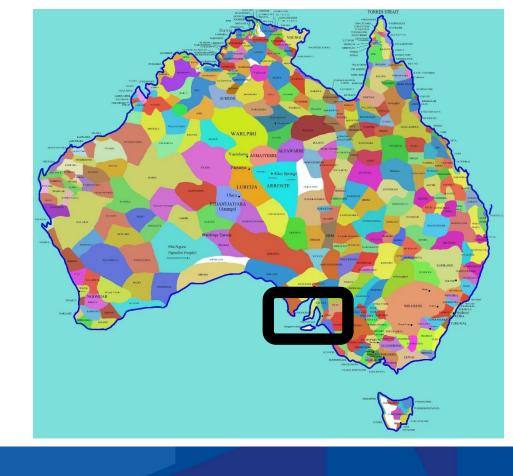


# Physical Activity and Exercise: Policy Considerations for Sustainable Change

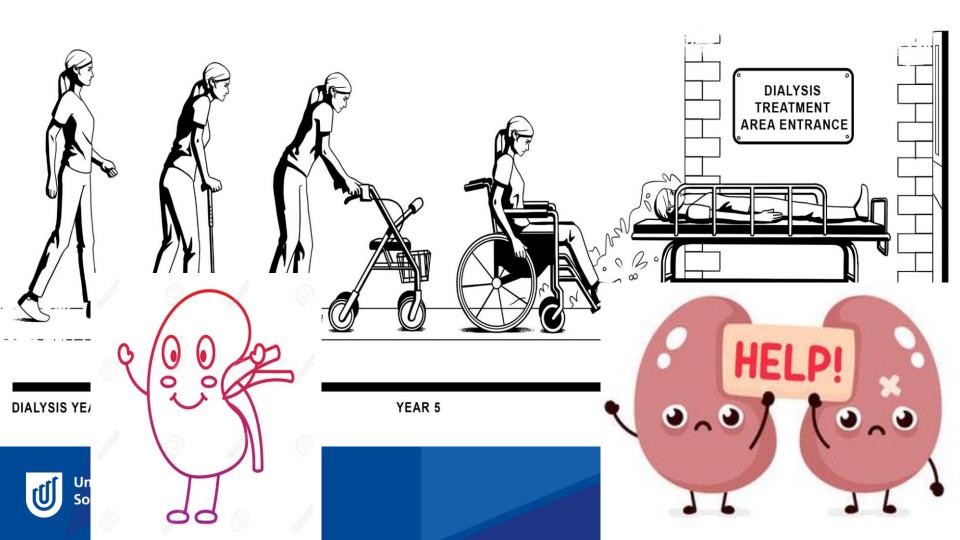
**Paul Bennett** 







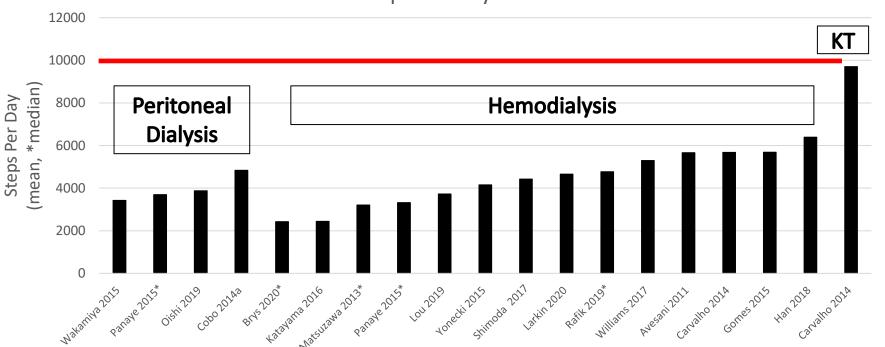




# **Inactivity in Kidney Disease**

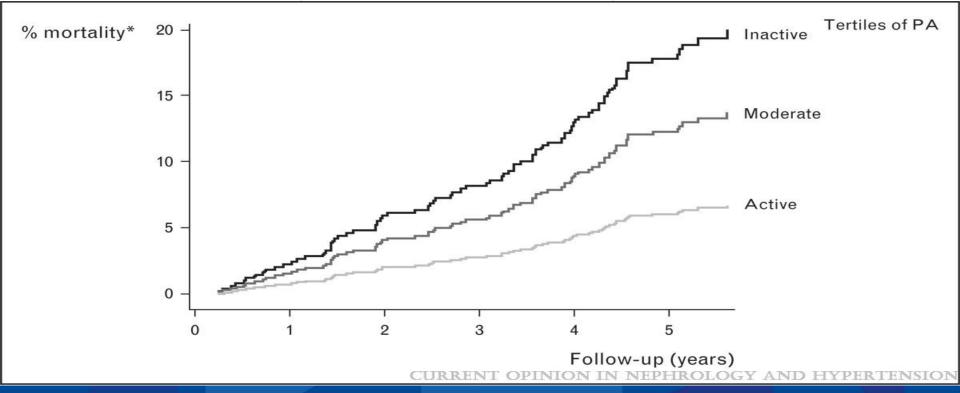


Steps Per Day





# **Inactivity and Mortality in KT**







Identification of barriers and benefits to exercise and influence on physical activity levels in dialysis patients



Haemodialysis (HD)



Peritoneal dialysis (PD)



Dialysis Patientperceived Exercise Benefits and Barriers Scale (DPEBBS)

**General Practice Physical Activity** Questionnaire (GPPAQ)



11% HD 14% PD Physically active



## **Tiredness**

Most commonly reported barrier

% HD > % PD

Reported exercise ...

...reduces body pain

...delays decline in function

...improves quality of life

More likely to be Inactive if reporting the following barriers to exercise:

Other comorbidities

or 3.9

Burden on family or 3.2

Fear of falling OR 2.1

Lack of exercise knowledge or 1.9

### Less likely to be Inactive

(i.e. more likely to be active) if reporting the following benefits to exercise:

Lead an optimistic and active life

or 0.3

