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Effects of a Renal Nordic Walking Program on Quality of life and Fitness in Renal Patients at SPH

Effects of a Renal Nordic Walking Program on Quality of Life and Fitness in Renal Outpatients at St. Paul's Hospital: A Randomized Controlled Trial

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Disclosures

Providence HEALTH CARE
How you want to be treated.

PROVIDENCE HEALTH CARE
PRACTICE-BASED
RESEARCH CHALLENGE

This project was funded through the PHC Practice-based Research Challenge competition

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Introduction

- Many renal patients do not meet activity guidelines
- A Renal Nordic Walking Program, the "Walk & Roll" was created in 2016 to support our patients in becoming more physically active
- Hospital-affiliated group-based renal-specific exercise programs that provide opportunities for peer support & supervision can potentially reduce fears/concerns, and increase exercise self-efficacy (Clarke, 2012)

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Introduction

Activator Poles

- Although walking is usually the best-accepted form of exercise for general health, NW can boost confidence & help with balance in older adults, since natural walking is enhanced by the active use of a pair of specially designed walking poles

- NW has been shown to be superior to brisk walking without poles (i.e., more calories burned without an increase in perceived exertion, commitment to an exercise program, & upper body strength)

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Introduction

Hopefully, this pilot study will...

- Support the growth of the SPH Renal Nordic Walking program “Walk & Roll” by increasing patient participation and exercise self efficacy
- Foster the promotion of physical activity as part of renal patients’ clinical care in improving fitness and quality of life
- Lead to future research or other initiatives

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Methods

Randomized Control Trial:
30 participants randomized to initiate NW protocol
- T = 0 [Nordic Walking Group (NW); n=15]
- T = week 12 [Control Group (Non-NW); n=15]

NW group: offered 2 NW sessions per week for 12 weeks
Non-NW group: continued with their own activities

Inclusion Criteria:
- age > 19 y
- renal patient (CKD, PD, HD, Tx)
- physician's approval
- able to walk safely
- has smart phone & comfortable using Apps

Timeline

Data collection at T = 0 (baseline) and T = week 12 (post study):
- Quality of Life survey (KDQOL-36)
- Handgrip strength
- Sit-to-stand test
- 6-min walk test
- weight

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Methods

- No blinding of intervention or outcome assessment was possible

- Using the intention-to-treat principle, changes in outcomes for each participant from baseline to 3-months were calculated and median changes between NW and non-NW group were tested with a Brown-Mood median test

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Results – Overall baseline characteristics

Table 1: Overall baseline characteristics of study sample

	[ALL] N=30	N
Group, n (%):		30
Non- NW	15 (50.0%)	
NW	15 (50.0%)	
Age, y, median, [1Q;3Q]	66.0 [54.5;69.8]	30
Gender, n (%):		30
F	15 (50.0%)	
M	15 (50.0%)	
Modality, n (%):		30
CKD	14 (46.7%)	
HD	3 (10.0%)	
PD	3 (10.0%)	
TX	10 (33.3%)	
Diabetes, n (%):		30
N	19 (63.3%)	
Y	11 (36.7%)	
GFR, mL/min/1.73^2, median, [1Q;3Q]	29.0 [19.0;56.8]	30

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Results – Characteristic differences at baseline

Table 2: Baseline characteristics, quality of life, and fitness of study sample

	Non-NW N=15	NW N=15	p.overall	N
Age, y, median, [1Q;3Q]	65.0 [54.0;71.0]	66.0 [59.0;69.0]	0.693	30
Gender, n (%):			0.465	30
F	9 (60.0%)	6 (40.0%)		
M	6 (40.0%)	9 (60.0%)		
Modality, n (%):			1.000	30
CKD	7 (46.7%)	7 (46.7%)		
HD	2 (13.3%)	1 (6.67%)		
PD	1 (6.67%)	2 (13.3%)		
TX	5 (33.3%)	5 (33.3%)		
Diabetes, n (%):			1.000	30
N	9 (60.0%)	10 (66.7%)		
Y	6 (40.0%)	5 (33.3%)		
GFR, mL/min/1.73^2, median, [1Q;3Q]	28.0 [19.5;54.0]	43.0 [15.0;58.0]	0.756	30
New Nordic walker, n (%):			1.000	30
N	2 (13.3%)	1 (6.67%)		
Y	13 (86.7%)	14 (93.3%)		
BMI, kg/m^2, median, [1Q;3Q]	24.4 [22.6;30.2]	28.4 [25.2;31.1]	0.198	30
6-min walk test, meters, median, [1Q;3Q]	540 [460;589]	485 [440;508]	0.093	30
30-sec sit to stand test, median, [1Q;3Q]	11.0 [10.0;16.0]	10.0 [9.00;12.0]	0.194	30
Overall handgrip strength, median, [1Q;3Q]	30.1 [24.9;32.4]	31.5 [23.1;41.9]	0.604	30
Females Handgrip strength, median, [1Q;3Q]	26.6 [24.6;30.1]	25.1 [23.0;27.7]	0.814	15
Males Handgrip strength, median, [1Q;3Q]	33.7 [31.9;36.0]	33.2 [31.5;42.0]	0.724	15
Symptom/problem list, median, [1Q;3Q]	86.4 [82.2;93.2]	81.8 [60.8;85.2]	0.022	30
Effect of kidney disease, median, [1Q;3Q]	87.5 [79.7;96.7]	75.0 [63.7;82.8]	0.028	30
Burden of kidney disease, median, [1Q;3Q]	75.0 [59.4;90.6]	56.2 [28.1;68.8]	0.114	30
SF-12 Physical composite, median, [1Q;3Q]	51.1 [38.6;53.5]	39.2 [33.3;43.8]	0.036	29
SF-12 Mental composite, median, [1Q;3Q]	54.6 [41.8;57.3]	54.4 [42.2;57.9]	0.861	29
Number of days attended, median, [1Q;3Q]	. [.;.]	14.5 [12.0;20.5]	.	14

