



USE OF DRONES WITH VIRTUAL REALITY-APPLICATION FOR IMMOBILE PATIENTS

**An analysis of the impact on life
quality**

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Initial situation

- **High incidence and prevalence of paraplegia**
 - Need for action in prevention, treatment and dealing with incurable movement impairments
- **Advancing digitalisation**
 - constant integration of new technologies into medicine is inevitable

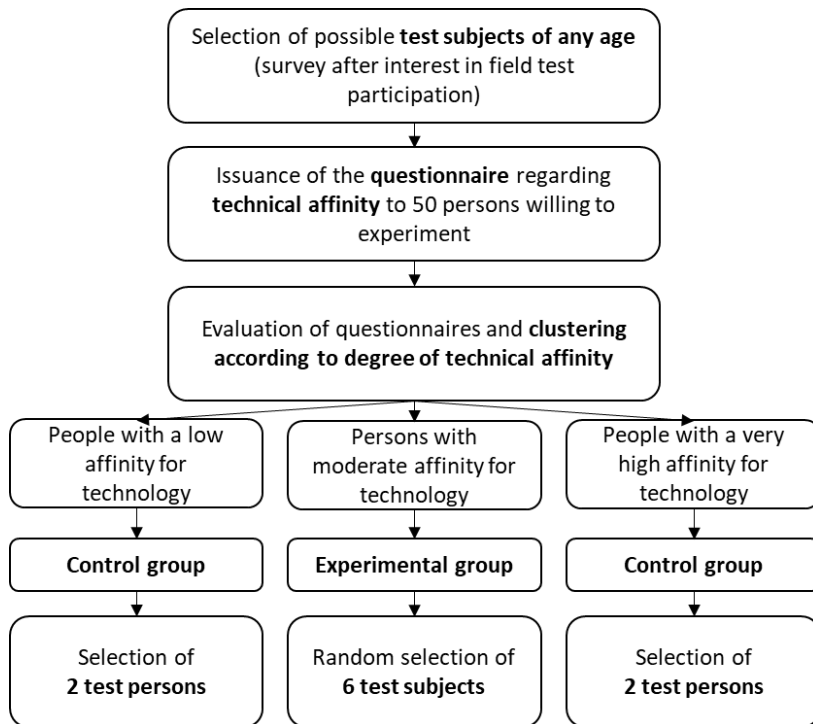


Research question

Can the use of **drones** in combination with **virtual reality glasses** lead to an increase in the **quality of life** of immobile patients?



Preparation



Drone



Parrot Mambo FPV

- ❖ Quadrocopter
- ❖ 18 x 18 cm
- ❖ 73 grams (including camera)
- ❖ Up to 30 km/h



Performance of the field test



❖ Test environment:

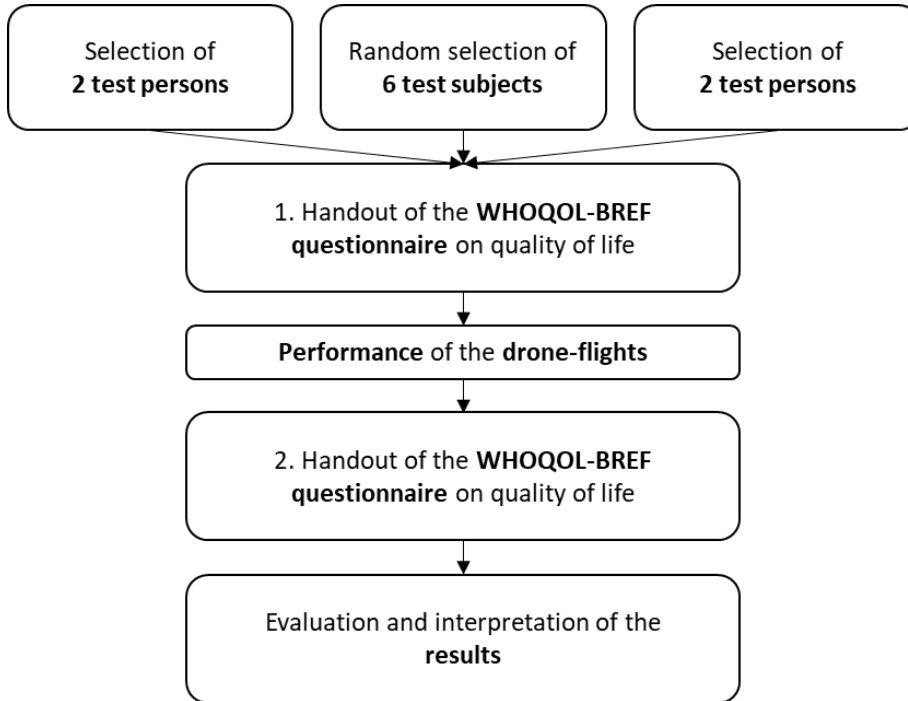
- Drone flight on outdoor areas
- Person in the passenger seat of a car

❖ Duration: 8-10 minutes

❖ Goals:

- Simulation of immobility
- Testing of the drone and first-person-view
- Overview of the conditions of the test environment

Method of analysis



Quality of life WHO



Social Relations

- Personal relationships
- Sex life
- Practical social support

04



01



Physical Health



- Pain & discomfort
- Energy & fatigue
- Sleep & rest
- Dependence on medication
- Mobility
- Activities of daily living
- Working capacity



Environment

- Freedom, physical safety and security
- Financial resources
- Home environment
- Physical environment (pollution/noise/traffic/climate)
- Opportunities for acquiring new information and skills
- Participation in and opportunities for recreation/leisure activities
- Health and social care: Accessibility and quality
- Transport

