Design of a Diagnostic Forearm for Transradial Prostheses
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Background
Current upper limb prostheses fabrication practices rely heavily on trial-and-error approaches, and the suitability of the design is not determined until the final device is made. This can lead to an increased number of clients visits, dissatisfaction or disuse of the prosthesis, as well as greater clinical time and resources.

Research Objective
This study aimed to develop a clinical tool to assist prosthetists during the design of an upper-limb prostheses and simulate the appearance and function of the final device. The device will guide and simulate the following parameters:

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<thead>
<tr>
<th>Parameter</th>
<th>Current Method</th>
<th>New Proposal</th>
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<tbody>
<tr>
<td>Length</td>
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<tr>
<td>Weight</td>
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<td>Angle</td>
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<td>Function</td>
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Methods
- Develop design requirements through co-creation
- Iteratively produce prototypes
- Receive feedback from clinicians
- Test and fit with clients

Results
The iterative design process resulted in a final prototype that was tested during a clinical appointment with an upper limb prostheses user. The device successfully implemented features like adjustable length, weight and angle, and connection to distinct terminal devices.

Next Steps
With the feedback received during the clinical trial, improvements will be implemented:
- Adding alignment adjustment features
- Reducing device’s size
- Simplifying the current design

Qualitative feedback gathered from the appointment included better patient experience and inclusion within the design process.