoon
- Schedule the activity in a room where the door can be closed to reduce noise and distractions
- Ensure the room selected allows sufficient space for Chair Chi Plus activities – it requires enough space for the whole group to walk around.
- Only have participants who are able to participate and volunteer. The two guest participants were welcomed because they wanted to attend – but they did unintentionally distract the group on occasions.
- Provide some pre-program training for a staff member or volunteer who will record data during each session – so avoiding the necessity to run the session and record data at the same time
- Ensure there is at least one other person present to assist who is experienced in taking pulses, if this data collection is to be part of the program as well (The number of experienced staff members or volunteers required would depend on the size of the group)
- If possible, schedule the program in a room that is close enough so participants do not have to walk some distance to reach it. (This is primarily related to the issue of taking a resting pulse at the beginning of each session)



Conclusion

As outlined at the beginning of this report, the design of the Chair Chi Plus program was informed and supported by several research studies and findings related to the benefits of Tai Chi for the elderly.

This pilot study was subsequently designed to serve as an initial evaluation of Chair Chi Plus and its capacity to achieve benefits in terms of leg strength, balance, cardiovascular fitness and emotional and psychological wellbeing for residents in an aged care facility.

Given the small size of the participant group, and the limitations of the collected data, this does not purport to be a scientific research study that can lend itself to definitive conclusions. Also, to evaluate long term gains or benefits would require a longer period of time than the relatively short 6 week duration of this pilot program.

Nevertheless, in spite of those limitations, there is considerable evidence that significant gains were made towards each of the above aims for the residents who participated in the program.

Measurements and achievements recorded through the taking of pulse rates and through the other physical activities showed that residents were generally able to reach an enhanced (but still safe) level of cardiovascular workout, increase the length of time they could stand unaided and experience some improvement to their sense of balance.

In addition, given the fact that Chair Chi Plus was “not just an exercise program”, residents’ levels of engagement and enthusiasm remained high throughout the six weeks of the pilot program. Indeed, the degree of their engagement and commitment even surprised many of the staff at the facility.

Anecdotally, through feedback and interviews, it was very clear that the program had achieved considerable success on a number of fronts. As the Lifestyle Coordinator commented in her interview:

“It’s physical; it’s mental; it’s social.”

In conclusion, it would therefore be reasonable to suggest that Chair Chi Plus is a worthwhile program to be considered as part of an overall exercise and wellbeing strategy in an aged care facility.



Appendix A: Medications and Related Possible Side Effects

The following table outlines the purpose of the medications participants in the Chair Chi Plus program were taking on an ongoing basis, along with their potential side effects. The side effects listed are limited to those more specifically relevant to the delivery and impact of Chair Chi Plus activities. (For example, such side effects as skin rashes, changes in menstruation, black stools or sexual dysfunction and disinterest have not been included.)

Amlodipine	Potential Side Effects
Relaxes (widens) blood vessels and improves blood flow. Used to treat high blood pressure (hypertension) or chest pain (angina) and other conditions caused by coronary artery disease.	Pounding heartbeats or fluttering in chest; chest pain or heavy feeling, pain spreading to the arm or shoulder; headache; dizziness, drowsiness; tired feeling; difficult or laboured breathing; dizziness; fast, irregular, pounding, or racing heartbeat or pulse; shortness of breath; tightness in the chest; wheezing
Creston	Potential Side Effects
Used in the treatment of high cholesterol; high cholesterol, familial heterozygous; atherosclerosis; high cholesterol, familial homozygous; hyperlipoproteinemia and other related conditions.	Body aches or pain; headache; accidental injury; arm, back, or jaw pain; burning feeling in the chest or stomach; chest pain or discomfort; chest tightness or heaviness; depression; difficult or laboured breathing; difficulty with moving; discouragement; dizziness; fast, irregular, pounding, or racing heartbeat or pulse; fear; feeling faint; irritability; lack or loss of strength; light-headedness; muscle tension or tightness; neck pain; nerve pain; nervousness; pain or swelling in the arms or legs without any injury; pain, swelling, or redness in the joints; sensation of spinning; shortness of breath; sleeplessness; slow heartbeat; trouble concentrating; trouble sleeping; troubled breathing; unable to sleep
Digoxin	Potential Side Effects
Helps make the heart beat stronger and with a more regular rhythm. Used to treat heart failure. Also used to treat atrial fibrillation, a heart rhythm disorder of the atria (the upper chambers of the heart that allow blood to flow into the heart).	Feeling weak or dizzy; headache, weakness, anxiety, depression; fainting; fast, pounding, or irregular heartbeat or pulse; slow heartbeat.



