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Measuring Edema: Accuracy and Consistency are the issue.

Calf and/or ankle measurements are used to evaluate changes in edema. When monitoring edema, it is important that the same areas be measured each time for appropriate comparison. The standards for measuring edema are created by the institution that is going to monitor the measurements. This standard will assure continuity by each person providing the measurements.

The following is one standard of measurement that was designed and tested in one research study for consistent measuring. This process was shown to be accurate and provide consistency. This standard is similar to what is found in many institutions.

When assessing for edema, two measurements are taken, one of the calf and one of the ankle. A measuring tape is used for this purpose.

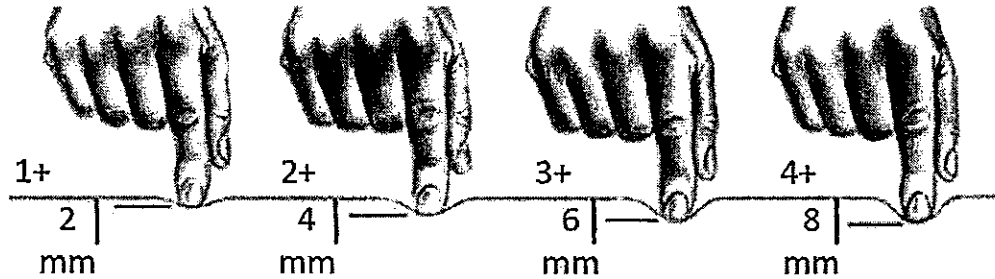
1. The patient must always be measured while they are in the same position, whether sitting or standing or lying down.
2. The calf and ankle measurements must be taken at the same location each time.
3. Visually assess the lower leg for the largest circumference of the calf.
4. Place a small dot on the on the skin on the medial aspect of the leg at this site with a skin marker.
5. Place the tape measure against the medial aspect of the leg and measure up to the mark starting with 0cm of the tape measure on the floor. The distance from the floor to this mark is documented as the floor-to-calf length in centimeters. All future measurements should be made from this location.
6. Place the tape measure around the calf at this mark to measure the circumference in centimeters.
7. The ankle circumference is measured 5cm above the medial malleolus using the same technique by placing the tape measure at 0cm on the floor and making a dot on the skin at 5cm above the medial malleolus.
8. Document the floor-to-ankle length
9. Place the tape measure around the ankle and measure the ankle circumference as centimeters.

There are other types of measures you will find used when describing edema such as grading or scoring, using 1+ to 4+, and pitting, non-pitting and other skin description of edema such as brawny or shiny. All of these measures can be used but they are considered descriptors are subjective and prone to individual bias.

Lower Extremity Venous Disorders: Implications for Nursing Practice: J Cardiovasc Nurs. 2008 Mar-Apr;23(2):132-43. Kelechi, Teresa PhD, APRN-BC, CWCN; Bonham, Phyllis A. PhD, MSN, RN, CWOCN



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Grading Scale for Severity of Edema	
1+	Slight pitting, no visible distortion; Disappears rapidly
2+	Somewhat deeper pit than in grade 1, but no readily detectable distortion; Disappears in 10-15 seconds
3+	Pit is noticeably deep and may last more than 1 minute; Dependent extremity looks fuller and swollen
4+	Pit is very deep and lasts as long as 2-5 minutes; Dependent extremity is grossly distorted.

From Seidel HM et al, editors: Blood vessels. In: Mosby's guide to physical examination, ed 6, St. Louis, 2006, Mosby, Elsevier Science.