

# agility

CHARTERED PHYSIOTHERAPISTS WORKING WITH OLDER PEOPLE

Autumn/Winter 2018

Active Ageing



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## Editorial

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**Author:** Christopher Tuckett – Agility Editor

🐦 @HealthPhysio.

Welcome to this new edition of Agility which is again crammed full of interesting articles and pieces.

The theme for this edition is 'Active Ageing' which has been selected for its alignment with the CSPs public health campaign 'Love Activity, Hate Exercise?'. The campaign itself has stoked a fair bit of discussion (which I believe is only a good thing) around the inclusion of the words 'Hate Exercise?' in the campaign materials. Some therapists have suggested that this implies that we as professionals endorse or legitimise the hatred of exercise, which could be seen by our patients as very confusing at best or harmful at worst. I can understand these concerns but after attending the PhysioUK conference recently whereby the CSP team explained their reasoning and shared the feedback they received from patients I feel happy that the messaging is on point. Quite simply we have to accept and acknowledge that many of our patients do hate exercise (or at least think they do) and instead of instantly jumping to its defence (which is our hardwired default position) the principles of motivational interviewing tell us that it's much better to 'roll with this resistance' and develop a conversation about any apparent 'hatred'. This is where the 'question mark' is all important and denotes a conversation starter rather than a statement. Of course, with social media this important grammatical symbol can get lost in translation which is why many simply use #LoveActivity when required, and so the flexibility and adaptability of the campaign is also an inherent strength of it. So, with 'Love Activity, Hate Exercise?' having signed up more members than any previous CSP campaign it seems to ring true that controversy is the greatest form of publicity. I hope we now see a momentum continue to build whereby more therapists than ever before are starting open and honest conversations with their patients about exercise and activity, as without doubt it is still our greatest and most effective intervention.

Within this edition you will find a range of articles all advocating for or sharing knowledge around the use of exercise and physical activity. We have a blog from the Public Health England Physical Activity Champion and Physiotherapist Anna Lowe who reminds us of the importance of ensuring you know what the clinical guidelines state about physical activity. As we cannot profess to be exercise professionals if we do not know this most basic of information.

We then have a fascinating piece from our Dutch collaboration that investigates the effectiveness of falls prevention programmes centred around activity

stimulation for older people. The outcomes are interesting and relevant and emphasise how important specificity is to any successful intervention.

There is then a piece providing insight into what I imagine is now a very well-known intervention; the Escape Pain programme. This is a great initiative providing fantastic outcomes for people with pain who otherwise may believe exercise is not appropriate. Crucially it is also reaching patient groups who may feel they are excluded from more mainstream exercise programmes and laudably it is taking exercise into communities and out of the more shielded clinical setting. As we know access is a common barrier to participation.

Following this there is a summary of this years' EU Falls festival which was held in Manchester. This was a brilliant event and provided a wealth of new knowledge and networking opportunities with clinicians and academics from around the world on 'falls'. Read my report to see what went on and see if it tempts you to attend next years' event which will again relocate to mainland Europe.

You will then find a great article from our research officer providing an insight into the lives of some therapists that have embarked on a career in research. Research is an avenue that is still relatively sparsely populated by physiotherapists but without getting ourselves involved further we cannot expect future studies and research to address the questions we want answers to. As such I would urge everyone to read this piece and consider how you can get more involved in research, opportunities are increasing all the time and it is an excellent way to showcase the clinical and academic skills we as physiotherapists generally have. Research is critical to our practice and to our patients, so get involved.

Lyfinity then contribute a piece showcasing the exercise class they developed that was physio led and engaged older patients who also had a long-term condition. This took place in the primary care setting and is a great advocate for therapists working at the sharp end of LTC optimisation. It also highlights the importance of not overlooking the social benefits to be had from older patients attending an exercise class and how this can be highly prized by participants,

You will then find a fascinating piece exploring the different facets that make up successful adherence to an exercise intervention and it asks you to think about how you use the terms, compliance, adherence and engagement. It makes a very good case that

compliance is not enough, and that it is true patient engagement that we are after. Read the piece for a thought-provoking challenge to some of our everyday clinical language around exercise prescription.

Otago classes then get a mention but combine this with a look at the effectiveness of behaviour change techniques to increase adherence to an exercise programme. It draws out several fascinating points and again is another piece that highlights how highly participants regard the social aspect of an intervention.

Technology then gets a slot, and this features the highly innovative use of 'smart walkers' that are modified walking aids that allow investigators to analyse and research older people walking with 'six-feet'! Read it to see what I mean, as it is truly intriguing, and I was surprised to learn that walking aids, despite being prescribed almost routinely, have very little research into their effectiveness.

Public Health England contribute a great piece reinforcing the message that 'what's good for the heart is good for the brain' and emphasising the huge impact AHPs can have in supporting the prevention agenda. Just this week the new Health Secretary reiterated his commitment to 'prevention' and so it is critical that we ensure we have the skills and knowledge to support this pledge otherwise we may find ourselves usurped.

Our East region then contribute a very interesting dissection of a research article that concludes that patients do want to be challenged through exercise and that this can improve motivation. Which supports evidence seen elsewhere that we tend to under-prescribe exercise to older people and perhaps we should be more bullish and reap the rewards of greater adherence which will in turn benefit patient outcomes.

There's a new feature whereby a recent Physiotherapy graduate shares their university dissertation and benefits from the chance to have work published. This piece was particularly relevant as it addresses the fears and concerns students have when feeling confident enough to prescribe cardiovascular exercise. Perhaps we take it for granted that we as physiotherapists are all confident with exercise prescription but in fact this should not be the case. Many students admit to lacking confidence in this crucial area and as the more established therapists it is incumbent on all of us to ensure we support them to gain this confidence. But of course, this means that we must ensure we are confident and knowledgeable too, which is not always the case. As exercise becomes more central to the health of our patients from a prevention and wellbeing vantage point we have a responsibility to maintain our knowledge of appropriate exercise prescription before we can then share this with our more junior colleagues.

Finally, we have a press-release which introduces a very timely and well evidenced report by the not-

for-profit organisation 'UKactive'. The report is titled 'Reimagining Ageing' and is a call to arms for the leisure and healthcare industry to address the tidal wave of inactivity amongst our older peers. It is highly recommended to seek out the full report which is freely available from the UKactive website or by searching online.

And that's it for another issue which I hope you will agree is packed full of interesting content whilst shamelessly promoting the value of physical activity and exercise at every opportunity. They truly are powerful interventions that we need to wield appropriately, whilst being mindful of their evidence base and ensure we seek patient engagement not just compliance. If we fail to recognise their true potential, then we are doing both our profession and our patients a disservice. #LoveActivityHateExercise?

Thanks for reading and enjoy.

Feel free to contact me directly via my email ([agilejournal@gmail.com](mailto:agilejournal@gmail.com))

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## President's Address

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**Author:** Angela Clayton-Turner, AGILE Honorary President

As an older person, though no longer working as a physiotherapist, it is proving difficult to relate to this issue's topic. Through dementia research I know that "what is good for your heart is good for your brain" and that several projects have demonstrated exercise as being beneficial for brain health. But the advice stresses the importance of being physically active during one's middle years which is not the age group that AGILE members are seeing as patients. However, your own middle years are often when you are at your busiest, work and personal responsibilities filling the days. Looking back on my career in terms of physical activity I went from hospital work (on my feet all day, walking and standing beside beds/plinths) to community work (one third of my day spent sitting in a car) to management (much of my day spent sitting in meetings and at my desk). Just as work may be becoming more sedentary, personal responsibilities may also be growing and then it becomes more difficult to maintain a physically active life. Nevertheless, the benefits of exercise at all stages of life are well proven. It has been demonstrated that muscle bulk can still be increased in elderly people; and as important are the social benefits of group activities and the 'feel-good' factor that exercise can bring.

Back in April Laura Cook and I composed a letter which was printed in Frontline. In it we asked you to encourage everyone in your service to become a dementia friend – not forgetting members of the wider support team, such as cleaners, porters and receptionists. We also drew attention to an exciting aim for London to become the first dementia friendly capital city, asking for services based in the capital to help in this work. Subsequently I was delighted to read in Frontline that many services arranged special activities during 'Dementia Action Week' in May. A dementia friend awareness session only takes an hour or slightly less, they are given by volunteers who have trained to become a dementia friend champion and are cost free. The focus is on how it feels to have dementia and the unique difficulties it can bring – a different dimension from pathology, signs and symptoms. If you don't know a dementia friend champion in your area, use the contact form on the website [www.dementiafriends.org.uk](http://www.dementiafriends.org.uk) to ask the organisation to find you someone.

In July I attended Agile East's "Backward chaining" training day. It was good to meet local members and experience the event. In September I attended another Agile East event in relation to the new NICE guidance on dementia and the implications for physiotherapists. Laura Cook (who is currently working for NHS England as the programme lead for the London Dementia Clinical Network) gave us an expert tour through the new guidance together with advice and suggestions about how physiotherapists could relate to various areas. I came away with some useful information in relation to my dementia voluntary work.

Prior to this meeting I attended a dementia research showcase organised by the Alzheimer's Society. At the Alzheimer's Society conference back in May part of the programme was also a showcase of research with several PhD students talking about their work. I was so pleased that one of the students was a physiotherapist! I am also a monitor on an Alzheimer's Society funded PhD which is being completed by an occupational therapist. Therapy research in relation to dementia is happening but unless we gather it all together it is not going to be available for clinicians to access. I would like to support AGILE in producing a resource of therapy research summaries and hope to work with Katie Robinson on this endeavour.

Finally, I thought I would add that my current activities although sedentary, generally involve much walking between home, railway stations and meeting venues and I certainly enjoy the social benefits too!

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## Chair's Address

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**Author:** Kate Bennett - AGILE Chair

 @kategahr\_kate

It's been a very long day today. As I walk in through the front door I nearly fall over a parcel ordered from Amazon 2 days ago. Within minutes the Sainsbury's delivery van can be heard and my phone buzzes as my husband Skypes calls me. Finishing my conversation, I then sit down and utter the most popular words in our house; "Alexa play...". You may wonder where I am going with this; as I'm pretty sure most of you aren't interested in how I wind down in the evenings! But what I want to highlight is how we now experience the seamless integration of technology into our hectic lives.

Technology can be a wondrous, amazing, life-changing and enabling tool. The advances we have seen in recent years have contributed to the ability of vulnerable older people to remain in their own homes. Tasks such as shopping and banking, and even some hospital appointments, can all be completed from the comfort of home via the internet, removing the need for people to leave the house. It is as easy to work from home as it is to keep in touch with family and friends wherever they are in the world, whilst social media can provide the potential for social interactions from the comfort of your couch. The value of these developments cannot be underestimated in a society that is changing with less emphasis on the community pulling together. What we shouldn't underestimate is the potential for technology to also stealthily disable us long term.

It is a well-known fact that as we get older our muscle mass decreases with every passing decade resulting in detrimental effects on strength and balance. Modern life and the use of technology do nothing to reverse this trend. Certain activities are no longer a necessary part of day to day life meaning that as a population we are not as active as we used to be; there simply isn't the need to get up on our feet and move as regularly. Instead of activity being an integral part of daily life we instead make the effort to incorporate it within our busy daily routines as an 'added extra'.

And with the pressures of modern life it is not always easy to do so.

New guidance has been produced this year around exercise and activity in the older adult population. The recommendation is that older people undertake at least 150 minutes of moderate (brisk walking or cycling) weekly, and strength exercises working all the major muscle groups should be performed at least twice weekly. Other recommended activities include ballroom dancing, Nordic Walking, rowing and racquet sports; there truly is something for everyone.

Alongside national campaigns encouraging people to get up and moving (Stomp Out Sitting and End PJ Paralysis immediately spring to mind) the CSP produced a new animation for release on Older Persons Day highlighting the importance of activity for the older population. Please share this widely amongst your networks and hopefully we can play a role in getting the nation (old and young) back on its feet again.

Finally, on a personal note, I am expecting my first child in January, so I'll be taking a back seat from December through to February and will leave the running of AGILE to my co-committee members. I would like to thank all of them for their continued help and support through what has been a turbulent year for me. I look forward to being back at the AGILE helm in the Spring.

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## Guidelines for potential authors

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Please submit the article via email as an attachment to the editor: agilejournal@gmail.com and include an email address for correspondence purposes.

The following guidelines should be considered:

- References, where appropriate, should be in the Harvard style
- In the text – one surname followed by date of publication (Jones et al, 2003)
- In the reference lists – for journals: names and initials of all authors, title of article, full name of journal, volume number, issue number and first and last page numbers. For books: names and initials of all authors, followed by year of publication, title, place of publication and chapter or page numbers or both

Articles should be about 2,000 words long. Reports should be as short as possible (usually not more than one page when printed in Arial, 10 point, on A4 size paper). However, exceptions can be made accordingly and at the editor's discretion.

### **AUTHORS PLEASE NOTE**

Manuscripts should be English language.

Submissions will be acknowledged.

Material published becomes copyright to AGILE. Authors will be advised of any requests to reprint their articles in other journals.

Author's name will be published; however, professional or academic qualifications are not usually indicated. Post titles may sometimes be relevant.

Reports and articles for inclusion in the journal should reach the editor by the deadline for submissions.

Deadlines for submissions are usually 6-8 weeks prior to the journal being posted to members.

Articles should, if possible, be submitted well in advance of the deadline. Authors should bear in mind that editing and reviewing takes time. For this reason, inclusion in the next issue cannot be guaranteed.

An Agility report template is available via the AGILE website, and this will greatly assist the editorial team if used and adhered to prior to submission. It also provides referencing guidance.

The deadline for an article or report for the Spring/Summer 2019 issue is 30th April 2019

**Thank you for considering  
contributing to Agility**



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## Physical Activity- Educate yourselves then educate your patients.

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**Author:** Anna Lowe, Physiotherapist, AHP Physical Activity Champion for PHE, AHP Cancer Implementation Manager for NHS England.

🐦 @annalowephysio

Physical inactivity leads to poor health, disability and reduced quality of life. Becoming more active, on the other hand, improves both life expectancy and healthy life expectancy. It improves physical health and emotional wellbeing; in short it improves lives.

We know that people tend to become less active as they age, that women are likely to be less active than men, that people with any kind of disability are likely to have lower levels of activity as are those from more deprived areas.

Crucially healthcare professionals have an opportunity to influence people's activity levels.

Evidence suggests that we are regarded as trusted and credible messengers, and this may be more so when people face barriers to becoming more active. Pain, fatigue, breathlessness and fear are commonly cited barriers and healthcare professionals are well positioned to explain and reassure people that although these barriers are very real, they can be overcome, and that activity can help manage and improve these issues.

However, evidence tells us that many healthcare professionals don't feel confident talking about physical activity. The Chief Medical Officers' guidelines were summarised in a series of infographics which are handy prompts for busy clinicians (NB these guidelines are currently under review with updates expected over the next few months). The guidelines highlight that adults and older adults should aim for both 150 mins of moderate activity each week *and* at least 2 strength and balance sessions per week. The former recommendation has dominated in recent years but there is increased focus on the role of muscle and bone strengthening and balance exercise, summarised in this recent publication.

There is a clear message that any increase in activity is good, for many people 150 minutes would be unachievable and over-reaching so it is important that these guidelines are communicated in a way that encourages, informs and reassures patients.

Interestingly, one study suggests that when clinicians know the physical activity guidelines they are substantially more likely to promote activity with their patients, suggesting that knowledge of the guidelines might be an important part of the picture.

We are lucky to have so many fantastic resources to help us promote activity. For example, the newly published Moving Medicine website offers evidence-based practical advice for healthcare professionals on how to have conversations about physical activity even if you have as little as 1 minute to do so.

The free Active 10 app helps people to incorporate a brisk ten-minute walk into their day. It shows how much brisk walking an individual is doing and where they might fit more activity into their day.

Finally, the Public Health England, Physical Activity Clinical Champions programme offers free training for all healthcare professionals on physical activity. Champions will come to your place of work and train your team, email [physicalactivity@phe.gov.uk](mailto:physicalactivity@phe.gov.uk) for more information.

Patient contact time is precious, it is filled with many competing priorities and it is easy for a discussion about physical activity to slip down the list. However, people who are the least active and have complex health and care needs may have the most to gain from becoming more active. Supporting people to increase their activity levels at any stage of life has the potential to improve health and significantly improve quality of life.

## Physical activity stimulation and falls prevention: an overview of effective interventions for community dwelling older people.

Original title

### **Bewegestimulatie en valpreventie: overzicht van effectieve interventies voor zelfstandig wonende ouderen.**

Published in the Netherlands Tijdschrift voor Geriatriefysiotherapie. (Journal of Geriatric Physiotherapy) March 2018 pp9-22.

Translated and summarised by Edward Bakker MSc(PT), MA(Phil), MCSP.

**Authors:** Prof. Dr. Mirjam Pijnappels (PhD), Dr. Kimberly S. van Schooten (PhD), Dr. Agaath M.C. Sluiter (PhD), Dr. Carel G.M. Meskers (PhD, MD), Prof. Dr. Andrea B. Maier (PhD MD).

### **Commentary**

The authors review what falls-prevention and activity-stimulation interventions are currently provided in the Netherlands (NL), which ones have evidential support and the strength of the relevant evidence. They first identified what interventions are actually provided in NL and then matched relevant articles and research papers for further evaluation.

Their study was commissioned by NutsOhra, which is a charity in the Netherlands and one of its four programmes is aimed at addressing health inequalities in society. Physiotherapists are aware of the strong association between health and wealth inequalities and the impact of social deprivation and poor general health on clinical outcomes, as well as on patient commitment to therapy interventions. Professionally we may inadvertently discount the impact of those factors on the patient's/client's treatment or their ability to adhere to the programmes we provide. These societal factors may remain hidden from our direct perception, and patients who disengage from our interventions may be considered as 'hard-to-reach' or 'unmotivated'. Outreach and domiciliary assessment might be able to identify these individuals in localities where this kind of therapy facility does not already exist.

Within that context the necessity to provide programmes of demonstrable effectiveness continues to increase. The authors discuss the relevance of follow-up sessions to maintain treatment effects and prevent relapse. Their suggestion may be viewed as unrealistic where resources are scarce. But if falls prevention and activity stimulation are deemed important and, knowing as we do, that the risk of relapsing to previous behaviours is ever present then reviewing clinical priorities would seem appropriate.

The authors identified a total of 136 different interventions currently used in NL, of which 99 failed to meet their selection criteria for inclusion in the literature review. Of the 37 eligible interventions, a total of 11 programmes have some evidence of effectiveness. If the UK situation is comparable, these findings raise a strategic clinical-research question: should we invest our scarce resources in providing, and improving existing proven programmes? Whilst also developing (and validating) clinical decision guidelines enabling us to assign individual patients to the most appropriate intervention programmes to increase their chance of a successful outcome. Or should we develop and research new ones? Or should we research the efficacy of programmes currently not supported by evidence of effectiveness?

Whatever option is prioritised professionally, it will inevitably have significant clinical and financial consequences; but it seems that a choice is waiting to be made. It could be argued that it makes logistical and organisational sense for a department/service to provide one intervention programme to patients presenting with the same problem (e.g. history of falls). But the authors emphasise that the characteristics of patient-groups selected for particular interventions, should match those of the participants in the relevant studies as closely as possible. A point easily under-appreciated in busy clinical practice. But bearing in mind that universally effective interventions unfortunately do not exist, the development of clinical decision guidelines might be a relevant clinical research strategy worth considering as they may further enhance clinical decisions about assigning individuals to the most promising programme. In that same context we might also reflect on the social content of the provided interventions, whether that

includes movement to music, games or other social activities and peer support. After all, evidenced interventions and enjoyment are not mutually exclusive.

Assuming that programmes without evidential support continue to be provided on the basis of therapists' and clients' positive experiences of them, the question as to how clinical outcome data could and should be captured in order to generate credible evidence emerging from day-to-day clinical practice, is a relevant one. For example the use of a six-point outcome scale (e.g. MRC scale for muscle function testing) can be converted into meaningful functional classifications (the TELER method is a good example) and these might be worth considering as an integral part of clinical practice. These kinds of performance measures produce relevant parametric outcome data, which is suitable for aggregation, appropriate processing and statistical testing in the context of continuous service evaluation. Such data might compliment and triangulate with the evidence from prospective effectiveness trials.

While this review is highly relevant in the context of contemporary health and social care priorities, there are a few issues that deserve some reflection.

With the sheer abundance of research and effectiveness studies, it may be a real challenge for the clinical therapist to evaluate each and every available study individually. Reviews and systematic reviews in particular are wonderful things, enabling clinicians relatively easy access to the relevant reviewed evidence to inform their practice. The reviewers should be thanked for undertaking the 'hard graft' of reviewing the literature on our behalf. However as research consumers, understanding how to appraise (systematic) reviews remains an important skill-set for the individual therapist. Familiarity with one or some of the tools provided by Cochrane, CASP, NICE or WHO for example, may be considered useful to that end.

The presented review seems rigorous and comprehensive with regards to the process of identifying and selecting the interventions, but it might be suspected that some of the relevant articles retrieved from the search of NARCIS and PubMed may have qualitative weaknesses.

