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## Living well with Parkinson's through Exercise

Understanding the impact of Nordic  
walking for People with Parkinson's

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# Overview



Nordic Walking & Parkinson's

Nordic Walking interventional study- Results

Focus group study - Results

What next?



# My journey

- ▶ Nursing degree (BSc) 33 years ago
- ▶ Parkinson's Nurse Specialist for 19yrs
- ▶ Special interest in neurology, rehabilitation and community nursing
- ▶ Nordic walking Instructor 2019
- ▶ Feasibility study 2021 (article and poster)
- ▶ M.Phil. 2021-2023
- ▶ Graduated July 2024



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# What is Parkinson's (PD)?

- ▶ Fastest growing neurological long-term condition globally
- ▶ Degeneration of nerve cells in the substantia nigra (brain)
- ▶ Leads to a reduction in neurotransmitter **DOPAMINE**
- ▶ Impacts movement, mood, memory, attention, motivation, and pleasure
- ▶ More than 145,000 people living with PD in the UK
- ▶ Many people with Parkinson's (PwPs) are looking for alternative interventions to supplement complex medication regimes

# Nordic Walking and PD

- ▶ Nordic walking poles promote better posture and stability
- ▶ Poles can improve walking speed and cadence (stride)
- ▶ Exaggerated movements of arms and legs
- ▶ 10 years ago, a woman with PD attended a conference and persuaded her local Parkinson's UK branch to work with a NW instructor and physiotherapist(feasibility study), Blake, 2014.



# NW and Parkinson's



Big amplitude movements

Whole body workout

Research suggests it can improve balance, gait, posture and speed of movement

Well-being and non-motor benefits

Exercise could be neuro-protective

Could improve balance and reduce falls

Potential cost saving to the NHS

# Understanding the impact, accessibility and diversity of NW in People with Parkinson's



- ▶ 8-week NW intervention (13 months)
- ▶ Recorded motor & non-motor outcomes at week-0, week-8 and 6-months (Repeated measures)
- ▶ Physical measures (3 metre timed up and go, 10m and 20m walk test, Tragus to wall/ posture)
- ▶ Non-motor symptoms scale questionnaire, 30 items.
- ▶ Field notes
- ▶ N=53 People with Parkinson's



# Demonstration



1. Posture
2. Lean
3. Walk
4. Rotate
5. Drag
6. Place
7. Push
8. Extend fully
9. Release Actively
10. Swing forward



# Results (Repeated measures study).

**Paired t-tests  
were carried out  
to compare  
outcomes after 8  
weeks and 6  
months  
(SPSS software)**

**Statistically  
significant  
improvements in  
10 and 20 m walk  
test (speed and  
cadence), Timed  
up and Go (speed),  
and Tragus posture**

**P values  
< 0.001**

**Non-motor symptoms scale questionnaire.  
Statistically significant improvements in overall score**

**Improvements in sleep and fatigue, mood and cognition, some urinary symptoms**

**Age range of participants**

**47-83yrs**

**Hoehn and Yahr stage 1-4**

**Years since diagnosis**  
**1-15 years.**

# Focus Groups

Research Question:

**What are the characteristics needed to implement NW groups for  
People with Parkinson's in a  
community rehabilitation setting?**

Design: **Three Focus Groups (15 people in total, PwP, NW instructors and walk leader).**

Record and transcribe

Coding

Thematic analysis

Behaviour Change wheel

Future practice

# Results

- ▶ Six main themes
- ▶ 1. Nordic walking is physically beneficial for PwP
- ▶ 2. Social benefits of group interaction
- ▶ 3. Practical components: parking, toilets, café, timing, public transport, access
- ▶ 4. Qualities and characteristics of the NW instructor
- ▶ 5. Optimising group safety, risk assessments, PARQ adapted/COVID
- ▶ 6. Facilitators for setting up new community NW groups; partnerships

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# Quotations

*I think it was picking up from where you stopped. It was the fact that we could all meet up and be outside and get fit!" (PwP)*

*My classes are in the morning because they are up and ready and took all their pills, so we go at 11 o'clock". (NWI)*

*Yes, it worked both physically and mentally, It has been good to meet other people that are active (PwP)*



*I think you feel comfortable, asking about Parkinson's. That would be important, because of the knowledge and experience Sarah has in people with Parkinson's (PwP)*

