Good Neighbours

Pilot Study report on Postural Stability programme for those living with dementia.

Sarah Warren, MCSP
July 2016

Pilot study report on Postural Stability programme for those living with dementia.

Table of Contents

Pilot study report on Postural Stability programme for those living with dementia.

Introduction

Falls and injuries are the largest cause of accidental death in older people across Europe[1] . ProFaNE (Prevention of Falls Network Europe) was funded by the European Commission to consolidate good practice as well as management protocols for those at risk of falls.

The Government's 'National Service Framework for Older People' acknowledges the evidence that targeted exercise can help in the prevention, management and rehabilitation of falls[2].

The NICE Guidelines for preventing falls in older adults states:

> *"Strength and balance training is recommended. Those most likely to benefit are older people living in the community with a history of recurrent falls and/or balance and gait deficit. A muscle-strengthening and balance programme should be offered. This should be individually prescribed and monitored by an appropriately trained professional".*[3]

In 2003 'Later Life' was formed with the aim to improve the lives of older adults by preventing falls. From research carried out Later Life developed training to increase the accessibility, consistency, safety, and effectiveness of physical activity and exercise programmes for frailer, older people. In 2007 Later Life Training established the Postural Stability Instructor training course.

The Good Neighbours charity began in 2006 by offering befriending through trained volunteers to older vulnerable people in Tunbridge Wells. It became increasingly clear that one cause of social isolation amongst this client group was a fear of falling. In 2008 Good Neighbours trained a Postural Stability Instructor and since then have been successfully delivering Postural Stability Falls Prevention exercise classes in Tunbridge Wells.

Postural Stability classes enable us to offer targeted, specific, progressive exercise in the community. These classes can reduce falls by increasing muscle strength, improving balance, improving flexibility and co-ordination which in turn increase mobility, independence and confidence.

Through delivering our Postural Stability classes, we have seen a reduction in falls and improvement in strength, balance and confidence of our clients as evidenced in our assessment records.

Currently our funding to deliver these classes is from Kent County Council Public Health department. To join the classes, potential clients are referred by health professionals and must complete an assessment form. Regrettably one of the exclusion criteria to join a class as set by KCC (in line with the Later Life recommendations) is a diagnosis of dementia. However, we are increasingly receiving referrals for clients living with dementia.

A study published in 2009 found that during a 12 month period 66% of participants with dementia had a fall compared to 36% of age matched controls[4].

Hence the desire to conduct this study to specifically look at reducing falls and improving balance in this client group. We hoped for the added benefit of improving the social interaction opportunities for this client group which would result in improved mood.

The benefits of exercise for people living with dementia has been reported in the Cochrane

---

[1] *Skelton and Todd 2004*
[2] *Standard 6 Department of Health, 2001*
[3] *NICE Guidelines 1.1.4: Strength & Balance Training*
[4] *Allen et al, 2009*

review (2013)

> "*There was some evidence that exercise programs can improve the ability of people with dementia to perform daily activities, but there was a lot of variation among trial results that we were not able to explain.*"

Aims

The purpose of the pilot exercise programme was to see if having attended a 36-week progressive Postural Stability exercise programme, clients living with dementia experienced a reduction in falls and an improvement in strength and balance as well as an increase in confidence.

As a result of these findings we wanted to establish whether running further classes would be viable in the long-term.

Target population

We recruited clients from the local area who had a history of falls, or who felt unsteady and were fearful of falling and additionally also had a diagnosis of dementia and had therefore been excluded from attending the KCC funded classes.

No specific age was set, although the majority of clients were aged over 65.

In line with Later Life recommendations for a Postural Stability class, the maximum number attending a group was 15. This number included carers who were attending with their clients.

Funding

To deliver this pilot programme, we successfully applied for a grant from Kent Community Foundation.

In addition we were supported by Home Instead who had increasingly identified the problem of falls amongst their clients living with dementia and were keen to support the pilot study.

The clients

Clients came from two sources:

1. Home Instead care agency.
2. The local Alzheimer's Society branch.

Three of the clients we recruited had also been referred by health professionals to the Falls Prevention referral team at KCC but due to their diagnosis were not eligible to join a regular class.

Method of conducting the study

Location

Classes were held in the Church Hall where we run our existing Postural Stability programme. This is easily accessible with no steps and has parking nearby. A risk assessment was completed at the start of the programme.

