







# **GRAPHOSCOPIC EVALUATION AFTER A FINE MOTOR SKILL REHABILITATION**

## PROGRAM IN PARKINSON'S DISEASE - EXPLORATORY STUDY

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01	INTRODUCTION		02 MATERIALS AND METHODS						
	Legal documents signed by individuals with Parkinson's disease, are often		Registrat	Procedu ion: <u>www.cli</u>	Ires	<u>ov</u> > 10	<b>Study</b> participants	Sample from <i>Clínic</i>	a de
exect	Ited due to inconsistencies in their signature when compared to those uted prior to the onset of the disease [1]. This neurological disorder can lead		(NCT06693	401) approval:	Egas Moi	niz ≽ Subi	<i>terapia Egas I</i>	<i>Noniz</i> onsent forms	s after
to pro which	ogressive alterations in handwriting due to bradykinesia, tremor and rigidity, I limit movement, contribute to muscular pain, and compromise the control of		Scientific	Council		info	mation of prot	ocols & condi	itions
fine r focus	notor skills [2]. Rehabilitation programmes for Parkinson's disease typically s on the lower limbs to improve gait and prevent falls. However, these		committe	e (protocol co	etni de 1171/2023).	cs ≻ Data diss	collected, eminated anon	processed ymously	and
indivi	duals also face other daily challenges with potential legal implications		Rehabilitation Program						
involv	ving the control of fine motor skills (such as handwriting and preserving their	Fiq	gure 1. Pilot study	s rehabilitation progra	Subjects	• AII	narticinante wo	_ 1 <sup>st</sup> Sample (t0)	to

10 participants:

graphic identity.

graphic facility.		• 4 in the Interv	vention Group (IG)	Portugueso:					
	Aim		• 6 in the Cont	rol Group (CG)	1. Frederico likes to ti 2. The old man looks	ravel. tired.			
The main obj	jective of the present wo	rk was to evaluate the		Intervention	2 <sup>nd</sup> Sample (t1)	Comparison			
effect of a 12-	week fine motor skill rel	nabilitation program on	<ul> <li>All participants underwent the conventional physiotherapy rehabilitation program</li> <li>All participants samples to and were instructed</li> </ul>						
the handwriting	g of individuals with Parki	nson's disease.	<ul> <li>IG subjects we fine motor rehabilitation p</li> </ul>	ere submitted to a abilitation program.	to rewrite the same sentences.	a graphoscopic analysis.			
03	RESULTS		04	CONCL	USIONS				
The main ch	nanges were observed on fe	eatures such as tremors,							
Table 1. Results of the comparisor	ns of IG and CG handwriting features after the fine moto	or rehabilitation program							
Groups Features	Intervention Group - IG	Control Group - CG	These	preliminary results	s suggest that in	dividuals with			
<u>Tremors</u>	Decreased	Increased	Parkinson's	s disease engaging	in a handwriting	j rehabilitation			
<u>Retouching/</u> Overwriting	General decrease	Inconsistent (no changes, decrease and increase)	program c	an improve their	graphomotor skil	ls, which will Is recovery as			
<u>Size</u>	Inconsistent (decrease and increase)	Increase	well as thei	r graphic identity.	nanaming oni				
Pen Lifts	Mostly no changes	Mostly no changes							
Calligraphic box	Sinuous	Sinuous	In futui	re work, a larger sa	mple size would l	be desirable to			
	Inconsistent	Inconsistent	validate the	ese results and to	enhance the char	acterization of			
Baseline	(horizontal, descending and ascending)	(horizontal and descending)	variability i	n Parkinson's disea	se handwriting.				
Slant	Mostly mixed	Mostly mixed							
<u>Overall</u> <u>Appearance</u>	Better legibility and execution of the letters	Worse legibility, more confused							

write

the following sentences

in

References: 1. Hilton, O. (1977). Influence of age and illness on handwriting: identification problems. Forensic Science, 9, 161-172. https://doi.org/10.1016/0300-9432(77)90087-5; 2. Caligiuri, M. P., & Mohammed, L. A. (2012). The neuroscience of handwriting: Applications for forensic document examination. https://doi.org/10.1201/b11703

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