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Results – Change in 6MWT and HGS

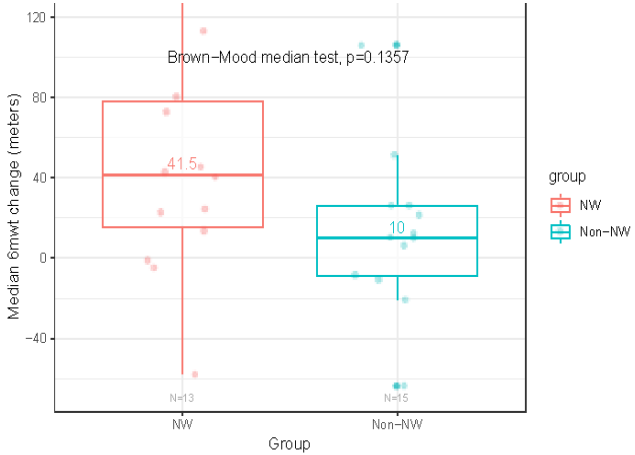

Figure 1. 6-min walk test (6MWT) change from pre to post between groups.

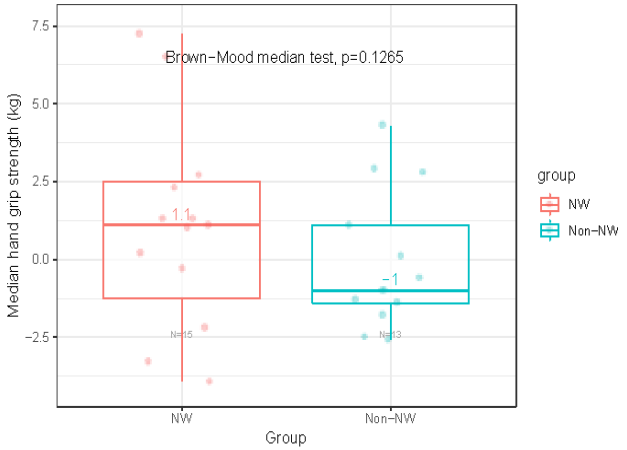

Figure 2. Handgrip strength from pre to post between groups.

- NW group = median 41.5m increase in 6MWT; 95% CI [-3.0, 89.0]
- non-NW group = median 10m increase
- clinically meaningful improvement = 14.0 - 30.5m (Bohannon, 2017)
- <350m 6MWT = 2.82-fold increased risk in mortality in CKD (Roshanravan, 2017)
- 11% reduced risk in mortality for every 20m improvement (Torino, 2014)

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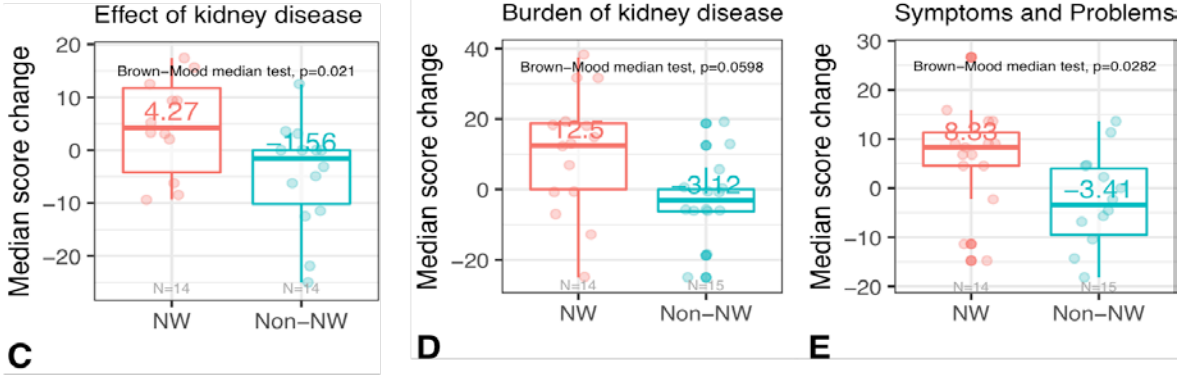
Results – Change in Quality of Life



Figures C-E. Change in Quality of Life Domains of KDQOL-36 questionnaire.