Fish Oil	Potential Side Effects
Fish Oil capsules contain omega-3 polyunsaturated fatty acids. Omega-3 lowers body's production of triglycerides. Used together with diet and exercise to help lower triglyceride levels in the blood and prevent coronary artery disease, heart disease, and stroke.	Fever, chills, body aches, flu symptoms; chest pain; or uneven heartbeats; back pain.
Furosemide/Lasix	Potential Side Effects
Loop diuretic (water pill) that prevents body from absorbing too much salt, allowing the salt to instead be passed in urine. Treats fluid retention (edema) in people with congestive heart failure, liver disease, or a kidney disorder such as nephrotic syndrome. Also used to treat high blood pressure (hypertension).	Ringing in the ears, hearing loss; severe pain in upper stomach spreading to back; body aches, numbness; chest pain; trouble breathing; feeling light-headed, rapid heart rate, trouble concentrating; low potassium (confusion, uneven heart rate, leg discomfort, muscle weakness or limp feeling); low calcium (tingly feeling around mouth, muscle tightness or contraction, overactive reflexes); headache, feeling unsteady, weak or shallow breathing; dizziness, spinning sensation
Lexapro	Potential Side Effects
Antidepressant belonging to a group of drugs called selective serotonin reuptake inhibitors (SSRIs). Affects chemicals in the brain that may become unbalanced and cause depression or anxiety. Used to treat anxiety or major depressive disorders.	Drowsiness, tired feeling; sleep problems (insomnia); pain in the neck or shoulders; shivering; sneezing; tightness of the chest; trouble breathing; dullness, tiredness, weakness or feeling of sluggishness; yawning
Maxolon	Potential Side Effects
Used for prevention of delayed chemotherapy induced nausea and vomiting (CINV) and prevention of radiotherapy induced nausea and vomiting (RINV). Also used for symptomatic treatment of nausea and vomiting, including acute migraine induced nausea and vomiting. Metoclopramide can be used in combination with oral analgesics to improve the absorption of analgesics in acute migraine.	Drowsiness; restlessness; trouble sleeping; unusual irritability



Metoprolol	Potential Side Effects
Beta-blocker affecting heart and circulation (blood flow through arteries and veins). Used to treat angina (chest pain) and hypertension (high blood pressure). Also used to treat or prevent heart attack	Dizziness, tired feeling; confusion, memory problems; nightmares, trouble sleeping; chest pain or discomfort; dizziness, faintness, or light-headedness when getting up suddenly from a lying or sitting position; shortness of breath; slow or irregular heartbeat; sweating; unusual tiredness or weakness; difficult or laboured breathing; extreme fatigue; fast, pounding, or racing heartbeat or pulse; irregular breathing; noisy breathing; pain, tension, and weakness upon walking that subsides during periods of rest; paleness or cold feeling in the fingertips and toes; short-term memory loss; tightness in the chest
Novomix	Potential Side Effects
Used to treat diabetes.	Most common side effect with NovoMix (seen in more than 1 patient in 10) is hypoglycaemia (low blood glucose levels).
Oxazepam	Potential Side Effects
Affects chemicals in the brain that may become unbalanced and cause anxiety. Used used to treat anxiety disorders or alcohol withdrawal symptoms.	Confusion; unusual risk-taking behaviour, decreased inhibitions, no fear of danger; hyperactivity, agitation, hostility; hallucinations; feeling lightheaded, fainting; drowsiness, dizziness; amnesia or forgetfulness, trouble concentrating; headache.
Paracetamol	Potential Side Effects
Pain reliever and a fever reducer. Used to treat many conditions such as headache, muscle aches, arthritis, backache, toothaches, colds, and fevers. Relieves pain in mild arthritis but has no effect on the underlying inflammation and swelling of the joint.	Low fever with nausea, stomach pain, and loss of appetite
Risperdal	Potential Side Effects
Antipsychotic medicine, changing the effects of chemicals in the brain. Used to treat schizophrenia and symptoms of bipolar disorder (manic depression).	Headache; dizziness, drowsiness, tired feeling; tremors, twitching or uncontrollable muscle movements; agitation, anxiety, restless feeling; depressed mood; pain in arms or legs; aggressive behaviour; agitation; anxiety; difficulty concentrating; loss of balance control; memory problems; muscle



	spasms of the face, neck, and back; restlessness or need to keep moving (severe); shuffling walk; stiffness or weakness of the arms or legs; tic-like or twitching movements; trembling and shaking of the fingers and hands; trouble sleeping; twisting body movements. Less common: sudden weakness or numbness in the face, arms, or legs
Somac	Potential Side Effects
Used to treat and help heal duodenal and gastric ulcers. Also used to treat reflux oesophagitis or reflux disease.	Chest pain; unusual tiredness or weakness; shortness of breath; high blood pressure; swelling of the legs; depression, confusion or anxiety
Warfarin	Potential Side Effects
Anticoagulant (blood thinner). Reduces the formation of blood clots. Used to prevent heart attacks, strokes and blood clots in veins and arteries.	Chest pain or discomfort; confusion; difficulty with breathing; dizziness, faintness, or light headedness when getting up suddenly from a lying or sitting position; headache; shortness of breath; sweating; unusual tiredness or weakness
Zyprexa	Potential Side Effects
Antipsychotic medication that affects chemicals in the brain. Used to treat symptoms of psychotic conditions such as schizophrenia and bipolar disorder (manic depression). Sometimes used together with other antipsychotic medications or antidepressants	Headache, dizziness, drowsiness, feeling tired or restless; problems with speech or memory; tremors or shaking, numbness or tingling feeling; change in walking and balance; clumsiness or unsteadiness; inability to sit still; loss of balance control; muscle trembling, jerking, or stiffness; need to keep moving; shuffling walk; slowed movements; stiffness of the arms and legs; trembling or shaking of the fingers, hands, feet, legs, or arms; twisting movements of the body; chest pain; difficult or laboured breathing; lack of coordination; nervousness; problems with memory; shortness of breath; slow, fast, pounding, or irregular heartbeat or pulse

Appendix B: Raw Quantitative Data

Participant 1 (Age: 96)

