

A. Exemplifying the patient interface – a tutorial presenting the motion required to the patient to perform, used at the beginning of the VR therapy or of every session



B. "Piano", an exergame for shoulder abduction performed with a weight on the wrist and a dumbbell in the hand



C. VR therapy for bilaterally training arms on different paths

ASSESSMENT TOOLS		Elbow Flexion			
COGNIGAMES FULL SCHEDULES	1	▶ Tworks) The arm should be kept close to the body. The exercise consists of raising the hand towards the chest, by bending the elbow. Can improve flexibility and strength.	l	MOVE	Move ( Itestial Before each game round, the player will see an image on the screen, with some missing items. After the image disappears, they will see each missing item at the beginning of a path. The player will have to norw the item alongide the path, without stopping any sections, towards the end of the path. When the end is created, the player will have to hold the first norm for serves.
intoived body rare					
Upper Limbs Lower Limbs Neck Shoulder Elbow Full Body Spine (Hip Knee		Elbow Flexion in Abduction Tourid The arm should be kept in a 90° abduction, with the elbow in a 90° flexion. The exercise consists of a movement of the hand towards the shoulder, by bending the elbow. Can improve flexibility and strength.		IZZY THE BEE	Izzy the bee       ( b findid)       The player will have to help Izzy in her quest to make honey. The objective is to gather pollen and nectar from flowers and then deposit them to bee hires which will produce honey. The player will have to make sure to avoid bugs or other perils who will steak what they have gathered.
[-] ONLY SHOW SELECTED	0	General - Arm			
Movement Type All values [+] SHOW ALL	+	( Fronte) The arm should be relaxed. The exercise involves moving the arm, and bending it if needed to, in order to follow the objectives in the associated game. Can improve flexibility, strength, coordination and function		FOLLOW	Follow           Follow           The objective is to follow a colored rectangle that moves randomly on the screen. The longer the player stays inside the rectangle, the higher the volume of the music inside the game will go.
		Caparal Shoulder			
	+	General - Shoulder The arm should be held straight. The exercise involves moving the arm, while keeping it straight, in order to follow the objectives in the associated game. Can improve flexibility, strength, coordination and function.		САТСН	Catch           ( Insula)           The objective is to catch different objects that appear on the screen. They can move or stand still, but will always disappear in a few seconds, so the player will have to make sure to catch them while they can.
SAVE FILTERS	ो	Shoulder Abduction  (F Toroid)  The arm should be kept close to the body. The exercise consists of raising the arm away from the side, keeping it in a straight line with the body. Can improve flexibility and strength.	¥	ATLANHIS	Atlantis ( Treated ) The player will have to pilot a submarine through the depths of the ocean. The objective is to study certain artefacts that appear in the claver's iourner, while avoiding underwater mines or other certis that may cross their path.

D. Selecting types of motions (in the left column) and types of the compatible exergames (in the right column)



E. Types of exergames within the VR therapy

	ITEM SETTIN	NGS					*
	GENERAL						+
	Item duration 2	minutes	- sec	conds			
*	MOVEMENT			GAME			
N	Side	Right	•	Difficu	Ity Medium		• II
	Tolerance	20 %					
	Min Range	0 %					
Ŕ	Max Range	80 %	-				Ţ
(	SAVE CHANGES						
Ť	FIREFLY	Space S	hip 1	GRAB	<b>1</b>	Music Box	1
Gam	ne Tutorials 📃 Trial S	ession MORE	SETTINGS				
+ © CA	X II PAUSE 15 SECONDS	9 2m	× PAUS 15 SECOND	s Cam	× ANIMALS	II PAUSE 15 SECONDS	P+ ®

F. Types of MIRA adjustments: time, side of the limb (right, left or both, exergame-tailored), tolerance, motion amplitude (as min. and max. Range), and difficulty

Sample Schedules User created Schedules	User created Schedule added on: 1/28/2020 EX Intern2	BS +	ITEM SETTINGS GENERAL Item duration 3 minutes -	×	
	User created Schedule added on: 1/29/2020 ROM Initial	BS BANGE OF MOTION	MOVEMENT Side Left • Tolerance 20 %	GAME Difficulty Medium Enemies Yes	•
	User created Schedule added on: 3/18/2020 18 mar 2020	ROM 2	Min Range 0 %	Area Down	•
DELETE SCHEDULE	User created Schedule added on: 3/18/2020 18.03	ROM 2	SAVE CHANGES CANCEL		
REHAB SCHEDULE Duration	Ani: 32 minutes Company PAUSE SECOND	Alibration X Movement Tutorials X G	Arme Tutorials Trial Session MORE SETTINGS	TAUSE 20 Condo	O 3m X PAUSE 20 IZZY THE BEE

G. Adjustments within/Setting a specific exergame, "Izzy the Bee": based on the patient's needs, the therapist chooses obstacles and areas (up, down or both) for the patient to overcome when guiding a bee to collect pollen

ITEM SETTINGS	×	ITEM SETTINGS	
GENERAL Item duration 5 minutes - seconds		GENERAL Item duration 5 minutes - seconds	
MOVEMENT GAME Side Right • Di	fficulty Medium  Path General General Rotation UpDown LeftRight Diagonal	MOVEMENT GAI	ME Difficulty Medium
SAVE CHANGES CANCEL REHAB SCHEDULE Duration: 20 minutes X Calibration X OSm X MOVE PAUSE 0, 000	Wave Movement Tutorials  Som	SAVE CHANGES CANCEL Trial Session MORE SETTINGS	
	seconos		

H. In the left column is showed the setting of a specific exergame- "Move". Based on the patient's needs, the therapist can choose the game path for the patient (general, rotation, up and down, diagonal). Thereby, the patient simulates to "grab an object" and move his upper extremity according to the chosen path. Control, coordination, and isometric contraction can be trained within this exergame. This exergame can be performed with one upper extremity or both.

In the right column, are presented the adjustments can be made for shoulder abduction using the "Fishing" exergame. Within all analytical motions, the range of motion can be adjusted and should be set according to the patient's initial outcomes of the active range of motion assessment.