Assisted Swimming Device

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Clinical Need
- Around 15.5% of adults in the United States have some form of physical functioning disability. 1
- Severe physical disabilities can inhibit motor functions such that individuals cannot swim without the assistance of a caregiver and flotation devices.
- Water sports offer a comfortable form of physical therapy and serve as a recreational activity in Special Olympics events.

Needs Statement
The goal is to develop a modular system with customizable components that assists individuals, with a selection of physical disorders, with the flotation and balance necessary to participate assisted aquatic events.

Existing Solutions
LJ-A: 2
- easy to put on, allows freedom of movement
- cost: $270
- meant for upright positioning, low comfort

Commonality: Devices marketed for disabled individuals use similar materials (e.g. nylon fabric, closed-cell foam) as common flotation apparatuses but are more expensive.

Proposed Solution
The assisted swimming system is assembled like a kit in which multiple interchangeable parts can be added or removed to suit individual requirements that enable an individual to float independently with appropriate caregiver supervision. A configuration guide that suggests different possible combinations of components depending on the patient’s needs will be provided.

Device must be:
- Optimized for horizontal flotation
- Buoyant and water resistant
- Comfortable and adjustable
- Stabilizer of the upper body

System Components:
- Life vest base
- Buckles attached along the vest
- Additional flotation components
- Belts
- Barbell
- Connection straps

Costs

<table>
<thead>
<tr>
<th>Material</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Foam for main body</td>
<td>$60</td>
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<tr>
<td>Additional support foam</td>
<td>$12</td>
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<tr>
<td>Straps ($1.50/meter)</td>
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</tr>
<tr>
<td>Belts</td>
<td>$50</td>
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<tr>
<td>Dumbbell</td>
<td>$10</td>
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<tr>
<td>Total Cost</td>
<td>$150</td>
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The commercially available assisted swimming devices cost over $200, so our device is more cost efficient. We expect costs to decrease with mass manufacturing and volume discount.

Reimbursement
This device is not expected to be reimbursed by Medicare or Medicaid.

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References