**Enhances self-care abilities** og 0.3

**Conclusions** Dialysis patients perceive several barriers which may prevent them from engaging in physical activity. Addressing these barriers may be key to increasing participation in physical activity and exercise.

Lightfoot CJ et al. Perceptions of exercise benefits and barriers: the influence on physical activity behaviour in individuals undergoing haemodialysis and peritoneal dialysis. Journal of Nephrology

# Exercise is all about behaviour change



# Do people on dialysis want to exercise?





An Exercise Program for Peritoneal Dialysis Patients in the United States: A Feasibility Study

66% completed 3 months exercise

70% continued exercise at 3 months post

# But it's not just about the bike person with CKD



# But how do we change behaviors AND ensure sustainability?



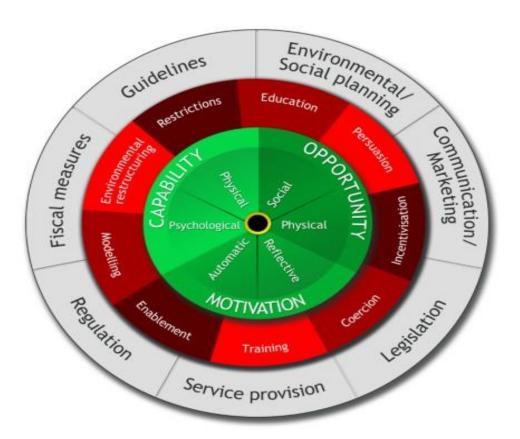


# The Behavior Change Wheel



Intervention functions

Policy categories

















# **Behaviour**







Intervention aspects that influence sustainable change



# Environmental Social planning Guidelines Fiscal measures Narketing Regulation Legislation Service provision

# Policy Strategies for Sustainability



# **Funding**

- Mandate funding-linked exercise and physical activity metrics
- Increase and improve physical disability diagnostic coding
- Fund renal exercise professionals