Date	Resting Pulse	Wall Stance (Time)	Tai Chi Walk (# Steps)	Mid Pulse	Standing Unsupported (Time)	End Pulse	Confidence (1-10)	Balance (1-10)	Tree (Time)
25-3-15	10	20 sec (20)	5 (5)	12	60 sec (60)	13	9	9	20 sec (20)
1-4-15	11	30 sec (30)	7 (7)	15	75 sec (75)	12	12	7	30 sec (30)
9-4-15	11	45 sec (45)	10 (10)	12	90 sec (90) no walker	13	9	9	45 sec (45)
17-4-15	14	60 sec (60)	12 (12)	13	105 sec (105)	13	8	7.5	60 sec (60)
21-4-15	13	75 sec (75)	12 (12)	14	120 sec (120)	15	n/a	n/a	75 sec (75)
22-4-15	12	75 sec (75)	12 (12)	14	120 sec (120)	14	8	7	75 sec (75)
24-4-15	12	75 sec (75)	12 (12)	14	120 sec (120)	15	8	9	75 sec (75)
28-4-15	11	90 sec (90)	8 (12)	13	150 sec (150)	14	9	9	90 sec (90)
29-4-15	10	90 sec (90)	12 (12)	12	150 sec (150)	12	8	9	90 sec (90)
30-4-15	10	90 sec (90)	12 (12)	11	150 sec (150)	11	8	8	90 sec (90)

Cardiovascular Workout

Maxi: 220 – Age (96) = 124

50%: 62

85%: 105.4

Participant 2

(Age: 94)

Date	Resting Pulse	Wall Stance	Tai Chi Walk	Mid Pulse	Standing Free	End Pulse	Confidence	Balance	Tree
25-3-15	12	20 sec (20)	5 (5)	12	60 sec (60)	13	8	6	20 sec (20)
26-3-15	10	20 sec (20)	5 (5)	11	23 sec (60)	12	5	6	20 sec (20)
27-3-15	10	20 sec (20)	5 (5)	10	60 sec (60)	12	7	7	20 sec (20)
1-4-15	13	30 sec (30)	7 (7)	15	75 sec (75)	15	7	7	30 sec (30)
3-4-15	10	30 sec (30)	7 (7)	11	75 sec (75)	12	8	8	30 sec (30)
7-4-15	11	45 sec (45)	10 (10)	11	90 sec (90) no walker	11	8	7	45 sec (45)
8-4-15	11	45 sec (45)	10 (10)	12	87 sec (90)	12	7	7	45 sec (45)
9-4-15	11	45 sec (45)	10 (10)	13	90 sec (90)	13	8	9	45 sec (45)
15-4-15	10	60 sec (60)	5 (12)	11	65 sec (65)	12	7	7	60 sec (60)
17-4-15	12	60 sec (60)	8 (12)	14	105 sec (105)	15	7	7	60 sec (60)
21-4-15	12	75 sec (75)	12 (12)	13	120 sec (120)	16	n/a	n/a	75 sec (75)
22-4-15	14	75 sec (75)	12 (12)	13	120 sec (120)	14	8	5	75 sec (75)
24-4-15	14	75 sec (75)	12 (12)	15	120 sec (120)	18	8	8	75 sec (75)
28-4-15	11	90 sec (90)	12 (12)	13	122 sec (150)	14	10	10	90 sec (90)
29-4-15	10	90 sec (90)	6 (12)	11	150 sec (150)	11	7	8	90 sec (90)
30-4-15	10	90 sec (90)	12 (12)	11	150 sec (150)	11	7	7	90 sec (90)

Cardiovascular Workout

Max: 220 – Age (94) = 126

50%: 63

85%: 107.1



Participant 3 (Age: 81)

Date	Resting Pulse	Wall Stance	Tai Chi Walk	Mid Pulse	Standing Free	End Pulse	Confidence	Balance	Tree
25-3-15	9	20 sec (20)	5 (5)	10	35 sec (60)	10	7	6	20 sec (20)
26-3-15	10	20 sec (20)	5 (5)	12	60 sec (60)	12	8	5	20 sec (20)
27-3-15	11	20 sec (20)	5 (5)	11	60 sec (60)	11	8	6	20 sec (20)
3-4-15	10	30 sec (30)	7 (7)	12	55 sec (75)	12	8	7	30 sec (30)
7-4-15	10	45 sec (45)	10 (10)	11	90 sec (90)	12	7	7	43 sec (45)
17-4-15	12	60 sec (60)	5 (12)	13	105 sec (105)	15	9	9	60 sec (60)
22-4-15	11	75 sec (75)	6 (12)	13	50 sec 1.10 (120)	14	8	8	75 sec (75)
24-4-15	12	75 sec (75)	12 (12)	13	120 sec (120)	15	10	9.5	75 sec (75)
28-4-15	11	90 sec (90)	12 (12)	12	1.08 150 sec (150)	14	10	10	90 sec (90)

Cardiovascular Workout

Maxi: 220 – Age (81) = 139

50%: 69.60

85%: 118.15



Participant 4 (Age: 89)

