

Modern Innovations Contact
Information

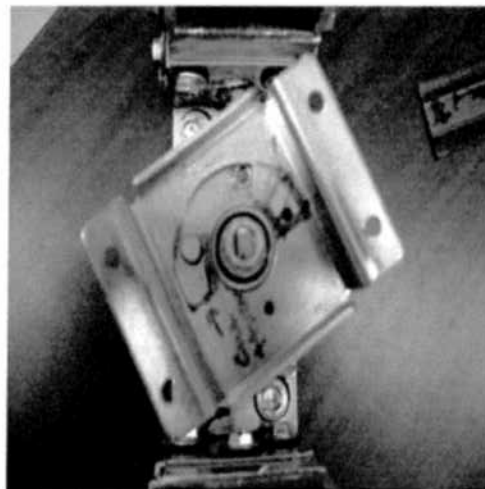
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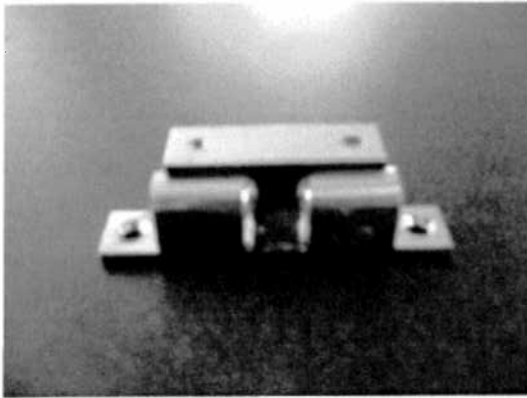
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MODERN INNOVATIONS TEAM

A Desk/Chair System for Children
with Arthrogyrosis

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Background

Our client is a third grade student suffering from Arthrogryposis congenital disorder, characterized by multiple joint contractures, muscle weakness and fibrosis which by turn cause limited flexion and extension. This has affected the client to perform her academic tasks; mainly writing, at the speed of other students due to the lack of resources available at school to accommodate for her specific needs.

Goal

To design an ergonomic desk/chair system that would improve the client's writing abilities while providing her with the physical comfort needed to complete her daily work without becoming fatigued. The device will also decrease the client's dependency on her teachers and classmates.

Design Criteria

- Writing surface that that is ergonomic, conducive to writing, and prevents damage to hands.
- Lumbar/thoracic support.

- Side bolstering to provide support as the client angles her body to write.
- Adjustable height to accommodate for growth.
- Swivel and lock mechanism at the base of the chair to allow its maneuver to a place.
- Chair compatibility with other desks/tables available at school.
- Cost effective.

Solutions

Our solution includes using a commercially available office chair that is compatible for the design, and reasonable in price. Adjustments and additions that were made to the chair include:

- Desk surface.
- Customized arm rests.
- Thorax and lumbar side support.
- Chair adjustability.

Desk Surface

The desk surface is attached to one side of the chair and it can easily fold away, to the side, for transport. When fully folded out, it is positioned over the user's lap. The height on the desk will provide the client easy access in and out of the chair by easily pushing the desk in/out via a pivot joint. This also addresses issue of the client slamming hands onto the desk.

Customized Arm Rests

The arm rests are customized to match the level of the desk surface as well as to provide the client with

the comfort and the support required while using the chair.

Thorax and Lumbar Support

The thorax and lumbar support are custom made to fit the client's body. It will provide bolstering on client's right side to prevent exhaustion while writing as well as insuring adequate back support.

Chair Adjustability

The Chair bottom has the ability to swivel for transport, and lock in place via casters when not in use. The chair's height is adjustable to accommodate for the client's growth as well as providing compatibility when using other desks/tables than the one attached.