*I feel if I do something like parkwalk, I have achieved a goal. If you have got motivation, that is always a good thing. Running is not my thing. (PwP)*

*It was the fact that we could all meet up and be outside, get fit. Much better than Zoom!" (PwP)*



# P.A.R.K.I.N.S.O.N.'S.

P	Physical activity
A	Adventure not Apathy
R	Reconditioning and not Deconditioning
K	Kindred spirits. Exercising with new friends and their spouses/ partners.
I	Inclusive. NW is available to people of all ages and different backgrounds.
N	Non-motor benefits (improved sleep, mood, motivation, less pain and constipation)
S	Sporty poles, not walking aids.
O	Outdoors and all the benefits of exercising in the green gym/ healing balm effect.
N	Nature and wellbeing
'	Belonging. One of the first sports to start after Covid lockdown
S	Social



# What next?



M.Phil.  
Graduation



Focus Group journal  
article for publication



Present findings at  
conference



Grant application to  
conduct RCT of NW for  
PwP  
Non-motor impact



Business case for  
continued clinical NW  
groups



“

*Chris was a participant and former PE teacher. She is now an instructor, inspiring and motivating others!”*





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## Disclaimer

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British Nordic Walking

CityCare

Parkinson's UK, local and National

Dr Booth, Dr Allen and Prof Logan

My family - Being there, every Nordic step!

The participants, especially Christine, NW instructors and walk leaders  
Trent Bridge Rotary Club



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# Any Questions?



CEO Catherine Hughes, British Nordic walking, Chris, Caroline Rassell, CEO Parkinson's UK, Me!



Parkrun with the CEO!

# References

- Michie, S., van Stralen, M.M. & West, R. The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Sci* 6, 42 (2011). <https://doi.org/10.1186/1748-5908-6-42>
- Virginia Braun & Victoria Clarke (2006) Using thematic analysis in psychology, *Qualitative Research in Psychology*, 3:2, 77-101, DOI: [10.1191/1478088706qp063oa](https://doi.org/10.1191/1478088706qp063oa)
- Bombieri F, Schena F, Pellegrini B et al. Walking on four limbs: a systematic review of Nordic walking in Parkinson disease. *Parkinsonism Relat Disord*. 2017;38:8-12. <https://doi.org/10.1016/j.parkreldis.2017.02.004>
- Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3(2):77-101. [http://dx.doi.org/10.1191/1478088706qp063oa](https://doi.org/10.1191/1478088706qp063oa)
- British Columbia Ministry of Health and the Multidisciplinary Board on Exercise. Physical Activity Readiness Questionnaire. 1992. [www.oxfordreference.com/view/10.1093/oi/authority.20110803100325264](http://www.oxfordreference.com/view/10.1093/oi/authority.20110803100325264) (accessed 17 September 2021)
- Carver-Richardson E, Domaille M, Whybrow P et al. Is a tailored delivery of Nordic walking acceptable for people with Inflammatory Rheumatic disease? *Ann Rheum Dis*. 2019;78(suppl 2):10522-1053. [http://dx.doi.org/10.1136/annrheumdis-2019-eular.965](https://doi.org/10.1136/annrheumdis-2019-eular.965)
- Chaudhuri KR, Healy DG, Schapira AH. Non-motor symptoms of Parkinson's disease: diagnosis and management. *Lancet Neurol*. 2006;5(3):235-45. [https://doi.org/10.1016/S1474-4422\(06\)70373-8](https://doi.org/10.1016/S1474-4422(06)70373-8)
- Cugusi L, Manca A, Dragone D et al. Nordic walking for the management of people with Parkinson's disease: a systematic review. *PM&R*. 2017;9(11):1157-1166. <https://doi.org/10.1016/j.pmrj.2017.06.021>
- Da Silva FC, da Rosa R, Arancibia BAV et al. Effects of Nordic walking on Parkinson's disease a systematic review of randomized clinical trials.
- Fisioter Pesqui. 2017;23(4). <https://doi.org/10.1590/1809-2950/15861023042016> Ebersbach G, Ebersbach A, Elder D et al. Comparing exercise in Parkinson's disease—the Berlin BIG study. *Mov Disord*. 2010;25(12):1902-1908. <https://doi.org/10.1002/mds.23212>
- Ebersbach G, Ebersbach A, Gandor F et al. Impact of physical exercise on reaction time in patients with Parkinson's disease—data from the Berlin BIG study. *Arch Phys Med Rehabil*. 2014;95(5):996-999.
- Helmich RC, Bloem BR. The impact of the COVID-19 pandemic on Parkinson's disease: hidden sorrows and emerging opportunities. *J Parkinson's Dis*. 2020;10(2):351-354. <https://doi.org/10.3233/JPD-202038>
- Hemingway A, Jack E. Reducing social isolation and promoting wellbeing in older people. *Qual Ageing Older Adult*. 2013;14(1):25-35. <https://doi.org/10.1108/14717791311311085>
- Monteiro EP, Franzoni LT, Cubillos DM et al. Effects of Nordic walking training on functional parameters in Parkinson's disease: a randomized controlled clinical trial. *Scand J Med Sci Sports*. 2017;27(3):351-358. <https://doi.org/10.1111/sms.12652>
- Pearson DG, Craig T. The great outdoors? Exploring the mental health benefits of natural environments. *Front Psychol*. 2014;5:1178. <https://doi.org/10.3389/fpsyg.2014.01178>
- Priest P. The healing balm effect: using a walking group to feel better. *J Health Psychol*. 2007;12(1):36-52. <https://doi.org/10.1177%2F1359105307071734>
- Podsiadlo D, Richardson S. The timed 'Up & Go': a test of basic functional mobility for frail elderly persons. *J Am Geriatr Soc*. 1991;39(2):142-148. <https://doi.org/10.1111/j.1532-5415.1991.tb01616.x>
- Reuter I, Mehnert S, Leone P et al. Effects of a flexibility and relaxation programme, walking, and Nordic walking on Parkinson's disease. *J Aging Res*. 2011. <https://doi.org/10.4061/2011/232473>
- Stevenson C, Brown CJ. The National Nordic Walking Wellness study: summary report. Loughborough University. 2019. Unpublished. With permission from British Nordic Walking
- Tschentscher M, Niederseer D, Niebauer J. Health benefits of Nordic walking: a systematic review. *Am J Prev Med*. 2013;44(1):76-84. <https://doi.org/10.1016/j.amepre.2012.09.043>
- van Eijken PT, Frank JM, Ruud SJ et al. Nordic Walking improves mobility in Parkinson's Disease. *Mov Disord*. 2008;23(15):2239- 2243. <https://doi.org/10.1002/mds.22293>
- Watson MJ. Refining the ten-metre walking test for use with neurologically impaired people. *Physiother*. 2002;88(7):386-397. [https://doi.org/10.1016/S0031-9406\(05\)61264-3](https://doi.org/10.1016/S0031-9406(05)61264-3)