Some reviews include peer reviewed RCTs. However the 29 studies included in tables 1 and 2, include seven RCTs, one randomised trial, one pilot study, one systematic review and 19 titles which suggest they are either non-research studies, or trials with

relevant methodological issues which affect their internal validity (i.e. trustworthiness). Pragmatically, where there is a relative scarcity of research, the inclusion criteria for a review (without meta-analysis) may be kept wider, but the reader should appreciate that such a move weakens the review. Absence of information regarding statistical significance tests may be lamented by those readers who want to be assured that trial findings were mainly attributable to the intervention, rather than chance or error.

As regards the presentation of the various effectiveness studies, the authors have sub-grouped these logically into clusters providing a user-friendly overview (see tables 1 and 2). The potential pitfall is that a "strong evidence" cluster may in fact feature one strong and one weak piece of evidence. For example the cluster of "screening and adaptations" studies (32-34, 49) contains one RCT (Falls-HIT programme) and three studies of which the methodology is not clear from their titles.

Scrutinising the objectives of particular studies of interest would help the reader to understand whether the programme investigated might be relevant to their local situation. For example the GALM (44, 45) project might be less relevant (given its stated objectives, interventions and outcome measures) when considering developing a local activity encouragement programme aimed at achieving behavioural change as regards daily physical activity for sedentary people older than 65+ in a deprived area.

Some included studies (20, 23, 32, 35), are over twenty years old, possibly pre-dating the era of enhanced rigour in intervention effectiveness studies.

An interesting finding is that programmes that feature a sound theoretical justification are not necessarily supported by evidence from research, reminding us that 'theory' does not necessarily (or automatically) translate to a 'positive treatment effect' (or evidence thereof).

Setting aside these critical footnotes, we ought to consider the possibility that the social value of physiotherapeutic interventions aimed at (for example) falls prevention and activity stimulation is not wholly measurable by research methodologies, commonly used effectiveness studies are necessarily reductivist in nature and seldom involve the significant other.

But programmes that encourage sedentary people to socially interact, and enabling them to experience

and enjoy physical activity and movement surely are of immense value (to the client and their significant others), even if the evidence for their efficacy is (still) weak. Meaningful service evaluations might be a cost-effective and pragmatic approach to underpinning clinical practice further.

Lastly, the translator has taken the liberty to edit and abridge sections and paragraphs endeavouring to present the relevant information and lessons accurately and concisely. The majority of the studies referred to in this article are published in English and accessible via PubMed. All interventions in tables 1 and 2 are provided in the Netherlands. All effectiveness studies have been undertaken in the Netherlands with the exception of the Otago programme (23, 25) and the Tai Chi intervention (35-37). In addition to the Dutch research, international effect studies have also been undertaken for the 'Matter of Balance' (19, 20) and 'Direct Feedback' studies (42, 43). The links to Dutch webpages featured in the tables and text have not been included. No other information was omitted from or added to the tables.

Finally in regards to the referencing style for this article it utilises the Vancouver style for reasons of effective translation and formatting, this of course differs from the rest of the wider publication which utilises Harvard style.

## 1.0 Introduction

Increased longevity seems associated with the increasing prevalence of mobility problems and incidence of falls in the elderly. The prevalence of at least one fall per year among the 65+ group is 25% (1,2), with resulting injuries (head, hip and wrist) in 5% of the cases. In the Netherlands alone some 96,200 persons are seen by the emergency services with falls related injuries. It is estimated that the cost of managing these injuries may rise 69% by 2030 (3,4).

Apart from physical trauma, the adverse effect on confidence, self-reliance and independence as a result of the fear of recurrences, are well known. Maintaining mobility and falls resilience are both considered as important as regular, sufficiently intensive physical activity which may prevent or limit physical and cognitive deterioration (5,7). Only 30%-50% of older people are physically active and this metric seems to worsen with increasing age (8,9). The risks of physical inactivity include muscle weakness, loss of muscle mass, along with both physical and cognitive impairment (6, 9, 10).

The number of interventions aimed at stimulating physical activity and falls prevention has increased, but the extent and quality of their evidence base is variable. The evidence for the effectiveness of some programmes comprise only a single simple evaluation and some studies only use indirect [proxy] outcome measures (e.g. reducing fear, increased self-reliance, increased quality of life).

The available systematic reviews with meta-analysis do not seem to include all clinical interventions (11,12,13,14), but indicate that these kinds of programmes are not necessarily transferable into different settings and/or patient target groups.

The authors investigated which of the many physical activity and fall-prevention intervention programmes in the Netherlands have sufficient evidential support in regards to their effectiveness.

They used an existing assessment tool appropriate for the evaluation of empirical effectiveness studies (it is used by RIVM Center for health living, which operates on behalf of the Dutch Department of Health, Wellbeing and Sport) (15).

They discuss what the interventions have in common, in order to gain a better understanding about the effective elements of the selected programmes.

In order to identify the relevant intervention programmes, they interrogated appropriate data bases in the Netherlands as well as the inventory of programmes approved for funding. In addition they invited nominations via LinkedIn (Knowledge network falls prevention, seniors) and searched the Dutch trials register going back five years.

As such a total of 136 interventions were identified.

## 2.0 Selection criteria

The criteria used to select relevant interventions were:

1. The intervention is aimed at the populations of 65+ years of age or the mean age of the target group and participants was 60+.
2. The participating target group members did not suffer with dementia and were not institutionalised.
3. Primary outcome measures used in the programme are the amount of "physical activity" or "risk of falling" or "falls incidence".
4. The effectiveness of the intervention has been assessed in the last 10 years or funding for such a study has been obtained.

Of the 136 interventions identified, 37 met the above

mentioned selection criteria and were included in the assessment. A literature search about the 37 selected intervention programmes was undertaken in the National Academic Research Collaboration Information System (NARCIS) data base and PubMed.

The interventions were first grouped under falls prevention (table 1) and activity stimulation (table 2) and then grouped under outcome measures.

### 3.0 Outcome measures

The 3 relevant outcome measures used in the various studies were:

- **Falling-** defined as experiencing a fall incident within a particular period of time (usually up to one year follow up after the intervention).
- **Physical capability-** usually measured via the Timed Up and Go, Berg Balance scale, Walking Speed.
- **Physical activity levels-** usually measured by means of surveys or the use of physical activity monitoring devices.

### 4.0 Evaluating the strength of the evidence of effectiveness

The authors used an existing appraisal tool used by the RIVM CGL which evaluates the quality, feasibility and the effectiveness of relevant interventions, aimed at promoting a healthy and active lifestyles.

The selection criteria for inclusion in the appraisal were:

1. **Clear description:** The target group, goal, the intention and the content of the programme are all clearly described.
2. **Sound justification:** A sound theoretical foundation and justification for the intervention and its goals is provided.
3. **Efficacy:** The study investigating the effectiveness of an intervention, is replicable, uses relevant outcome measures and the treatment effects are cogent.

Three different levels of efficacy are recognised:

1. **First indication of effectiveness [weak]-** there are at least two empirical studies presenting weak evidence.
2. **Good indication of effectiveness [moderate]-** there are at least two empirical studies presenting moderate evidence or one study providing strong evidence.
3. **Stong indication of effectiveness [strong]-** there

are at least two empirical studies providing strong evidence of effectiveness.

Of the 37 interventions included in the quality assessment, 18 were falls prevention programmes and 19 activity stimulation interventions.

## 5.0 Results

### Falls prevention programmes

The 18 falls prevention interventions included eight which are aimed at physical improvements, two included the addressing of environmental factors, one programme aimed at psychological-cognitive functioning and two interventions were multi-factorial. The remaining five interventions entailed screening, followed by the setting of individual objectives, physical and environmental interventions. None of the falls prevention studies clarified whether the interventions provided were modified and adjusted for individual needs and capabilities.

### Activity stimulation interventions

Of the 19 programmes, 11 addressed physical factors, one considered environmental factors and two interventions had a multi-factorial approach. A total of six interventions start with patient screening (or testing) in order to adjust the intervention to individual capabilities.

### 5.1 Results - effectiveness

A total of eleven interventions are supported by varying levels of evidence (17-21, 22-40, 41-44, 45. See Tables 1 and 2 for details). Of these, seven are falls prevention programmes and four are activity stimulation interventions.

A total of 26 interventions remain unsupported by empirical evidence. Of these, seven have a sound theoretical justification, 14 are described well, but nine were unclassifiable.

A total of seven falls prevention interventions have some supporting evidence of effectiveness, of which three have a strong evidence base (18, 19, 24 see table 1). Furthermore, two falls interventions were considered to have a good indication of effectiveness (screening/home adaptations and Tai Chi) and two programmes have a "first indication" of efficacy (In Balance and Exergame).

Four out of the 19 activity interventions have evidential support: three of these have a good indication of effectiveness and one has a first indication of effectiveness. These interventions

include providing feedback about patients' activity levels.

## 6.0 Discussion and conclusions

The authors conclude that seven of the eighteen falls prevention programmes and four of the nineteen activity stimulation interventions have sufficient evidence of effectiveness. Effective falls prevention programmes seem to entail balance training, responding to perturbances, strength and fitness training. Learning how to land safely onto the floor is also identified as an important intervention component.

Effective activity stimulation programmes seem to focus on factors such as self-reliance (or independence), clients' direct environment and working to achieve relevant daily objectives. Activity stimulation programmes seem to mainly include home exercises, education and the advice to walk more. Activity monitors are effective in providing instant feedback. These interventions tend to be modified and adjusted to suit individuals' capabilities and are intended to be carried out independently. The combination of those elements might explain the success of these interventions. The level of clients' independence and the setting of daily objectives seem to be important elements.

The successful implementation of effective intervention programmes requires clarity of purpose, a clear description of the target group, ensuring patients' commitment and adherence, and ensuring the attainability of the intended outcomes .

The authors state that activity programmes may benefit from using relevant technology such as activity monitoring devices. They found that falls prevention programmes are more prevalent, possibly because falls are considered to be more "visible"; the impact of falls on patients and the healthcare system at large is felt more directly. Also, the incidence of falls is a well defined and measurable outcome, whereas defining and measuring changes in activity levels may be more complex.

Another important point made by the authors is that programmes which are suitable for particular target groups (e.g. relatively fit elderly) may be inappropriate or even harmful for other groups with different capabilities (e.g. frail elderly). Programmes don't seem to be transferable to different settings and target groups, for which they were not intended. Future effectiveness studies should therefore accurately define intended target groups and settings.

Issues with patients' adherence to intervention programmes seems to be associated with poor health, mobility problems, previous falls history, obesity, poor education and living in deprived areas.

The authors propose to have follow up sessions or "booster sessions" as a means of managing the risk of relapse (to previous behaviour) and to maintain the effects of the intervention.

The provision of programmes in the Netherlands which integrate exercise into activities of daily living (Otagon (24) and LiFE(48)) seem to be low, despite their efficacy and feasibility.

The authors state that there is some urgency around the implementation of the evidence base in relation to falls prevention and activity stimulation programmes, even though the evidence for the latter is currently relatively weak. Using relevant technologies to monitor activity is important to ascertain the discrepancy between individuals' physical capacities and actual activity behaviour.

The authors suggest that their search would warrant an update in order to capture more recent effectiveness studies (cut-off date was January 2015) . They acknowledge and thank a wide range of supporters and contributors, including NutsOhra who commissioned this review and allowed the authors to publish their findings more widely.

Table 1. Effective falls prevention interventions in the Netherlands. (3 columns seemed not relevant for the english readership and have been omitted from this summary EB).

Falls Interventions	Nature of the intervention	Target group	Details	Effects	Strength of evidence
Falling a thing of the past (17, 18)	Physical	Community dwelling independent elderly with falls history, fear of falling or mobility problems. A separate version is aimed at osteoporotic elderly.	5 wks, 2x90 mins per wk. Supervised exercise group session, comprising obstacle course, sport and games and fall techniques.	Improved physical capacity (improved Berg balance scores, timed stance, step test, maximum step-length, & walking speed after 5 wks). Falls incidence reduced by 32%- 46% after 1yr.	Strong indication of effectiveness
Outlook on balance (19) A matter of balance (20)	Multi-factorial approach	Community dwelling independent elderly of 70+ and those with mobility issues or fear of falling	8 wks, 2x120 mins peer wk. Educational programme with group sessions. Some sessions involve exercises.	Improved physical capacity (self-reported mobility at 6 wks and 1yr) and improved physical activity (self-reported daily activity at 8 wks and 1 yr).	Strong indication of effectiveness
In Balance (21, 22)	Physical	Various target groups: Community dwelling independent elderly of 70+ or elderly with history of falling, fear of falling or mobility issues living in residential care.	16 wks, 2x60 mins per week. Supervised group sessions involving Tai Chi inspired exercises and practising fall techniques. Educational programme.	Improved physical capacity (POMA ** at 16 wks). Community dwellers have a reduced falls incidence by 61%. Frail elderly show an increased fall-incidence at 1 yr	First indication of effectiveness
Otago exercise programme (23, 24, 25)	Physical	Community dwelling elderly	{?wks}, 3x30 mins of exercises and 2x30 walking. The exercises are carried out at home and are intergrated in to daily activities.	Falls incidence reduced by 35% at 1 yr.	Strong indications of effectiveness.
Computer programmes: Sensbalance (26), Wii fitness exergames (27, 28), Game-based balance biofeedback training (29), Interactive video dance games for healthy older adults (30), balance rehabilitation unit (31).	Physical	Various target groups: Elderly in supported living units, Relatively fit community dwelling elderly, community dwelling elderly with balance problems, elderly capable of walking > 1 mile, elderly with a falls history.	These interventions vary in duration and are performed at individual level. They all comprise of computer games aimed at improving balance.	Improved physical capacity but the studies use different outcome measures and follow-up intervals. Long-term effect on falls incidence unknown.	Varies from sound justification to first indication of effectiveness.
Screening and adaptations in/of the home. Stop you're falling (49), falls prevention (implemation study by Careyn care organisation, Don't fall at home (implemation study by Cordaan care organisation, Home-visits by an OT (32), Falls-HIT programme (33), the VIP trial (34).	Home environment	Various target groups: community dwelling elderly, community dwelling elderly of 75+, community dwelling elderly with visual impairment, community dwelling frail elderly .	Assessment and screening for and management of falls risk factors. Advice regarding physical exercise and identifying home-environmental risk factors.	Reduced falls incidence (two studies report reduction by 30-31% per year, both of these report the greatest reduction in the group of elderly with a falls history (up to 37%). One study reports a in-doors falls incidence reduction of 60%.	Ranges from sound justification to good indication of effectiveness
Tai Chi* Simplified Tai Chi (35), Central Sydney Tai Chi (36), Tai Chi; moving for better balance (37).	Physical	Similar target groups across the 3 studies: Community dwelling elderly of 60+, community dwellers of 70+, inactive elderly of 70+.	These interventions vary in duration and mainly in groups. They use Tai Chi solely for balance training.	Improved physical capacity (12 minute walk test at 15 wks, Berg balance scale, Timed Up and Go, 50 foot walking time and functional reach at 6 mths), reduced falls incidence (reduction of 20% and fewer falls related injuries at 6 mths. Falls reduction of 48% at 1 yr).	Good indication of effectiveness.

\* A more recent review (50) suggests Tai Chi may be more effective as regards falls prevention that other interventions but cautions that convincing evidence is still lacking.

\*\*\* POMA performance Orientated Mobility Assessment.

Table 2 Effective physical activity stimulation interventions provided in the Netherlands.

Physical Activity Interventions	Nature of the intervention	Target Group	Details	Effects	Strength of the evidence
ActivePlus (38, 39)	Cognitive/ Psychological	Adults of 50 +	4 mnths, 3 advisory sessions. Education programmes providing information about the benefits of physical activity, raising awareness of own activity behaviours en learning self-motivation using personalised advice.	Increased levels of physical activity (increase of self-reported physical activity at 4 mnths. This treatment effect was weaker for the webbased version. Long-term effects not known yet)	Good indication of effectiveness.
Functional training elderly (40, 41)	Physical	Elderly people	12 wks, 3x60 mins per wk, PT Supervised training involving activities of daily living such as stairs climbing, rising from sitting, shopping.	Improved physical capacities (improved ADAP score, a cluster of physical functional tests [sic]. Longer term, the experimental group did not show more improvement compared with normal [undefined] physiotherapy.	Good indication of effectiveness
Direct feedback [sic] regarding daily activities. Every step counts! (implementation study by Sport Zeeland) every step matters (42), go4lief (43)	Physical	Various target groups: Elderly people or inactive overweight elderly people.	10 and 24 respectively, daily goal re number of steps taken. These interventions involve the use of a pedometer, aiming to increase participants' amount of walking compared to individuals' levels at entry of the study.	Improved physical capacity (increased walking speed and decreased perceived exertion at 10 wks, improvement of Timed Get up and go test at 6 mnths), increase in actual activity levels (podometer at 10 wks, but no effect at 6 mnths). Long term effects of both interventions are not known yet.	Good indication of effectiveness.
Groninger active living model (GALM) (44, 45)	Physical	Sedentary and under-active older people (55-65)	15wks, 1x60mins per wk. Group exercise sessions with the emphasis on enjoying physical movement (being active) and experiencing a range of different forms of movement [activity], promoting physical fitness and meeting peers who live in the same neighbourhood.	Increased activity levels (increase in self-reported energy-use for recreational, sport and other activities). Effects maintained at 1 yr follow up.	First indication of effectiveness.

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## Tackling inactivity in older adults with chronic joint pain through community and leisure partnerships.

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### 1.0 What is the impact of osteoarthritis?

Osteoarthritis, often labelled chronic joint pain, has a major impact on society, healthcare services and individuals. The social and economic burden of osteoarthritis is substantial and results in decreased quality of life, loss of productivity, and increasing costs of healthcare. In 2016 an estimated 30.8 million working days were lost to musculoskeletal pain in the UK, accounting for 22.4% of all sickness absence (ONS, 2018). Furthermore, it is estimated that one in three people with osteoarthritis retire early, give up work or reduce the hours they work because of their condition (ARUK, 2018).

Patients with osteoarthritis have a significantly higher risk of developing comorbidity than their non-osteoarthritis counterparts. Studies focussing on comorbidity in osteoarthritis showed that chronic conditions, such as hypertension, cardiovascular diseases, obesity, respiratory diseases and diabetes are common and have shown the prevalence of comorbidity is positively associated with limitations in activity (van Dijk, Veenhof, Schellevis et al., 2008).

Osteoarthritis is traditionally managed in primary care by GPs with a very small minority of patients having joint replacement surgery. Most people seeking treatment for osteoarthritis from their GP receive palliative medication, enduring many years of unnecessary pain and disability. Furthermore, traditional pharmacologic therapies may be effective in relieving pain but are incapable of reversing cartilage damage or increasing muscular strength and are frequently associated with adverse events and unwanted side effects (Zhang, Ouyang and Dass, 2016).

People living with osteoarthritis often believe it is an inescapable consequence of ageing and worsening disability is inevitable. A study by Hurley et al. (2007) suggests very few people with chronic joint pain receive lifestyle advice such as increasing physical activity and maintaining a healthy weight as

recommended in the NICE guidelines (2014) for care and management of osteoarthritis (CG177) (Hurley, Walsh, Mitchell, Pimm et al., 2007).

### 2.0 The benefits of physical activity for older people with chronic joint pain

Being physically active is one of the most important steps people with chronic joint pain can take to reduce pain and improve mobility. The benefits of physical activity have been reported in several systematic reviews and are reflected in NICE guidelines (NICE, 2014). They reach beyond people's immediate musculoskeletal problems, with improvements in mental health and overall wellbeing observed, particularly when conducted in a group setting (DOH, 2014). For the large number of people that have chronic joint pain as part of multi-morbidity, physical activity is important for cardiovascular, metabolic and respiratory health too. Inactivity in older populations has particularly detrimental effects on strength, flexibility, aerobic capacity, walking capacity, balance and mental and cognitive function (Hamer, Lavoie and Bacon, 2013).

Therefore, combatting inactivity and associated health and functional problems, is intrinsic to supporting healthy ageing.

Despite this, people with chronic pain are not reaping the benefits of physical activity and inactivity in older adults is a growing concern. It is estimated that in England 5.8 million people over the age of 55 are inactive, which means they are completing less than 30 minutes of moderate intensity physical activity a week (Sport England, 2018). This figure increases significantly the older people get, with 72% of people over the age of 85 being inactive. There are several reasons for this:

Persistent musculoskeletal pain, including chronic joint pain, disproportionately affects older and more deprived people, who may have less access to safe settings such as parks and affordable indoor leisure facilities. For people living with pain, stiffness and movement

restriction can make it difficult to be physically active. People with osteoarthritis may have had previous bad experiences with exercise finding that it worsened their pain leading to fear and avoidance of future activity. Many people have deeply held erroneous health beliefs that physical activity will increase the “wear” in their joints, and so mistakenly choose rest, rather than an increase in activity, to manage their symptoms.