Date	Resting Pulse	Wall Stance	Tai Chi Walk	Mid Pulse	Standing Free	End Pulse	Confidence	Balance	Tree
25-3-15	10	20 sec (20)	5 (5)	10	60 sec (60)	11	8	7	20 sec (20)
26-3-15	10	20 sec (20)	5 (5)	11	60 sec (60)	11	5	7	20 sec (20)
27-3-15	9	20 sec (20)	5 (5)	11	60 sec (60)	11	7	6	20 sec (20)
1-4-15	12	30 sec (30)	7 (7)	13	75 sec (75)	16	7.5	9	30 sec (30)
3-4-15	11	30 sec (30)	7 (7)	12	75 sec (75)	13	8	7	30 sec (30)
7-4-15	10	45 sec (45)	10 (10)	11	90 sec (90)	11	8	7	45 sec (45)
8-4-15	10	45 sec (45)	10 (10)	11	90 sec (90)	11	7	7	45 sec (45)
9-4-15	10	45 sec (45)	10 (10)	13	90 sec (90)	12	8.5	9	45 sec (45)
15-4-15	11	60 sec (60)	12 (12)	11	65 sec (65)	12	7	7	60 sec (60)
17-4-15	11	60 sec (60)	12 (12)	12	105 sec (105)	12	8	8	60 sec (60)
21-4-15	11	75 sec (75)	12 (12)	12	120 sec (120)	14	n/a	n/a	75 sec (75)
22-4-15	10	75 sec (75)	12 (12)	12	120 sec (120)	11	8	6	75 sec (75)
24-4-15	11	75 sec (75)	12 (12)	13	120 sec (120)	12	7	9	75 sec (75)
28-4-15	10	90 sec (90)	12 (12)	11	150 sec (150)	11	10	10	90 sec (90)
29-4-15	10	90 sec (90)	12 (12)	11	150 sec (150)	12	7	8	90 sec (90)
30-4-15	10	90 sec (90)	12 (12)	10	150 sec (150)	11	7	7	90 sec (90)

Cardiovascular Workout

Maxi: 220 – Age (89) = 131

50%: 65.5

85%: 111.35



Participant 5

(Age: 83)

Date	Resting Pulse	Wall Stance	Tai Chi Walk	Mid Pulse	Standing Free	End Pulse	Confidence	Balance	Tree
25-3-15	11	20 sec (20)	5 (5)	11	60 sec (60)	12	9	9	20 sec (20)
26-3-15	11	20 sec (20)	5 (5)	12	60 sec (60)	12	8.5	8	20 sec (20)
27-3-15	10	20 sec (20)	5 (5)	11	60 sec (60)	12	8	8	20 sec (20)
1-4-15	10	30 sec (30)	7 (7)	12	75 sec (75)	13	9	9	30 sec (30)
3-4-15	11	30 sec (30)	7 (7)	11	75 sec (75)	13	8	8	30 sec (30)
7-4-15	10	45 sec (45)	10 (10)	11	90 sec (90)	12	8	8	45 sec (45)
8-4-15	10	45 sec (45)	10 (10)	11	90 sec (90)	13	8	8	45 sec (45)
9-4-15	11	45 sec (45)	10 (10)	13	90 sec (90)	13	8	9	45 sec (45)
15-4-15	10	60 sec (60)	12 (12)	11	65 sec (65)	13	8	8	60 sec (60)
17-4-15	11	60 sec (60)	12 (12)	13	105 sec (105)	15	9	9.5	60 sec (60)
21-4-15	13	75 sec (75)	12 (12)	14	120 sec (120)	16	n/a	n/a	75 sec (75)
22-4-15	11	75 sec (75)	12 (12)	12	120 sec (120)	13	8	8	75 sec (75)
24-4-15	12	75 sec (75)	12 (12)	15	120 sec (120)	15	10	10	75 sec (75)
28-4-15	12	90 sec (90)	12 (12)	14	150 sec (150)	14	10	10	90 sec (90)
29-4-15	11	90 sec (90)	12 (12)	12	150 sec (150)	12	9	9	90 sec (90)
30-4-15	10	90 sec (90)	12 (12)	11	150 sec (150)	12	9	9	90 sec (90)

Cardiovascular Workout

Maxi: 220 – Age (83) = 137

50%: 68.5

85%: 116.45



Participant 6

(Age: 81)

Date	Resting Pulse	Wall Stance	Tai Chi Walk	Mid Pulse	Standing Free	End Pulse	Confidence	Balance	Tree
25-3-15	10	20 sec (20)	5 (5)	13	13 sec (60)	11	10	9.5	20 sec (20)
26-3-15	10	20 sec (20)	5 (5)	10	16 sec (60)	11	9.5	8	20 sec (20)
27-3-15	10	20 sec (20)	5 (5)	11	12 sec (60)	11	7	5	20 sec (20)
1-4-15	15	30 sec (30)	3 (7)	toilet	13 sec (75)	16	6	7	30 sec (30)
3-4-15	10	30 sec (30)	7 (7)	10	55 sec (75)	12	8	6	30 sec (30)
7-4-15	10	45 sec (45)	3 (10)	11	90 sec with 25 sec unsupported(90)	12	6	6	45 sec (45)
8-4-15	11	45 sec (45)	2 (10)	10	60 sec (90)	12	9	9	45 sec (45)
9-4-15	10	45 sec (45)	3 (10)	12	50 sec (90)	14	7	8.5	45 sec (45)
15-4-15	10	60 sec (60)	- (12)	10	65 sec (65)	11	5	4	60 sec (60)
17-4-15	15	60 sec (60)	3 (12)	13	105 sec (105)	12	5	6.5	60 sec (60)
21-4-15	10	75 sec (75)	2 (12)	14	120 sec (120)	15	n/a	n/a	75 sec (75)
22-4-15	13	75 sec (75)	2 (12)	15	54 sec, sat, then 66 sec(120)	left	8	6.5	75 sec (75)
24-4-15	14	75 sec (75)	2 (12)	13	120 sec (120)	-	8	8	75 sec (75)
28-4-15	14	90 sec (90)	2 (12)	14	150 but sat for 10 sec in middle (150)	15	9	9	90 sec (90)
29-4-15	11	90 sec (90)	2 (12)	12	150 sec (150)	13	8	8	90 sec (90)
30-4-15	10	90 sec (90)	4 (12)	11	150 sec (150)	13	8	8	90 sec (90)

