

SEATING AND MOBILITY CONSIDERATIONS

for the Bariatric Client

Most health care and related professionals have become familiar with the term “bariatric” during the last 10 years or so. In a 2004 report, the Organization for Economic Cooperation and Development cited the United States as leading all developed countries with 64.5 percent of its population considered overweight. Those numbers continue to increase with morbidly obese and extreme morbidly obese patients placing a demand on hospitals for surgical intervention and treatment.

Rehabilitation professionals are challenged to prescribe functional seating and mobility for many consumers who are obese. Finding appropriate equipment to meet the requirements of bariatric rehab clients can be challenging, although there are more commercially available cushions, back supports, manual and powered mobility devices available today than ever before.

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As with any other seating and mobility intervention, the first step toward appropriate equipment is to complete a thorough evaluation. This should start with the subjective interview, including goals of the client. Where and how do they need to function? Which activities of daily living and functional skills are important for them to perform? A weight history and accurate weight need to be obtained. Has the client been steadily increasing or decreasing in weight? Is surgery planned? It can be difficult to obtain the weight of an obese client. Hospitals often have platform scales (like the ones used to weigh wheelchairs) or bed scales. Some professionals in the field have used one scale under each foot

and added the two together. Aside from ensuring the client falls within the weight limit of the equipment, the team must also know what the combined weight of the client and the equipment is for accessibility and transport. Issues such as accessibility and transportation are magnified because of the weights, widths and lengths of bariatric equipment.

The mat evaluation is the next vital component to the prescription process. Depending on the client’s ability to maintain a seated posture, this may require two or three people to safely and accurately complete.

The client needs to be supported in sitting. As with any other mat evaluation, the client needs to be measured on a firm planar surface. This will assure the most accurate dimensions. Soft surfaces can accommodate and compress tissue, providing inaccurate measurements. In a clinical setting, a height adjustable therapy mat or table is ideal. The height adjustment allows upper leg support on the table surface while the feet can be in contact with the floor and allows a safer sit-to-stand transfer.

Clinicians and suppliers who are experienced in evaluation and prescription for seating and mobility are familiar with the typical body measurements that are taken. Some additional measurements are necessary with the bariatric client. (See *Figure 1 on next page.*)

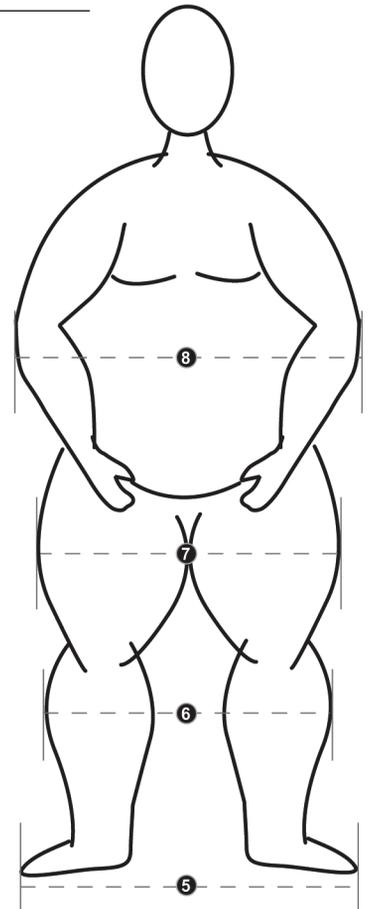
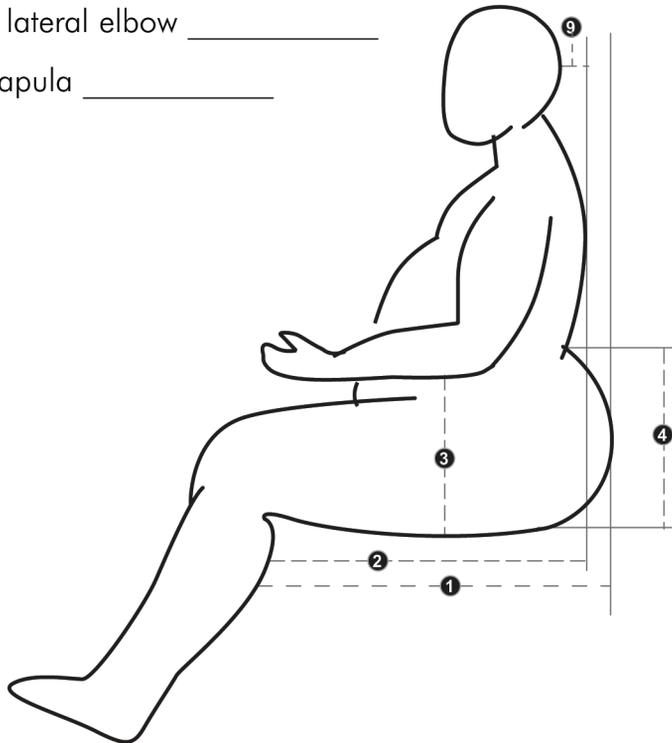
Excessive adipose tissue in the gluteal region can prevent obese consumers from sitting with adequate spinal support, which can contribute to incidence of back pain for this population. Additionally, failure to accommodate this usually results in the client essentially sitting in a reclined position with complaints of constantly “sliding down” in their seats. Two key measures relate to this: overall depth from the posterior aspect of the calf to the most distal part of the gluteal region, as noted in Figure 1, and measurement from the evaluation support surface to the top of the gluteal tissue. This can assist in determining the height at which