High quality care for those with painful musculoskeletal conditions should support self-management, specifically enabling and encouraging people to be more physically active by making sure that appropriate interventions are available in facilities that are accessible.

### 3.0 What is ESCAPE-pain?

The ESCAPE-pain programme was developed by Professor Mike Hurley. The programme is hosted by the Health Innovation Network and supported by NHS England and Versus Arthritis.

ESCAPE-pain is an exercise-based rehabilitation program for people with chronic joint pain designed to improve function by integrating exercise, education, and self-management strategies to dispel inappropriate health beliefs, alter behaviour, and encourage regular physical activity. Participants attend 12 supervised sessions twice weekly for 6 weeks. For 15–20 minutes of each session, the qualified supervisor facilitates a discussion on a specific topic, advising and suggesting simple coping strategies. Then, for 35–40 minutes each participant performs a simple individualised exercise regimen to address their disabilities, this is progressed as they improve.

After completion of the programme, participants are signposted to local opportunities which will help them stay physically active. ESCAPE-pain is supported by an app which is free to download. Participants can use the app during the programme as well as after completing the programme.

ESCAPE-pain is shown to:

Reduce pain, improve physical function, depression, health beliefs and general wellbeing in a randomised control trial (RCT) (Hamer, Lavoie and Bacon, 2013). Sustain benefits for up to two and a half years after completing the programme (Hurley, Walsh, Mitchell et al., 2007a).

Create an estimated £2.8 million annual savings in total health and social care for every 1,000 participants who undertake ESCAPE-pain (Hurley, Walsh, Mitchell et al., 2007b; Jessep, Walsh, Ratcliffe et al., 2009).

### 4.0 Increasing access to the ESCAPE-pain programme.

There are currently over 90 sites delivering ESCAPE-pain nationally and the programme has reached more than 7,000 people. However, most ESCAPE-pain sites are located within Physiotherapy Outpatient departments within hospitals. This limits the number of individuals who can be referred to access and benefit from the programme. Many people do not seek help for their knee or hip pain from a healthcare professional therefore, being able to self-refer to a class delivered in the community would increase access to the programme, bringing ESCAPE-pain to the areas where people both live and work.

In January 2018 the Health Innovation Network began a two-year project working with Sport England to deliver ESCAPE-pain to 2000 inactive older adults with chronic joint pain as part of their ‘Active Ageing’ strategy. The primary aim of the project is to help older people become more active, participating in at least 30 minutes of moderate intensity physical activity per week. As part of the project the Health Innovation Network has trained 58 Exercise Instructors, Therapy Assistants and Physiotherapists from 18 NHS and leisure sector organisations to deliver ESCAPE-pain classes in a variety of community and leisure venues across England. Before attending the training, Exercise Instructors are required to demonstrate they have a minimum of a Level 3 Exercise on Referral qualification with 150 hours of experience of exercising people with long term conditions, ensuring instructors have relevant knowledge, skills and experience to work with a specialist population.

In March the first Sport England funded ESCAPE-pain site went live in Liverpool and they have already delivered the programme to three cohorts of participants. There are now 29 Sport England sites delivering the ESCAPE-pain programme across England, with an ambition to reach 45 sites by the end of the project.

As part of this ambitious programme, the Health Innovation Network are conducting a process evaluation, gathering qualitative and quantitative data from all providers, and qualitative data from 20 facilitators and from a sample of 100 participants. The evaluation will seek to answer the following questions from the perspective of provider organisations, facilitators and participants:

Who took part and where, and how representative was that participation at a national and local level? Why did they take part (motivations and decision

making processes)?

What did they take part in (stages, level and experience of participation; and did their participation match their initial expectations)?

How could the programme be improved?

To what extent was participation sustained over a longer period of time (up to 12 months)?

Intentions regarding longer term engagement (barriers and drivers to scaling up engagement from an organisational perspective).

Information about costs of delivering/attending the programme (and participant willingness to pay).

Although it is too early to report on the quantitative findings of the project, qualitative feedback suggests participants are overwhelmingly positive about the programme and have seen positive benefits to their health and wellbeing because of their participation.

Participants say the ESCAPE-pain programme has had a positive impact on their physical function such as improvements in their ability to climb up and down stairs and being able to walk further. Almost all participants say they feel more positive about their knee/hip condition because of taking part in the programme, that they feel more optimistic about their future, and that they have more control over their condition. When asked what they like about the ESCAPE-pain programme participants tell us the social element of working together in a group is an important factor in helping to improve their emotional wellbeing. Additionally, the quality of the facilitator is a frequently cited response to this question.

Participants overall were positive about their future with regards to their knee and hip pain and all said they would continue to do what the programme taught them to do. Almost all were able to give specific examples of activities they planned to do in the future to be more physically active. The role of the facilitator in supporting this subsequent activity appeared crucial.

Participants found it more difficult to identify things they did not like about the programme or to suggest improvements. However, extending the course over another two weeks and having a follow up course were two suggestions that were made quite often.

## 5.0 A short case-study

Sandra\*, 84, is a retired nurse, who has suffered knee pain for many years. The pain made normal daily activities, like walking to the shops and taking a bath extremely difficult. About a year ago, Sandra's pain increased so much she was unable to climb stairs.

She went to her GP, who referred her to an orthopaedic surgeon for a knee replacement. Sandra was reluctant to have surgery and returned to her GP. She was subsequently referred by her GP to her local leisure centre as part of the 'Exercise on Referral' scheme. After an assessment by an Exercise Instructor, Sandra was offered a place on the ESCAPE-pain programme.

Upon completing the programme, Sandra noticed big improvements in her walking. She can climb stairs again, feels more confident and "much better in myself because I can do things again". The programme taught Sandra how to manage her condition – and she's determined to continue to do the exercises she learnt through Escape-pain, "I'm going to continue, I know that," she says.

"I don't think I need knee surgery. The pain is much less, and it doesn't bother me. I know how to cope now."

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## The EU falls festival

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**Author:** Christopher Tuckett, Falls Prevention Practitioner, Physiotherapist and Agility Editor.

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This report is feeding back on the 2018 EU falls festival which was held in Manchester in early July and provided a focal point for the dissemination of falls related research, knowledge and learning within the European Community. The festival was attended by researchers, policy makers, academics and of course clinicians, so ensuring the festival provided a rich stream of content, opinions and viewpoints. Next year it will likely be held in Sweden and I would highly recommend attending if the opportunity arises, as from then onwards it will be a biennial event. Before summarising some of what when on I should also thank AGILE for agreeing to fund my attendance at the festival.

Rather than attempt to summarise each individual session, which would risk being a very fractured piece that would skip many of the nuances, I will instead offer up my take on the over-arching themes and threads as I heard them. One of the excellent benefits of attending such a multi-professional meeting is that it is possible to listen to a talk and for each person in the audience to come away with something different. Hence again why I would urge you to attend next year.

For me the headline for the whole event was the unequivocal backing of exercise and physical activity as the leading and most important tool available to health professionals. Now this may not appear to be new information, but it was refreshing to see repeated statements that exercise can be used as both a prevention tool and a more reactive treatment tool. I think sometimes as clinicians we forget how many interventions that we utilise to 'treat' patients are based on often very limited or questionable evidence. Therefore, we should bathe and revel in the fact that exercise and physical activity can be used and applied in complete and utter confidence. Of course, the point of a conference like the EU Falls Festival is to not simply restate what we feel we know, but to add further knowledge and fresh thinking, which it certainly achieved.

It was reinforced early on the first day that all patient groups can benefit from physical activity providing it is tailored and specific. Dementia patients are a group that are often neglected somewhat due to concerns or difficulties with engaging them in constructive physical activities. And we saw enlightening videos

whereby patients with dementia were offered training in how to walk and recover from simulated trip hazards. This highlighted how important it is to realise that patients with dementia vary hugely in their cognitive abilities and that we should engage them in activities that are structured for their individual abilities. It also provided insights into how technology can provide challenging and fun simulation models of trip hazards although I realise this is rarely available to frontline clinicians. But I feel that it can be transferred to other settings and suggests we could be less cautious in what we prescribe in the future.

Continuing the technology theme, we were treated to a fantastic group of talks that centred around the use of apps to identify those at risk of falls whilst also providing a means of engaging them in meaningful, therapeutic physical activity that would motivate and monitor their ongoing progressions. This is something that will evidently become a much larger part of the healthcare landscape as mobile technology only continues to become ever more embedded into our lives. To resist this seems foolish and we should instead embrace it and look to exploit it for all the possible advantages it can bring. As such I would recommend looking at [www.preventit.eu](http://www.preventit.eu) to see some great examples of this technology and current research in the area.

From technology we made the leap back to a more traditional intervention in the form of Tai Chi. Which is a somewhat ubiquitous form of physical activity but here in the West we have used this term somewhat loosely and instead we perhaps should be looking more towards Ba Duan Jin as a more appropriate form of traditional Chinese medicine. Ba Duan Jin is specifically for the 'internal healing of self' whereby Tai Chi derives itself from Kung Fu and is a form of both 'external and internal' focus. Also, Ba Duan Jin benefits from having just 8 central movements and of course this lends itself better to older, less cognitively capable patients to both perform and remember.

During the festival we were also treated to national policy and broader overviews of work going on across the country and the work of NHS RightCare was very relevant. It provided the heartening message that there are pockets of very high quality, joined up and integrated care occurring across the UK but it simultaneously rammed home the point that of

course many areas are not providing this either. Public Health England immediately followed and concurred with the previous message that we are moving in the right direction, but that it is down to all providers to just start talking to each other straight away. We should not be waiting for the 'perfect conditions' that never materialise and instead start integrating our work locally now. And instead of attempting to 'compete' for pockets of money we should instead consider amalgamating our goals as most of the time what is better clinically is also better financially, and providers all seek improvements in both. Notably it was explicitly demonstrated that exercise and physical activity offer a fantastic return on investment when utilised in a 'joined up' healthcare system, and so again it suggests we should be looking to use these tools much more widely, and especially with older, frailer patients.

The Chief Medical Officers physical activity guidelines were referred to on the second day of the festival in detail and it was great to learn that an overdue update was nearing completion and should be with us late 2018 or early 2019. It was highlighted how few health professionals are aware of the contents of the guidelines and so I urge you to seek them out and ensure you know what the minimum criteria are for the different clinical groups referred to. It was also great to hear that the guidelines will be broadening their scope to offer direction for people with a physical disability too as of course equity and equality are of paramount importance, and we know that those with a physical disability are so often excluded from participation and exercise opportunities. But again, I would emphasise the importance of seeking out the guidelines, they are available as very accessible infographics and provide the basis on which to frame conversations with patients about physical activity. Shockingly only 16% of physiotherapists know the detail of the guidelines and this needs to change, for our own professional respectability if nothing else.

We also learnt about the importance of formally diagnosing sarcopenia and despite most of us understanding the physiology of the condition, it became apparent that few in the audience diagnosed it. This could be considered odd bearing in mind what a huge impact it can have on our patients and older people in general, therefore we were all encouraged to consider diagnosing it going forward. Simple tests can facilitate this such as grip strength, walking speed and muscle mass measurements and there is a very sound theoretical argument for why we should do this too. But most importantly exercise again was lauded as being the treatment for it, and

so a diagnosis of sarcopenia may provide us with another motivational hook to improve adherence in patients.

Finally, no falls prevention gathering would be complete without the imperious Professor Dawn Skelton and she delivered her usual masterclass of both theory and practical advice. Her session can be summed up by saying prescribe exercise appropriately, regularly and most importantly make it fun and engaging. Frail patients fatigue quickly therefore they will rarely participate in physical activity unless they enjoy it!

So overall exercise and physical activity were unanimously held aloft as the key to the prevention, tolerance and treatment of falls. But the caveats are that we must continue to dose effectively by adhering to the principals of FITT (frequency, intensity, time and type). Also ensure it is specific to the patient and their specific context, and again but very importantly make it fun. The enemy of all exercise interventions are poor adherence and low intensity, therefore fun and truly engaging exercise is the ultimate way of combating these.

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## Research update - research careers

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**Author:** Katie Robinson – Research Officer, AGILE

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### 1.0 Research Careers- Why get involved in research?

We all want to make sure we are delivering the best care for our patients and research underpins our understanding of what best care looks like. As physiotherapists we appear to acknowledge the importance of high-quality research in developing our profession and the services we deliver however the implementation and use of this research in practice is still challenging. One way of improving how research findings can be embedded into clinical practice is for more physiotherapists and allied health professionals to undertake and get involved with research that is relevant to our practice and patient outcomes. There is now strategic guidance encouraging AHPs to become more actively involved in research through developing clinical academic and research delivery careers. Look at the following links for more information about clinical academic careers for non-medical professionals and the AHP Clinical Research Network Strategy for raising the profile of AHP research strategy.

**Nursing, midwifery and allied health clinical academic research careers in the UK (2018)**- <https://councilofdeans.org.uk/2018/08/new-report-nursing-midwifery-and-allied-health-clinical-academic-research-careers-in-the-uk/>  
AHP CRN Research Strategy - [https://www.nihr.ac.uk/our-faculty/clinical-research-staff/Allied%20Health%20Professionals/AHP%20strategy%20poster\\_explainer.pdf](https://www.nihr.ac.uk/our-faculty/clinical-research-staff/Allied%20Health%20Professionals/AHP%20strategy%20poster_explainer.pdf)

### 2.0 Find out what it is like working to be a physiotherapist working in research from those in the field

#### Annabelle Long (Physiotherapist)

##### How did you get involved in research?

I was working in a job outside of the NHS and I wasn't very happy so was looking at various options for employment. A job was advertised as a research physiotherapist working part – time. It was only a 12-month contract but as I was working part-time at that point, having not long had a child, I thought I would give it a go.....if I really didn't like it I could look for another job after a year!! I was successful in my interview and within 4 weeks of me starting the job I realised that this was the job for me.



##### What is your physiotherapy research role?

The first study I worked on was using chair-based exercises in community settings such as care homes and day centres with older people. These are people who would benefit from physiotherapy input but often don't have access to it. The study I am working on now is looking at a range of exercises that may help people with mild dementia and cognitive impairment remain independent for longer.

##### How does your role in research influence patients and the physiotherapy profession?

I work as a research assistant and so I recruit people to studies and follow them up during the study. Research cannot be done unless we have people willing to participate so I feel that my role is helping in developing the evidence for these new interventions for older people.

##### What are the challenges you face daily?

Recruiting older people into studies can be a bit of a challenge but it is one that I enjoy. Often older people think that they don't have much to offer

research which couldn't be further from the truth. I also recruit people with dementia who may or may not have capacity to consent to taking part in research so making that assessment and if necessary contacting someone who would know what their wishes would be can sometimes create a bit of a challenge

**What are your top tips for getting involved in research?**

See if there is anything that you can get involved in within your own department. There are often service improvement projects taking place that may give you some idea if research is something that you are interested in. There may be research trials taking place in your department that you can get involved in or see if other colleagues have been involved in research who may be able to give you advice and tips.

**What is your favourite thing about being involved in physiotherapy research?**

I really like the fact that my days are almost never the same. There can be an element of routine in clinical work and that is not the case in research. One day you can be driving around Nottinghamshire delivering chair-based exercises in care homes and the next day you could be reading articles or using your creative side to problem solve issues such as how can we make some instruction booklets more hard wearing as paper is not going to survive 18-months!!

**Interesting fact about you?**

I was on television every Saturday night for two years.....its sounds more interesting than it was!! I was in the crowd for the Match of the Day title sequence that they used for 2 years!!

**Dr Kevin Anthony (Physiotherapist)**

**How did I get involved in research?**

Actually, this is a huge surprise for me. I grew up in a world of unquestioning discipline. I thought that research was for the clever people; that excluded me! When I first started to look at audit, I realised that I could answer questions that I never knew were there. What is your physiotherapy research role?

That is a very good question, and one that I often ask myself. Now, I am starting a collaboration with clinical scientists that will hopefully improve the effectiveness of vestibular rehabilitation. Other than that, my role is to develop the capacity and capability of our

organisations ability to become engaged in research. By doing so, we can highlight all that physiotherapists do.

**What are the challenges you face daily?**

The main challenge is that of balance between clinical and research. The service is driven by short-term metrics, but research can design interventions with medium to long-term effects. Not one that all managers can visualise. The challenge therefore is to find ways of opening gates which allow non-medical clinical research careers to become embedded.

**What are your top tips for getting involved in research?**

Hard work, tenacity, have a thick skin and a good mentor.

What is your favourite thing about being involved in physiotherapy research?

This must be flexibility. I can get up at six in the morning, or work until 10 at night. If I deliver the goods I can take care of my work life balance independently!

**Interesting fact about you?**

I served in the military for 15 years. During this time, I was sent to a far-flung conflict area. I was detailed to guard a remote outpost overnight with a fully armed automatic weapon. The only and most dangerous intruder was a wild dog that came a bit too close for comfort! Tempting, but no animals were harmed in the making of this interesting fact!

**Dr Vicky Booth (Physiotherapist)**

**How did you get involved in research?**

I initially become involved in research through doing an MA in Research Methods at the University of Nottingham. My senior at the time informed me of the NIHR ICA programme and thought that I would do well with it. Knowing that someone had that faith in my abilities made me pursue a place on the course. When I did my under-graduate qualification I really enjoyed the research module and so I knew it would be a fascinating Masters to do. I knew many Physio's at the time were doing modules towards a clinical Masters and so thought



this would be something different to add to my CV. Since then I haven't looked back and have worked hard to combine and pursue both my clinical and my research interests.

### **What is your physiotherapy research role?**

Now I am a Research Therapist on a large multi-centre randomised controlled trial that is sponsored by my Trust, Nottingham University Hospitals NHS Trust, and involves helping people with mild dementia become more active, stable and independent. I did a lot of work on the development of the intervention leading up to the trial and I'm now helping support the therapists that are delivering the intervention. This involves teaching them the intervention, supporting them delivering the intervention, and looking ahead to when we might want to roll out the intervention across the country.

I am also involved in physiotherapy research in many other ways. I am the Lead of the Council for AHPs in Research East Midlands hub, I do occasional teaching at the University of Nottingham School of Physiotherapy, and I support other physiotherapists and AHPs to progress in their research careers through supervision and mentorship roles. And I will soon be one of the Lead Clinical Academic AHPs in NUH NHS Trust on a fixed term basis.

### **How does your role in research influence patients and the physiotherapy profession?**

Through my various research roles there are numerous ways in which I influence patients and the physiotherapy profession. The most common thread throughout them all is as a role model to others. I think that one person can influence many through being an example, demonstrating or teaching a different approach, or showing that there is an alternative career pathway. I have seen how one person can make a massive difference to one patient through their involvement in a research project and therefore having a treatment that they would not have normally received. It isn't possible for one research therapist to be involved in every patient, but it is through research that clinical practice can be influenced and therefore involve everyone.

### **What are the challenges you face daily?**

That's a difficult one! What I would say is that the challenges that I face within my research roles are not more or less in number than those I face within my clinical role, they are just very different. I think it is easy to look at the challenges we face from a negative

perspective and so I always try to remind myself that I am in a very privileged position, in both my clinical and research roles.

### **What are your top tips for getting involved in research?**

One of the tips I wish someone had said to me was to find yourself a mentor. Identify someone who is already involved in either the type of research you want to do or the type of role you see yourself doing. Don't be afraid to contact them, either through email, a general conversation or a message on Twitter. Go to them with a specific question or aim, e.g., "what should be my next step?". Don't be put off if you don't get a response, not everyone is as Twitter-friendly as others so try another method or try someone else. When I look at my career so far there have been influential people in the decisions that I have made and directions that I have taken, my unofficial mentors. Often, we stay within a circle of our professional contacts and it can be difficult to branch out so make sure you take opportunities when they arise, such as CAHPR events (and yes that is a shameless plug).

### **What is your favourite thing about being involved in physiotherapy research?**

I really enjoy the people it brings me into contact with. It is such a varied and wonderful array of people that can change on a daily or weekly basis. Whether that is someone affected by dementia who is involved in the research project, or an AHP from somewhere else in the country, or a world-renowned researcher from across the globe, it's always different but we always all have one thing in common, to build knowledge.

### **Interesting fact about you?**

There are many interesting things about me, I wouldn't call them facts though!

## Physiotherapy led primary care-based health and wellbeing intervention

**Author:** Kenneth Zangina, Director Lyfinity Ltd

🐦 @lyfinity

### 1.0 Overview

The “PhysioActive” programme was a health and wellbeing intervention run between August 2016 and March 2017 to support sedentary patients with long term chronic conditions. As a collaboration between Lyfinity health and wellbeing and the Eric Moore Partnership General Practice in Cheshire; the intervention was based within the primary care setting and led by a physiotherapist and specialist fitness instructor. The aim of the programme was to improve the strength, balance and flexibility of its participants along with reducing levels of social isolation.

In addition to improving patients’ physical objective measures in strength, balance and flexibility, the programme enabled its participants to socialise and derive a holistic benefit from the programme which positively impacted wellbeing.

Presently, the programme is run as a partnership between the General Practice site and an independent postural stability instructor.