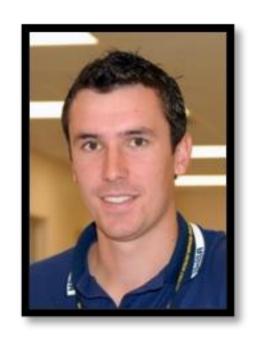






## **Service Provision**

- Integrate appropriate clinical algorithms that include tailored exercise prescriptions and clinical safety reviews
- Nationwide policies that mandate the opportunistic delivery of consistent and concise healthy lifestyle information
- Integrate cost-effective renal exercise professional models of care
- Include exercise and physical activity education in undergraduate and graduate renal professional training programs







# Regulations and Legislation

- Support policy that endures liability cover for health professionals supporting increased physical activity
- Decrease risk by introducing stratified activity risk assessment
- Develop an education and accreditation process for renal exercise professionals







## **Guidelines and Research**

 Advance the idea of a global clinical renal exercise and physical activity research consortium into reality



- Creating documents that recommend or mandate practice
- Producing and disseminating protocols, guidelines and recommendations





# Physical Activity and Exercise in Patients on Peritoneal Dialysis: ISPD/ GREX Recommendations







Clinical practice points were developed from the perspective of patient partner questions followed by consensus of expert patient partners, nephrologists, nephrology nurses, allied health, exercise clinicians and researchers. Clinical guidance is required from multiple sources regarding exercise and activity advice to address the specific needs of people receiving peritoneal dialysis.

Bennett PN, Bohm C, Harasemiw O, et al. *Physical Activity and Exercise in Peritoneal Dialysis: International Society for Peritoneal Dialysis and the Global Renal Exercise Network Practice Recommendations*. PDI 2021-00173.R1

Visual Abstract by Edgar Lerma, MD

# **Swimming and Peritoneal Dialysis**



### **Practice Points**

- Swimming or other water sports should preferably take place in either sea water or swimming pools that are known to be well maintained (private or municipal). (2D)
- Avoid swimming in open water directly after storms to limit exposure to water-borne pathogens. (2D)
- A clear waterproof dressing or colostomy bag can assist the catheter and exit site from getting wet during bathing or swimming. (2D)
- We recommend that routine exit-site care should be performed after swimming and water sports. (1C)





## **Environmental and Social**

- Design fitness areas into outpatient and dialysis centers
- Design and store exercise equipment to maximize staff and patient safety
- Develop and coordinate policy-supported, funded group physical activity and exercise programs

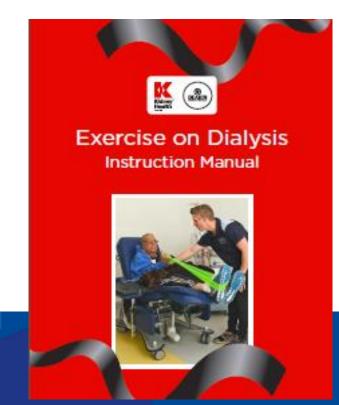




# **Communication and Marketing**



- Encourage local, regional, national and global nephrology associations to collaborate with rehabilitation and exercise professional organizations
- Lobby government, policymakers, and health-care providers to include patient voices in policy initiatives