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ADDITIONAL MEASUREMENTS FOR BARIATRIC CLIENTS

Current weight: _____ Weight history: _____

1. Back of knee/calf to back of buttocks (seat pan depth) _____
2. Back of knee/calf to thoracic-lumber trunk (for seat depth) _____
3. Seat pan to under forearm (armrest height) _____
4. Seat pan to top of gluteal tissue (lower aspect of back support height) _____
5. Width at toes (lateral aspect) _____
6. Width from lateral calf to lateral calf (at widest aspect) _____
7. Overall hip width _____
8. Lateral elbow to lateral elbow _____
9. Back of head scapula _____



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a back support surface is mounted, allowing some of the redundant tissue to stay below the back support and posterior of the back canes while supporting the client's mid-trunk.

The “geometry” of the client must be noted to ensure functional interface between the client and their seating and mobility. Several different bariatric body types have been noted by Michael Dionne in his book “Among Giants: Courageous Stories of Those Who Are Obese and Those Who Serve Them.” Each of these body shapes distributes weight differently and

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creates very different shapes. These include abdominal obesity (described as the apple shape) and gluteal/femoral obesity (described as the pear shape).

Abdominal obesity has the primary excessive weight distribution in the belly area. This anterior weight distribution can lead to more anterior instability of the wheelchair. The other complication for patients with abdominal obesity is the effect this type of weight distribution has on their seated posture. The mass of adipose tissue can prevent the consumer from sitting completely upright. Evaluation of the clients' tolerance for upright sitting is very important. This often leads to seating and mobility products that have adjustment in the seat-to-back angle. Some consumers' hip flexion may be limited and/or their abdominal tissue may exert pressure on their femurs forcing their upper legs into a more abducted posture. This in turn can make the use of footrests on a wheelchair very difficult. The lateral aspect of the knees or lower legs may be in constant pressure against the footrest hangers.

Clients with gluteal/femoral obesity carry most of their adipose tissue below their waist and above their knees. Dionne further differentiates these patients into “pear adduction” and “pear abduction” types. This results from distribution of adipose tissue that is either more medially or laterally distributed. Excessive medial femoral tissue will prevent the femurs from achieving a neutral alignment in sitting. In addition, it can result in pressure at the lateral knees or calves on footrest hangers. Excessive lateral femoral tissue can require larger seat widths for accommodation, a necessity that can have a negative consequence for footrest and armrest position as well as access to the rear wheels for those who want to propel a manual wheelchair. With either of these scenarios, it is important to note where the client's feet need to be supported.

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Bariatric consumers who require wheeled mobility devices benefit from equipment that is adjustable according to their physical and functional needs, just like any other person who utilizes a wheelchair. Maximizing the function and performance of any manual or power wheelchair requires the distribution of the client's weight relative to the chair's drive wheels (power) or propulsion wheels (manual). The geometry created by the bariatric consumer's weight distribution will impact the wheelchair's overall performance. While the bariatric chair can be considerably heavier than other chairs, it is still possible to have efficient propulsion.

Many manual chairs have a non-adjustable rear axle integrated with the rear frame and back post component of the chair. Obese consumers whose excessive adipose tissue in the posterior gluteal area and/or the posterior trunk can struggle with propulsion of a manual wheelchair due to their anterior position away from the rear wheels (see picture in Rehab

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Case Study). This rear wheel position also lends to less weight being placed over the rear wheel and too much on the front casters, which leads to poor mobility and a great deal of instability of the chair. There are some manual wheelchairs designed with the needs of bariatric consumers in mind. Adjustable rear wheel placement as well as placement of the casters further forward can accommodate the forward center of gravity of the bariatric client, thus providing better mobility and anterior stability for the client.

This same weight distribution issue is a factor with power wheelchairs. It is important to consider the client's weight distribution in relation to the drive wheels as well as the length of the wheelbase for anterior stability. The more weight over the drive wheels as opposed to the smaller turning wheels, the better the chair will perform for the client. Short wheelbases with suspension stabilizers in the front can compress with excessive anterior weight loads, pitching the system forward – especially when driving down inclines.

Prescribing appropriate mobility bases for bariatric consumers is not simply a matter of getting the width right. Taking the time to carefully evaluate and measure the client and problem solve some of the challenging aspects can assure more successful outcomes and greater consumer satisfaction. ➤

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