WEIGHT

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1. Background and rationale

Weight is measured in kilograms using a standard balance beam scale. Population-based studies have consistently shown a link between weight and knee osteoarthritis. The participant's weight will be taken at every MOST clinic visit.

2. Equipment and supplies

- Standard balance beam scale that can be read from front and back.
- 50 kg weight (alternatively: two 25 kg or two 50 lb weights) for scale calibration
- 5 kg, 10 kg (alternative: 25 lb), 15 kg (alternative: 35 lb), 20 kg (alternative 50 lb) weights for linearity calibration

2.1 Maintenance

- When not in use, rest the counterweight (larger weight) in the far right position.
- The top weight should rest in the left or zero position.
- The counterweight should always be lifted carefully before it is moved across the beam. This prevents wear on the notches, which could lead to erroneous readings.
- Keep the scale on a level surface and move it as little as possible.

2.2 Calibration

The scale calibration should be checked yearly by a local Department of Weights and Measures. If this is not possible, inform the MOST Coordinating Center.

Scale calibration should be checked monthly against known weights. Each center should have a 50 kg weight (Alternatively: two 25 kg weights or two 50 lb weights) for this purpose. (If these are not certified calibration weights, e.g., body building weights, their exact weight should be determined by the local Department of Weights and Measures.)

- Put both the top and bottom counterweights in the zero position. With no weight on the platform, the beam should "float." Then put the known weights on the scale, and adjust the counterweights until the beam "floats."
- If the beam does not "float" at zero with no weight on the platform, or if the measurement of the known weight is off by more than ± 1 kg, the scale may need to be repaired or replaced.

Perform calibration check for linearity once per month. Linearity is checked by weighing a volunteer and recording the weight. With the person still standing on the scale, add 5 kg (10 lb [4.5 kg]) using the test weight; then add 10 kg (25 lb [11.4 kg]); 15 kg (35 lb [15.9 kg]); and finally 20 kg (50 lb [22.7 kg]). The scale should reflect the volunteer's weight plus the added weight within ± 0.2 kg. Record calibration measurements on the calibration form and retain in

your records. Carry out the procedure on persons of different weights during the study so that you will accumulate a profile of the linearity of the scale throughout a range of weights.

3. Safety issues and exclusions

The measurement of weight using a standard balance beam scale poses no safety concerns or reasons for exclusion.

4. Participant and exam room preparation

Study participants will be encouraged to empty their bladders and/or bowels prior to the measurement.

> Script: "The measurement that we are about to take is more accurate if you use the bathroom before we measure you. If you need to use the bathroom, it is down the hall."

Weight is measured without shoes or heavy jewelry and in light-weight clothes; pockets must be emptied of keys and other heavy objects.

Ideally, the scale should be positioned so that the examiner can stand behind the beam facing the participant, and can move the beam weights without reaching around the participant. When standing behind the scale, however, be aware that the scale markings must be read right to left. To be sure weight is read correctly, it is best to double-check the weight from in front of the scale.

5. Detailed measurement procedures

1) Before the participant steps onto the scale, lift the counterweight and position it all the way to the right. The top weight should be all the way to the left at the zero position.

The participant should stand quietly in the center of the platform, facing the balance beam, with their weight equally distributed on both feet, and not touching or supporting themselves on anything.

2) If a participant requires support from a cane while being weighed, weigh yourself with and without the participant's cane, etc., to determine its weight. Subtract the weight of the aid from the participant's weight before recording. In the event that it is necessary for the examiner to support the participant during weighing, provide the minimum support that is safe.

3) Adjust the counterweight, and then the top weight, until the beam is evenly balanced.

4) Weight is recorded to the nearest 0.1 kg, and should be recorded immediately after the measurement, before converting to pounds. If the weight is between tenths of a kg, round down. For example if the top weight is evenly balanced between 40.1 and 40.2 kg, record 40.1.

5) A chart for converting kilograms to pounds should be mounted near the scale, so that participants can be told their weight in pounds.

> Script: "In order to measure your weight, please remove your shoes and heavy jewelry, and empty your pockets. Please step forward onto the center of the scale."

6. Alert values/follow-up/reporting to participants

Weight will be included in the Follow-up Participant Results given to the participant at the time of the visit.

7. Quality assurance

7.1 Training requirements

No special qualifications or experience are required to perform this assessment. Training should include:

- Read and study manual
- Attend MOST training session on techniques (or observe administration by experienced examiner)
- Practice on other staff or volunteers (Goal: minimize differences between repeat measurements)
- Discuss problems and questions with local expert or QC officer

7.2 Certification requirements

- Complete training requirements
- Demonstrate calibration check procedures for scale
- Conduct exam on two volunteers:
  - According to protocol, as demonstrated by completed QC checklist
  - Differences between repeat measures should be less than 0.2 kg

7.3 Quality assurance checklist

- ☐ Participant encouraged to use bathroom prior to measurement
- ☐ Measurement made without shoes or heavy jewelry
- ☐ Examiner stands in front of participant, if feasible
- ☐ If possible, examiner double-checks weight by standing behind participant after the initial measurement
- ☐ Immediately records weight on data collection form to nearest 0.1 kg
- ☐ Ensures that participant stands still in center of platform
- ☐ Tells participant weight in pounds (and kilograms)

8. Reference

1. Lohman TG, Roch AF, Martorell R, eds. Anthropometric Standardization Reference Manual. Human Kinetics Books, Champaign, Illinois, 1988.

9. Data collection form

Weight

Weight is measured without shoes or heavy jewelry and in the standard gown or lightweight clothing.

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