### 2.0 Background

The UK’s elderly population is fast growing. 24% of the population is over 60 and this is due to grow to 29% by 2040 (Age UK, 2016). There are high levels of inactivity within this age group which contribute to an increase in falls and development of chronic disease. Frailty is recognized to be common in old age and highlights a high risk of falls, disability and hospitalisation (Fried, 2001).

Our ageing population is a challenge to our health and social care system in the following ways:

- Chronic conditions- An estimated 4 million older people in the UK (36% of people aged 65-74 and 47% of those aged 75+) have a longstanding illness. This equates to 40% of all people aged 65+ (Age UK, 2016).
- Falls- Falls represent the most frequent and serious type of accident in people aged 65 and over. Falls destroy confidence, increase isolation and reduce independence. The devastating

consequence of a fall will more than often hasten a move into residential care. A Kings Fund report showed that the average cost of community, social care and hospital services for each patient were close to four times higher in the year after hospital admission for a fall than for the actual admission itself (Tian et al., 2013).

- Loneliness and isolation - According to Age UK, 2.9 million older people (65+) in Great Britain feel they have no one to turn to for help and support. 12% or 1.2 million older people (65 and over in England) are persistently/chronically lonely. (Age UK, 2016) Studies have shown that people experiencing more loneliness are twice as likely to develop Alzheimer’s disease than people with a low degree of loneliness (Wilson, 2007).

### 3.0 Importance of physical activity in later life

The benefits of exercise and physical activity are commonly cited and well known. Older adults can maintain their physical health, independence, confidence and reduce their risk of falls by becoming physically active.

For patients that are frail and at a risk of falling The National Institute of Clinical Excellence (NICE) recommends a multi-faceted approach to falls prevention including:

- Targeted Exercise Programmes
- Strength and balance training
- Home Hazard and Safety Interventions (NICE, 2013).

In a Cochrane review of interventions for preventing falls in independent older adults living at home it was concluded that home and group exercise programmes which contained several categories of exercise, including strength and balance training showed effectiveness in reducing the rate and risk of falls (Gillespie et al, 2012).

## 4.0 Programme design

Using evidence-based programmes and recommendations such as HomeFit (Hinrichs et al, 2011), ACPICR guidelines for exercise in the older adult with Cardiovascular Disease (ACPICR, 2015) and NICE Guidelines; the intervention was designed to help patients increase their physical activity within a familiar environment conducive to positive wellbeing.

## 5.0 Physiotherapy

According to the Chartered Society of Physiotherapy (CSP), musculoskeletal health issues are the most common cause of repeat GP appointments and account for up to 30% of a GP's caseload. Physiotherapists are the most expert professional group regarding musculoskeletal (MSK) issues except for orthopaedic consultants (CSP, 2016).

As the overall programme lead, the physiotherapist had a wide remit including general oversight of the service, ensuring extra support is provided to the fitness instructor for the frailer participants and providing tailored advice and supervision.

## 6.0 The exercise leader

The role of the exercise leader is to conduct the group exercise classes to music and to lead the class through a wide range of movements both seated and standing. The exercise leader held qualifications via Later Life Training® including postural stability instruction (PSI), Otago Exercise programme Leader (OEP) and Chair Based Exercise Leader (CBE).

## 7.0 Administration

The administrator provided the link between the practice clinical team at the Eric Moore Practice and the programme team. The administrator ensured that the correct patients were referred and appropriately managed appointments for participants to be assessed. In addition to these duties, the administrator assisted with the changeover between the sessions, kept attendance records and supported with the provision of the tea and coffee.

## 8.0 Entry criteria

To be eligible for entry into the programme, patients had to satisfy the following criteria:

1. At least 65 years of age.
2. Classified as physically inactive or sedentary (30 mins a week or less of moderate physical activity).

Patients also had to satisfy one of the following two conditions:

1. Suffering from controlled chronic disease such as essential hypertension, non-insulin-dependent diabetes mellitus, chronic ischaemic heart disease and chronic obstructive pulmonary disease.
2. Suffering from mobility restriction defined as having at least some difficulty in walking one mile or climbing one flight of stairs.

## 9.0 Exclusion criteria

To ensure the safety of participants on the programme and to increase likelihood of programme completion, the criteria for exclusion included the following:

1. Exclusion due to acute medical condition. Non-exhaustive list includes- untreated arterial hypertension, Higher-level chronic heart failure (New York Heart Association (NYHA) class III-IV) and higher-level chronic obstructive pulmonary disease.
2. Exclusion due to severe mobility restriction such as inability to walk short distances and inability to perform the sit/stand test.

## 10.0 Patient recruitment

Upon agreeing the entry criteria with the clinicians, patient recruitment for the programme begun in July 2016. A four-week run up period of recruiting patients before the programme officially started in August 2016.

Leaflets were given to doctors and placed on desks. Notices were placed on the TV screen within the surgery and weekly emails were sent by an administrator reminding clinicians to recruit patients onto the programme. Figure 1 shows an example of a promotional leaflet and figure 2 highlights the referral process.



Figure 1 – Promotional leaflet

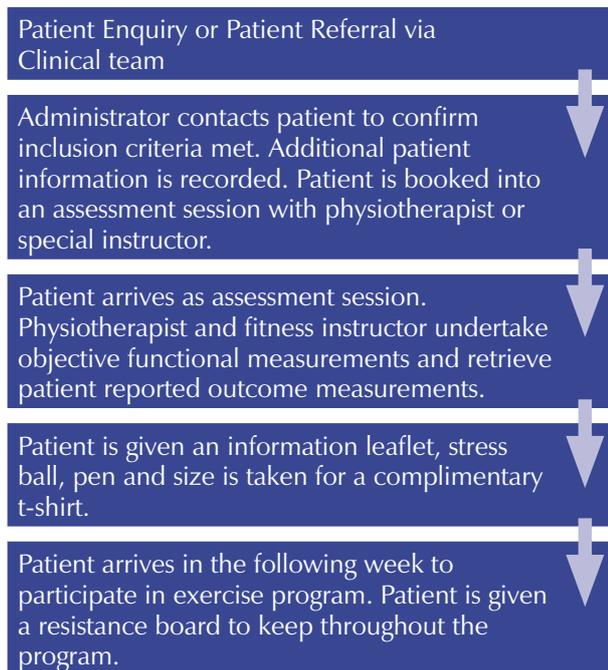


Figure 2 – Referral Process

## 11.0 Assessments

Assessments are crucial in monitoring and evaluating the effectiveness of the intervention. Conducted by the physiotherapist and assisted by the exercise leader, objective physical functional tests and patient reported outcome measures (PROMS) were taken pre and post intervention (12 weeks) to assess the impact of the pilot on physical and mental health.

### 11.1 Physical function tests

**Grip strength** – An electronic grip dynamometer was used to measure grip strength. Grip strength can be regarded as an indicator of upper body muscle strength and it has been proposed as a single marker of frailty (Syddall, 2009).

**Sit to stand tests** – This test involved participants repeatedly standing up and sitting for a period of one minute and the number of repetitions recorded by the assessor. Designed as a test of lower limb strength, performance on these tests also relates to factors associated with other physiological and psychological factors including balance and sensation (Lord, 2002).

**Timed Up and Go** – A combination of sit to stand and walk speed tests. This test involved getting up from a chair and walking two metres, turning around and then returning to the chair in the seated position. This test was timed. The timed up

and go is assessed in the Canadian Study of Health and Ageing (Rockwood, 2000).

### 11.2 Flexibility

The flexibility of participants was assessed via the following tests:

- Upper Body Shoulder Mobility- Hand behind head and hand behind back.
- Lower Body Mobility- Active straight leg test.

### 11.3 Patient reported outcome measures (PROMS)

PROMS provide a subjective “patient-centred” view which is important in capturing the individual’s own opinion of the burden of disease on their lives. This perspective makes it an important assessment measure along with objective measures to help guide routine care; its use is increasing among clinicians (Kyte, 2015).

The following 2 PROMS were used:

- SF-36 – Short Form 36 questionnaire
- Eq5d - The CSP has promoted the use of the EuroQol EQ-5D PROM as a routine generic patient reported outcome measure with extensive take up by the UK profession (Rabin, 2001). The Visual Analogue Scale (VAS) section of the EQ-5D was used as an additional measure of subjective progress.

## 12.0 Session structure

2 classes a week were conducted on a Tuesday afternoon.

Typical Schedule

13.00 - 13.45	Class 1
13.45 - 14.15	Refreshment Break
14.15 - 15.00	Class 2

To maintain the quality of the sessions, each exercise class had maximum capacity of 15 participants.

Sessions were held in a risk assessed room within the premises of the General Practice.

Figure 3 shows an example exercise list

### 12.1 Home exercise programmes

The physiotherapist developed a home exercise programme for each patient with the aim of aiding adherence to the routines between the weekly sessions. These programmes were distributed along with resistance bands on which the exercises were centred.

Sequence	Exercise	Equipment Required	Muscles Worked	Functional Benefits
1	gentle marching	chair	general upper and lower	warm up
2	neck and shoulder exercises	chair	cervical rotators, all shou	loosen joints
3	grip strengthening	theraband	finger flexors, extensors, 1 hand	strengthening
4	vigorous marching	chair	general lower limb/upper	circulation booster
5	pre stretch	chair	hamstrings, pectorals, lat	muscle extensibility
6	isotonic resistance work scapular flexion	theraband	dynamic shoulder comple	better shoulder outcomes functionally
7	isotonic resistance work hip rotators	theraband	hip lateral rotators	strengthening work
8	upper body movement	theraband	global trunk extensors	improve posture
9	quads strengthener	theraband	quadriceps	strengthening work
10	sit to stand	chair to standing	quadriceps, gluteals	strengthening work
11	180 degree turn to back of chair	chair	global anti gravity muscle	balance work
12	quarter squats	chair	quads and gluteals	dynamic strengthening
13	side hip strengthening	chair	hip abductors	strengthening work
14	leg extension	chair	hip extensors	strengthening work
15	toe raise hold	chair	anterior tibials,	balance and strengthening work
16	heel raise hold	chair	ankle dorsiflexors/evertor	balance and strengthening work
17	calif raise hold	chair	ankle plantar flexors	balance and strengthening work
18	toe walking	between chairs	dynamic posterior pposte	balance/foot strengthening
19	side ways walking	chair support may be required	hip abductors and global	dynamic strengthening
20	heel walking	between chairs	global lower limb mobilis	dynamic balance
21	heel toe standing	chair support	anterior and posterior tib	static balance
22	heel toe walking	chair support	anterior and posterior tib	gait re-education and dynamic balance
22	second set all strengthening exercises	chair/theraband	as above for strengthenin	strengthening work
23	gentle marching slowing down pace	chair	upper and lower limb	circulation lowerer
24	gentle post exercise stretches	chair	hamstrings, pectorals, lat	cool down stretches

Figure 3 – Exercise list

### 13.0 Results

A total of 28 patients entered the programme and full 12-week assessment data was obtained for 13 patients.

Key results:

- 92% of patients improved in balance and gait speed measures. The average speed increase of Timed up and Go was six seconds.
- 85% of patients saw balance improvement through improved score in balance testing. Mean step reduction in the 180 turn had been 1.92 steps.
- 92% of patients improved in lower body strength and endurance after 12-weeks on the programme. This had been highlighted by the mean increase in repetitions within the sit stand test of three.
- Lower body flexibility had also improved within 77% of patients between week zero and week 12.

The qualitative feedback from participants reflected the positive results of the programme.

Examples of comments from participants included the following.



Figure 4 – PhysioActive session in progress

*“I feel fitter and relaxed after the PhysioActive session. I enjoyed the company of the other members and the staff. I’ve also enjoyed the tea and talks after the session, it’s been nice to get out of the house and meet other people.”*

*“[I enjoyed] the companionship among other patients with similar problems to mine and the pleasure of exercise to help us, with music, that relaxes us and helps us feel better.”*

*“I feel the difference, I’m walking better and longer than before I came. Everybody is so nice, the PhysioActive team are very good.”*

### 14.0 Benefits and evaluation

The patient benefits demonstrated from the pilot intervention included the following:

- Improvement in the strength, balance and flexibility of patients on the programme. This led to a reduced risk of falls and prolonged independence.
- The programme provides an opportunity for patients to integrate and enjoy each other’s company socially which helps to alleviate the impact of loneliness and isolation.
- Patients increased their physical activity levels through participation in the group sessions and through conducting the home exercises designed by the physiotherapist.

Although successful, as with every project, the pilot intervention could have been improved in several ways including:

- The inclusion of additional wellbeing topics including diet, mental health and podiatry.
- Establishing a clear partnership with community interventions so that long term adherence to exercise and social interactions can be preserved through the attendance at local programmes.
- Splitting the sessions according to physical

abilities and restrictions and enabling people of greater mobility difficulties to participate in a session with less demanding routines and more facilitation from the physiotherapist. This would have enabled participants who required more support to receive this from the pilot team.

## 15.0 Conclusion

The pilot intervention demonstrated the effectiveness of an intervention targeting older patients within primary care. The improvements in strength, balance and flexibility have positive benefits on the daily lives of patients. The opportunity to work as part of a group and socialise with patients at similar health statuses helped to improve the mental wellbeing of the patients.

The programme today is run by a Postural Stability Instructor with vast experience in exercise with older people through a combination of existing exercises and additional exercises such as tai chi. The programme is run weekly and is used by clinicians within the practice as a wellbeing intervention for patients with chronic conditions.

Although the sessions are currently solely funded by the individual practice; health economy funding at a Clinical Commissioning Group or Sustainable Transformation Partnership level will help ensure that this service is available for patients across the region.

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## A theoretically underpinned approach to supporting older adults' engagement with rehabilitation

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### 1.0 Background

In 1947, the British Medical Journal published an article that highlighted the benefits of maintaining some level of physical activity despite physical disorders:

*“Teach us to live that we may dread unnecessary time in bed. Get people up, and we may save our patients from an early grave.”*

(Asher, 1947) (p 968).

Many years later, the proportion of adults aged 60-years or over continues to increase. Those who consume the most healthcare are often sedentary with ill health and make poor lifestyle choices. While the physical, psychological and social benefits of healthy and active lifestyles have been well established (Panza et al., 2018), only 19% of older men and 12% of older women meet current guidelines (Strain et al., 2016). Interventions which reduce later life dependency are increasingly called for (Oliver, 2016).

Much research has identified factors that influence younger adults' exercise engagement, but interventions designed for younger adults might not be useful for older adults because they frequently live with perceptually uncontrollable conditions such as joint pain (French et al., 2014). Nevertheless, older adults face unique physical, cognitive and social challenges that have a strong impact on their quality of life, morbidity and mortality (Welmer et al., 2017). The suggestion, therefore, is that many physiotherapists need to engage their older patients in their own rehabilitation. However, evidence also suggests that many therapists communicate the need to exercise without fully exploring their patient's perspectives.

#### The spectrum of exercise engagement

While interventions such as exercise classes are cost-effective (Abu-Omar et al., 2017) and can improve adherence to prescribed exercises (Picorelli et al., 2014), adherence is highly variable. A patient might fully adhere (attending classes with maximal exercise performance) or partially adhere (attending classes with minimal exercise performance). Adherence might even be unintentionally absent because of forgetfulness or illness (DeMaria, 2012).

Research suggests that many therapists, appropriately, hold a full and informed conviction in the value and benefit of a given exercise or physical activity intervention. However, rather than fully exploring the patient's perceptions of benefits and barriers, they invoke a sense of obligation to perform the exercise or physical activity. Often, barriers soon emerge (such as short-term joint pain or the potential to attend a social event). Consequently, the importance of performing the regime significantly reduces. A simplistic intervention might be to provide 'more of the same'. However, unless it is supported by a theoretically underpinned behaviour change strategy, merely extending the intervention is ineffective (Hay-Smith et al., 2016; Kunstler et al., 2017). Thus, the need to improve participants' beliefs in their ability to autonomously manage ongoing symptoms (Williams and French, 2011).

Often used interchangeably in exercise research and clinical practice, the terms compliance, adherence, and engagement deserve explanation.

### 2.0 Compliance

A temporary regard for expert advice where patients obey instructions without question. Defined as the act of 'matching the prescriber's recommendations'

(Horne et al., 2005), compliance is linear, paternalistic and dichotomous. Non-compliance is often described as 'deviant' (Ezzat et al., 2015). Where compliance is gained, continued adherence to an intervention is, consequently, highly limited.

### 3.0 Adherence

Influenced by an equal understanding of patient and healthcare professional responsibilities. Adherence is continuous, subjective and variable. An older person might consider themselves to be wholly adherent by attending an exercise class. However, living with a variable health condition might mean that the same person is only able to partially adhere to the exercise regime. The lowest levels of adherence are most often reported for patients with chronic conditions and patients undergoing treatments that require maintenance of behavioural and lifestyle changes (Kirby et al., 2014). Hence, older people often require additional support to continually adhere to such programmes.

### 4.0 Engagement

Acknowledges interacting values, attitudes and beliefs. To fully engage a person necessitates the tailoring of information and education whilst facilitating the provision of appropriate emotional, psychological, and practical support (Eaton et al., 2015). Exercise engagement can be defined as the "actions individuals must take to obtain the greatest benefit from the health care services available to them" (Centre for advancing health, 2009). This is the level at which long term adherence to interventions can be optimised.

### 5.0 Exercise engagement

A systematic review (Peek et al., 2016) of prescribed exercise self-management strategies identified the need to provide a tailored combination of approaches. Research suggests that exercise programmes which support a patient's internal desires for a satisfaction of basic psychological needs, improves exercise and physical activity adherence (Duda et al., 2014). Therefore, new ways of working which facilitate a positional movement toward

intrinsic motivation by changing attitudes, subjective norms and perceptions of control (Ajzen, 2015) are required.

## 6.0 Self-Determination theory

Self-Determination theory (SDT) (Deci and Ryan, 2002) is a contemporary theory that integrates social and cultural factors (Livingstone and Gaffney, 2016), and aims to improve health behaviour engagement. The theory links peoples' desire to grow, both psychologically and socio-culturally.

The theory incorporates three principal components:

Autonomy (the perception that personal actions accord with individual interests, values, and goals).

Competence (the perception of effectiveness within personal environmental interactions with the ability to meet presented challenges).

Relatedness (the feeling of connectedness that one is valued, cared for, and loved by those around them).

Where therapists support the desire to fulfil these basic needs of autonomy, competence and relatedness, so positive health and wellbeing outcomes, exercise specific self-efficacy, and personal autonomy can improve, but this depends on the therapist's ability to promote self-efficacy (Koudenburg et al., 2017). A spectrum of behaviours has been proposed that suggests the need to integrate and develop intrinsic exercise behaviours. Table 1. details the components of exercise regulation (Deci and Ryan, 2002; Ryan et al., 2009) and demonstrates the non-linearity of exercise regulation, where amotivation represents the least likely of circumstances for the maintenance of exercise behaviours. Amotivation, external regulation, introjection, and identified regulation are externally driven (for example a desire to reduce joint pain). Integrated and intrinsic regulations represent the only two behaviours that are internally driven. The aim should always be to invoke intrinsically driven behaviours where the person values the health benefits of exercise.

Table 1: Behaviour regulation

Domain	Descriptor	Detail
Amotivation	Least autonomous state of passive action, or even no intention to act.	Often results from the fatalistic perception of inability to change or achieve outcomes.
External regulation	Least autonomous type of extrinsic motivation and apparent when external or social demands form a reason to exercise.	Externally regulated older people often perceive the reason to exercise as external (family pressures, health related demands).
Introjection	Occurs where a therapist's belief in the value of strength and balance exercises is accepted but not identified with personal values, beliefs or normal behaviours.	Short term exercise adherence but not long-term engagement.
Identified behaviour regulation	A more self-determined form of extrinsic motivation. Involves a more conscious value of the goal of exercise	A major component of the process toward intrinsic motivation.
Integrated behaviour regulation	Forms basis for a most autonomous form of extrinsically motivated exercise behaviour.	Occurs when values and goals of exercise match personal values, beliefs and goals.
Intrinsic behaviour regulation	Internalised behaviours that emanate from inherent interest and enjoyment of exercise.	The only form of behaviour regulation that results in an internalised reason to exercise.

Such developmental change is not necessarily linear, and because the person might judge themselves to be incompetent in the performance of exercise, an event such as a near fall during an exercise class might potentially reverse any improved exercise internalisation (Ryan and Deci, 2000). Nonetheless, intertwining reasons such as self-esteem, satisfaction with life, and vitality account for unpredictable exercise adherence. By engaging with exercise through an enhanced sense of autonomous and competent exercise performance, so adherence improves (Ntoumanis et al., 2017). However, the suggestion remains that many therapists invoke a sense of introjection in their efforts to optimise long-term exercise engagement.

By mapping SDT's critical features and reflecting the fundamental principles and by utilising a broad spectrum of evaluative (Rutter et al., 2017) and interventional methods, older adults' engagement can improve (Langer et al., 2014). Through consistently positively framed messages (Notthoff et al., 2016), continued monitoring and attentive feedback which combines psychological, physical and social support (Stonerock and Blumenthal, 2016).

