

Evaluation report

Patient: Verdi Luigi - (HXL1)

Session no. 79

icone
by heaxel

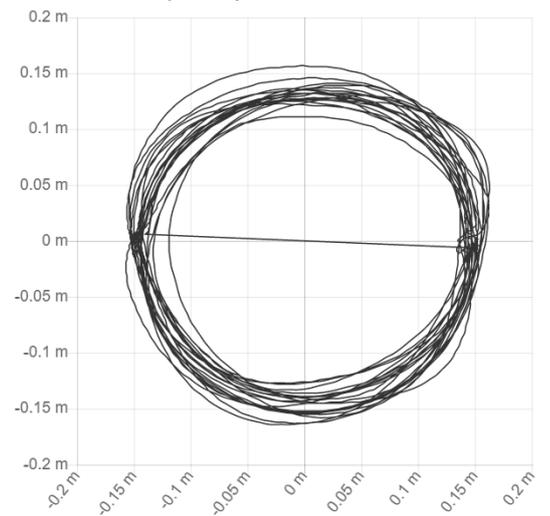
Circle Drawings (CDW)

During the Circle Drawings exercise, The patient must draw 4 sets of circles with the ICone in transparent mode (neither providing assistance nor resistance).

Related indexes:

- Independence
- Size

Trajectory



Current value of the index	Index description	Evaluation history										
Independence 0.782	It is the ratio of the minor axis to the major axis of the ellipse fitting the circles drawn by the patient. It is expected to increase as therapy proceeds (a perfect circle would have a ratio of 1.00) Higher values indicate better inter-joint coordination and synergistic control of elbow and shoulder.	<table border="1"> <caption>Independence Index Evaluation History</caption> <thead> <tr> <th>Date</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>2020-04-24</td> <td>1.28</td> </tr> <tr> <td>2020-04-24</td> <td>1.40</td> </tr> <tr> <td>2020-04-24</td> <td>1.28</td> </tr> <tr> <td>2020-06-17</td> <td>0.78</td> </tr> </tbody> </table>	Date	Value	2020-04-24	1.28	2020-04-24	1.40	2020-04-24	1.28	2020-06-17	0.78
Date	Value											
2020-04-24	1.28											
2020-04-24	1.40											
2020-04-24	1.28											
2020-06-17	0.78											
Size 0.064 m ²	It is the total area of the ellipse fitting the circles drawn by the patient. It is expected to increase as therapy proceeds It indicates improvements in the range of movement.	<table border="1"> <caption>Size Index Evaluation History</caption> <thead> <tr> <th>Date</th> <th>Value (m²)</th> </tr> </thead> <tbody> <tr> <td>2020-04-24</td> <td>0.062</td> </tr> <tr> <td>2020-04-24</td> <td>0.063</td> </tr> <tr> <td>2020-04-24</td> <td>0.061</td> </tr> <tr> <td>2020-06-17</td> <td>0.064</td> </tr> </tbody> </table>	Date	Value (m ²)	2020-04-24	0.062	2020-04-24	0.063	2020-04-24	0.061	2020-06-17	0.064
Date	Value (m ²)											
2020-04-24	0.062											
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2020-06-17	0.064											

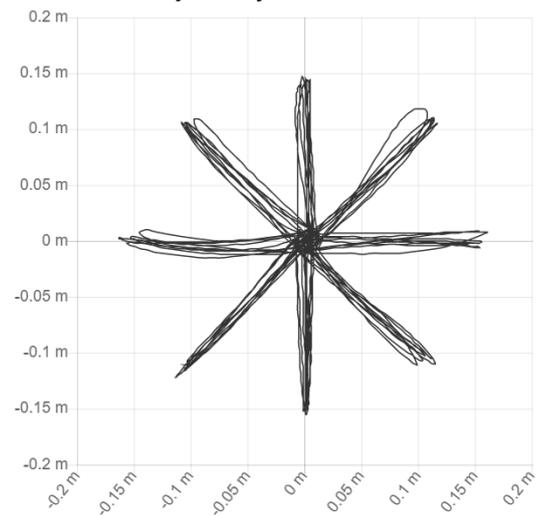
Point to point (P2P)

During the Point to point exercise, the patients executes 5 complete clocks (80 reaching movements in total) with no assistance from ICone.

