Electric Folding Wheelchair

Standard KD Smart Chair Electric Wheelchair

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Objectives

• Assess Assistive device

• Explore how it was developed

• Explore the use
Significance

Mobility

- Commonly prescribed AT in OT practice
- Diagnosis
- Participation and Performance
- Self care - Leisure - Productivity
- Independence
- Quality of Life
Evidence suggests mobility devices increase mobility and improve users' participation and activity performance.

(Salminen, Brandt, Samuelsson, Toytari, & Malmivaara, 2009)

Evidence suggests that powered wheelchairs are a societal intervention enabling older people with limited walking ability to enable participation and activity.

(Brandt, Iwarsson, & Stahle, 2004)

Persons with Spinal Cord Injury use wheelchair as their primary means of mobility. Their ability to perform wheelchair skills is highly associated with their quality of life and community integration.

(Hosseini, Oyster, Kirby, Harrington, & Boninger, 2012)
Why? Community Access!

<table>
<thead>
<tr>
<th>Number of days leave the home per week</th>
<th>Disability status</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Disabled</td>
<td>Percent</td>
<td>Standard Error</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never leaves home</td>
<td>57.07</td>
<td>6.38</td>
<td>0.00</td>
</tr>
<tr>
<td>Leaves home 1-2 days</td>
<td>40.59</td>
<td>4.04</td>
<td>0.14</td>
</tr>
<tr>
<td>Leaves home 3-4 days</td>
<td>32.24</td>
<td>2.94</td>
<td>2.82</td>
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<tr>
<td>Leaves home 5-7 days</td>
<td>13.55</td>
<td>1.49</td>
<td>0.48</td>
</tr>
</tbody>
</table>

(Percent of disabled that need specialized assistance or equipment to travel outside the home by number of days they leave the home, 2002)
3.6 million Wheelchair users  (U.S. disability statistics and information, 2014)
Wheelchair Facts

2018

$2.9 BN expected manual wheelchair market

$3.9 BN expected power wheelchair market

There are an estimated 3.3 million wheelchair users in the United States and the number is increasing every year.

The demand for wheelchairs is increasing due to the large need among the baby boomer generation.

(Reznik, 2015)
Wheelchair Facts

- The wheelchair industry revenue grew at an average annual rate of 2.5% from 2009 to 2014.

- 1.825 million wheelchair users are the age 65+

- There are about 2,000,000 new wheelchair users every year.

(Reznik, 2015)
History - How it was developed

Spain 1595 - “1st wheelchair”
rolling chair with foot rests

1655 - “Self Propelled chair”

(History of the Wheelchair, n.d.)
Evolution of wheelchairs

England 1783 - “Bath Chair”

2 Large wheels 1 small wheel  

(History of the Wheelchair, n.d.)
18th Century- Comfort convertible chair

(History of the Wheelchair, n.d.)
Lightweight Wheelchair

- Indian Reed
- Large wheels
- **58 lb** with push rims
- **50 lb** without pushrims

(History of the Wheelchair, n.d.)
Los Angeles 1933
Everest & Jennings
First folding metal wheelchair

1869 was the year when the first wheelchair patent was issued in the United States. In 1933 mechanical engineers Herbert Everest and Harry Jennings invented the first steel, lightweight, collapsible wheelchair. (Reznik, 2015)
1912- First Electric Wheelchair

1916- First power chair

1956- Mass production

1963- Wrigley Electric Wheelchair

(History of the Wheelchair, n.d.)
TODAY

Variety - Functions

Innovation

Cost

(Mitchell, 2012)

(Martinich, 2015)
Standard KD Smart Chair Electric Wheelchair

**Dimensions:**

38.2" x 23.2" x 33.1"

97 cm x 59 cm x 84 cm

**FOLDED:**

13" x 23.2" x 29.5"

33 cm x 59 cm x 75 cm

**SPEED:**

5 Mph

8 Kmph

(KD Healthcare, 2014)
Assess Assistive device
Features - Pros

STANDARD VS HEAVY DUTY MODEL

• Convenient Foldable → Community integration
• Light → Portable 50 lbs, 265Lb (Bariatric)
• COMPACT Small → easily fit in the “boot”
• Affordable approx $2000 beats competitors
• Access-->Battery - travel up to 15 Miles
• Charger 2-4 hrs to charge
• Flexibility Removable Joystick L or R - QUICK

(KD Healthcare, 2014)
Pros

TIME-----> foldable in seconds store car/Closet.

FDA approved medical device

HYGIENE- movable seat covers for cleaning

Adjustable armrests raised for side access

5 year warranty - 60 day return policy

Stable and durable Vs scooters

(KD Healthcare, 2014)
Pros

Travel friendly - commercial/ private aeroplanes
Charger is adapter friendly - UNIVERSALITY
Foot rests can be taken off
Additional flashlight/cup holder/basket

Community Participation

(KD Healthcare, 2014)
Cons

Do not accept medicare/ medicaid/ Insurance

May be eligible through private insurance

Occupational Justice!
Future Directions/ Discussion

Working with medicare to get chair approved?
how can this be made cheaper?
How to make more accessible?
Questions?
Comments?
References