## 7.0 Needs supportive communication strategy

A promising and emerging approach is that of the 'Needs Supportive Communication Strategy' (NSCS) that supports older adults' variable ability to fully engage in therapeutic activities by offering a naturalistic approach (Ntoumanis et al., 2018). Derived from SDT, the 'needs supportive' style is evidenced where meaningful choices and rationales and negative feelings are acknowledged and supported through constructive feedback with a genuine interest in the person's welfare (Ntoumanis et al., 2018). NSCS is ethical, consistent with informed decision-making, and supports healthcare professionalism (Cuthbert and Quallington, 2017).

While critics might argue that NSCS is 'a sweet rose by another name', evidence (Hancox et al., 2017) proposes that this is not the case where 23% of physiotherapists deliver relevant and appropriate brief interventions (Lowe et al., 2017). Further, 34% appropriately signpost to other forms of support. However, when treating chronic low back pain, improved outcomes were significantly realised by providing a needs supportive communication style (Murray et al., 2015). Early evidence also highlighted the benefits of a flexible and supportive communication strategy (Anthony et al., 2018). The

adoption of this strategy facilitated older people to increase their long-term adherence to a strength and balance exercise programme, despite various co-existing physical and mental conditions.

The strategies include (Ntoumanis et al., 2018):

Autonomy-supportive behaviours - elicitation and acknowledgement of the patient's perspectives and emotions before making recommendations.

Competence support -being positive about the person's ability to succeed, reframing of past failures as small successes, identification of barriers and resolution of the problems (perhaps through appropriate signposting), agreeing appropriately challenging plans.

Relatedness support -providing unconditional positive regard in a consistently warm interpersonal environment with genuine empathy for the person's concerns.

While the recommendation holds that Physiotherapists should support autonomy through the provision of NSCS' (Ntoumanis et al., 2018), a similar study used a similar approach and highlighted the challenge of providing SDT and MI during the weekly class-based sessions (Miller and Gramzow, 2016). Treatment fidelity was very low, study attrition was high (58% by the final session), and six months after the study, the intervention did not impact on adherence (Miller, 2018; personal communication). Therefore, separate sessions were required, but while telephone or group sessions might offer time efficiency and value, the outcomes might not necessarily be based on valuable "Shared Decision Making" by genuinely accounting for the patient's knowledge and preferences, alongside the clinician's expertise (NHS England, Accessed 16th August 2017). Additionally, linked research suggests that telephone consultations do not suit all patients and are not a panacea for meeting demand or reducing costs (Newbould et al., 2017).

One potential and unique strategy for this specific population is the socio-emotive strategy where older people recognised and more optimistically interpreted positively framed, rather than negatively framed messages, and this correlated with an increased motivation to participate in physical activity programmes (Notthoff et al., 2016). The researchers advanced that, generally older people might not be interested in the physical benefits of physical activities, rather, benefits such as the opportunity to participate in enjoyable and sociable activities.

The obvious result here then, is that exercise groups need to ensure the promotion of these components, but the obvious next question is more about the definition of 'enjoyable and sociable'.

## 8.0 Conclusion

While the population continues to age, there remains a need to provide interventions that maintain older adults' independence. Many therapists fail to engage older adults in their rehabilitation. By supporting an older person's autonomy, competence and relatedness, sustainable SBE adherence could be achieved because the person's exercise is autonomously regulated. Through mapping of the key features of 'Self-Determination Theory' and 'Needs Supportive Communication Strategy', adherence to therapeutic interventions can improve, thereby producing more useful interactions.

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## Evaluation of an Otago Exercise Programme and behaviour change techniques to ensure adherence

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### 1.0 Introduction

Falls occur in approximately 28 - 35 per cent of adults aged 65, and 32 - 42 per cent of adults aged 70 years and above (World Health Organization, 2007). Falls have the potential to result in mild to severe injuries and affect older people's functional ability and health related quality of life (Stenhagen, Ekström, Nordell and Elmståhl, 2014). There is robust evidence for exercise-based interventions to prevent falls among older adults (Sherrington et al., 2017), which address modifiable risk factors including muscle strength, flexibility, balance, and reaction time (Ambrose, Paul and Hausdorff, 2013).

Otago is one of most widely-used exercise programmes for falls internationally. It primarily involves exercises to strengthen muscles and improve balance (Campbell et al., 1997). One of the key points about this intervention is to try to incorporate strengthening, walking and balance exercises into the patient's daily routines. The Otago programme has evidence of a 35 per cent reduction in the rate of falls and improvements in confidence for engagement in everyday activities (Robertson, Campbell, Gardner and Devlin, 2002).

A meta-analysis found the Otago exercise programme (n=747) reduced falls for up to 12 months by 32 per cent. (Thomas, Mackintosh & Halbert, 2010). The meta-analysis found a positive impact in falls prevention at a 12-month follow up although only 37 per cent of participants were adhering to home practice three times a week as recommended. Since the effectiveness of the intervention relies on doing the exercises three times a week, it is essential to find strategies to encourage the participants to adhere to a regime of three times a week. One solution is the integration of behaviour change techniques (BCTs) within the Otago programme.

### 2.0 Psychology of behaviour change

BCTs are a broad family of strategies which are aimed at changing behaviour through psychological techniques. There is evidence that they enhance behaviour change in a variety of health behaviours including exercise (Michie et al., 2013). For example, problem solving could be used to analyse the barriers

to home practice and strategies could be developed to overcome them. We are aware of only one research study that has tried to improve adherence to an exercise-based programme to prevent falls with the use of a BCT (motivational interviewing), which was not successful in increasing exercise behaviour (Arkkukangas, Söderlund, Eriksson and Johansson, 2017). The aim of our study was to evaluate the delivery of Otago training at a day hospital and improve its effectiveness in reducing falls through the integration of BCTs in a quality improvement project.

### 3.0 What we did

We conducted a service user consultation and quantitative analysis of existing patient data. We obtained feedback from 11 patients (aged between 70 and 95 years) twice a week over a period of two weeks. We worked to establish good rapport with them and then conducted semi-structured interviews of around 15 to 20 minutes with each of them, usually before the commencement of a class.

Each patient was asked about how the Otago intervention improved their walking and overall engagement in day-to-day activities. They were asked questions relating to the training itself - class environment, quality and dedication of Otago instructors, strategies used by instructors to increase participation, record of home practice and finally practical barriers and facilitators to home exercise practice.

Over the course of 2 weeks, we observed and documented class routines and strategies used by instructors to increase engagement and implementation of exercises. We documented, for example, enthusiasm of participants and instructors, and increase/decrease in level of performance of participants on any specific day. By speaking to the instructors, we gained insights on performance background of participants and strategies used by the instructor to optimise participants' engagement in the classes. An overview of the medical history and treatment journey of every patient in the twelve-week intervention was documented through interaction with instructors (after getting consent from patients).

With insights from patients' and instructors'

Table 1 - Behaviour Change Techniques

BCT	Explanation
Feedback on behaviour	Integration of exercises into daily routine activities
Self-monitoring of behaviour	Providing a daily record sheet
Instruction on how to perform behaviour	Skills training
Salience of consequences	Emphasis on how improved mobility and execution of everyday activities will improve quality of life
Demonstration of behaviour	Informative or evaluative feedback on performance of specific exercises
Generalisation of target behaviour	Modelling of exercises in class
Social reinforcement	Praise for carrying out the exercises
Verbal persuasion about capability	Instructors ask patients to perform the exercise and assert that patients can do them despite their self-doubts

perspectives, the project turned to integrating the BCTs in a structured way. This involved online training and then the use of a 93 BCT taxonomy (Michie et al., 2013), where the BCTs used by instructors were coded (see Table 1). A psychologist researcher made recommendations regarding further integration of short, simple evidence-based BCTs into the exercise routines.

The existing data on outcome measures were collected before and after Otago training (n=118) (70 – 95 years) with co-morbidities including asthma, Parkinson’s disease and hypertension. The data were analysed using within-subjects’ analyses to evaluate the effectiveness of the programme. The five outcome measures were (1) functional reach (Berg, 1989) measured in centimetres, in which the patient was instructed to stand close to a wall, and asked to push an object along a horizontal tape measure (like a paddle) with a closed fist using their dominant hand and without moving their feet; (2+3) six-metre timed walk where patients were asked to walk six-metres and the number of steps traced and time taken were recorded; (4) a 180 degree turn (Berg, 1989) in which the number of steps taken to turn were recorded; and (5) falls efficacy scale which assessed their confidence to engage independently in daily activities, such as walking to the supermarket without falling (Hill, Schwarz, Kalogeropoulos and Gibson, 1996).

#### 4.0 What we found

Patients found the 12-week group intervention to be very useful. Each week, 10 or fewer patients attended

a class at hospital and were advised to carry out two sessions of home practice with the aid of a booklet. There were high levels of enthusiasm in attending classes, evidenced by the average attendance of 10 out of 12-weeks. There was no consistency with respect to recording or engaging in home practice. Patients who had a history of exercising, attending the gym and independently maintaining physical fitness seemed to have a better understanding of the importance of Otago training, walking and documenting home practice compared to patients with no history of prior exercise. In addition, the presence of a partner was shown to improve the likelihood of a consistent walking routine when compared to participants living on their own.

Among the eight BCTs used (see Table 1), participants found the technique of applying target behaviour useful, as this helped them to incorporate the functional Otago exercises into their daily routine. For example, they were prompted to do the sit-to-stand exercise when they sat on any chair, or the heel-toe-walk when working in the kitchen or in the garden.

Within subjects analyses revealed statistically significant (p<0.05) improvements in all 5 outcome measures post-training (see Table 2): reduction in mean scores for six-metre number of steps (-1.87), six-metre timed walk (-5.39 seconds), and 180 turn (-0.76 steps), and an increase in mean scores for functional reach (+2.66 centimetres) and modified falls efficacy scale (+13.16). Highest clinical significance was observed in the reduction in seconds to perform the six-metre timed walk.

Outcome Measure	Mean (SD)		p value
	Baseline	12 weeks post Otago Programme	
6m number of steps	13.39 (3.12)	11.52 (2.01)	0.000*
6m timed walk (in secs)	12.12 (7.22)	6.73 (6.73)	0.018*
180 turn number of steps	4.47 (2.52)	3.71 (1.19)	0.001*
Functional reach in cm	26.00 (7.53)	28.66 (5.71)	0.000*
MFES	109.84 (26.75)	123.00 (14.67)	0.011*

\*p<0.05 (within-group tests) MFES – Modified Falls Efficacy Scale, possible total scores range from 0 to 140, with high scores indicating greater self-efficacy (lower fear of falls)

Table 2. Patient performance on the five outcome measures at baseline and post 12-233k Otago training (N=118)

In addition to coding the current strategies used by instructors, nine new BCTs were recommended by an experienced health psychologist with a view to improving adherence to home practice (see Table 3).

*Table 3. Recommended behaviour change techniques for future use in the delivery by instructors of the Otago exercise programme*

Outcome Measure	Mean (SD)
Problem solving	Identify existing barriers and develop strategies to overcome them
Action planning	Prompt patients to plan when, where, how and with whom they will do their home practise
Coping planning	Anticipate barriers and develop strategies to overcome them
Review behaviour goal(s)	Review patient’s goal (perhaps jointly); insights can be gained, and necessary modifications made
Discrepancy between current behaviour and goal	Bring to the patient’s attention that their recorded exercise falls short of their home practice goal
Social support (unspecified)	Encourage sharing of exercise plans with family and friends to receive encouragement to continue
Behavioural practice/ rehearsal	Prompt patients to perform any exercise they find challenging regularly to increase efficiency
Habit formation	Prompt patients to do the exercises at set times to develop a habit of practising at home
Identity associated with changed behaviour	Focus on continued positive identity achieved by increased mobility

For example, the use of coping planning and problem-solving techniques to encourage recognition and analysis of potential / existing barriers and to develop strategies to overcome them were suggested. Other techniques included encouraging habit formation, providing increased social support, and focusing on positive identity. As this was a service improvement project it was important that the recommended BCTs could easily be incorporated within the existing resources and time constraints of the instructors at the hospital and with minimal staff training.

It was also recommended that the method of data collection for outcome measures be improved so that post-intervention measures be collected blind to baseline data to reduce potential bias. It was also suggested that the initial information provided via a leaflet to patients could contain more evidence on the effectiveness of the programme, and to introduce a social aspect to the end of each class to facilitate interaction between instructors and participants with a view to improving class attendance.

## 5.0 To conclude

The aim of this project was to evaluate the delivery of an Otago training programme at a day hospital and to make recommendations for improvement through the integration of BCTs. This quality improvement project suggests that the programme has a positive impact of increasing postural stability in older adults who are at risk of falling (Campbell et al., 1997). From patient feedback, although it was found that participants exhibited greater levels of enthusiasm in

attending and performing better in weekly classes, there was little consistency in filling in the sheet to record home practice. This is likely due to a lack of monitoring. Therefore, it was recommended that time for socialising was included at the end of each class to facilitate increased interaction and rapport building between participants and instructors and for instructors to use this time to check on completion of home practice. Overall, patients found the current strategies used by instructors very helpful and encouraging.

## 6.0 Motivation and morale

This is one of the first projects to integrate BCTs to increase patient adherence to home exercise to prevent falls. A previous study used motivational interviewing that did not improve adherence (Arkkukangas, Söderlund, Eriksson and Johansson, 2017). Staff need training to use motivational interviewing, which was not successful perhaps because it increases initial motivation but does not help address barriers to making exercise habitual. One of the strengths of the current study was obtaining patient feedback which was beneficial to the instructors of the team, boosted their morale and gave them a reassurance that their work made a difference to patients’ lives. Another strength of the study was that the feedback was taken by impartial professionals rather than the training team - reducing the chances of social desirability bias. Further research is required to assess whether the BCTs adopted have led to a significant impact on improving patient adherence to home exercise practice and therefore lead to better patient outcomes following the Otago programme.

The Otago programme has a positive impact on short term improvements of older adults' functional ability. The integration of BCTs through collaborative work of a multi-disciplinary team (MDT) of professionals can facilitate increased adherence to home practice and potential improvement in the delivery of the Otago training.

## 7.0 Clinical implications

Collaborative work of a multi-disciplinary team can greatly facilitate objective evaluation of services offered in hospitals, encourage evidence-based practice and result in evolution of approaches that enable best patient care.

The integration of BCTs in Otago and other falls intervention programmes could increase adherence to ongoing home practice. Improvement in reliability of data collection procedures through simple changes in data collection forms can greatly reduce bias in routinely collected outcome measures.

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## University of Salford Smart Walker Research

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### 1.0 Falls in walking aid users are a problem

As our population ages, falls and fall-related injuries present a steadily growing health problem, with as many as 40 percent of community-dwelling older adults experiencing a fall at least once a year (Rubenstein, 2006). Falls in older adults often result in fractures (Rapp, Lamb, Klenk et al., 2009) and lead to their hospitalization (Rubenstein, 2006), and the consequences to the health and wellbeing of the individual become increasingly severe with age (NHS. Falls. 2014; Rubenstein, 2006).

Not surprisingly, many falls occur whilst walking (Rapp, Lamb, Klenk et al., 2009; Berg, Alessio, Mills et al., 1997). Walking aids are one solution to impaired upright balance and mobility, including walking sticks, zimmer-frames, and wheeled rollators. Walking aids may be either prescribed or self-purchased, and already they are widely used by the oldest adults in our population (Löfqvist, Nygren, Brandt et al., 2005). Alarming, however, their general use has been identified as a risk factor for falls (Deandrea, Lucenteforte, Bravi et al., 2010). In part this may be because users of walking aids are frailer and more prone to falling than those not using walking aids. Nevertheless, for walking aids to be effective in preventing a fall, they must be used in a safe and stable, manner.

### 2.0 Current understanding of stable walking aid use is limited by lack of appropriate assessment methods

Whilst there is a large body of literature published on gait stability in unassisted walking, the biomechanics of walking aid ambulation have received comparatively little attention. Moreover, to date no detail has been captured on *how* walking aids are being used in everyday life. It is unknown to what extent users adhere to clinical guidance within their home, and whether their everyday usage pattern promotes safe walking. One reason for this gap in the knowledge base is that to date no objective assessment method or tool is clinically available that allows measurement of walking aid use in the real world, and which has the potential to inform on a

stable walking pattern. We believe that to facilitate effective use of walking aids to prevent falls, we first must gain a thorough understanding of how walking aids are presently being used in everyday life, and whether such use facilitates or compromises a stable walking pattern.

### 3.0 A novel approach to assessing assisted walking stability

To be able to investigate use of walking aids we first developed a novel measure of stability which we specifically designed for walking with an assistive device (Costamagna, Thies, Kenney et al., 2017). Previous research that aimed to characterize walking aid use either focused on stability of the person or stability of the walking aid. Our approach is novel in that we consider the person and their walking aid to be mechanically coupled. That is, if the user is holding onto their walking aid both move as a single system. Hence, we propose that stability must be evaluated for the user-device system. Adapted from the robotics literature, we therefore calculate the stability margin (SM) of the user-device system. In technical terms, SM defines the distance of the system's centre of pressure (*the location of the vertical ground reaction force, which depends on foot placement as well as the person's neuromuscular response at foot and ankle*) to the nearest edge of the system's base of support (*area outlined by all feet in ground-contact*). In simpler terms, SM indicates how close the system is from "tipping over". The key advantage to this approach is that there are no underlying assumptions regarding gait being cyclic or bipedal. This is important because assisted walking differs substantially from unassisted walking in that gait is often interrupted, for example, when a pick-up walker is lifted forward before the user steps into it with a "step-to" pattern. Moreover, in assisted walking the number of feet in ground contact varies greatly throughout the movement cycle, and furthermore between different types of walking aids. For example, a person walking with a pick-up walker can have anywhere between one anatomic foot and a maximum of six-feet (two anatomic feet plus the four feet of the walker) in ground contact at one time. In case of walking stick use, however, between one anatomic foot and maximally three feet (two feet of the user plus the single foot of the stick) can

be in ground contact at a given time. SM adequately quantifies stability regardless of the periodicity of gait and number of feet/legs involved.

#### 4.0 Novel instrumentation to calculate stability

To measure the forces needed to calculate SM, we integrated force sensors into a range of walking frames (pick-up walker, front-wheeled walking frame, four-wheeled rollator) and are also using pressure-sensing insoles inside the person's shoes. Together with camera data that informs on relative position of the user's feet in relation to the walking aid feet we are now able to quantify stability of the user-device system. In addition, these "Smart Walker" systems inform on the usage pattern, i.e. the relative foot movements of the user in relation to how they use their device, and on the amount of body weight supported by the walking aid. Figure 1 shows the instrumented front-wheeled walker as an example.

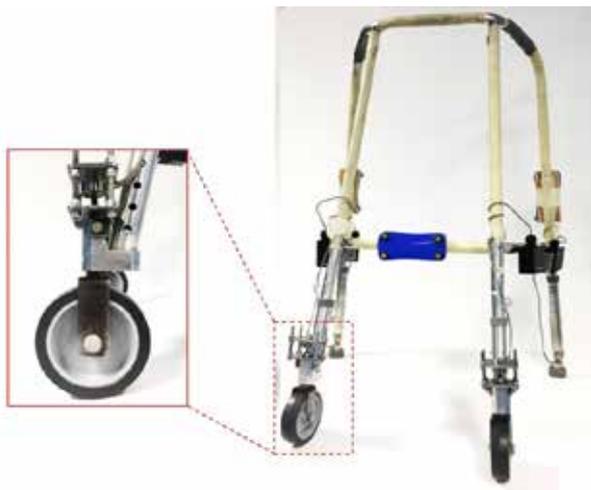


Figure 1. Example of a Smart Walker: front-wheeled walker with force-sensing load cells integrated into the front and rear legs.

#### 5.0 Use of Smart Walkers in research

Our prototype Smart Walkers are now being used in several studies. In collaboration with the Robert-Bosch-Hospital, Stuttgart, Germany, we assessed stability for a group of users of four-wheeled rollators. Preliminary findings suggest that several everyday tasks which are presently not discussed in guidance leaflets, for example turning in tight spaces or walking backwards as if to open a door, pose a challenge to stability. We also identified different strategies for going up a kerb, which facilitate (or impede) stability.

With funding from the Dunhill Medical Trust, we have furthermore assessed older adults that are users of walking frames in their own home, and one key observation that is emerging is that guidance is largely not adhered to in their home. In part this may be because guidance has not been conveyed or has been forgotten, however, further analysis suggests that environmental constraints such as different types of flooring within a home, and edges/ridges where flooring interfaces, likely compromise feasibility to follow clinical recommendations. Finally, we have also begun to analyse stability in relation to usage patterns, and findings to date suggest that the type of usage pattern utilized is critical to a stable walking pattern.

#### 6.0 Clinical relevance

Quantitative assessment of stability in users of walking aids has the potential to support clinical practice. Through use of Smart Walkers, we are beginning to improve our understanding of walking aid use threefold: 1) how exactly they are being used at home, 2) what usage patterns promote stable walking, and 3) what strategies may be beneficial when facing specific challenges in the environment such as kerbs, tree roots, or door thresholds. Current guidance documents do provide sensible and easy-to-follow instructions, but we believe they would benefit from validation in relation to stability and inclusion of more complex everyday tasks and environmental challenges. Finally, for any guidance or training to be effective in facilitating safe walking aid use, feasibility to adhere to such must be verified in the home environment.

