Introduction
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- 29 years as a physical therapist; at Denver Health, a level one trauma, safety net hospital with 15 neighborhood clinics
- 25 years in seating and positioning adults in inpatient units and in outpatient Wheelchair Clinic

Learning Objectives
- Participants will be able to:
  - Describe 3 obesity factors that impact mobility in adults with disability.
  - List 6 assessment goals in the evaluation of manual wheelchairs for bariatric clients.
  - Explain the impact of significant body weight in manual wheelchair configuration.

What Does Bariatric Mean?
- Bariatrics is the branch of medicine that addresses the treatment of obesity.
- The World Health Organization defines obesity as BMI greater than 30 and severe obesity as BMI greater than 40.

Bariatric vs Heavy Duty
- “Bariatric” and “heavy duty/extra heavy duty” are often used interchangeably
- Funding/manufacturers:
  - heavy duty = weight capacity 250 - 350#
  - extra heavy duty = weight capacity > 350#

Obesity Factors That Limit Wheeled Mobility – Joint Pain
- Joint pain in lower extremities
  - Every pound of body weight places 4 to 6 pounds of pressure on the knee joint
  - Carpal Tunnel Syndrome
  - Risk increases with obesity
Obesity factors that limit wheeled mobility - Diabetes
- Peripheral Neuropathy
  - Numbness, tingling, pain in hands, feet
- Peripheral Arterial Disease
  - Numbness, tingling in feet, lower legs
  - Sores on feet that heal slowly
  - Can lead to lower extremity amputation

Obesity factors to consider in wheeled mobility - Respiratory
- Obesity Hypoventilation Syndrome - difficulty moving air in and out of the lungs
  - Results in fatigue, shortness of breath
  - May need to carry O2 tank on wheelchair

Obesity factors to consider in wheeled mobility - Back Pain
- Redundant posterior tissue can create a gluteal shelf
- Decreased contact with wheelchair back results in decreased postural support

Bi-angular backrest
Assessment Considerations/Goals
- Goals are similar to any wheelchair assessment:
  - Function
  - Propulsion
  - Positioning
  - Skin Integrity
  - Comfort
  - Accessibility
  - Transportation

Assessment - Client/Caregiver Interview
- Current Weight
  - If self-reported, may need to obtain weight during assessment
  - History of weight fluctuation

Assessment - Equipment
- Review of current, and previous, equipment
  - Function/Propulsion
  - Comfort
  - Doorway/hallway access
  - Transportation

Assessment - Mat Evaluation
- Mat Evaluation
  - Client may have difficulty laying supine
  - Can be difficult to find anatomical landmarks
  - Look for lumbar lordosis caused by redundant tissue

Assessment - Seated Evaluation
- Seated Evaluation
  - Determine area of contact with the seat vs tissue that can tolerate compression

Assessment - Function
- Static/Dynamic Task Evaluation
  - Upper extremity support needed for transfers
  - Foot propulsion
  - "Bouts of Mobility"
Assessment - Propulsion

Assessment - Measurements
- Measurements
- Seat surface to top of gluteal shelf
- Seat back to mid-back
- Seat depth

Assessment - Measurements
- Hip width – often the distance between the lateral thighs is the wider than the hips

Assessment - Measurements
- Chest width – often significantly less than lower body width
- Can cause difficulty in configuring arm support

Impact of Significant Body Weight in MWC Configuration
- Need for adjustability
- Accommodate weight fluctuations
- Accommodate redundant tissue

Impact of Significant Body Weight in MWC Configuration
- Center of Gravity
- More forward than average
- Difficulty with propulsion
- Tend to overload casters
MWC Configuration - COG

- Adjusting Center of Gravity
  - Need to center weight over rear wheels
  - May need to accommodate redundant posterior tissue

- Forward wheelbase with forward extended casters

PDG Eclipse 600

MWC Configuration - COG

- Use shorter back mounted higher on the back canes to position redundant tissue behind the back canes
- Detach bottom of back upholstery and add privacy flap

Quickie M6

Impact of Significant Body Weight in MWC Configuration

- Seat width
  - The width needed to accommodate anatomical measurements can result in excessive shoulder abduction which increases joint and muscle strain during propulsion

Impact of Significant Body Weight in MWC Configuration

- Increased rolling resistance
  - Increased body weight creates increased rolling resistance which requires greater force and cardiopulmonary effort to propel

Final Questions?
References


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