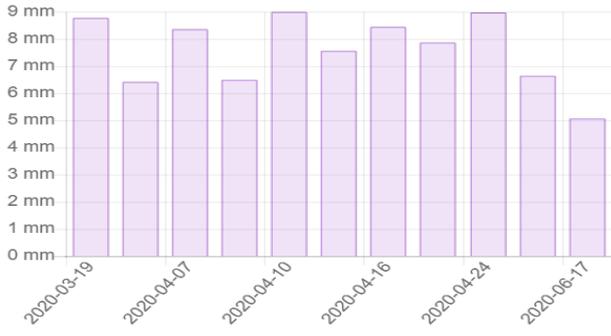
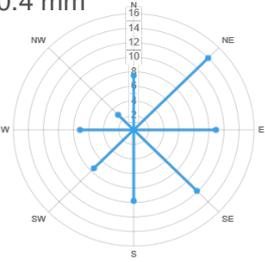
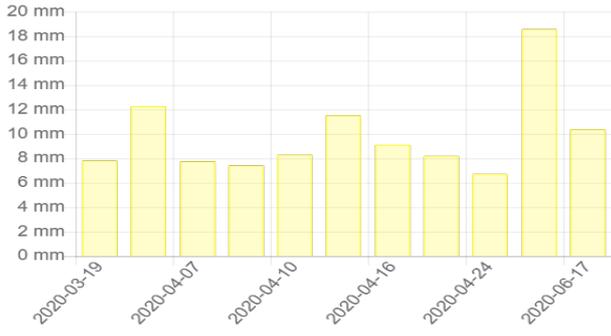
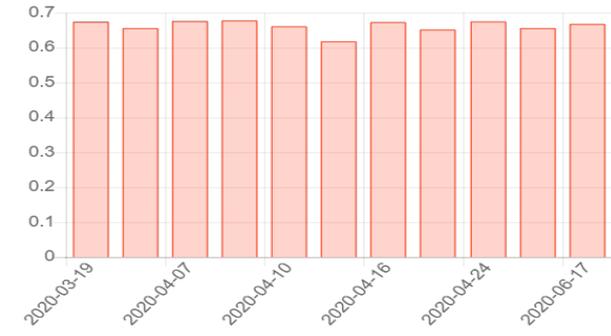
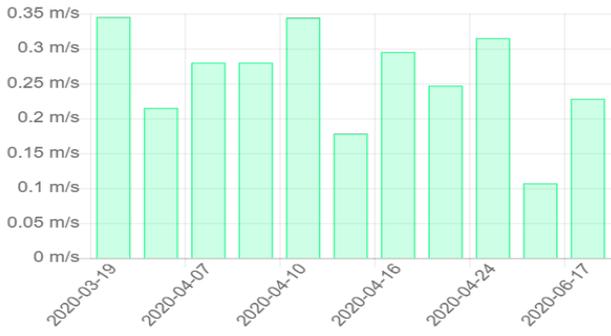
Related indexes:

- Init time
- Mean speed
- Movement duration
- Path error
- Reach error
- Smoothness (speed shape)
- Peak speed

Trajectory



Current value of the index	Index description	Evaluation history
<p>Init time</p> <p>0.006 s</p>	<p>It indicates the time required to autonomously initiate the movement. It is expected to decrease as therapy proceeds. It is an indicator of movement planning ability.</p>	
<p>Mean speed</p> <p>0.152 m/s</p>	<p>It is the mean velocity of the point-to-point movements. This indicator is expected to increase, as therapy proceeds.</p>	
<p>Movement duration</p> <p>0.92 s</p>	<p>It is the time required for performing a point-to-point movement. It is a measure of temporal efficiency. It is expected to lower as therapy proceeds.</p>	