Currently our Smart Walkers serve as research tool, to improve current understanding of the under-researched area of walking aid ambulation. Longer term, and following further technological simplifications, we envision that our prototype Smart Walkers will be able to support clinicians in their selection of a specific type of walking aid for a given user, as use of objective information on stability may facilitate optimal matching between user and device. Moreover, stability analysis may improve training, for example what tasks a user should practice the most and to monitor their performance over time. The aim of our work is to improve current evidence-base around safe walking aid use, for enhanced mobility and a reduced falls-risk of users, thereby enabling older people to walk independently and safely for longer. The research is timely when considering the steady increase in users of walking aids within our ageing population, and the significant costs arising from falls.

## 7.0 Acknowledgements

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## Physical activity, a key component in reducing the risk of dementia - 'What's good for the heart is good for the brain'!

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### 1.0 Introduction

#### 1.1 Raising awareness of dementia

Current evidence shows that up to 30% of dementia cases are potentially avoidable through important lifestyle changes that address key risk factors. These include increasing physical activity, eating a healthy diet, reducing alcohol intake and stopping smoking. The evidence suggests that mid-life changes can have most impact on reducing risk (Lancet Commission, 2017)

It is estimated that over 850,000 people are living with dementia in the UK, with little public understanding of how people can reduce their risk.

Only 25% of British adults thought it was possible to reduce their risk of developing dementia (YouGov poll for ARUK, 2016).

- 52% of adults name dementia as one of their top three health worries.
- 28% have no awareness of any dementia risks factors and only 2% are aware of all the things they can do to reduce their risk.

#### 1.2 Frailty and dementia

Physiotherapists and other allied health professionals (AHPs) working with people living with frailty have an important role to play in delivering brief advice and highlighting the importance of healthy lifestyles, which can have an impact on reducing the risk or progression of dementia. Risk of falling is also associated with a range of long term conditions such as cardiovascular disease and dementia, and undertaking strength and balance exercises may both reduce the risk of falling and improve the management of certain long term conditions. Physiotherapists are in a unique position to encourage people to stay physically active and promote All Our Health messages through a 'Making Every Contact Count' (MECC) approach.

#### 1.3 What is 'All Our Health'?

Public Health England's 'All Our Health' (AOH) framework is a call to action to all health and care

professionals to embed prevention within their day to day practice. Through educational materials, tools and resources, AOH helps professionals make an even greater impact in preventing illness, protecting health and promoting wellbeing and it contains advice to help promote physical activity. More information on All Our Health messaging through the NHS Health Check can be found here.

#### 1.4 The NHS health check

The NHS Health Check is an ideal opportunity for health professionals to communicate to members of the public how to reduce cardiovascular disease (CVD) and dementia risk and to signpost them to appropriate services if necessary.

The purpose of the intervention is to raise awareness of:

- how people can reduce their risk of getting dementia and slow its progression.
- the availability of local memory services and organisations that offer further advice and assistance to people who may be experiencing signs and symptoms of dementia.

Dementia risk-reduction messaging is now offered to all people taking an NHS health check, having previously only been included for those aged 65-74, following a pilot project undertaken by Public Health England, Alzheimer's Society and Alzheimer's Research UK in 2016/17. Whilst the pilot was about the integration of dementia risk reduction into the NHS health check, it is important for AHPs to action this too.

### 2.0 Pilot project to test dementia risk reduction messaging in midlife

A pilot project was undertaken by Public Health England, Alzheimer's Society and Alzheimer's Research UK in 2016/17 to test the feasibility of extending risk reduction messaging to 40-64-year olds within an NHS Health Check.

The key findings from the pilot project have been summarised by Alzheimer's Research UK and published here. They showed that:

- The public and health care practitioners thought that dementia risk reduction messaging in the mid-life NHS Health Check is useful and relevant information.
- *'What's good for your heart is good for your brain'* is a simple message that service users like and find easy to understand, and providers find easy to deliver. Dementia risk-reduction messages connect with cardiovascular disease messages, as they are based on similar lifestyle risk factors, such as smoking and physical activity.
- Adding the risk reduction messages to a standard NHS health check conversation for people in 'mid-life' doesn't create any extra burden for health care practitioners
- The intervention had a significant impact on increasing public awareness of how to reduce dementia risk, and on increasing public motivation to change lifestyle behaviour.

## 2.2 Conclusions from the pilot project

The conclusions from the pilot project are widely transferable and applicable to everyday practice of any health care practitioner meeting members of the public:

- The dementia risk reduction messages should be offered to 40-64-year-olds, with an emphasis on risk reduction messaging as part of an overall 'healthy lifestyle' conversation
- The skills and knowledge of practitioners are crucial to the likelihood of dementia being mentioned within existing interventions and the quality of the information shared.
- Training for practitioners should be a priority (Leeds Beckett University, What Works, 2017) and can build on the recently revised dementia training resources.
- Further research is needed to understand whether and how risk reduction messaging can result in behaviour change.

## 3.0 What can you do to deliver dementia risk reduction messages?

### 3.1 Talk about dementia risk reduction to your patients

Allied health professionals, whether in GP surgeries or in the community, have an opportunity to talk about dementia risk to all patients as part of an overall conversation on healthy lifestyles. The NHS health check is just one example of an intervention that enables these conversations to take place. Practitioners delivering the NHS health check will

be expected to raise awareness of dementia risk reduction in the future. AHPs can talk about 'All Our Health', deliver dementia risk reduction messages and encourage people to take up an NHS Health Check

### 3.2 Using the strapline 'What's good for the heart is good for the brain'

The advice for preventing cardiovascular disease (CVD) is much the same as for dementia: *'what's good for the heart is good for the brain'*. Whilst the primary conversation might be focussed on reducing cardiovascular disease (CVD) risk, every healthcare practitioner who discusses preventing CVD could also be making people aware of their dementia risks, whatever their age.

### 3.3 Signs and symptoms and signposting to appropriate organisations

There is a legal obligation to raise awareness of dementia with people aged 65-74 years within the NHS health check. These conversations do not require any formal assessment or memory testing, they instead serve as a trigger to appropriate signposting.

## 4.0 Online resources

Dementia training resources have been developed and can be used by NHS health check trainers and practitioners to improve the quality of their delivery of the dementia component of the check. The content of the material is transferable and could be used by any AHP having healthy lifestyle conversations with patients.

Online materials provide support on talking about dementia. They include:

- The revised introductory e-learning tool, which takes around 20 minutes to complete and can be found [here](#). It is available for individuals providing the NHS health check and includes a self-assessment section, which provides a certificate of completion.
- A leaflet for individuals aged 40 – 74 years having their NHS health check and training materials for those carrying out the check have been produced to support dementia risk reduction messaging. The leaflets are available [here](#) to order or to download from the NHS health check website in a variety of formats and languages
- 'Helping Your Brain Stay healthy' slide set can be found [here](#)
- References and statistics to support the dementia

NHS health check slide deck

- A 'top tips' paper for practitioners on talking about dementia in the NHS health check with people age 40-64 years is available here. Training materials can freely be added to and edited by trainers to meet their local training needs
- 3 Videos-1) Dementia and the NHS health check; 2) Delivering the dementia component; 3) A walk through the dementia leaflet
- A video with Angela Rippon 'What's good for the heart is good for the brain' which highlights ways to reduce the risk of developing dementia.

### 4.2 Other useful resources

- UK Chief Medical Officer Physical Activity Guidelines-infographics that support the link between physical activity and dementia are here. These guidelines are being reviewed and the updates are due to be published in 2019.
- The 'Active 10' walking tracker app can be found here.
- Evidence review of muscle and bone strength and balance activities, 2018, can be found here.

### 5.0 Quotations, June 2018

Hilary Evans, Chief Executive at Alzheimer's Research UK:

*"Sadly, less than a third of people know they can do something to lower their risk of dementia. By changing how we think about dementia and intervening in midlife before the diseases that cause dementia begin, we can improve the likelihood of healthy ageing."*

Jeremy Hughes, Chief Executive at Alzheimer's Society:

*"With three out of four people in midlife saying that they would make lifestyle changes now to reduce their risk of developing dementia in future, this health check will encourage them to do so."*

*"Dementia is a devastating condition, which slowly strips people of their memories, identities and relationships. It is currently the UK's biggest killer, affecting 850,000 people and their families."*

*"In the absence of a cure, risk reduction is a vital tool to fight dementia. Dementia takes hold of the brain decades before symptoms appear, so empowering people to get fit and eat healthier from age 40 is crucial if we're to reduce the number of people developing the condition."*

Juliet Bouverie, Chief Executive of the Stroke Association said:

*"Understandably people worry about developing dementia, but few realise vascular dementia, a common type of dementia, is closely linked to stroke. In fact, around one in three people who have a stroke will develop vascular dementia within five years."*

*"Stroke can be devastating, but it is also preventable. Going for your NHS Health Check is an easy way to keep on top of your stroke risk by having simple and quick blood pressure and pulse checks. This can help reduce your risk of stroke and dementia and keep you healthy. We urge everyone who is eligible to get their NHS Health Check and stay informed about their health."*

### In summary:

- Allied Health Professionals have an important role in sharing key messages about how to reduce the risk of dementia, including 'What's good for the heart is good for the brain'
- All Our Health messages can be incorporated into everyday interfaces with the public and patients, such as through the NHS Health Check
- There are a range of helpful online resources that are easy to access
- If you haven't had your NHS Health Check and you are aged 40-74-years then why not book one and check out the Heart Age Test too?

### 6.0 Links to resources and notes

Attitudes to dementia findings from the 2015 British Social Attitudes survey: <http://www.bsa.natcen.ac.uk/media/39130/bsa-33-attitudes-to-dementia.pdf>

NHS Health Check Q4 data can be found here: <https://fingertips.phe.org.uk/profile/nhs-health-check-detailed/data#page/>

The NHS Health Check is a free test offered by GPs and other healthcare professionals to adults in England, aged 40-74, every five years. It aims to help tackle the 1 in 4 premature deaths caused by cardiovascular disease. It also helps to detect and prevent early signs of life-threatening conditions, such as high blood pressure and Type 2 diabetes, with dementia now included as part of the programme

Alzheimer's Research UK, Public Health England and Alzheimer's Society worked together on a pilot project which saw, for the first time, 40-64 year olds in England given information about dementia risk reduction in the NHS Health Check: <https://www.alzheimersresearchuk.org/about-us/our-influence/reports/nhs-health-check-40-64-dementia-pilot/>

NHS Health Check evidence: expert scientific and clinical advisory report: [https://www.healthcheck.nhs.uk/commissioners\\_and\\_providers/evidence/](https://www.healthcheck.nhs.uk/commissioners_and_providers/evidence/)

The Lancet Commission report July 2017: Dementia prevention, intervention and care: <https://www.thelancet.com/commissions/dementia2017>

NHS Choices / NHS Health Check: <https://www.nhs.uk/conditions/nhs-health-check>

The Heart Age Test is an innovative online tool to check your risk of having a heart attack or stroke. The Test: Tells you your heart age compared to your real age, explains why it's important to know your blood pressure and cholesterol numbers and gives advice on how to reduce your heart age. The tool is

collaboration between PHE, NHS Choices, UCL and the British Heart Foundation.

Public Health England exists to protect and improve the nation's health and wellbeing and reduce health inequalities. We do this through world-leading science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health and Social Care, and a distinct delivery organisation with operational autonomy. We provide government, local government, the NHS, Parliament, industry and the public with evidence-based professional, scientific and delivery expertise and support.

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## AGILITY journal Club: East region

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**Author:** AGILE East (Lorna Hall, Community Falls Service Physiotherapist, Lewisham & Greenwich Trust)

**Article reviewed:** The perceived feasibility and acceptability of a conceptually challenging exercise training program in older adults. (Miller, Teychenne and Maple, 2018).

This article was reviewed using the CASP checklist for qualitative research. The paper is available for open access.

### 1.0 Paper Review

#### 1.1 Was there a clear statement of the aims of the research?

The goal of this study was to investigate the experiences of older adults taking part in a challenging training programme. The training programme was specifically designed for the study with a focus on improving muscle power, reaction times and gait efficiency. These fitness components were highlighted as areas that were not commonly included in falls prevention programmes. Whilst the study was not measuring the effect of the training programme the authors hypothesised that a programme including these elements would improve physical capacity and reduce falls rates greater than current exercise training guidelines.

The authors clearly identify a gap in the literature, stating that older adults' perceptions of participating in a physically challenging exercise programme had not been previously investigated. The study aimed to investigate the opinions and experiences of older adults towards participating in challenging training to establish whether further quantitative investigation would be valuable.

#### 1.2 Is a qualitative methodology appropriate?

Yes, a qualitative methodology is appropriate as it allows for opinions and experiences of the participants to be addressed and for a rich amount of data to be gathered. The sample size for the study is small, although the researchers report continuing until data saturation was reached. Data was gathered via one to one interview after participation in the training programme.

#### 1.3 Was the research design appropriate to address the aims of the research?

The researchers do not discuss or highlight how they decided on their methodology directly. They state the

design as a 'stand-alone, single-exposure, qualitative study'. The design seems appropriate to explore the aims of the research, however as a stand-alone study in a single population the results would be harder to apply to a different setting.

#### 1.4 Was the recruitment strategy appropriate to the aims of the research?

A convenience sample of older adults (60+) were recruited from attendance at medical and health centres in the urban city area surrounding Melbourne. Recruitment posters were placed in these centres and snowball sampling was used to gather more interest. Snowball sampling relies on participants who have taken part in the study sharing study details with friends and family to accelerate recruitment. This method of sampling, whilst effective, poses the following issues:

It may suggest that the researchers were having difficulty recruiting participants into the study due to them using this strategy to 'expediate' recruitment. This poses questions as to whether a programme of challenging training would be of interest to older adults.

It can bias the results of the study, as a participant can tell their friends about any part of the research prior to taking part. Whilst knowing friends that have participated in the program is noted in the discussion to be helpful in decreasing apprehension, it is directly influencing the research question, which aims to gain information regarding individual 'perceptions' of the programme.

It introduces sampling bias due to the participants social networks not being random. The sample therefore, is unlikely to include individuals from a range of social backgrounds.

Snowball sampling is normally used to recruit hard to reach populations where individuals are difficult to find. I would not necessarily agree that older adults in an urban area would be hard to reach.

The researchers explain in the background information the risk of falls in older adults, which supports their recruitment decision of participants aged 60+. An overview is provided of the participants demographics and functional characteristics; however, number of falls and frailty rating is not included in this table. I think this would have been helpful data to include due to the future aim of the training programme to reduce falls risks.

The researchers discuss the process of recruitment, including a clear exclusion criterion and note that participants were cleared medically for participation. There is no discussion about the participants that decided not to take part in the study, this information would have been helpful to include to provide information on what detracted individuals from participating.

### **1.5 Was the data collected in a way that addressed the research issue?**

The researchers state that data was collected through one-on-one semi-structured interviews of 25-35 minutes designed by two researchers. The reasons for this type of data collection is not justified. Interview procedures and questions are stated in the paper, with example questions being given. However, these are not given in enough detail for the study to be reproducible. An issue noted with the initial questioning is that participants were asked retrospectively how they felt about the training programme before participation. This would have been better asked at the beginning of the study giving greater strength to the answers given when participants would not be biased by their experiences post training.

### **1.6 Has the relationship between researcher and participants been adequately considered?**

The information given around researcher and participants was that one on one, face to face, semi-structured audio-taped interviews were carried out by a researcher not involved in the exercise delivery. Reliability is increased due to the same person conducting all the interviews. However, it is worth noting that the interviewer was the same individual who helped to write the interview script potentially increasing bias in questioning.

The interview questions were designed by two researchers but there is no indication whether they examined how participants would feel talking to the researcher or whether they felt able to share negative

experiences. The potential for bias is highlighted in the limitations of the study; that some questions may have limited individuals answers or participants may have given socially desirable responses.

### **1.7 Have ethical issues been taken into consideration?**

Ethical approval was given by Deakin University Human Research Ethics Committee. Written and verbal explanations of the study were provided to all participants and consent obtained.

### **1.8 Was the data analysis sufficiently rigorous?**

Data analysis was started by the interviewer during the interviews by making detailed notes on key points with suggested codes and themes. They then report using strategies to triangulate the data, where two researchers independently coded a sub-sample of transcripts and discrepancies in coding were resolved. No mention is made regarding the background of the researchers and whether their inherent biases could have affected any results. A strength of the data analysis is the description given for why thematic analysis was performed and how this was completed.

### **1.9 Is there a clear statement of findings?**

The findings are stated clearly and discussed in relation to the research question. A clear figure of the main identified themes is displayed. These are then described within the written findings with use of participants own phrasing and terminology to display the clarity and diligence of the data analysis.

### **1.10 Conclusion**

This research is valuable in displaying the potential for more challenging exercise training to be carried out in older adults. It highlights the factors that would be important to older adults to participate in this type of exercise such as safety, adequate supervision, encouragement, cost and peer modelling. There are unfortunately significant flaws in this research. The internal validity of the study is relatively poor in relation to the impact of the researcher and participant relationship and the interview procedures increase the potential for bias.

The study highlights that older adults enjoy being physically challenged and are more likely to be motivated to continue with an exercise programme if it is challenging. It poses questions as to whether a more challenging programme would be of

greater benefit for older adults than traditional falls prevention programmes and encourages further quantitative research in this area. Unfortunately, it would be difficult to extrapolate these results to other settings due to the recruitment procedures used which suggest a poor representation of this population. If quantitative research confirmed the value of this type of exercise training it is likely there would be difficulty in implementing it in clinical practice, however, I do think that it is an exciting area of study.

## 2.0 Key points

- The research addressed a gap in the literature and examined an interesting research question.
- There are some methodological issues regarding recruitment and internal validity
- Insights are gained into older adults' views of challenging training with identified themes being fully explored.
- Further quantitative research is required to establish the effectiveness of more challenging training in older adults for the prevention of falls.

## 3.0 References

Miller, C. T., Teychenne, M., & Maple, J. L. (2018). The perceived feasibility and acceptability of a conceptually challenging exercise training program in older adults. *Clinical interventions in aging*. 13, p.451.

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## The barriers to effective cardiovascular exercise prescription perceived by undergraduate student physiotherapists

**Author:** Maiken Smylie – physiotherapist at The Princess Alexandra Hospital NHS Trust, Harlow, Essex.

### 1.0 Introduction

Physical activity is the contraction of muscles needed for movement resulting in increased energy expenditure. Cardiorespiratory fitness is a fundamental component of physical activity requiring the respiratory, cardiovascular and musculoskeletal systems and is defined as moderate to vigorous dynamic exercise of large muscle groups for long periods of time (American College of Sports Medicine (ACSM), 2014).

The global study of disease burden has named inactivity as a leading cause of disease (Lim et al, 2013). Low cardiovascular fitness has been associated with obesity, hypertension, high cholesterol, cardiovascular disease (CVD), type two diabetes and cancer (U.S Department of Health and Human Services, 2008). As a result, it is linked to premature death (Blair, 2009) and is an important modifiable risk factor for CVD (ACSM, 2014). Due to the importance of physical activity the Department of Health (DoH) designed the UK Physical Activity Guidelines (DoH, 2011) recommending adults to undertake 150 minutes of moderate or 75 minutes of vigorous activity per week (DoH, 2011). However, less than a third of UK citizens meet the UK Physical Activity Guidelines (Lifestyles Statistics Team, 2015) with inactivity costing the NHS 7.4 billion pounds annually (Public Health England (PHE), 2014).

Exercise promotion has small to medium effects on activity levels in adults who do not

meet the UK Physical Activity Guidelines, and one in 12 sedentary adults increase their activity levels with exercise promotion (Orrow et al., 2012). As a result, health-care professionals are encouraged to make every contact count (PHE, 2016) however, only a third promote physical activity in the UK (Barnes & Schoenborn, 2012).

Current literature focuses largely on barriers to physical activity promotion in qualified physiotherapists and exercise professional's including lack of time, lack of resources, lack of patient interest, confidence and the belief that patient habits cannot be changed or other lifestyle changes being more important (Shirley et al., 2010; O'Brien et al., 2016).

Physiotherapists who do not promote exercise regularly perceived more barriers, as the more one promotes exercise, the more confident one becomes. Regarding student physiotherapists, knowledge and confidence were primary barriers to exercise promotion and confidence may improve throughout the physiotherapy course (Shirley et al., 2010).

Current research focuses on patient adherence to exercise and barriers to exercise promotion however, there is no literature regarding barriers to cardiovascular exercise prescription perceived by student physiotherapists on clinical placement. O'Donoghue et al. (2012) suggest that physiotherapy students should become competent in exercise prescription due to its health benefits. As students are the future of physiotherapy, it is vital to understand the barriers students perceive to cardiovascular exercise prescription, to promote and prescribe exercise safely. Therefore, the aim of this study is to identify the barriers to effective cardiovascular exercise prescription perceived by undergraduate student physiotherapists at Keele University.