Adaptations

We identified the specific requirements of this group and adapted the space accordingly. We needed to keep noise and visual distractions to a minimum and ensured this happened each week. We identified a problem with judging distance and hallucinations with one participant, so it was important to ensure that there were no obstacles and the area was kept as clear as possible. We signposted all doors with pictures and words and maintained continuity of both Instructors and volunteers. Everyone had a name badge. We used music for the warm up and aerobic sections of the exercise class. This had the benefit of keeping a rhythm and as some of the clients sang along increased enjoyment.

Additional requirements

In addition to the two Later Life trained Postural Stability Instructors, who had attended further training in Dementia needs, we also had volunteers assisting with welcoming clients and preparing refreshments. Most of the clients attended with a carer, who was able to encourage and provide continuity and help with exercising at home.

The exercise class

The programme ran over 36 weeks, with a progressive exercise plan in line with our programme run for all older people with balance problems who attend our classes. Each exercise session lasted one hour, followed by refreshments.

We adapted some of the usual Postural Stability exercises to make them more suitable for the group. We added more repetition of exercises and ensured clear visual commands. We achieved this by leading the group from the front with two instructors demonstrating and correcting.

We found the ability of the group to follow the exercises was not necessarily dependent on the dementia diagnosis or the length of time they had been diagnosed with dementia.

Each exercise session began with a seated warm up, to raise the heart beat slightly and improve joint flexibility before standing.

This was followed by an aerobic section to raise the heart beat further for improved cardio-vascular health and improved strength. At all times, whilst in standing, the clients had a chair in front of them for physical support.

The next section was balance exercises, both static and dynamic. They progressed to an obstacle course allowing for more functional balance activities with, for example, hurdles to step over.

Exercises for increasing the strength of key body areas for falls prevention and balance followed. We achieved this by using weights for arm strength, necessary for independent living and to get up from the floor. We also used body weight to improve strength; leg raises in sitting and side leg raises in

side lying and wall presses for triceps strength. We used many functional activities, like sit to stand for quadriceps strength, to keep the exercises as relevant as possible to daily life.

We decided to use wrist and hand held weights for strength rather than 'Therabands' as this was a simpler and more practical way to perform the strength exercises. We taught strength and balance exercises whilst on the mats too.

The class ended with cool down exercises and flexibility stretches. The stretches were for arm, leg and chest and each was held for 30 seconds. The aim is to improve functional ability by increasing the range of movement of joints to make activities of daily life easier, for example putting on footwear and reaching up for things.

We taught the group the backward chaining method to get up from the floor so that they would be able to get themselves up if they did fall.

Assessment data

Please see Appendix 1

Methods of analysis

In line with existing Postural Stability groups, we carried out assessments on the clients at the start of the programme and then every 12 weeks. These assessments were:

Sit to stand test

This test uses a straight back chair without arms positioned with the back close to a wall for safety. The client sits down and stands up as many times as safely possible, in 30 seconds. If the client needs to use hands for getting up and down this is recorded.

Timed up and go test

A hard chair is placed 3 metres away from a cone with a clear space around it. The client rises from the chair (without using their hands if possible), walks the 3 metres, around the cone and walks back to the chair and sits down. The whole movement should be made at normal speed and timed with a stopwatch. Any walking aid used is noted.

4 point stand test

This is a timed balance test of increasing difficulty. For each position when balanced they let go of the support and the time they can maintain that position is recorded. Each position is held for 60 seconds before progressing to the next. Starting with feet together, progressing to a semi-tandem stand, tandem stand and the final balance position we used was a one leg stand.

One assessment tool used in our PS classes is the conf/bal questionnaire[5]. This questionnaire asks questions about confidence in staying balanced whilst performing various tasks, which the client

[5] Physiotherapy Journal June 2009 Volume 9, issue 2

scores on the sheet. However, this was found to be too difficult for most of this group and we therefore did not persist in using it.

Assessment results

Excluding clients 1, 2 and 8, for which there is not enough data, the results generally show an improvement in strength for the clients as tested by the 'sit to stand' test. Similarly there is an improvement in gait speed as tested by the 'get up and go' assessment. Their balance did not improve as much for the clients as the other tests but generally remained stable. However the results for client 5 show dramatic improvements which we have discussed in the case study further on.

Three of the clients, 4, 6 and 9, found that the arthritis they suffered from in their knees and backs had a big effect on the assessment test scores. This is reflected in their low scores on some weeks if increased pain corresponded with the day of the assessment.

Although initially we assessed all the carers as the weeks went by there were only 2 that remained consistent and for whom we have a full set of scores. You can see from Appendix 1 that attending the programme resulted in an improvement in strength and gait speed as well as balance for them, despite falls not being an issue. Both carers were over 60 themselves.