03



02



Psychological Health



- Positive feelings
- Negative feelings
- Self-esteem
- Thinking, learning memory & concentration (cognitions)
- Body image
- Spiritual, religious & personal beliefs

Results WHOQOL-BREF



Social Relations

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Psychological Health

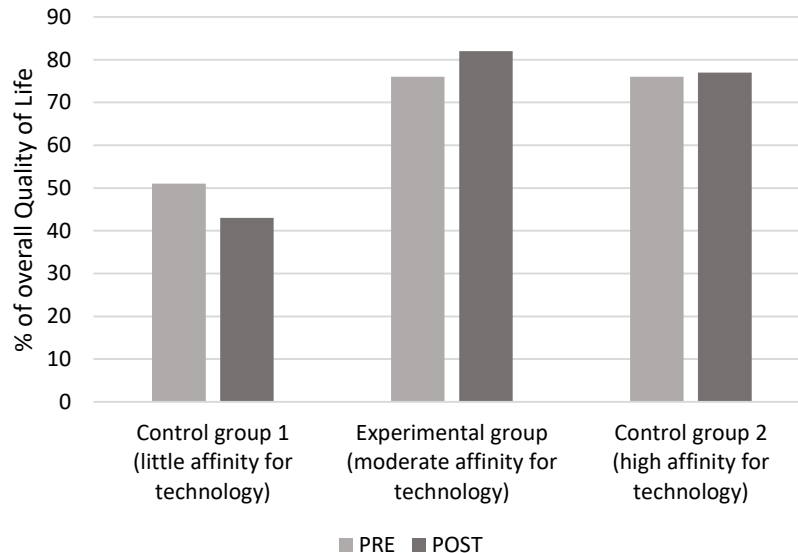


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Results WHOQOL-BREF



Impact of drones and VR technology on the level of the overall Quality of Life





Discussion

- ✓ **Improvement of the quality of life** possible
 - Moderate to high technical affinity necessary
 - Extent depending on individual weighting Quality of life aspects
- ✓ Offers **many opportunities for immobile persons**
 - Extension of mobility radius
 - Overcoming barriers
 - Maintaining social contacts
 - etc.

Outlook



- ✓ **Great future potential especially for immobile persons**
- **Further procedure:**
 - **Studies** with paraplegic persons
 - **Adaption/Change** of technical components
 - Further **control options**

“

***„We cannot direct the wind.
But we can adjust the sails.”***

Aristotle





Core literature

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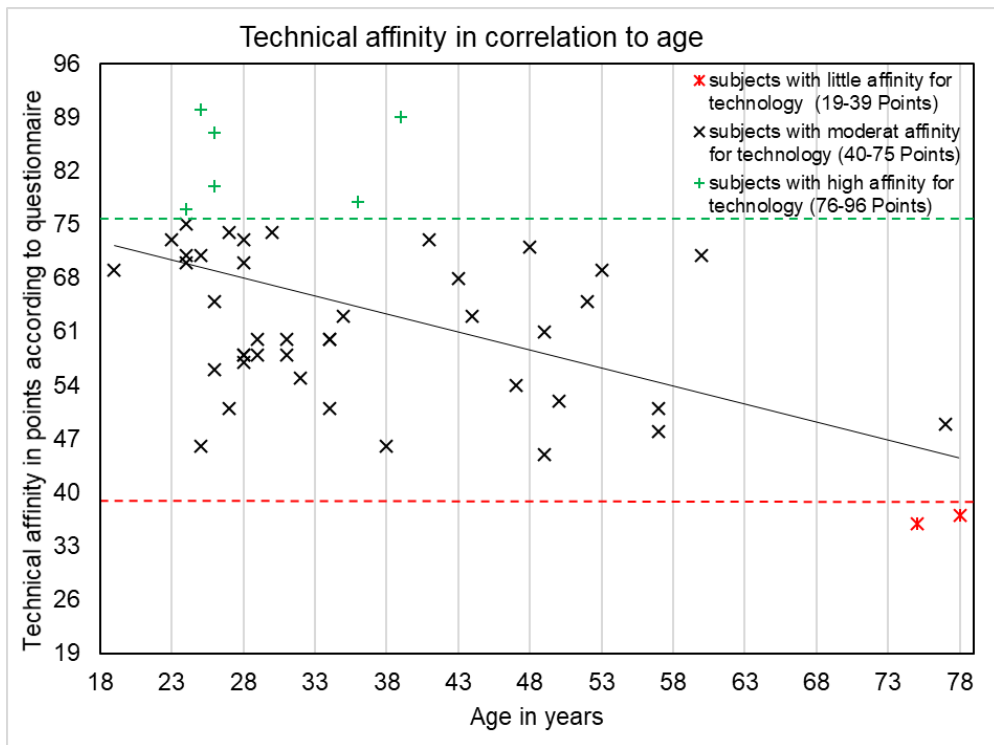
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Number of children	Frequency
0	2
1	4
2	3
3	2



Results WHOQOL-BREF



		Overall Quality of Life		
Group	Test person	Pre	Post	Difference
Control group 1 (little technical affinity)	Test person No. 1	50	38	- 12
	Test person No. 2	53	47	- 6
Test group (moderate technical affinity)	Test person No. 3	76	80	+ 4
	Test person No. 4	63	76	+ 13
	Test person No. 5	76	77	+ 1
	Test person No. 6	92	95	+ 3
	Test person No. 7	70	76	+ 6
	Test person No. 8	80	84	+ 4
Control group 2 (high technical affinity)	Test person No. 9	84	81	- 3
	Test person No. 10	68	72	+ 4