Cardiovascular Workout

Maxi: 220 – Age (81) = 139

50%: 69.5

85%: 118.15



Appendix C: Resident Feedback

Brief Comments at End of Each Session

(P = Participant)

Session	P1	P2	P3	P4	P5	P6
1	Very good	Should be good	Bit tired	Alright	Good	100%
2	<i>Did not attend</i>	Not too bad	A bit tired	About the same	Feel good	75% very good
3	<i>Did not attend</i>	Good	A bit tired	Good	Good	feel a lot better
4	alright	Good	<i>Did not attend</i>	Alright	Good	Okay
5	COMMENTS NOT RECORDED FOR THIS SESSION – RAN OUT OF TIME					
6	<i>Did not attend</i>	Good	A bit tired	Alright	Good	Alright
7	<i>Did not attend</i>	Not too bad, alright	<i>Did not attend</i>	Alright, pretty good	Good. I enjoy it	wonderful
8	Good	Good	<i>Did not attend</i>	Alright, going alright	Feel better	I found another world
9	<i>Did not attend</i>	Been very good	A bit tired	The same, just ran along like the rest	Feel better with the workout	Alright
10	Alright	Good. Arthritis getting in my knees	Tired	Alright	Pretty good	Wonderland
11	A bit wobbly, tired, quite alright	Better than I thought I'd do	<i>Did not attend</i>	The same, pretty right	Good, felt it in the lower leg, below the knees but okay	Felt it in my calves, wonderland
12	Alright	Not too bad, good	Bit stiff, bit tired	Tight calves, alright	Good	not recorded (he left after the walking exercise)
13	Alright, pretty good	Not too bad, improved	A bit tired, did alright	Alright, foot ache	Good, no problem, a bit better than previous one	Not recorded – left early
14	Fair enough, arms a bit tired, quite good	Good, did better than I did the last time	Leg muscles sore, pretty good really	Alright, calf sore	I'm good, pretty good right through	Alright, feeling the workout
15	A bit ache in neck, that's all good	Not bad, feel good	<i>Did not attend</i>	Alright, back legs sore, seem alright	Feel good, felt the workout, went good	Half way around the moon & on top of the world
16	Quite alright	Good today, better than yesterday	<i>Did not attend</i>	Feel wrong – calf muscle. Alright.	Feel good	To the moon. Feel level.



Appendix D: Staff Interview Transcripts

Trish – Session 4

- Participant 2 did exceptionally well today, let go of the walker. She's keen to want to come
- Participant 6 trying a bit better with (Chris) walking beside him, a bit slowly
- Participants 2, 4, 5 outstanding re gradual improvement
- Participant 6 not getting grasp of instructions re walking

Trish – Session 5

- Improvement by a lot, the whole group
- Guest 1 is doing well considering she wasn't going to do it. Inquisitive at first, left but nevertheless she came back to do the whole thing
- People still keen to do it. Only lost one but everybody is still very keen
- Nobody had gone for further improvement. I think the people have got the balance they still have the balance; I don't think anything else had improved.
- We've got to wait to get back into the swing of it. Because we have had 5 days off now we've got to work them up again. We just got them up to see who was going forward and who was going back a bit because we had that long break.
- Everything else seems fine

Trish – Session 6

- The group did really, really well.
- I felt that Participant 6 exceeded today more than so than he has done.
- Participant 4 was a bit behind today he had a job picking up on the instructions
- On the whole everybody tried really, really hard
- I'd say Participant 6 really excelled today It was impressive to see him do the stance for that long, yes, yes
- *Re stance – confidence factor* And it worked today it really did
- *Re Walking?* – Everybody caught onto it the way you did it today was better, because you actually stopped them before they took the next step. When they're walking and you've got your back to them. I think how you did it today where you really emphasise the step, rest, it was better than what we had done in previous days. You could actually stop them and they can actually do the exercise in the proper way rather than doing it too quickly



- You get no arguments from these six. They are all keen to come – you just tell them Chair Chi 4.00 o'clock, top end and they are all there. You don't even have to fetch them; they take themselves so that's good

Anne – Session 8

- First impressions – I was impressed with it
- They all looked they were having a good time.
- Some of them were very keen to follow your instructions
- Participant 4 really concentrated hard, I haven't seen him do that before in other areas so he was really listening to every word you said
- And others were just looking like they had a good time and proud of how you were praising them and encouraging them. Yeah it was good
- They looked like they were enjoying it. As we all left they said, 'so next Wednesday, next Wednesday'. They had something to look forward to, so that's important

Trish – Session 9

- Everybody did well again today
- We needed Participant 6 to do the steps to get the full potential of balance. But it was his choice; he didn't want to do it, so that's fine. But the others did well
- I thought you worked well with Participant 4 by emphasising what he had to do, because of remembering what he had to do from one day to the next
- That one-on-one (*with Participant 4*) actually worked well. Because it's a small group you can do one-on-one with the ones least able to do it