# My Medical Background

At 29 I was diagnosed with Hodgkin's Lymphoma, treated but relapsed age 31 had an autologous bone marrow transplant.

Had 2 beautiful children against the odds  
Life was good but then I had another fight on my hands!

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Is there a link?

## I'm alive and determined



- Since my diagnosis 6 and a half years ago, I have been determined to live well with this disease of 40+ symptoms!!
- It isn't easy, it actually 'sucks', but what is the alternative?
- My life has been enriched in so many ways since my diagnosis.....Many doors have closed but many have opened.

# Adapting to the new me!

- From the onset I have been determined not to be defined by my diagnosis
- I was extremely fit when diagnosed, so feel I had a good chance through exercise to slow down PD progression, which I believe has happened.
- I feel lucky that I was facing this new challenge already armed to fight!!

## Adapting

I decided from the start, after the initial shock to cope with my diagnosis head on!

- I joined the 10-week warrior class at the city hospital
- Started ballet and yoga classes
- Continued running and swimming
- Started painting
- Got involved with Parky Players
- Completed my British Nordic Walking instructor's course.  
(1<sup>st</sup> woman with PD to have done so).



# ‘We are undefeatable’

- Parkinson’s UK supported my journey.
- They asked me to apply for the ‘We are undefeatable’ campaign (encouraging individuals with chronic health conditions to exercise).
- Developed by 15 leading health and social care charities and backed by expertise, insight and significant National Lottery funding from Sport England.
- The most humbling experience....they came to film me for a full day.