### 2.0 Method

A survey was utilised to explore student barriers to cardiovascular exercise prescription (CEP) and a focus group acted as a follow-up to explore the survey results in depth.

### 3.0 Ethical approval

Ethical approval was granted by the Keele University's School of Health and Rehabilitation Student Project Ethics Committee.

### 4.0 Recruitment of participants

To be eligible for the study, participants had to meet the inclusion and exclusion criteria presented in table 1.

### 5.0 Survey

An online survey was emailed to all second (N=75) and third year (N=70) physiotherapy students at Keele University. To increase response rates two reminder emails were sent and one message was

Table 1: Inclusion and Exclusion criteria for the survey and focus group

Inclusion Criteria	Exclusion Criteria
2nd or 3rd year undergraduate physiotherapy student at Keele University	Student has not completed the health and wellbeing 1 strand as part of the Physiotherapy curriculum
Focus group only: Participant has completed the survey	Student has not completed a clinical placement
	Student has taken a leave of absence
	Student has had to withdraw from the course

left on the year group's Facebook page. The survey consisted of 40 open and closed-ended questions related to CEP designed in line with the Keele University Health and Wellbeing Strand (Keele University, 2015). Participants provided their student e-mail at the end of the survey if they were interested in participating in the focus group, during data analysis this information was removed to ensure anonymity.

## 6.0 Focus group

The study aimed to recruit 4-6 focus group participants. Participants had the right to withdraw at any point prior to and during the focus group. Written informed consent was gained from all participants before the focus group commenced. The focus group lasted 60 minutes involving 11 semi-structured questions designed to explore the survey results in more depth.

## 7.0 Data analysis

### Survey

Closed-ended questions were coded into numbers, whereas open-ended questions were coded using grounded theory (Flick, 2014). The responses were categorised as year 2, year 3, and all students and represented in a cumulative frequency table to compare and analyse the responses.

### Focus Group

The recording was transcribed and analysed using grounded theory following the guidelines from Flick (2014). Each participants data was transcribed individually to identify themes in a process of open coding, and then through a process of selective coding to put these themes into categories (Flick, 2014).

### Validity and Reliability

The participants in this study were the researcher's peers, which may be favourable during a focus group as it helps build rapport and develops a discussion. To overcome researcher, bias the focus group was recorded and transcribed in its entirety. The researcher effect could only be controlled to some extent by including open questions rather than closed questions (Wellington, 2015).

## 8.0 Results

The survey was sent to 145 students. 30 responses were received, 29 met the inclusion criteria (table 1). The final response was 20%, this may be underestimated because the number of students that meet the exclusion criteria is unknown. Four students consented to participate in the focus group. Table 2 and 3 represent survey and focus group participant demographics. Survey results are represented in figures 1 to 5 and focus group results in table 4.

Table 2: Survey Participant Demographics

N= (%)		Year 2	Year 3	Total
Response Rate		11 (38)	18 (62)	29 (100)
Gender	Male	5 (45)	5 (28)	10 (34)
	Female	6 (56)	13 (72)	19 (66)
Age	18-20	4 (36)	5 (28)	9 (31)
	21-25	3 (27)	10 (56)	13 (45)
	26-30	2 (18)	1 (6)	3 (10)
	31-45	2 (18)	2 (11)	4 (14)
Speciality	Musculoskeletal	3 (27)	18 (100)	21 (72)
	Neurological	3 (27)	10 (56)	13 (45)
	Cardiac and Respiratory	5 (45)	11 (61)	16 (55)

Table 3: Focus Group Participant Demographics

N= (%)		Year 2	Year 3
Participants		1 (25)	3 (75)
Gender	Male	1 (25)	0 (0)
	Female	0 (0)	3 (75)
Placement	Musculoskeletal	0 (0)	3 (75)
	Neurological	0 (0)	2 (50)
	Cardiac and Respiratory	1 (25)	2 (50)

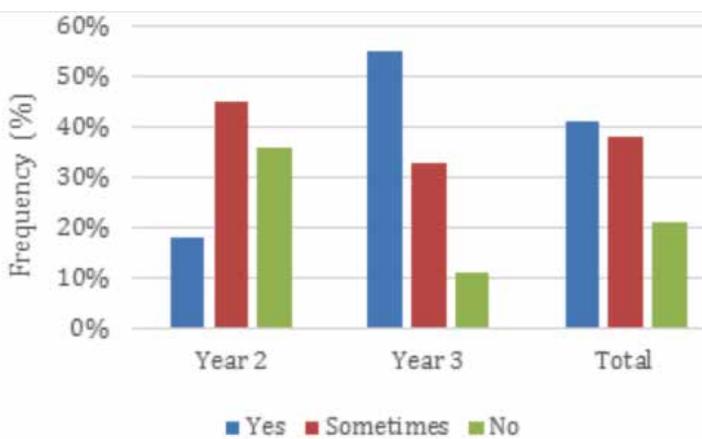


Figure 1: Survey results comparing how prepared students felt to prescribing cardiovascular exercise on clinical placement

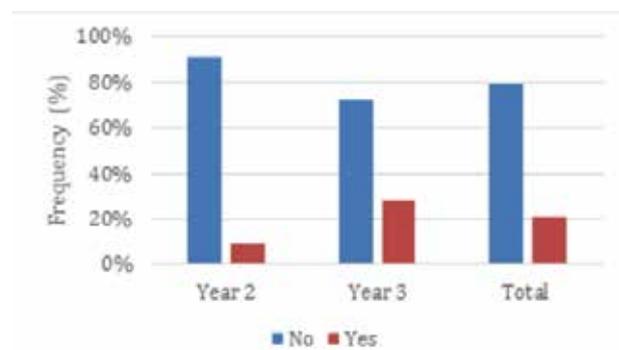


Figure 2: Survey results representing the number of students who have used the results of exercise tolerance tests to prescribe cardiovascular exercise on clinical placement

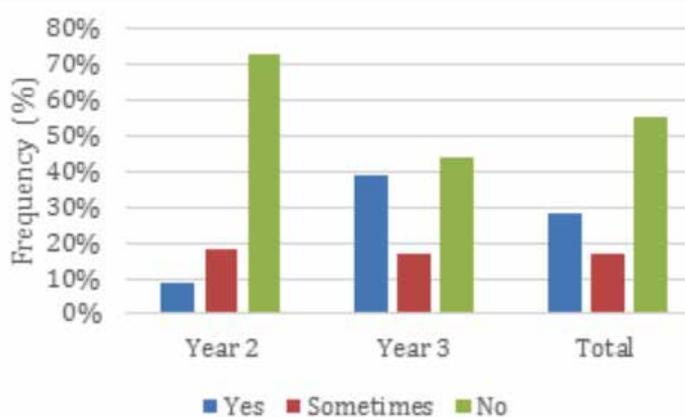


Figure 3: Students who feel the presence of a clinical educator impedes the performance of exercise tolerance tests on clinical placement

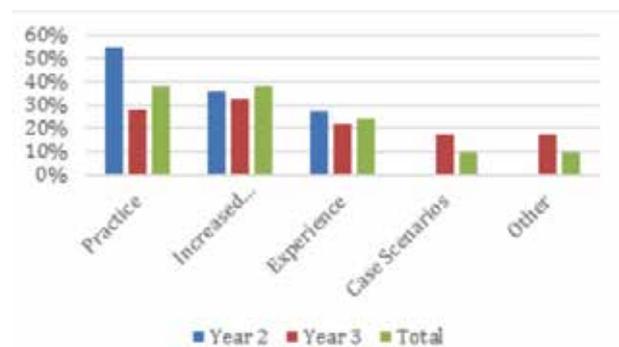


Figure 5: Additional needs of students to feel adequately prepared for cardiovascular exercise prescription on placement

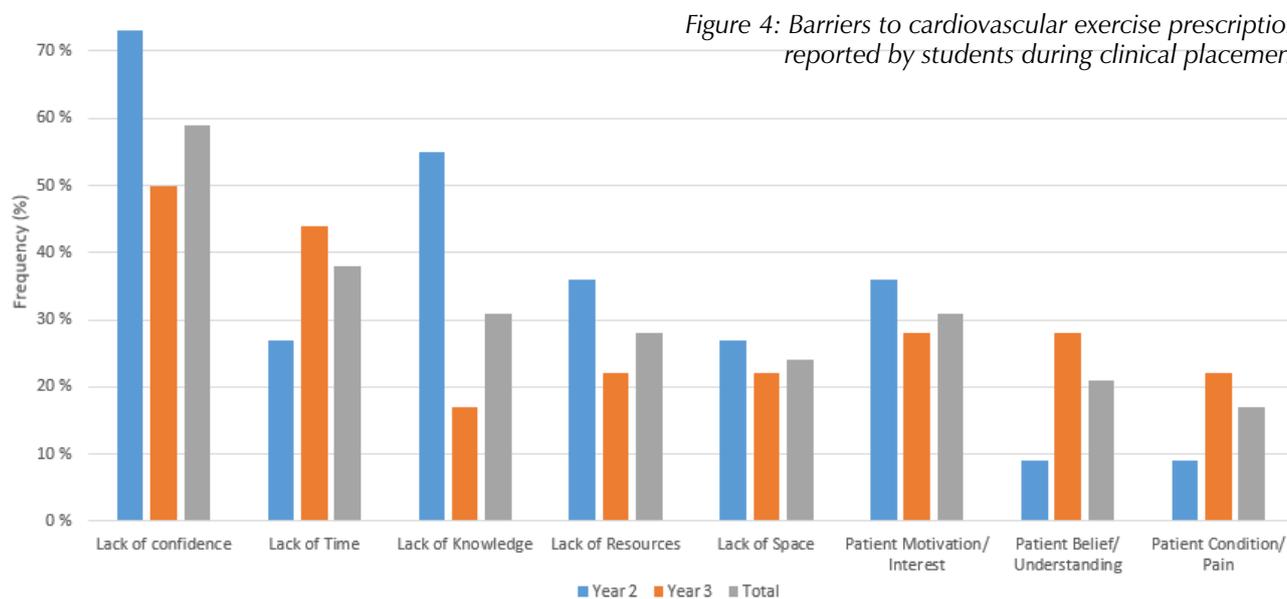


Figure 4: Barriers to cardiovascular exercise prescription reported by students during clinical placement

Student Barriers to CEP and cardiovascular exercise testing	Patient/environmental barriers to CEP/ cardiovascular exercise testing	Student Belief that exercise testing is complex and other needs should be treated first
1. Lack of Competency	1. Resistance to behaviour change	1. Complexity involved in exercise testing
2. Lack of knowledge	2. Lack of confidence	2. Exercise testing is end stage
3. Lack of practice	3. Psychological status	3. Exercise tests only reinforce the belief that patients are unwell
4. Lack of opportunity for exercise testing on placement	4. Lack of knowledge	4. Exercise testing overwhelms the patient
5. Lack of confidence	5. Lack of time	5. More confident with other modes of CEP
6. Clinical educator's influence	6. Lack of patient preparation for exercise testing	6. Tend to treat the patient's primary problems first
	7. Lack of resources	

Table 4: Main themes identified by focus group (year 2 students in bold, year 3 students underlined)

## 9.0 Discussion

The aim of the study, to identify student barriers to CEP, was explored through a survey and focus group. Three key themes were identified: Student barriers, patient and environmental barriers and student beliefs as barriers.

### Student barriers to CEP and cardiovascular exercise testing

Lack of confidence was the lead barrier reported by 59% of students, 73% and 50% for 2nd and 3rd year students respectively (figure 4). This may link to lack of practice identified in the focus group (table 4), a 3rd year student explains that *“you don't have enough time [at university] to feel confident with it [exercise testing] so you are less likely to use it on placement”*. Lack of knowledge was reported by 31% of student's

(figure 4) and during the focus group knowledge was a boundary for the 2nd year student who required clarification regarding topics yet to be taught.

Both survey (figure 3) and focus group (table 4) results reported the clinical educator's influence as a barrier to exercise testing on placement, a 3rd year student explained *“you just get a feel of what your clinical educator wants you to be. So, you just follow what they think is correct rather than using your own mind”*. In addition, the focus group (table 4) discovered lack of competency and lack of opportunity for exercise tests during placement as barriers to CEP.

There is no literature regarding barriers to CEP perceived by student physiotherapists however, a study by Shirley et al. (2010) investigated student and qualified physiotherapists' perceptions of exercise promotion in Australia. The student survey

identified that confidence and knowledge of exercise promotion increased with progression through the degree (Shirley et al., 2010). This agrees with the survey and focus group whereby more 2nd year students presented with lack of confidence and knowledge. Douglas et al. (2006) investigated general practitioners and nurses' views regarding physical activity promotion and identified a lack of knowledge as a barrier. On the other hand, nurses reported high confidence and enthusiasm for exercise promotion (Douglas et al., 2006) which physiotherapy students in this study did not.

Students suggested that increased knowledge, practice and experience at university would prepare them for CEP (figure 5). A study identified that a workshop regarding exercise promotion and prescription increased exercise professional's confidence (O'Brien et al., 2016), similarly, general practitioners reported that training regarding exercise prescription increased their confidence to prescribe exercise (Swinburn et al., 1997), therefore extra training might encourage students to prescribe exercise on placement.

**Student belief that exercise testing is complex and other needs should be treated first**

Student beliefs about the complexity of CEP and exercise testing was identified through the focus group (table 4). A 2nd year student explains that lack of knowledge *“gives a certain element of uncertainty in how you are going to carry it [exercise testing] out”*. The 2nd year student further explains *“you wouldn't feel as positive to do these things [exercise testing] if it isn't deemed necessary”*, resulting in the use of other methods of CEP such as the FITT principles (frequency, intensity, time and type).

The focus group identified the belief that the patient's primary diseases should be treated first (table 4), this agrees with current literature where physiotherapists believe exercise promotion will not change the patient's current activity levels (Shirley et al., 2010) and that other lifestyle changes are more important (O'Brien et al., 2016).

**Patient and environmental based barriers to CEP and exercise testing**

Patient and environmental based barriers identified in the survey included: lack of patient motivation or interest (31%), lack of time (31%), lack of resources (28%) and lack of space (24%) (figure 4). Similarly, the focus group (table 4) identified lack of resources

and time as barriers. Focus group participants also reported patient-based barriers including: difficulty with behaviour change, patient confidence, the patient's psychological status, lack of patient knowledge and lack of patient preparation for cardiovascular exercise, participant three explains this when stating *“A lot of them didn't even know why they were there so they wouldn't have known to bring suitable clothing”*.

O'Brien et al. (2016) explored the beliefs and barriers of exercise prescription perceived by practitioners, allied health professionals and exercise professionals in Canada before, during and after a six-hour workshop regarding promotion and prescription of exercise. The barriers reported included: lack of patient interest, lack of time, lack of resources, other lifestyle changes being more important and personal knowledge regarding exercise prescription. This concurs with the survey and focus group.

Studies regarding adherence to cardiac rehabilitation reported the patient's psychological status as a barrier to exercise adherence (Cooper et al, 2002; Daly et al, 2002) which concurs with the focus group. Several studies identified lack of time as a barrier to activity promotion (Shirley et al., 2010; Swinburn et al., 1997; Douglas et al., 2006). Participant four in the focus group agrees explaining, *“an exercise test would take at least half an hour”* and states *“I wouldn't give any more time to do such time-consuming tests”*. Financial pressures within the NHS can reduce the quality of care patients receive (Robertson et al., 2017), participant four encompasses this stating *“I suppose if you don't have the time to do a proper test, then it will obviously affect the quality of the exercise prescription”*.

**Implications for Future Practice**

2nd year students may need more support to increase their confidence and knowledge of exercise testing
Students should be encouraged and supported on placement to clinically apply their knowledge of CEP

**10.0 Conclusion**

A range of barriers to effective cardiovascular exercise prescription in undergraduate student physiotherapists have been identified, the primary barriers: include lack of confidence, lack of time and lack of patient interest which are also key topics in the focus group. Year 2 students may have been less confident and knowledgeable with CEP however, the bias towards 3rd year students make this difficult to conclude.

## 11.0 Acknowledgements

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## “These Boots Are Made for Walkin’” – Neurologic Music Therapy, Activity and Fall Prevention

**Author:** Daniel Thomas – Joint Managing Director & Neurologic Music Therapist, Chroma

### 1.0 Introduction

Nancy Sinatra might not be the first person we think of when talking to older people about the importance of maintaining physical function. But her 1966 #1 hit “These Boots Are Made for Walkin’” has both lyrical content and a beats-per-minute (BPM) count that Neurologic Music Therapists can use in both clinical settings and within home-based/out-patient fall prevention programs.

Neurologic Music Therapy (NMT) is the therapeutic application of music to cognitive, affective, sensory, language and motor dysfunctions due to disease or injury to the human nervous system (Thaut & Hoemberg, 2014). NMT is endorsed by both the World Federation of Neurological Rehabilitation (WFNR) and the European Federation of Neurorehabilitation Societies (EFNS). In private and NHS healthcare settings across the UK, NMT has become part of the leading edge of treatment and follow-on programs, due to the way that it optimises rehabilitation outcomes. NMT techniques were developed in music neuroscience research, and NMT relies on this robust scientific basis and the acceptability of music as a treatment modality to engage patients in the clinic and most importantly at home to maintain exercise and physical activity, encouraging older people and patients to move more for therapeutic and health reasons.

### 2.0 Demographic and geographic challenges

According to the Office for National Statistics (2016) 18% of the UK population was over the age of 65. Predictions for 2039 suggest the UK population will increase to 74 million, with some areas, the South-West for example, having up to 42% of residents over 65. Falls are a common and serious health issue for older people, with around a third of all people aged 65 and over falling each year, increasing to half of those aged 80 and over. According to Public Health England (2017), only 55% of rural households compared to 97% of urban households are within 8km of a hospital.

In Cornwall where 1 in 4 people are over the age of 65, residents in areas such as the remote Lizard

peninsula face a 30-mile journey (1-hour drive) to the Royal Cornwall Hospital for out-patient physiotherapy and reablement clinics. Therefore, the maintenance of health and exercise/mobility and access to home-based programs or local services is more important now than ever before. Clinicians and patients may struggle to identify a clinically effective intervention, for balance or gait for example which is also motivational enough to engage the patient throughout the course of treatment as an out-patient. Gavin Farrell, Consultant Clinical Neuropsychologist at the Central England Rehabilitation Unit, says of NMT that, “By using neurologic music therapy, which is the clinical application of music neuroscience, healthy and un-injured parts of our patient’s brain get activated. NMT recruits active neural plasticity networks, which can lead to significant and effective rehabilitation. Why wouldn’t we want to fully engage patients in NMT-centred rehabilitation?”

#### 2.1.1 Falls prevention and economics

With the closure of community services including hospitals, the NHS remains under increasing pressure. Commissioning cost-efficient interventions which are clinically effective and engage patients throughout the duration of their treatment is becoming increasingly important to healthcare managers in response to the cutbacks.

There are around 255,000 falls-related emergency hospital admissions in England among patients aged 65 and over each year. It is estimated that fragility fractures cost the UK around £4.4 billion, of which 25% is for social care. In around 5% of cases a fall leads to fracture and hospitalisation, which is costly for health services and the wider economy.

Preventing falls is therefore important for the health and wellbeing of older people and those that care for them, as well as the future of our health and social care services. What role do Allied Health Professionals (AHPs) and Music Therapists have in this? Why would neurologic music therapists use the Nancy Sinatra song “These Boots are Made for Walkin’” and how does its beats per minute (BPM) count matter so much for patients in the clinic and at home to help maintain exercise and mobility for health and wellbeing?

### 3.0 Walking speed as a predictor of health outcomes

According to Wade (1992), Walking Speed is “almost the perfect measure”. Walking Speed (WS), also termed gait velocity, correlates with functional ability (Perry et al., 1995) and balance confidence (Mangione et al., 2007). As reported by Studenski et al. (2003) and Purser et al. (2005) WS has the potential to predict future health status. WS also reflects both functional and physiological changes (Perry et al., 1995), is a discriminating factor in determining potential for rehabilitation (Goldie et al., 1996) and according to Guimares et al. (1980) helps clinicians predict the risk of falls and a patient’s fear of falling (Maki, 1997). Beats per minute (BPM) as a measure of musical time strongly correlates to step cadence, and therefore to gait velocity or Walking Speed. The BPM of the Nancy Sinatra song is around 85BPM, which equates to a good cadence and Walking Speed.