Current value of the index	Index description	Evaluation history														
Path error 5.1 mm	It is the average distance of each point of the patient's path from the theoretic path. It is a measure of movement accuracy. It is expected to decrease as therapy proceeds (ideally it is zero).	 <table border="1"> <caption>Path error evaluation history</caption> <thead> <tr> <th>Date</th> <th>Value (mm)</th> </tr> </thead> <tbody> <tr><td>2020-03-19</td><td>8.8</td></tr> <tr><td>2020-04-07</td><td>6.5</td></tr> <tr><td>2020-04-10</td><td>8.5</td></tr> <tr><td>2020-04-16</td><td>7.5</td></tr> <tr><td>2020-04-24</td><td>8.0</td></tr> <tr><td>2020-06-17</td><td>5.1</td></tr> </tbody> </table>	Date	Value (mm)	2020-03-19	8.8	2020-04-07	6.5	2020-04-10	8.5	2020-04-16	7.5	2020-04-24	8.0	2020-06-17	5.1
Date	Value (mm)															
2020-03-19	8.8															
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2020-04-10	8.5															
2020-04-16	7.5															
2020-04-24	8.0															
2020-06-17	5.1															
Reach error 10.4 mm 	It indicates how close the patient moved to the targets, on average. A lower result indicates better performance. It is a measure of accuracy. The radar graph (on the left) shows the value of the indicator along each movement direction	 <table border="1"> <caption>Reach error evaluation history</caption> <thead> <tr> <th>Date</th> <th>Value (mm)</th> </tr> </thead> <tbody> <tr><td>2020-03-19</td><td>8.0</td></tr> <tr><td>2020-04-07</td><td>12.0</td></tr> <tr><td>2020-04-10</td><td>8.0</td></tr> <tr><td>2020-04-16</td><td>11.5</td></tr> <tr><td>2020-04-24</td><td>6.5</td></tr> <tr><td>2020-06-17</td><td>10.4</td></tr> </tbody> </table>	Date	Value (mm)	2020-03-19	8.0	2020-04-07	12.0	2020-04-10	8.0	2020-04-16	11.5	2020-04-24	6.5	2020-06-17	10.4
Date	Value (mm)															
2020-03-19	8.0															
2020-04-07	12.0															
2020-04-10	8.0															
2020-04-16	11.5															
2020-04-24	6.5															
2020-06-17	10.4															
Smoothness (speed shape) 0.67	It is the ratio between mean and peak speed during point to point movements. It is expected to increase as therapy proceeds. It is an indicator of smoothness and ease of movement: the higher the value, the easier for the patient to complete the movement.	 <table border="1"> <caption>Smoothness (speed shape) evaluation history</caption> <thead> <tr> <th>Date</th> <th>Value</th> </tr> </thead> <tbody> <tr><td>2020-03-19</td><td>0.68</td></tr> <tr><td>2020-04-07</td><td>0.66</td></tr> <tr><td>2020-04-10</td><td>0.68</td></tr> <tr><td>2020-04-16</td><td>0.62</td></tr> <tr><td>2020-04-24</td><td>0.68</td></tr> <tr><td>2020-06-17</td><td>0.67</td></tr> </tbody> </table>	Date	Value	2020-03-19	0.68	2020-04-07	0.66	2020-04-10	0.68	2020-04-16	0.62	2020-04-24	0.68	2020-06-17	0.67
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2020-03-19	0.68															
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2020-04-10	0.68															
2020-04-16	0.62															
2020-04-24	0.68															
2020-06-17	0.67															
Peak speed 0.23 m/s	It is the peak value of the patient's velocity during reaching movements. It is expected to increase as therapy proceeds. It indicates ease of movement.	 <table border="1"> <caption>Peak speed evaluation history</caption> <thead> <tr> <th>Date</th> <th>Value (m/s)</th> </tr> </thead> <tbody> <tr><td>2020-03-19</td><td>0.34</td></tr> <tr><td>2020-04-07</td><td>0.22</td></tr> <tr><td>2020-04-10</td><td>0.28</td></tr> <tr><td>2020-04-16</td><td>0.18</td></tr> <tr><td>2020-04-24</td><td>0.25</td></tr> <tr><td>2020-06-17</td><td>0.23</td></tr> </tbody> </table>	Date	Value (m/s)	2020-03-19	0.34	2020-04-07	0.22	2020-04-10	0.28	2020-04-16	0.18	2020-04-24	0.25	2020-06-17	0.23
Date	Value (m/s)															
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2020-06-17	0.23															