- walking makes me enjoy life because I go out more
- mood lifted because of the consistency of walking twice a week with a group
- easier to do things; increased flexibility; slimmer waist circumference
- reduced stress, better posture and balance
- sleeping less, breathing better
- arthritis pain in hips & legs resolved
- I seem to walk faster
- more aware of the need to move
- increased confidence
- more energy more often
- feel improved

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Discussion

- Missing analysis showed 93% data present
- The NW group tended to have better results (i.e., 6MWT and QoL), despite appearing less healthy at baseline
- The most frail are probably those most in need of physical rehabilitation as part of their clinical care (Kosmadakis, 2010)
- Post-hoc correlational analyses showed the non-NW group appeared to have greater daily steps, despite not undertaking the NW program
  - NW = 7857 steps; non-NW = 8083 steps *(Interpret with caution!)*
- No correlation between attendance and better outcomes
  - 23 NW sessions; median attendance = 14.5 [12-20.5]

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Discussion – Next steps...

Dissemination plan/KT Approach

- Newsletters (i.e., Care Connection, allied health associations, PHC Communications – internal & external)
- General and targeted social media (i.e., BC Renal Agency, Kidney Foundation of Canada, Urban Poling)
- Conference abstracts and poster presentations

Feasibility and Sustainability

- New funding for a PT to lead the Renal NW program at SPH
- Explore partnerships with others
- Invite UBC student volunteers to get involved in rehab

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Acknowledgements

- **PHC Practice-based Research Challenge competition:** funding the study
- **St. Paul's Foundation:** funding NW Toolkits for study participants
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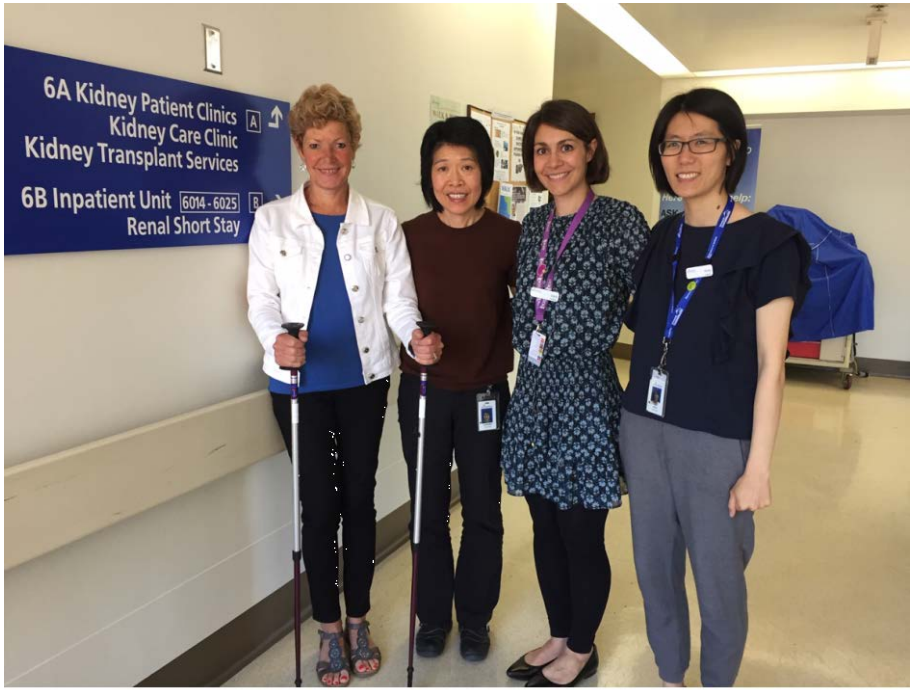
- **Research Methodologist (CHEOS):** Sameer Desai
- **Mentors:** Sandra Squire, PT MRSc; Alison Hoens, MSc BScPT
- **Volunteers:** UBC students, PHC staff, and participants
- **PHC Renal Leadership:** allocating funding to continue the Renal NW program for patients

Questions?



St. Paul's renal program physiotherapist Susie Neufeld and dietitians Leonora Chao, Dani Renouf and

Let's walk and roll

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