Cassie – Session 10

- They were all keen to go. They had just come back from a bus trip late – I thought they would be too tired but they were keen to go. There was no resistance whatsoever; I thought that was encouraging
- Participant 5 really enjoys it
- Participant 1 enjoys it
- You can see they enjoy it and see the improvement in them. I think it's really good for them
- Participant 5 is probably the only one who does everything correctly. Well, Participant 3 does everything correctly. Everyone else hasn't quite got it right but they're trying
- Participant 1 probably only doesn't do it right because of her vision to see how you do it properly; her eyes aren't good
- Participant 6 doesn't quite kind of come close to doing anything the exact way it should be done



- *Intensity of the session?* I've been only to one before but I did notice you obviously were pushing the limit, setting the bar higher compared to the last time I was there
- Doing well to turn up especially after a busy day

Cassie – Session 11

- They seemed a little bit tired compared to last week doing it. They seemed more balanced today but they seemed a bit more tired at start of the session. Probably the whole thing. Sort of a little more of an effort – not as eager to do it today. But they did well, they did really well
- I thought they all improved in their balance and you set the bar higher in everything. I think they did really well but they didn't seem as eager – they seemed a bit tired.
- Participant 5 was brilliant
- Participant 1 seemed the most fatigued of everybody
- Participant 6 did well up until the end until the last 10 minutes

Janine – Session 12

- I noticed their postures were excellent especially for strength and balance. It was certainly challenging but in a calm way which was excellent. I thought they were very beneficial.
- Individual thing that stood out? Possibly their confidence in doing it; they all knew what they were doing and they all knew what was expected of them and they certainly did their best to do what you asked, which was good.
- I think they all seemed to flow fairly well with their arm movements and their hands, but otherwise I certainly didn't see anything negative. I think it's a positive thing definitely – and definitely helpful.
- It's not until those sorts of postures or exercises and postures ... and people may look at them and think they're easy but they're not. They require strength and they require concentration, which is good for the residents to have to apply.
- I think you explained yourself well. They follow you and what you say and what you do because you do it at a good pace and you do well for them. I think the whole thing is a real positive form of exercise

Cassie – Session 13

- It surprised me as nobody seemed that keen to come today, they all seemed lethargic and tired, fatigued. I was surprised they did as well as what they did.



- They're improving and they all believe they are improving as well.
- Participant 6 focused a little longer than normal
- Participant 5 was spot on with everything he did, as always
- Participant 1 was better today with her hand movements
- Participant 2 hand movements are still not quite with it
- Heather was great with all her movements
- Stepping? They seemed to have it down pat – better than last few times I've seen. They were rushing through stepping before, not really listening to you. You had them a lot more under control. I think also me doing it in front of Heather slowed them down a little bit, so they were listening to you and watching me at the same time, I think that made it a bit easier for them to understand.
- The instructions – “lean don't your move your feet” ... that command “straight” helped. Yeah, that's exactly right, you're spot on – don't move your feet. But they need that instruction and they need the receptiveness because a lot of the time they forget.
- It was good to see them actually improving and to hear them believe they're improving too. Encouragement – it spurs them on. Participant 1 – think she was quite elated with your response to that (times)

Marie – Session 14

- They were very good and concentrated on what they were doing and I think they were enjoying it. They enjoyed it so much - confidence to do it – it's good for them.
- Participant 1 – she was a little bit worried but she did it anyway.
- Participant 2 – she was so confident all the time
- Participant 4 – he was enjoying it
- Participant 5 – he's so confident
- Participant 6 – a little bit worried
- Participant 3 – she was alright
- You did so perfectly. They enjoyed and I enjoyed it too

Trish – Session 15

- I thought everybody worked well today and you can see the positives of all the better moments when they've started - now you can see the improvement drastically. Drastically see the improvement from the start. Because I've not been here for a few days over the last few weeks, I've really noticed who has stepped up and who hasn't because I've not been here all the time. You can see how improved they all are from where they were, so that was good.



- I think everybody did very, very well. Maybe Participant 4 ... his memory wasn't on his stepping today as good as he has been, but apart from that I think everybody did very, very well.
- *My instructions?* Yeah, very good very more precise with them now. You're not letting them do it (without) copying you. They followed instruction well.
- Everybody seemed to enjoy it. Everybody wants to come so you don't have a problem with the majority of them. Participant 1 was a bit "mmm" but she went. But the others ... I say four o'clock, top ... and they're there, no arguments. I think there is a routine – they've got into the routine and it worked very well

Trish – Session 16

- They picked up very well where they stand up against the wall with the knees bent. I think they all got that off to a fine art. Even people like Brian who found it difficult to balance when we first started has got that one worked out, so that was very good for him today.
- Participant 1 was trying really, really hard. Didn't always get the steps right but she was trying.
- I was impressed with Participant 6 today, the impressive one today. Probably not in the walking because he didn't do it for long, (but) on the stance ones I was quite proud of him.
- It was a pleasure for them to come. You don't have to argue so everybody turned up, everybody seemed to enjoy it, even Joyce.
- I thought it was very well organised.
- Overall, of the program, it's long enough. The duration is right, the activities done are good, there's enough in there. I don't think you'd want any more; otherwise you are getting them to remember too much. I'm quite impressed with how much extra you have put in over a period of weeks.
- *Notice the intensity stepped up?* Yes, yes and everybody is ready for it. You mentioned tree and everybody was in there. There wasn't one that didn't know what you were talking about – that's quite something. Even though you come every fortnight, it was impressive to have six people that knew what you were talking about – you said one word – tree!
- *Duration?* Half an hour is long enough. Anything over half an hour you're going to get people losing concentration – half an hour is long enough for you to compact as much as you have got into this one. In that half an hour, you have kept them busy. No sooner have you finished one, you're thinking about the next one and the next one. There's none of this where you've got a bit of a lull where you have to think about what you could put in. I wouldn't want anymore and I wouldn't want the time span any more.
- Even at 94 (Participant 2) she was still willing to come. She finished one session and she said to you, 'same time tomorrow?'



