INTRODUCTION

• The Box and Blocks Test (BBT) is a performance-based measure of gross manual dexterity for using in the post-stroke assessment.
• Attention focused on the development of the test, limits the rehabilitator to observe other parameters of the subject such as arm movement, posture, or facial expressions.
• The use of the Automated Box and Blocks Test (ABBT) relieves the health professional from dividing his attention between the monitoring of the correct performance of the test and the monitoring of the subject during the development of the test.

MATERIAL AND METHODS

The Automated Box and Blocks Test

The BBT target is to move as many blocks as possible, one at a time, from one compartment to the other for a period of 60 seconds.

The test is administered first to the unaffected hand (dominant) and following to the affected hand (non-dominant).

RESULTS

<table>
<thead>
<tr>
<th>Initial Assessment</th>
<th>Final Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>User</td>
<td>BBT</td>
</tr>
<tr>
<td>1</td>
<td>55</td>
</tr>
<tr>
<td>2</td>
<td>43</td>
</tr>
<tr>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>4</td>
<td>47</td>
</tr>
<tr>
<td>5</td>
<td>50</td>
</tr>
</tbody>
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Comparative of blocks counting between the ABBT and the BBT

Comparative of information provided between the ABBT and the BBT

DISCUSSION

• A pilot trial to evaluate the ABBT effectiveness in hospital environment with people with Parkinson disease was conducted.
• All participants were able to successfully carry out the ABBT, that is equivalent to the full development of the BBT.
• Extra information related to the test development is obtained, and it is automatically stored.
• The automation of traditional methods to assess the patient’s physical condition leads to a more objective rehabilitation process.
• Counting with a low-cost automated system was positively highlighted by therapists. This further supports the feasibility of the use of automated systems in assessment of physical rehabilitation.
• Taking into account the maximum error in the measurement (error = 15%) and the additional information obtained using the ABBT, the results suggest that the proposed system can be used as a manual dexterity assessment tool.

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