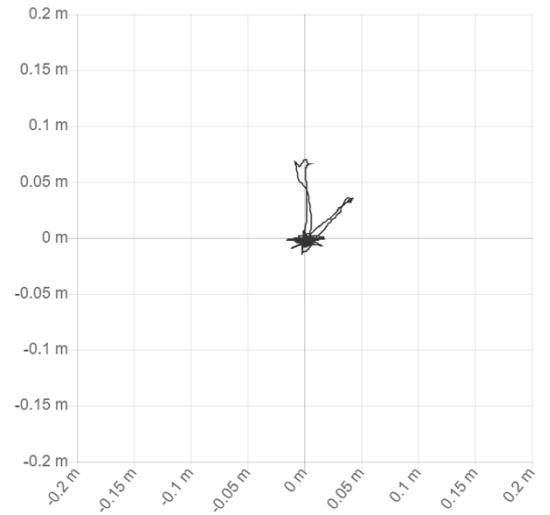
Playback Static (PBS)

During the Playback Static exercise, the patient holds the end-effector in place in the center of the workspace, while ICone attempts to move his/her hand towards each of the peripheric targets.

Related indexes:

- Hold deviation

Trajectory



Current value of the index	Index description	Evaluation history														
<p>Hold deviation</p> <p>6.1 mm</p>	<p>It represents the average motion away from the center during the Playback static exercise. A fully flaccid patient may show a star-shaped motion. Hold deviation is expected to reduce as therapy proceeds. The radar graph (on the left) shows the value of the indicator along each movement direction</p>	<table border="1"> <caption>Evaluation History Data</caption> <thead> <tr> <th>Date</th> <th>Hold Deviation (mm)</th> </tr> </thead> <tbody> <tr> <td>2020-03-19</td> <td>4</td> </tr> <tr> <td>2020-04-07</td> <td>6</td> </tr> <tr> <td>2020-04-10</td> <td>12</td> </tr> <tr> <td>2020-04-16</td> <td>21</td> </tr> <tr> <td>2020-04-24</td> <td>30</td> </tr> <tr> <td>2020-06-17</td> <td>17</td> </tr> </tbody> </table>	Date	Hold Deviation (mm)	2020-03-19	4	2020-04-07	6	2020-04-10	12	2020-04-16	21	2020-04-24	30	2020-06-17	17
Date	Hold Deviation (mm)															
2020-03-19	4															
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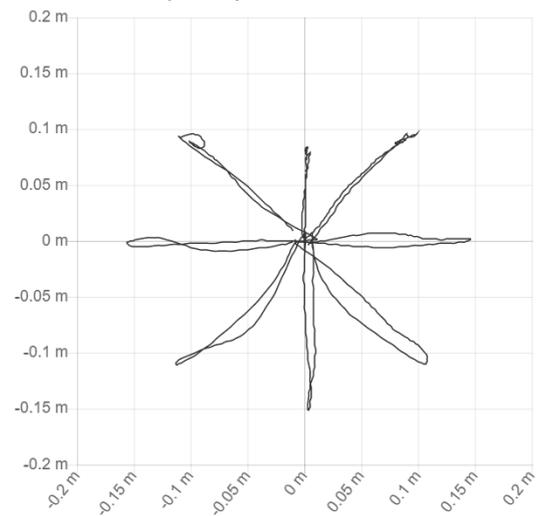
Round dynamic (RDN)

During the Round dynamic exercise, The patient makes his best attempt of moving the ICone end-effector towards the blinking target, while ICone holds it in place in the center target.

Related indexes:

- Displacement

Trajectory



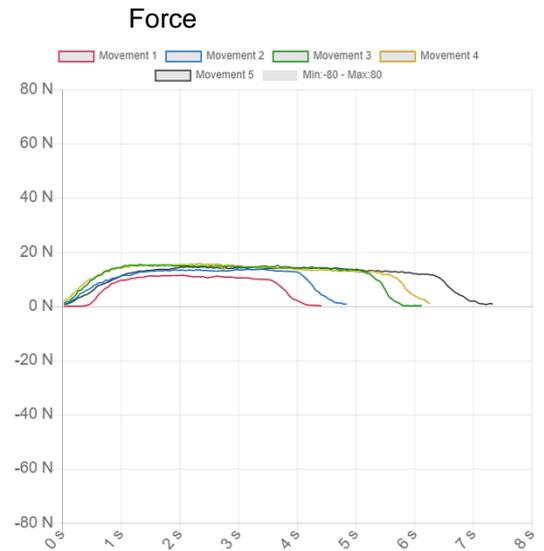
Current value of the index	Index description	Evaluation history
<p>Displacement</p> <p>129.4 mm</p>	<p>It is the average distance travelled against resistance from the center target during the round dynamic exercise. It is expected to increase as therapy proceeds, as a greater result indicates a better score. The radar graph (on the left) shows the value of the indicator along each movement direction</p>	

Horizontal Shoulder Abduction (ABD)

During the Horizontal Shoulder Abduction exercise, the patients' arm is straight and parallel to the table. The patient holds the ICone end-effector and tries to pull it away from his/her sagittal plane for 5 seconds. The task is composed of 5 repetitions.

