Multifunction Table & HANSS with Biofeedback

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Overview

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Introduction

- Client: Annalee Hughes, a 10 year old suffering from Cerebral Palsy
- Cerebral Palsy is a broad classification of abnormal muscle tone, reflexes, motor skills development, and fine coordination
- Unable to stand or sit without external assistance
- Confined to a power chair for a majority of the day
Goal: Design and implement three devices one for each of Annalee’s needs

1. A multifunction table for Annalee for completion of homework, using her laptop, and reading

2. Shoulder supports to prevent Annalee from leaning forward, at the waist

3. HANSS with biofeedback to position the head, stabilize neck, and provide positive reinforcement to client for correct positioning
Current Products

• Many wheelchair attachable desktops are available
• Head and neck support [Headmaster Cervical Collar]
• Combination of head, neck, shoulder support [i2i]
• Currently no biomechanical feedback devices available
Design

- Multifunction Table
  - Function: provide functional space to read books, use her laptop computer, eat food, complete homework
  - Materials: Constructed of a lightweight metal frame covered by a high strength plastic exterior
Design Cont.

- **Shoulder Support**
  - **Function:** prevent the shoulders from rounding and moving the upper torso forward
  - **Materials:** Lightweight, flexible material surrounded by foam
  - **Straps or short arms,** from under the arm pits or over the shoulder, position upper body against chair backrest
  - Comfortable for daily use
Design Cont.

- **HANSS with Biofeedback**
  - Function: provide support to the head and neck region and reward Annalee for maintaining the correct anatomical head position
- **Materials**
  - Lightweight, flexible metal tube encased in foam supports under the chin
  - Contoured neck pillow with metallic core supports the neck
- **Sensors in the head and neck biofeedback support system will determine if body is in the correct anatomical position**
Grand Total: $850 US Dollars
Conclusion

- Devices
  - Multifunction Table, Shoulder Supports, HANSS with Biofeedback
- Designs are custom made for client
- New to Market Biomechanical Feedback System
- Low budget for innovative combination device

Multifunction Table + HANSS + Biofeedback = $850
Questions?