## My most humble achievement

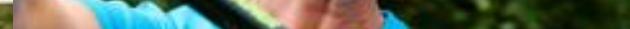
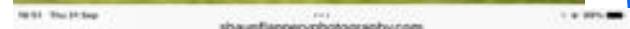
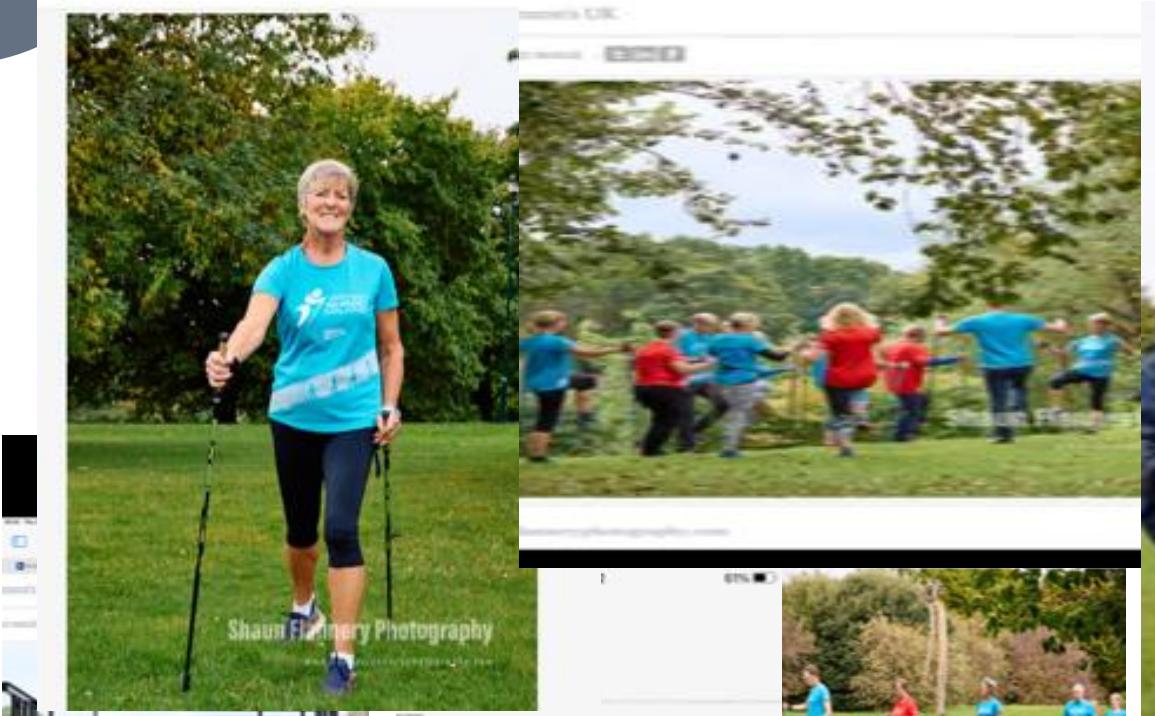
In October 2023, I was encouraged to take part in a research program for Nordic Walking introduced by Sarah, for people with Parkinson's.

- I was one of 53 participants and one of the last to join
- Fate played its part.....
- I loved it!

## Nordic Walking

- Within a couple of weeks, I was taking the warmups/cool downs.
- From the onset Sarah was trying to encourage me to think about doing the leaders or instructor's course.
- Catherine the CEO of British Nordic Walking contacted me and encouraged me to complete the instructor's course, the rest is history!

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## Lakeside and Southwell Nordic Walking

- I started 2 groups, one at Nottingham University where the research program was initiated and one in Southwell, where I live.
- Lakeside now has 26 members with PD at all stages, plus carers.
- Southwell has a mixed group of 25 some with PD and able bodied.
- The success of both groups has been truly wonderful with retention of participants and new additions.



# Live well with Parkinson's



- We know that Parkinson's Disease for every individual is unique, but we need to take control of how we manage to live with this progressive, degenerative disease. You can live well with PD.
- I intend to **accept, adapt, and have ambition.**
- I have a purpose to give something back to the PD community while I am fit and healthy.
- I will deliver Nordic Walking to those with and without PD for as long as I am able. It's given me a real purpose in my life as I navigate living well with the disease.

A painter is working on a large-scale painting of hydrangea flowers. The flowers are depicted in shades of pink, white, and green, with a dense, rounded shape. The painter's hands are visible, one holding a paintbrush and the other holding a palette. The painter is wearing a blue and white striped shirt. The background shows a blurred view of a beach and ocean.

# CHRISTINE

<https://www.youtube.com/watch?v=moRobIEzdrc>

# We are Undefeatable





Thank you!  
Q and A....