Appendix D: Lifestyle Coordinator Interview Transcript

General impressions?

What I have been amazed about is the continuity of the residents every day of the session. They knew it was on – was going to be 4.00 o'clock in the afternoon. Nobody said that they were tired; they wanted to and 'yes, I remember going there'. That was amazing because some of our residents have got short term memory loss. But it wasn't like it was going to an exercise program – it was going for relaxation. They said that "it's fun to go" and "look forward to it". So it's generally very positive in relation to an exercise program, where the residents will often say "I don't want to do exercises". So the wellbeing of the Chair Chi Plus program that is put in place is completely different. For the wellbeing for the resident physically and mentally on a daily basis – it can be seen certainly to enhance their lifestyle.

What had you noticed of individual residents?

Well, certainly things they have said to me. A lot stronger in themselves and they feel confident. They still realise their boundaries, but they said I feel a lot more confident. So from that point of view, looking at the confidence of the residents when it comes to ... mobility is important as well. And within this program we've had ... nobody has had any mishaps or falls. And all our residents are under the guidance of supervision with their mobility, even if it's not aided ... just because of their dementia maybe, or their lack of confidence. So they're under supervision and also under physio as well – though that comes under supervision ... and in Participant 2's situation, she is one who often says "I feel so much more confident (*having done the Chair Chi*)". Her daughter has been very supportive; making sure her mum is available. Previously the daughter used to take her out ... now making sure she was home for the session. So that's good. And that's the same as another resident as well – they always made sure they were available for the sessions.

Attendance impressive?

Yes, at four o'clock in the afternoon ... Sundowners. It's like at four o'clock, especially with the ladies, because it's the busiest time, afternoon. They hear doors banging and staff handover. Sundowners purely itself is not a medical condition, but it heightens their anxiety when they become restless. They're attempting to get out of the facility or they know they've got to be doing something but they're not quite sure of what they're doing ... agitated.

Four of those people from that session (Chair Chi Plus) do show sundowners. When that routine is happening every day at 4 o'clock, when they knew the Chair Chi was on, there was no display of that. And it wasn't just with our females – it was with our males as well. And then also there were other residents who wanted to join as well so it was ... (*The two others were there and wandered in and out*)

yes, yes. So it's been an amazing commitment from everybody for the six weeks. When you said the six weeks I thought that is quite a long time, especially knowing what happens on a daily basis

Did that surprise you for them to last 6 weeks?

Yes, well to have that continuity three times a week for six weeks – it's a big commitment. The residents weren't probably aware of it, but they certainly were committed. When they were asked, the girls would start getting ready with the group at about 20 past three after they had their afternoon tea. And so when the sundowners behaviour might escalate it wouldn't then be displayed. We know we're redirecting you ... They were realising they were being redirected, but they knew they were going to the Chair Chi session. That makes a big difference.

Emotional and Psychological Wellbeing?

From the emotional point of view I think it was the nurturing that chair chi produces; that feeling of being wanted, that feeling of importance, of being connected with the program. And what was put in place with the program ... and having time for them to realise "oh, we can do something different. I've never done this before but I can do it now."

You felt that helped their self-esteem and confidence, part of program where they see progress?

Exactly! Which they did. Yes, from our point of view, as an aged care facility, the self-esteem is important as well. We don't reflect back on what happened previously, but we reflect back on the ability of their self-esteem now. (*The here and now*) Exactly, the future part of it not so much ... that they had low self-esteem, okay they all display low self-esteem, but it can be escalated. It can be supported and that certainly displays ... And was happening in the actual program, it's amazing. And the residents who have got short term memory loss – they will talk about it the next day. And, well, through the day the first question is "Chair Chi today?" or "Do we have to be home today?" And that was in the mornings. They do know when a bus trip is going to happen but that's something for them to look forward to. And the Chair Chi Plus, because it was 6 weeks, 3 days commitment, it was big part of the program.

Various staff helping?

Yes there wasn't so much continuity of our staff was there. (*But that meant we had five different perspectives*) Yes, Yes.

How experienced were the staff?

They're all PCA's (personal care attendants) so they are qualified – and then also three of them have got Certificate IV in Leisure and Lifestyle, so they are certainly aware of the importance of Diversional Therapy. Cassie and Annie, they have only just come over to lifestyle. They were nursing and they were very supportive of it (Chair Chi) because they were the ones who would come to me and say, 'do



we have Chair Chi today' so that was part of our program that we need to put in to our daily to make sure our other programs were finished on time, so they could fit this in as well.

Cassie and Annie they have only just finished their PCA course but they came to me and asked if they could do lifestyle hours as well. So were Janine and Marie, and Trish ...she's a nurse as well. Janine has no nursing background, but she has got her Cert IV in Leisure and Lifestyle so they're all qualified.

