

Knee Joint Effusion Handout for Clinicians

Circumferential Measurement for Knee Effusion

Video

<https://vimeo.com/408672467>

Patient Position:

- Supine with hip in neutral and knee extended and relaxed as much as possible¹

Procedure

- Palpate and mark the superior and inferior borders of the patella²
- Perform three trials of circumferential measurement to the nearest 0.1 cm using a flexible measuring tape halfway between the markings^{2,3}
- Calculate the mean of the three circumferential measurement trials³
- Repeat procedure on the uninjured side and record the mean circumference difference

Interpretation

- Increased circumferential difference between the injured and uninjured limb indicates increased knee effusion²

Interrater Reliability of Knee Circumferential Measurement¹

- ICC>0.8

Normative Reference Values Found in Our Systematic Review:

Day 1: 1.9±1.5 cm

Day 5-7: 2.4±1.4 cm

Week 2: 1.5±1.5 cm

Week 4-5: 0.91±0.61 cm

Week 6-8: 0.87±1.1 cm

Week 12-13: 0.47±0.84 cm

Week 26: 0.29±0.63 cm

Bulge/Stroke Test for Knee Joint Effusion (Example):

Videos

Trace Knee Effusion:⁴

<https://youtu.be/bwGQVjLuFhc>

1+ Knee Effusion:⁵

<https://youtu.be/udXUGiignQc>

2+ Knee Effusion:⁶

<https://youtu.be/Hmj27X7enXI>

3+ Knee Effusion:⁷

<https://youtu.be/wIOqYM6FuVk>

Patient Position:⁸

- Supine with knee extended

Procedure:⁸

- Stroke upward with the edge of one hand in a distal to proximal direction along the medial aspect of the knee joint
- Stroke downward with the edge of one hand in a proximal to distal direction along the lateral aspect of the knee joint

Interpretation:⁸

- The test is positive if fluid is visualized moving towards the medial side of the when performing the downward stroke along the lateral aspect of the knee joint

Table 1: Bulge/Stroke Test Grading Scale⁹

Grade	Test Observation
0	No wave seen with downstroke on lateral knee
Trace	Small wave seen at medial knee with downstroke on lateral knee
1+	Large bulge seen at medial knee with downstroke on lateral knee
2+	Large bulge returns to medial knee without downstroke to lateral knee required
3+	Unable to move effusion out of medial knee with upstroke on medial knee

Interrater Reliability of the Bulge/Stroke Test⁹

- Kappa = 0.75

Normative Values Found in Our Systematic Review:

Day 1: 1.6±0.92

Day 5-7: 2.1±1.1

Week 2: 1.8±0.95

Week 6-8: 0.97±0.87

Week 12: 0.47±0.66

Week 26: 0.15±0.34

References

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