Related indexes:

- Shoulder horizontal abduction



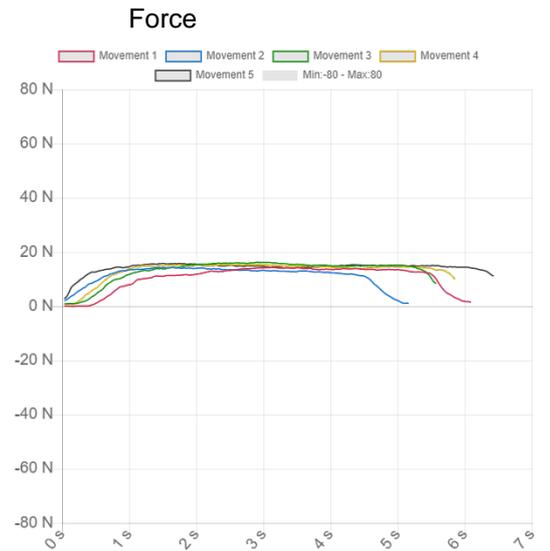
Current value of the index	Index description	Evaluation history																				
Shoulder horizontal abduction (max change in force) 14.188 N	The maximum change in force collected during the 5 seconds of the 5 trials, while the patient pulls the handler away from the sagittal plane. The force is expected to increase over the course of therapy.	<table border="1"> <caption>Evaluation History Data (Approximate)</caption> <thead> <tr> <th>Date</th> <th>Force (N)</th> </tr> </thead> <tbody> <tr><td>2020-04-07</td><td>39</td></tr> <tr><td>2020-04-10</td><td>39</td></tr> <tr><td>2020-04-10</td><td>43</td></tr> <tr><td>2020-04-16</td><td>31</td></tr> <tr><td>2020-04-16</td><td>42</td></tr> <tr><td>2020-04-16</td><td>36</td></tr> <tr><td>2020-04-24</td><td>2</td></tr> <tr><td>2020-04-24</td><td>34</td></tr> <tr><td>2020-06-17</td><td>14</td></tr> </tbody> </table>	Date	Force (N)	2020-04-07	39	2020-04-10	39	2020-04-10	43	2020-04-16	31	2020-04-16	42	2020-04-16	36	2020-04-24	2	2020-04-24	34	2020-06-17	14
Date	Force (N)																					
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2020-06-17	14																					

Horizontal Shoulder Adduction (ADD)

During the Horizontal Shoulder Adduction exercise, the patients' arm is straight and parallel to the table. The patient holds the ICone end-effector and tries to push it towards his/her sagittal plane for 5 seconds. The task is composed of 5 repetitions.

Related indexes:

- Shoulder adduction in the horizontal plane



Current value of the index	Index description	Evaluation history												
<p>Shoulder adduction in the horizontal plane (max change in force)</p> <p>15.238 N</p>	<p>The maximum change in force collected during the 5 trials, while the patient pushes the handler toward the sagittal plane. The force is expected to increase over the course of therapy.</p>	<table border="1"> <caption>Approximate Evaluation History Data</caption> <thead> <tr> <th>Date</th> <th>Force (N)</th> </tr> </thead> <tbody> <tr><td>2020-04-07</td><td>28</td></tr> <tr><td>2020-04-10</td><td>48</td></tr> <tr><td>2020-04-10</td><td>40</td></tr> <tr><td>2020-04-24</td><td>32</td></tr> <tr><td>2020-06-17</td><td>15</td></tr> </tbody> </table>	Date	Force (N)	2020-04-07	28	2020-04-10	48	2020-04-10	40	2020-04-24	32	2020-06-17	15
Date	Force (N)													
2020-04-07	28													
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