### 3.1 Rhythm-driven interventions

Research into rhythm-driven interventions for gait training following stroke and traumatic brain injury (Thaut et al., 1993, 1997, 2007; Prassas et al., 1997; Hurt et al., 1998), in Parkinson’s disease (Thaut et al., 1996; McIntosh et al., 1997), and with cerebral palsy (Kwak, 2007; Kim et al., 2011, 2012) has resulted in a well evidenced intervention known as Rhythmic Auditory Stimulation (RAS). Within RAS programs neurologic music therapists use strong and predictable rhythmic patterns to drive the sensori-motor movements required for walking. Essentially, the ears are making the feet move; the predictable rhythmic structure of the music allows the sensori-motor system to entrain itself to the beat, which can be varied by the neurologic music therapist as required. A very clear example of RAS in action can be seen here, delivered by MedRhythms neurologic music therapists in the USA: <https://www.youtube.com/watch?v=c-EWS9mWq2I>

RAS is one of the 20 certified Neurologic Music Therapy (NMT) techniques. It is reported to improve gait parameters including stride length and symmetry with stroke patients, with further research recommended into rhythm driven interventions in neurorehabilitation (Bradt et al., 2010). Other NMT interventions focus on elements of walking such as toe raises and planting the heel which form the basis of safe walking. The lyric content of the Sinatra song can also be used by the music therapist and the patient alike to help motivate and engage them in the treatment. The use of humour and how the lyrics

talk of self-agency, “I’m gonna walk all over you” may be helpful for patients who are getting used to life post-fall and have also to address confidence issues as well as functional ones. Music therapists are uniquely placed to work on the functional and psychological rehabilitation of their patients. Neuroscience research highlights the fact that by using music as a rehabilitation tool, we are always using or recruiting healthy and un-injured areas of the brain within a patient’s treatment plan, rather than trying to fix the damaged or “broken” part of their brain linked to the loss of function highlighted within their initial referral.

Neurologic music therapy, when used alongside other disciplines, such as physiotherapy, can provide enhanced outcomes; a physiotherapy goal of increasing gait cadence can be reached more quickly with the use of NMT, due to patient engagement and the way music interacts with the sensori-motor systems of the body and brain.

### 3.2 Collaborative clinical interventions

Collaborative working in hospital and community rehabilitation settings between physiotherapists and neurologic music therapists to implement Rhythmic Auditory Stimulation (RAS) programs is more commonplace now than ever before. Private healthcare providers such as HCA Healthcare UK (The Portland and Wellington hospitals) as well as NHS settings (Charing Cross Hospital and The Great North Children’s Hospital) are commissioning Neurologic Music Therapy interventions in greater number and with longer durations of contract to meet growing patient need (Chroma, 2018). As the UK’s leading provider of Neurologic Music Therapy, Chroma has seen its team of HCPC regulated music therapists increase by more than 50% over the last 2 years to keep pace with demand from the healthcare sector (Chroma 2018).

The importance of WS as an indicator of functional and psychological outcomes for older adults is clear. Purser (2005) has shown that by increasing WS by 0.1m/s fall risk reduces by 7%, and that WS continues to be linked to clinical meaningful changes in quality of life in Stroke patients (Schmid et al., 2007). These positive changes generalise from the hospital settings to patients’ home and community setting as seen in their walking behaviour (Bowden et al., 2008).

The use of music with a strong beat structure, such as “These Boots are Made for Walkin’” is essential for increasing Walking Speed via an RAS intervention. The lyric content of the song is very helpful for music therapists and the patient alike as it helps to engender

motivation, humour, agency and a sense of being in control. All these factors play a positive role in the patient's engagement in their course of treatment, and the psychological readiness for functional rehabilitation that approaches such as Neurologic Music Therapy can be so effective in.

#### 4.0 Conclusion

As our population ages, fall prevention and the maintenance of health and activity levels among older people will increasingly become the priority for health professionals and commissioners. The search for cost effective *and* clinically effective interventions that maximise patient engagement is already a priority.

Neuroscience research and clinical practice led by organisations such as Chroma in partnership with NHS and private healthcare partners has shown that the clinical use of music, via Neurologic Music Therapy interventions such as Rhythmic Auditory Stimulation is effective and affordable. The use of an established Allied Healthcare Profession, music therapy, means that minimum clinical standards and regulation issues are addressed.

Results from day-to-day clinical work show significant improvement in step cadence, Walking Speed and engagement in treatment. Medical and healthcare settings are increasingly accessing Neurologic Music Therapy from Chroma and other providers despite their drop in statutory funding because it consistently demonstrates clinically effective and enhanced patient outcomes.

#### 5.0 Acknowledgements

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## Get older people moving or face social care crisis, says UKactive report

**Author:** UKactive- Jon Hulks, Public Affairs and Policy Manager and Kenny Butler, Head of Health and Wellbeing Development.

Older people are having 'their lives cut tragically short' through a physical inactivity epidemic which threatens to bring a major social care crisis, according to a new report (released 12th September 2018).

Advice to older people to 'take it easy' and 'put your feet up' could be dangerous to their long-term health, says Steven Ward CEO of UKactive, the not-for-profit health body behind the *Reimagining Ageing* report.

Analysis from UKactive, DataHub and Sheffield Hallam University shows a potential saving of £7.6bn to the NHS and wider healthcare system if older people are supported to become more physically active through a series of systemic changes. It highlights the critical pressures facing the NHS and social services due to a population which is growing older.

With figures showing that physical inactivity reduces lifespan by as much as five years, the report calls for a complete re-evaluation of the way older people live, exploring how to embed physical activity into every aspect of later life.

The report includes recommendations for whole-society collaborations to: build physical activity into the working day; create active environments through accessible community facilities; embed physical activity promotion into the healthcare system and harness new innovative technology to make exercise the natural choice for older people.

The authors call for the national roll-out of 'Wellness Hubs', which places physical activity facilities alongside libraries, police stations and GPs as a single community focal-point. Evidence from existing Wellness Hubs has demonstrated a significant positive impact on local communities, particularly among older populations.

Muir Gray, Chief Knowledge Officer of the NHS, said: "Many of the more grievous issues associated with older age, such as lack of mobility, illness and muscle weakness can actually come because of a lack of fitness.

"Physical activity is vital to ensure older populations

can lead long, healthy and independent lives, even in their twilight years."

UKactive CEO Steven Ward said: "It's clear that the outdated idea of people doing less as they age is harming the health of our senior citizens.

"We all know we are living longer, but those extra years are increasingly blighted by illness, frailty and immobility.

"We need to inspire a major cultural shift in how we approach our ageing years, with an emphasis of building physical activity in at every step to ensure long lives are also healthy lives."

Jason Holtom, Managing Director, Serco Leisure said: "It is well known that keeping active is crucial to staying healthy and independent as we grow older, and the physical activity sector has a key role to play in providing older adults with inclusive, accessible and enjoyable physical activity opportunities.

"This report highlights some key examples of the great work that is going on within the sector and provides valuable insight into what can be achieved if we support older adults to be more active.

"Serco Leisure is committed to helping people of all abilities and ages to maintain and improve their fitness levels. We will continue to work with UKactive and other partners to develop and improve our offering for older adults, allowing everyone the opportunity to choose a physical activity option that is right for them."

### About UKactive

UKactive is the UK's leading not-for-profit health body for the physical activity sector, with almost 4,000 members from activity providers to major consumer brands, training facilities and equipment manufacturers. Members come from across the private, public and third sector and are united by UKactive's longstanding and uncompromising commitment to getting more people, more active, more often.

UKactive facilitates big impact partnerships, conceives and drives breakthrough campaigns, conducts critical research and galvanises key stakeholders to develop and deliver key projects that support and champion the physical activity agenda. The organisation's efforts are centred on supporting a national ambition to "Turn the tide of physical inactivity".

It is highly recommended to read the full detailed report which can be located by searching: 'UKActive Reimagining Ageing report' in a web-based search engine.

For more information about UKactive, please contact Rob Gibson on 02074008645, or email [robgibson@ukactive.org.uk](mailto:robgibson@ukactive.org.uk).



More people  
More active  
More often

## Join AGILE

Membership is open to all CSP members who have an interest in the well-being of older people including other Allied Health Professionals e.g. Occupational Therapists who can join as an Associate Member

### Membership categories:

#### INDIVIDUAL

Open to anyone who is a fully subscribing member of the Chartered Society of Physiotherapy. All UK practicing physiotherapists must be HCPC registered.

#### GROUP

Group membership can be offered to sites with rotational staff. On payment of the fee the department shall be entitled to one copy of AGILITY and subsidy on AGILE merchandise. Each group is entitled to one discounted fee at AGILE courses/conferences and one vote as required, providing that the course/conference/voting delegate is a CSP member.

#### ASSOCIATE

Open to members of a profession allied to physiotherapy. This will be open to other professionals at the discretion of the Executive Committee. Such professionals must be members of an equivalent health or professional body.

Overseas membership is available to any physiotherapist working overseas. Overseas members must be a member of their country's physiotherapy governing body.

#### ASSISTANT/STUDENT \*APPLICATION VIA PAPER METHOD

Open to all physiotherapy undergraduates and to those in full time post-graduate study in physiotherapy. Also open to unemployed new physiotherapy graduates. Application via paper method.

#### HONORARY

This is conferred by the National Executive Committee to an individual in recognition for their work by AGILE

### Membership Fees 2018-19: Still no price increase for membership!

Individual £25

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Associate £25

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**We have introduced 'Online membership renewal'!**

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- Print and online subscription to *Age and Ageing*, the Society's medical journal, offering access to cutting-edge research and editorial content.
- Networking and professional development opportunities amongst the BGS's expert and multidisciplinary membership, including our influential Special Interest Groups, providing expertise on disorder-specific issues and a specialist forum for therapist and nurse members
- Membership starts at only £49 annually for physiotherapists and occupational therapists. Existing members can save a further £20 when renewing by Direct Debit.



*"Joining the BGS, getting involved with their Falls and Bone Health SIG and becoming their first non-medical Chair has opened numerous doors for me, from working with NICE to national guideline development, which wouldn't have happened otherwise"*

Vicki Goodwin, Physiotherapist

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## The 40th Anniversary of AGILE

AGILE celebrated its 40th year of existence this year and to celebrate this fact an afternoon tea was held at the CSP head-office and some of the founding members of AGILE from 1978 were in attendance. They kindly shared their memories of establishing the special interest group and below you will find their words reprinted for you to enjoy.

The contributors are:

**Dr Amanda Squires OBE**– AGILE founding member & past Secretary and Chair.

**Olwen Finlay MBE** – Agile founding member and founder of IPTOP

**Jill McClintock** – Past AGILE Chair and first UK representative of IPTOP

### Contribution 1 By Dr Amanda Squires OBE

When I had been qualified for eighteen months and having enjoyed and been effective in elderly orthopaedics on my rotations, I applied for a senior job in elderly care within the District. There was little competition---elderly care was not seen as a progressive career option---indeed I was once asked if I couldn't get a job anywhere else.

The hospital had been converted from a fever hospital, gradually run down after the 1950's polio epidemic. It had open corridors and no lifts---patients were carried up and down the external ward steps in wheelchairs in all weather, but the whole hospital atmosphere was fantastic as we all fought against the odds.

The physiotherapy department had part time qualified staff and assistants each doing a few hours and was very poorly equipped depending on hand me downs from the District hospital. The wards had a couple of hundred long stay patients---just biding their time. Gradually we identified potential for assessment, treatment---and the occasional discharge.

Two years later the Health Advisory Service (HAS) came to inspect us. They had been set up by the government following public scandals in long stay mental health & elderly care hospitals and their remit was to visit every such hospital on a rolling programme. They were the precursors of CQC and I subsequently worked as an inspector for both.

The physiotherapist on the HAS team was Margot Hawker. She was Superintendent at The Edgware Hospital and with her friend Dr Monnica Stewart the Geriatrician set up multidisciplinary teams, comprehensive assessments, rehab programmes and regular discharges. This was all quite unique at the time.

The HAS team did their week-long inspection and at the end Margot came to chat to me about the good feedback she had received about our work & what my vision was. I explained that we felt totally isolated, we did not know who was doing something similar elsewhere we could learn from, what developments there were and above all what support & training was available.

The result was a letter from us both in the Journal inviting people to get in touch, which they did from across the UK. We had an inaugural meeting at St Mary Abbott's Hospital, Kensington. We elected Officers---Margot as Chair, Monnica as President & myself as secretary and later President.

The principles were to promote high standards of physiotherapy with older people through education, communication, research and support.

We were the third CSP Special Interest Group---much to the bemusement of the CSP who at that time had not insisted on elderly care being on the curriculum and had not foreseen the demographic and economic timebomb of an ageing population who were moving on from the post war "welfare" grateful to the baby boom educated, assertive, financially stable and longer lived.

We were the first to set, publish and audit standards of practice.

The first to develop a strategy

We recruited a Brand Consultant to help with our name and Journal title.

My husband, a geographer, drew up the regional boundaries

And at our 21st anniversary celebrated by a dinner for 100 at the House of Commons, I coordinated the purchase of the Presidential chain---funded by all the presidents to that date.

The people who attended that initial founding day had similar stories to tell:

Following the success of the AGILE model, I was then approached by WCPT to work with the United Nations on two, fortnight-long international residential courses in Malta for physiotherapists in elderly care. These were probably the most amazing weeks in my life---so many problems, politics, ideas, solutions and above all friendships.

The result of each course was that participants had to state what their project was. Olwen's was to set up an International group, based on the tried and tested principles of AGILE. I supported her as secretary in setting up IPTOP ---the Association of International Physical Therapists working with older people--- which now has 22- member countries including AGILE, representing physiotherapists in elderly care across the world, all learning from each other.

Agile will have its work cut out as the next surge of elderly people require care in about 2025 as the post war baby boomers will reach 75 years of age. Hopefully AGILE will again rise to the occasion and be supported by the CSP.

We thank the organisers and our hosts for a delightful afternoon and wish the Association, all the best for the future.

### Contribution 2 By Olwen Finlay MBE

The original care for Older People in Northern Ireland was in the workhouse, however in the early 1960s a plan was devised that the catchment area for the rehabilitation of older people would be based on postal zones. A few years later the troubles broke out with many civilian casualties, thus acute beds were urgently needed.

Old properties owned by the Heath Authority were brought back into use. All patients were relocated within days, and nursing staff seconded. There were insufficient physiotherapists to man these units and this short fall was further complicated by the fact that no therapist had specific experience in this specialty.

At this time, I was on a career break and it was suggested that as this was an emergency it would be appreciated if I could return to work. No job description was ever supplied.

On arrival the Matron informed me she was responsible for all staff and as there was no Physiotherapy department I could use the old doctors

dining room. Acute hospitals had been asked to donate surplus equipment. Numerous heat lamps, broken short wave machines, unsafe parallel bars, high examination couches and very low arm chairs with sagging seats and broken webbing were in abundance.

A full-sized billiard table utilized some space in the department, however in time, this table proved to be the most useful piece of equipment, as it was solid and had a good handrail which was put to good use for sitting to standing activities. There were no assistants available in the sixties to help with heavy patients and the portering staff would not even assist with transfers.

My priority was to find safe equipment, so in desperation I rang CSP for advice. I was informed it was not their role, however I should contact Margot Hawker at Edgeware Road. Unfortunately, Margot was on holiday. As Northern Ireland had no local medical equipment supplier to consult I quickly realized I had to do some functional research myself.

No physiotherapy budget was available, so I decided to try and call in a few favours. The local garage made me three chairs in tubular steel all with different specifications, which resulted in chairs of suitable height, width and stability being manufactured locally at low cost. The hospital plumbers made stable parallel bars, which provided a realistic walking distance and patients were soon ready for discharge.

None of the buildings brought back into use had piped oxygen and for one winter, chest conditions were in abundance. At that time the RAF had done a lot of research into vibrations during the development of the Hunter Harrier plane, I heard them explain in detail on Blue Peter how vibrations could affect your chest and breathing. I approached the local RAF commanding officer and who arranged that vibratory information could be sent to LEDU (an enterprise development unit), they subsequently got vibrator cushions manufactured locally. The cushions were especially good for the frail elderly who preferred this type of percussion over manual therapy. The number of patients with severe chest conditions reduced dramatically.

Our catchment area had very poor housing and the majority had outside loos. The stairs usually incorporated winders and often lighting was absent. The practice stairs on the market did not resemble the day to day reality. At that time, the prisons were rapidly filling, and inmates had little work to pass the time, so it was suggested that the prison service was

approached, and they provided the stair equipment complete with winders.

Another successful development was the pattern for a wrap round slipper which I gave to a footwear salesman and his company recently advertised they had sold over 2 million pairs.

In 1978 an advertisement appeared in Physiotherapy Journal saying that Amanda Squires and Margot Hawker were suggesting forming a special interest group and having been awarded a Churchill Fellowship in 1973, I was very aware of the value of sharing ideas and learning from others. Having heard Margot's name mentioned nine years earlier, I was determined to attend this meeting.

Forming links with the UK experts provided our local group with a new source of speakers for study days. Amanda Squires, Rosemary Oddy, Janet Simpson, Judy Mead and Brenda Myers all brought new ideas.

In 1994, the Northern Ireland Agile group were the first sub-group in the Province to invite colleagues from the Republic of Ireland to share study days. Once this was established other groups followed.

In 1995 Northern Ireland hosted the AGILE conference and this conference helped AGILE's rather depleted budget as I found a generous benefactor who underwrote the cost of the university conference centre, bringing the Agile balance sheet out of the red.

The other important factor in the development of the Belfast service was having dedicated staff in the team, Jill McClintock, Gail Mc Millan and Rosemary Rea were enthusiastic and much valued colleagues. Professor Pat McCoy at the University made a large contribution when the elderly care module was incorporated into the training curriculum. Appointment of trainers ensured that training also occurred at the coal face, this resulted in more therapists being attracted into the specialty.

Having trained in the 1950s I was never taught how to write a professional article and I would wish to acknowledge all the advice given to me by Jill Whitehouse, Editor of the Physiotherapy Journal, who taught me how to write papers and chapters for publication.

When I was recruited I promised to stay one year and almost thirty years later I was still there, having enjoyed the challenges and the opportunities that presented themselves.

During the twenty-five years that I was actively involved with Agile, Amanda Squires was a driving force, she was always ready to help or give advice, she ensured the Association was developed on a firm foundation. I thank her for her friendship over 40 years and her advice. Agile, now I am sure has new motivators, who no doubt is well prepared to cope with the present day and future challenges.

### Contribution 3 by Jill McClintock

In 2002, when I was Chair of Agile UK IPTOP began organising itself. It had started as an idea in 1993 from Olwen Finlay and by 1999 a shadow committee and steering group was set up by Olwen Finlay, Amanda Squires and Nancy Prickett (USA)

I was invited to Birmingham in 2002 to join the Foundation meeting of IPTOP and became the first UK rep to the Association. There were 11 countries seeking membership of IPTOP.

Recognition as a subgroup of WCPT was formalised at WCPT Barcelona in 2003.

To reach recognition status a lot of hard work was needed, this was driven by a small working group. Adherence to WCPT affiliation requirements were met, this is a minimum of 10 country members from 3 of the WCPT regions. A Policy book was written which included a Constitution, Job Descriptions, Aims and Objectives and our Mission Statement.

I have been involved in IPTOP for almost 17 years and counting, UK Rep from 2003 until 2007. From 2007 until 2015, I was IPTOP Secretary and held that post for two four-year terms of office. I also took on the role of Vice President from 2011 until 2015. In 2015 I was invited to be IPTOP Patron and currently still hold that position on the IPTOP Executive Committee.

In 2003 we had 11 countries who were members we currently have 22 country members.

Among the many changes I have seen through the years are those within Communication. Initially all correspondence was by post and the Executive Committee meetings and IPTOP General meetings were only held at a WCPT Congress which then were every 4 years.

When Jennifer Bottomley became President in 2011 she started Skype calls for the Exec Committee a minimum of 4 times a year this opened-up so many more opportunities for IPTOP to discuss and expand

its knowledge base. These were shortly followed by Member Country Rep Skype calls, again on a regular basis, this has allowed the Executive to be in much closer contact with the membership

We have social media routes through Facebook and Twitter, all positive ways of keeping IPTOP informed and allowing opportunities for involvement.

As we have grown in numbers, we are now 22 Countries, 24 Associate members, these are Physiotherapists who do not have a special interest group relating to Older People in their country. We also have three Regional Representatives who cover Europe, North America and the Asia South Pacific regions. Janet Thomas is currently the UK rep and European Regional rep.

To encourage more involvement from members we have established sub committees they are Finance, Research and Communication, these are a valuable part of our Business plan, allowing those with specific interest and skills to contribute to the workings of IPTOP and by their involvement hopefully encouraging them in succession planning to the Executive Committee posts.

We published Standards of Clinical Practice for Physiotherapists working with Older People in 2013, this work was led by Bhanu Ramaswamy.

Our Business plan keeps us focused and timely and has encouraged us in new directions to keep IPTOP responsible to its members.

We have recently established two new Grants, one for Education and one for Research. This then requires a Grant Review Committee which we are currently setting up. Two other new posts are to commence very soon, one is Chair of the Education Committee, another new committee to look at ways to share knowledge not just by education sessions at a Conference. The other new post is a Representative Co-ordinator - a person to link directly with all our levels of membership, to inform but also allow more involvement / contribution from the members.

IPTOP continues to grow both within and reaching out for all opportunities that give us a chance to promote Physiotherapy with Older people on an International stage. We regularly contribute to the WCPT Congress, also the ER WCPT Conference in Liverpool and the WHO through work that our Research group had been doing.

I am very lucky to be still actively involved in the profession I love and the Clinical area closest to my heart.

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