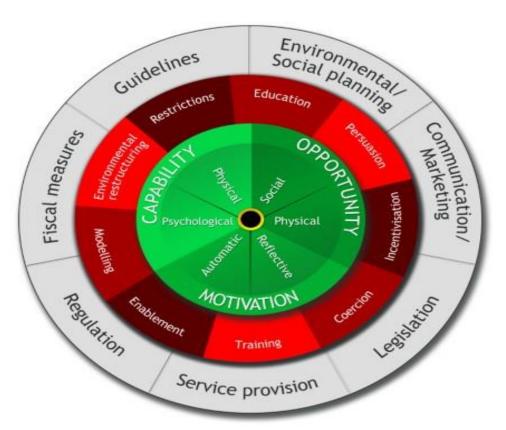


# The Behaviour Change Wheel













# Environmental Social planning Guidelines Fiscal measures Narketing Regulation Legislation Service provision

# Policy Strategies for Sustainability



### Behaviour Change Wheel

DOI: 10.1111/sdi.12787

#### **EXERCISE AND PHYSICAL ACTIVITY** IN DIALYSIS PATIENTS

Guest Editors: Paul Bennett, Kenneth R. Wilund and Stephanie Thompson

Barriers and facilitators for engagement and implementation of exercise in end-stage kidney disease: Future theory-based interventions using the Behavior Change Wheel

Amy L. Clarke<sup>1</sup> | Manisha Jhamb<sup>2</sup> | Paul N. Bennett<sup>3,4</sup>

<sup>1</sup>Unit of Academic Primary Care, Division of Health Sciences, Warwick Medical School, University of Warwick, Coventry, UK <sup>2</sup>Department of Medicine, Renal-Electrolyte

Division, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania

3Satellite Healthcare, San Jose, California

<sup>4</sup>Deakin University, Melbourne, Vic., Australia

Amy L. Clarke, Unit of Academic Primary Care, Division of Health Sciences, Warwick Medical School, University of Warwick,

Fmail: Amy I. Clarke@warwick.ac.uk

#### Abstract

Theory-driven interventions are required to increase the adoption and implementation of physical activity and exercise programs among patients with ESKD. The Behavior Change Wheel (BCW) represents a synthesis of behavior change theories and can be used to aid the systematic development of theory-driven interventions designed to change exercise behavior. The goal of this review was to synthesize barriers and facilitators to engagement and implementation of exercise and develop theory-based recommendations for exercise behavior change interventions in patients with ESKD. We applied the BCW in the current context of exercise for ESKD patients and conducted an analysis of patients' and health care professionals' (HCPs) capabilities, opportunities, and motivations to engage or promote exercise, respectively. Our analysis identified a number of salient barriers that could be targeted via intervention to increase levels of physical activity and exercise. Intervention functions identified as most likely to change patient behavior included training, enablement, education, restructuring environment, persuasion, modeling, incentivizing, and coercion. Similarly, intervention functions most likely to change HCPs behavior for exercise promotion included training, modeling, education, environmental restructuring, persuasion, and incentivizing. We also considered potential overarching policy changes required to support these interventions. Our findings provide

## **Policy Consensus Statement**

#### ORIGINAL RESEARCH

#### **Global Policy Barriers and Enablers to** Exercise and Physical Activity in Kidney Care

```
Paul N. Bennett, MHSM, PhD,*'† Masahiro Kohzuki, MD, PhD,‡ Clara Bohm, MD, MPH, FRCPC,§
Baback Roshanravan, MD, MS, MSPH, FASN, Stephan J. L. Bakker, MD, PhD,**
João L. Viana, PhD, †† Jennifer M. MacRae, MSc, MD, ‡‡ Thomas J. Wilkinson, PhD, §§
Kenneth R. Wilund, PhD. Amaryllis H. Van Craenenbroeck, MD. PhD.
Giorgos K. Sakkas, PhD, ††† Stefan Mustata, MD, ‡‡‡ Kevin Fowler, BS, §§§ Jamie McDonald. PhD. ¶¶
Geovana Martin Aleamany, PhD,**** Kirsten Anding, MD,†††† Keith G. Avin, PhD, DPT,‡‡‡‡
Gabriela Leal Escobar, SCN, SSSS Iwona Gabrys, MKin, TIII Goth, MSW,*****
Myriam Isnard, MD, MSc, ††††† Manisha Jhamb, MD, MPH, †††† Jun Chul Kim, MD, PhD, $5555
John Wing Li, MBBS, MM(Clin Epi), FHKAM, TTT Courtney J. Lightfoot, PhD, 55
Mara McAdams-DeMarco, PhD,***** Fabio Manfredini, MD, PhD,†††††
Anthony Meade, BSc, MND, Stig Molsted, PhD, SSSSSS Kristen Parker, MKin. 19999
Eva Seguri-Orti, PhD,****** Alice C. Smith, PhD, Nancy Verdin, BScOT, ++++++
Jing Zheng, PhD, ###### Deb Zimmerman, MD, MSc, SSSSSSSS
Stephanie Thompson, PhD, MD, $155555 and on behalf of the Global Renal Exercise Network (GREX)
```

```
*Medical and Clinical Affairs, Satellite Healthcare, San Jose, California.
```