For some, the assessments scores showed maintenance in ability rather than an improvement. There is no way of knowing without a control group of similar clients if the classes prevented a decline in these clients.

Attendance

This was very varied due to many other health issues. The table below shows the number of weeks attended out of a total maximum of 36 weeks.

Client 1	Client 2	Client 3	Client 4	Client 5	Client 6	Client 7	Client 8	Client 9
13	12	23	28	32	30	11	6	30

Home exercises

Although we gave everyone a home exercise booklet, it was unclear how many were using them regularly to do additional exercises at home. The married couple who came were the only ones who stated they were regularly exercising at home. The assessment results from client 5 show the positive effect this had. In the future any class we run for those living with dementia we would like to develop and give out an exercise booklet with fewer exercises and simplified instructions.

Added benefits

We found the opportunity to socialise after the classes was more important at this class compared to other Postural Stability classes. The clients were all eager to stay around and chat long after the refreshments were consumed.

We enjoyed sharing Birthdays together and hearing about trips out and other special occasions. The group showed great concern for each other.

Discussion

In general, we found it extremely difficult to recruit clients to attend the group. This was partly due to the requirement to have a carer with them attending the class. As noted above, a local care agency was eager to provide exercise for its clients and supported the study by providing carers to bring some of their clients. Additionally, a married couple attended and we provided volunteers to support other members of the group.

Another recruitment issue highlighted was that carers were reluctant to miss any day centre care the client received because this provided them with time off from caring. Two couples pulled out just before the start for this reason due to changes in day centre availability.

We also found that this client group had more health issues than the general population in this age group, which stopped them joining the programme and caused two clients to drop out early. We were subsequently able to add another client to the programme who was living independently and did not need carer support to attend.

In the future we need to develop a simpler assessment for finding out if their confidence had improved. It would be useful to also assess the mood of clients, pre and post class, to see if exercise has a benefit in improving mood, and to see if the trend continued as the sessions progressed.

The clients reported that teaching the backward chaining technique to get up off the floor had been very helpful and knowing they could get themselves up if they did fall decreased their fear of falling. For example, one lady fell in her bedroom but managed to crawl to the bed and get herself up rather than spend time on the floor waiting for help.

The carers also reported improvements that the clients were not aware of. For instance, one carer said that when out shopping with his client “I now have to check regularly that he was with me because I can’t hear the normal shuffle!” because he was now lifting his feet to walk.

There was also a benefit noticed by some of the carers themselves who came. For example, one reported that he was now able to put his socks on more easily as a result of attending the classes regularly with his client.

It is not clear how many times the clients had fallen prior to attending the class and not all clients were able to report if they had fallen during the programme. In conclusion the data on the number of falls is not reliable or complete and so only in the case of a married couple are we able to say with certainty that attending the class has reduced the number of times the client fell.

There was one client who used inappropriate sexual behaviour and language. The other members of the class found this very hard to deal with, although it was only aimed at the Instructor and

volunteer. This situation was resolved, when the client was admitted to a care home and was no longer able to attend.

Case study

Of particular interest are the assessment results of client 5. These results clearly demonstrate that the classes were of benefit to this lady. Her results showed an improvement in sit to stand from 4 to 13, a 225% improvement and a decrease in time taken in the timed up and go test from 13 seconds to 9 seconds, a 44% improvement.

Her balance score was quite remarkable: from being unable to stand with her feet together unsupported, to being able to stand on one leg for 29 seconds unsupported. She had been falling several times a week before attending the classes, but at week 30 of the programme, 3rd May 2016, she told us that she hadn't had a fall since Christmas.

I am able to attribute these improvements to three main reasons: firstly, her regular attendance, secondly, her spouse who was very supportive in attending with her, and thirdly her commitment to continue exercising at home.

In the past she had been a County darts player but had to stop playing darts at all as her health deteriorated. She could not balance to throw a dart or have the strength in her arm to do so. Since attending classes she had started playing darts again, which not only gave her a greater opportunity to socialise and meet friends but also greatly improved her confidence. She brought in a trophy she had won playing doubles with her granddaughter, which gave her much pleasure.

Her husband, who attended classes with her, reports she is now managing much better at home. We noticed that at the beginning of the course her stamina was very low and she would get out of breath quickly. By the end of the programme she was able to join in the exercises without taking extra rests.

She really hopes to continue exercising as the results of attending weekly have very much encouraged her. We have offered her, and her husband, a place at our fit and fun exercise class, (which she would pay for) as she proved to be able to follow instructions and join in the group work during this course.

Conclusion

For those clients who attended regularly the programme was a success. We saw an improvement in balance and strength and for some a reported decrease in falls. From experience we find that the assessment statistics do not always match the reality.