And once again it comes back to the holistic approach incorporated from nursing and from lifestyle staff to enhance all of our residents living – and we need all that put together. And even in the sessions we would have care staff who obviously had looked after the residents ADL (assisted daily living – toileting, hygiene, making sure all that's prepared and ready) before going to the group so they can attend a four o'clock session (*so there's a lot of preparation beforehand*), yes, that's right.

I noticed in the afternoons when the session was going ... our care staff, they had time to just observe the group as well.

What were the comments coming back to you from various staff as we were going through this?

They were saying it was not just a waste of time.

You've had programs before where you felt it wasn't as effective?

Exactly. When we had the Tibetan bowls that took a while to be accepted by our PCA's but eventually they were very supportive of it. They could see the benefits of it. Once our PCA's with this research ... once PCA's had addressed the ADLS's of the residents that were going to the group, they had 5-10 minutes just to observe the group as well. And so they would come back and say, 'that is amazing, what they can do'. And when they get back to the changed environment they need full assistance with their ADL. (*Noticeable difference*)

Re dependent on care?

Yes ... and how independent they were in the group! In the session. It's brought out into them. From a PCA point of view, we do have to make sure all the ADL's are taken care of. The residents have a tendency not to take full responsibility and rather enjoy having someone else do everything for them.

I know with the lifestyle staff they were amazed to know about pulse rates.

Comments about my teaching, my approach to the program?

The comment is 'we know Chris for what he wears'. That is like you having a uniform. But it is recognition of your skills that is going to come from what you wear, like, 'oh, yes we know him, he's the Tai Chi man' or 'oh, yes, we know from his voice – he's got like a deeper a different type of voice' and they would say often 'he's got big hands'. It's mainly your presentation.



Re about Presentation – what worked what could be improved?

I think once again that time commitment and that continuity in that program. You never gave up on anybody. You were committed for those six weeks – you put in extra time and effort to ensure that our residents weren't going to feel let down. And the staff who were helping and coordinating, they knew you were going to be here at 3.30 or 3:40 to start at 4:00 and it was going to be done in the time frame. It was also important. With the time frame – you started on time, you finished it on time. It wasn't interrupted – it was that full commitment of that time it started and the time it finished.

And their reactions to that?

Staff in aged care facilities are very focused on the time they have to prepare their day to make sure their programs are being done, the documentation is completed. Knowing that the Chair Chi Plus was going to be in place as such and such a time, and knowing it was going to be finished at such and such a time ... That's important for everybody because if we were running late then that reflects back onto dinner time (*a domino effect?*). Exactly, yes.

Did they appreciate that?

There were no negatives. Everybody said it was such a good program for our residents. From our lifestyle and our nursing staff as well there were no issues 'do we have to provide?', but "I will make sure the resident is ready for the program". That's how it was all round.

I said at the very beginning six weeks is a long time but I was impressed that it lasted. And also we only asked XX – she was the only one we took in to be part of the program. But the other residents who go to the fortnightly program, they didn't say 'why wasn't I included?' And I think also with your commitment as well. You would come in and you were willing to put in the extra time to set the room up for us, because once again it was a different area. And I think that was important to run the program as well and have it in an area where the residents weren't ... well, they were familiar with it, but it was away from where they had the program once a fortnight. Because they could see this was something different and also they had to be involved.

I remember when you first started here you came in and they looked at you as if you were the entertainer. So we all brought them in, they just looked as if to say, "well, that's very good" then, as your fortnightly ones had realized, "oh I can do some of this, too" instead of just being entertained.

It's physical; it's mental; it's social.

And, lets' hope, we've always got new residents coming in that ... particularly like Participant 3's situation Alzheimer's ... let's hope that Chair Chi gives her strength to support her self-esteem to keep her away having a wheelie frame.



Every little bit helps, as long as they're not sliding back

And if we can keep them at this plateau we've got them – that's success.

I know that in Participant 3's situation ... her family member said that she is better now here compare to 12 months ago when she was at home, so she gets lots of stimulation.

Any other comments?

Well from our facility's point of view, research resources are a big part of our continuous improvement. So we do we get research on programs, but we don't always get these fine detailed results like relating back to their pulse rates – that's amazing.

We talked about Best Practice ... Our facility manager and proprietors, they're aware of this

Any feedback from them?

Melissa [*facility manager*] will say to me how's it going and so she is certainly aware of it and she is certainly ...she would ask through that six weeks, checking that it was happening and we were supporting it and also the residents were being committed as well. We've also got our two regional managers as well. They were certainly aware as well – they came to me and said, 'I heard about your program' and they did say, "Why doesn't it happen in other facilities [*laughs*] at Craigcare."

The thing is with the other Craigcare centres, we've two of them, one at Plumpton and one at Pascoe Vale and then another at Mornington so the location isn't any good for you. That's what I said to the regional managers, location wise – it's convenient for you at Berwick because it's closer.

From our physiotherapy point of view I haven't taken any of this information to them yet. We have two physiotherapists that come here. By the time they do their assessments, they know that chair chi and yoga are on the program and that is included in their interventions – part of what the residents do.

With our documentation, we put Chair Chi into lifestyle and then that filters over into physiotherapy so that's that connection there. Physiotherapists don't often need to meet with me – only if there is an issue.

From Craigcare's point of view the company supports externals to come in and provide these extra services. So that's where we've been able to introduce it, because for the staff to get the room setup, to get the group together to manage the behaviours in the group it would need two staff – one staff to supervise the behaviours to see if there is any display or what's happening around the area, and then one just to do the actual session.