<sup>&</sup>lt;sup>†</sup>Clinical and Health Sciences, University of South Australia, Adelaide, South Australia, Australia,

<sup>\*</sup>Department of Internal Medicine and Rehabilitation Science, Tohoku University Graduate School of Medicine, Sendai City, Japan.

SUniversity of Manitoba, Winnipeg, Canada.

University of California Davis, Davis, California,

<sup>\*\*</sup> Department of Internal Medicine, University Medical Center MC Groningen, University of Groningen, Groningen, the Netherlands.

<sup>&</sup>lt;sup>††</sup>Research Center in Sports Sciences, Health Sciences and Human Development. University Institute of Maia, Maia, Portugal,

<sup>\*\*</sup>Cumming School of Medicine, University of Calgary, Calgary, Alberta.

<sup>&</sup>lt;sup>55</sup>Department of Health Sciences, University of Leicester, Leicester, UK. 11 Department of Kinesiology and Community Health, University of Illinois

at Urbana-Champaion, Champaion, Illinois,

<sup>\*\*\*</sup>Department of Nephrology, University Hospitals Leuven, Leuven,

Belgium.

111 Cardiff Metropolitan University, Cardiff, UK and University of Thessaly,

<sup>\*\*\*\*\*\*\*</sup>University of Pittsburgh, Pittsburgh, Pennsylvania.

<sup>\$\$\$\$\$</sup>Division of Nephrology, Department of Internal Medicine, CHA Gumi Medical Center, CHA University, Gumi, Republic of Korea.

<sup>1999</sup> Renal Medicine, Nepean Hospital, Katoomba, New South Wales,

Australia.

Johns Hopkins University, Baltimore, Maryland. 111111 Department of Biomedical Sciences and Surgical specialties, University of

<sup>\*\*\*\*\*\*\*\*</sup>Royal Adelaide Hospital, Adelaide, Australia.

<sup>\$\$\$\$\$\$</sup> Nordsjaellands Hospital, Hillered, Denmark.

<sup>111111</sup> Alberta Kidney Care - South, Calgary, Alberta, Canada.

<sup>\*\*\*\*\*\*\*</sup> Department of Physiotherapy, Universidad Cardenal Herrera-CEU, Alfara del Patriarca, Valencia, Spain.

<sup>1111111</sup> University of Alberta, Red Deer, Canada.

hou, P.R. China.

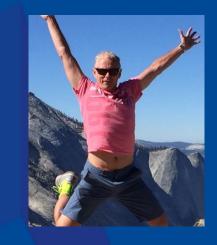
<sup>\$\$\$\$\$\$\$</sup>Ottawa Hospital, Ottawa, Ontario, Canada.

<sup>1111111</sup> Department of Medicine, University of Alberta, Edmonton, Canada. Funding Disclosures: B.R. acknowledges funding from the National Institutes





Thank you





GREX – <a href="https://grexercise.kch.illinois.edu/">https://grexercise.kch.illinois.edu/</a>
We acknowledge Satellite Healthcare's funding to assist GREX activities.