

# Wheelchair Fitting and Measurement Guide

## - Part 1

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### Fact Sheet

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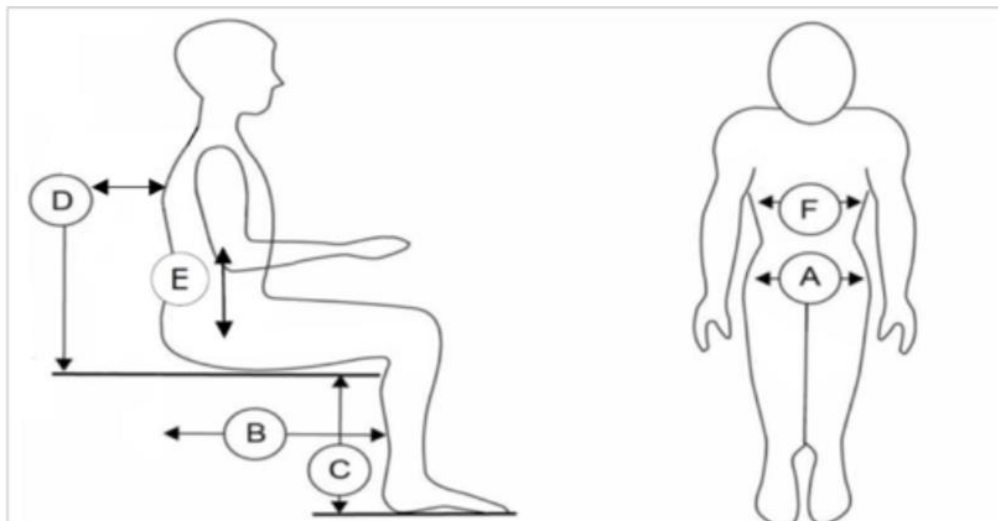
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## The Six Basic Measurements

This guide provides six basic measurements to first consider when choosing a manual wheelchair that fits optimally for you. See below for guided instructions and considerations on these measurements. Please see Part 2 for additional wheelchair fitting measurements.



**A. Seat width-** In a seated position, measure the widest distance from hip to hip. *Add on 1¼ - 2 inches* to this measurement to allow a space between the arm rest and each side of the hip.<sup>1,2</sup>

Considerations:

- The 1¼ - 2 inches added to the measurement allows room for clothing such as coats and prevents skin irritation between the thighs and the armrests.<sup>1</sup>
- If the wheelchair is too wide, it will be more difficult to propel, fit through doorways, and will not provide adequate postural support.<sup>2,3</sup>

**B. Seat depth -** In a seated position, measure the distance along the thigh from the back of the hip to the knee. *Subtract 1-2 inches* from the measurement to allow space between the back of the knee and the wheelchair seat.<sup>1,2</sup>

Considerations:

- If the seat depth is too long it may cause skin irritation and breakdown on back of the knees as well as poor postural support.<sup>1-3</sup>
- If the seat depth is too short, there will be less support under the thighs may increase pressure on the buttocks.<sup>1,3</sup>

**C. Floor to seat height-** While seated, measure the distance from the fold of the back of the knees to the bottom of the heel. *Add on 2 inches* to allow room for the footrests to clear the floor.<sup>1</sup>

Considerations: see next page

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- If the floor to seat height is too high:
  - The wheelchair will be difficult to fit underneath desks, tables, etc.
  - The feet will be unable to touch the floor when footrests are removed, making transfers and foot propulsion more difficult.<sup>1-3</sup>
  - The wheelchair will also be more difficult to propel.<sup>1</sup>
  - The wheelchair will be at increased risk of tipping.<sup>1</sup>
- A floor to seat height that is too low will cause the footrests to hit the floor and increase pressure on the buttocks when the feet are on the floor.<sup>1</sup>

**D. Seat Back Height-** While seated with an upright posture, measure from the buttock to the bottom of the scapula. *Add or subtract inches* depending on how much postural support is needed - a higher seat back will offer more trunk support.<sup>3,4</sup> In general, the seat back should not interfere with shoulder movements.

Considerations:

- If the seat back is too high, it may cause poor upper trunk posture and not allow for full shoulder range of motion to propel the chair.<sup>1,3,4</sup>
- If the seat back is too short, it will promote poor posture and inadequate trunk support.<sup>1,4</sup>

**E. Armrest Height-** With the elbows bent to 90 degrees, measure the distance from the buttocks to the tip of the olecranon process of the elbow (E). *Add 1 inch plus the height of the cushion* (if a cushion is being used).<sup>1</sup>

Considerations:

- Armrest height promotes upright posture with the shoulders in a neutral position.<sup>2,3</sup>
- If the armrests are too low, they will promote poor, leaning forward posture.<sup>1-3</sup>
- If the armrests are too high, they may put pressure on the elbows and/or cause impingement at the shoulder.<sup>2,3</sup>

**F. Backrest Width-** While seated, measure the width of the chest at the level of the top of the backrest. *Add 3/4 inch* to this measurement.<sup>1</sup>

Considerations:

- If the backrest width is too wide, it will interfere with the shoulders' ability to push the wheelchair and will not offer adequate postural support.<sup>1,3</sup>
- If the backrest width is too narrow, it may cause skin irritation and/or discomfort.<sup>1,3</sup>

References

1. Somers MF. Wheelchairs and wheelchair skills. *Spinal Cord Injury: Functional Rehabilitation*. 2nd ed. Upper Saddle River, NJ: Prentice Hall; 2001:281-284
2. Sprigle S. Measure it: proper wheelchair fit is key to ensuring function while protecting skin integrity. *Advances in Skin and Wound Care*. 2014;27(12):561-572. <https://www.ncbi.nlm.nih.gov/pubmed/25396675>. Accessed September 26, 2018.
3. Field-Fote EC. Seating and wheelchair prescription. Philadelphia, PA: F.A. Davis; 2009:177-180.
4. Medola FO, Elui VMC, Santana C da S, Fortulan CA. Aspects of manual wheelchair configuration affecting mobility: a review. *Journal of Physical Therapy Science*. 2014;26(2):313-318. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3944313/>. Published February 28, 2014. Accessed September 26, 2018.