The clients filled in evaluation forms at the end of the course, 100% agreed that they had enjoyed the classes and would recommend the programme to others. 100% responded that the exercises had improved their strength and mobility, although the assessment results did not show this.

The improvement in confidence after attending the programme often results in increased social activity which is a good indicator that the programme has been successful. For this group, however, that are dependent on carers for social activities this has not been evident.

The majority of clients felt that the 36 week programme was too long. Evidence shows that it takes time to build up the increased strength to improve balance and reduce falls but for this group the commitment to attend for 9 months was felt to be too much.

At the suggestion of the participants any future exercise classes should be split into 12 week blocks, followed by a break, rather than 36 consecutive weeks, with the opportunity to opt in or out at the end of each "term".

Having a mixed group of carers and clients changed the group dynamics compared to a standard Postural Stability class so that peer support and encouragement was less evident than in a normal class.

The carers were fit and able which changed the dynamics of the group as not all participants were working to improve their balance. The age range attending was also much wider than a normal group, which changed the dynamics somewhat.

The Postural Stability programmes that Good Neighbours run are 36 weeks long. The aim is to keep the clients active and independent. For the clients living with dementia we have to be realistic about the outcome aims and adapt the programme to the needs of the group accordingly.

It would be ideal if each client attended with a regular carer so that follow up exercise support at home was more consistent.

Plans for future

The results of this small pilot study show that it is certainly worthwhile delivering a Postural Stability class for clients with dementia.

In order to continue to do this, appropriate funding would need to be made available to offer this with only a small contribution from the clients.

Reference of interest to note

NICE living well with dementia (2013) Quality standard 30:

Statement 4- People with dementia are enabled, with the involvement of their carers, to take part in leisure activities during their day based on individual interest and choice.

Statement 5- People with dementia are enabled, with the involvement of their carers, to maintain and develop relationships.

Statement 6- People with dementia are enabled, with the involvement of their carers, to access services that maintain their physical and mental health and wellbeing.

Appendix 1: Assessment Data

					Assessment		
					sit to stand	**TUG**	**4 point stand**
Client 1	Female	90	Alzheimer's	week 1	3 w hands	24s w stick	semi tandem 7s
				week 12			
Cancer				week 24			
				week 36			
Client 2	Male	90	Alzheimer's	Week 1	started late		
				week 12	8	13s	1 leg 7s
Admitted to care home				week 24			
				week 36			
Client 3	Male	72	Dementia with Parkinson's disease	Week 1	7	24s	semi tandem 30s
				week 12	9	17s	unable to understand
				week 24	8	20s	unable to understand
				week 36	4	22s	Semi tandem 20s
Carer 1	Male			week 1	12		1 leg 2s
				week 12	13		1 leg 10s
				week 24	13	6s	1 leg 10s
				week 36	16	6s	1 leg 25s
Client 4	Female	76	Vascular dementia	week 1	6 w.hands	15s	tandem 10s
				week 12	8 no hands	13s	tandem 30s
				week 24	9 no hands	11s	tandem 15s
				week 36	8 w hands	10s	tandem 3s
Client 5	Female	60	Vascular dementia	week 1	4	14s	unable
				week 12	8	13s	semi-tandem 10s
				week 24	9	11s	tandem 13s
				week 36	13	9s	1 leg 29s
Carer 2	Male			week 1	13		1 leg 30s+
				week 12	13	6s	1 leg 11s
				week 24	14	5s	1 leg 30s+
				week 36	17	5s	eyes shut 1 leg 12s
Client 6	Male	91	Alzheimer's	week 1	7	22s	tandem 3s
				week 12	9	19s	tandem 8s
				week 24	8	30s	tandem 5s
				week 36	9	22s	tandem 44s

Client 7	Female	89	Dementia	Week 12	11	10s	1 leg 5s
				Week 24	11	8s	1 leg 11s
				Week 36	11	9s	1 leg 10s
Client 8	Male	67	Alzheimer's	Week 1	13	10s	1 leg 30s +
				Week 12			
Lost contact				Week 24			
Client 9	Female	81	Alzheimer's	Week 1	6	12s	tandem 15s
				Week 12	Unwell		
				week 24	8	16s	tandem 19s
				Week 36	10 w hands	30s	tandem 23s

Assessments key

Sit to stand: The number of times you can stand up from sitting in 30 seconds

TUG: The time it takes to stand and walk around a cone 3m away and return to sitting

4 point stand: A timed balance test, starting with a semi-tandem stand and getting progressively harder to tandem and then 1 legged stand