

Additional file 5- Authors' Contributions and Information

Authors' Contributions

Pedro Braga Neto (PBN) conceptualized the project and obtained funding. Danielle Pessoa Lima (DPL), Samuel Brito de Almeida (SBA), and Janine de Carvalho Bonfadini (JCB) were involved in the project design. DPL and JCB will be involved with the project implementation. Emmanuelle Silva Tavares Sobreira (ESTS) will provide supervision of the collection of outcomes. SBA will be involved in the exercise intervention with Vlademir Carneiro Gomes (VCG). Lidiane Andréa Oliveira Lima (LAOL) supervised SBA in the development of the exercise protocol with elastic devices. Patrícia Gomes Damasceno (PGD) will apply neurological scales and also interpret polysomnography. Manoel Alves Sobreira Neto (MASN) will be involved with analysis and interpretation of the data. Antonio Brazil Viana Júnior (ABVJ) will provide the statistical analysis of the data and randomization.

Madeleine Sales de Alencar (MSA), João Rafael Gomes de Luna (JRGL) will coordinate the recruitment of patients with the eligibility criteria. Joseph F. Signorile (JFS) helped with project design, statistical design and exercise intervention design. All authors will help to draft the manuscripts, and all will read and approve the final versions.

André Luis de Castro Gadelha (ALCG) will be responsible for monitoring the intervention regarding the recording of frequency, side effects and vital signs.

Pedro Gustavo Barros Rodrigues (PGBR) and Isabelle de Sousa Pereira (ISP) will record the results of the outcomes in the redcap.

Érica Carneiro Barbosa Chaves (ECC) will collect physical performance, body composition and other questionnaires.

Thatiara Almeida de Macedo Costa (TAMC) and Rayane Rodrigues Monteiro (RRM) will organize the health education meetings.

Authors' Information

PBN is Associate Professor of Neurology at Universidade Federal do Ceará (UFC) and Universidade Estadual do Ceará (UECE). He completed his doctoral degree in 2011 by investigating non-motor aspects of Machado-Joseph disease including: cognitive and olfactory deficits and their correlation with functional and

molecular neuroimaging exams. He is interested in the effects of exercise on motor and non-motor symptoms of Parkinson Disease (PD). He heads the Neurologic Service of Hospital Universitário Walter Cantídio of UFC. He provides mentorship for DPL, SBA and JCB on several projects on PD.

DPL is a geriatrician at Hospital Universitário Walter Cantídio of UFC and a lecturer in Medical School in Universidade de Fortaleza (UNIFOR). She received a master's degree in Collective Health from University of Fortaleza. She is currently pursuing a doctoral program in Medical Sciences of UFC.

SBA is a physical education researcher interested in functional physical performance in people with PD. He completed a master's degree at the Medical Sciences of UFC. He is currently pursuing a doctoral degree in Medical Sciences of UFC.

JCB is a neuropsychologist at Hospital Universitário Walter Cantídio of UFC. She is currently pursuing a master program in Medical Sciences of UFC.

MASN is Associate Professor of Neurology at UFC and neurologist specializing in Sleep Medicine and Clinical Neurophysiology. He received his/her PhD in Neurology at Universidade de São Paulo and is a professor of Neurology at UFC. His area of research is sleep irregularities related to PD and has published a number of papers in this area.

ESTS is neuropsychologist with experience in PD. She completed a PhD in Neuroscience at Universidade de São Paulo. She is currently a researcher in the Faculty of Medicine of UFC. Her research concerns sleep and cognition in PD and she has published multiple papers on this topic.

PGD is neurologist specializing in Neurophysiology. She received her Master's Degree in Neurology at Universidade de São Paulo. She is an attending physician at Hospital Universitário Walter Cantídio of UFC.

LAOL is Physiotherapist, Specialist in neurological physiotherapy, Master and PhD in Rehabilitation Sciences from the Universidade Federal de Minas Gerais (UFMG). She is currently an adjunct professor at the UFC in an exclusive dedication regime, based in the Department of Physiotherapy and also an advisor professor in the Master's course in Physiotherapy and Functionality at UFC. Has experience in Physiotherapy, acting on the following subjects: Parkinson's disease, Stroke, muscular and functional performance, postural control and cardiorespiratory conditioning

JFS is a full professor at the University of Miami. He has over 100 articles on exercise and biomechanics, ten of which concentrate exercise interventions and biomechanics in Parkinson's patients. His book, *Bending the Aging Curve: The Complete Exercise Guide for Older Adults*, was published in 2011 and has been translated into Cantonese, Korean and Italian. His recent interests include the application of exercise to improve cognition in older individuals and those with PD. JFS completed his doctorate in Exercise Physiology at Texas A&M University in 1990 and have been on the Faculty of the Department of Kinesiology and Sports Science for 30 years.

MSA works as Geriatrician at the Hospital Geral Dr César Cals and as Physician of the Palliative Care team and of the Rapid Response Team at the Hospital Geral de Fortaleza. She is a lecturer in Medical School in Centro Universitário Unichristus and is master's student in Physiotherapy and Functionality at the UFC and Post-graduate student in Palliative Care and Bioethics at the Universidade de Fortaleza.

JRGL finished medical school at UFC (2015). He attended his first residency program in Internal Medicine at Hospital Geral de Fortaleza (2016-2018) and finished his second residency program in Geriatrics at Hospital Universitário Walter Cantídio in February 2020.

ABVJ is graduated in Statics from UFC. He is specialist in public management at Faculdade Estácio. He completed a master's degree at Clinical Research at

Hospital das Clínicas de Porto Alegre da Universidade Federal do Rio Grande do Sul.

ALCG is a 10th semester psychology student of UNIFOR.

PGBR and ISP are medical students from the eighth semester of the UFC.

VCG is a physical education professional graduated from the Universidade Federal da Paraíba.

TAMC is graduated in Nutrition from Faculty Estácio do Ceará.

RRM is an eighth semester nursing student at Universidade Estácio do Ceará.