

**RESEARCH DIAGNOSTIC CRITERIA FOR TMD**  
**Expanded Specifications for TMD Examinations with Clarifications**  
**Prepared for the International RDC/TMD Consortium**  
**7/10/05**

This document represents a revision for clarification of the published RDC/TMD specifications (S. F. Dworkin and L. LeResche. Research Diagnostic Criteria for Temporomandibular Disorders: Review, Criteria, Examinations and Specifications, Critique. *Journal of Craniomandibular Disorders, Facial & Oral Pain* 6:301-355, 1992.). Based on questions and problems emerging from teaching these guidelines and conducting reliability studies around the world, clarifications of the original guidelines were needed, and, while retaining the original intention of the specifications, these revisions were created with the help of multiple individuals with extensive experience in the performance of the RDC/TMD examination protocol. If there are questions or comments about this document, please direct them Ms Kimberly H Huggins, BS, RDH at the University of Washington ([khh@u.washington.edu](mailto:khh@u.washington.edu)).

**A. GENERAL DIRECTIONS FOR EXAMINATION**

1. All questionnaire and examination items need to be completed unless the subject refuses or is unable to cooperate. . For some items (e.g., muscle palpations), there is a specific field for indicating subject refusal. Otherwise use "Cannot Assess" [if response category provided] or write "SR" (subject refuses) in large block letters adjacent to the examination item and note why the subject refuses or cannot do item
2. All measurements will be conducted with the jaw muscles in a passive state, unless the examination specifies otherwise. The joints and muscles should not receive additional weight or pressure at any time.
3. All millimeter recordings will be done as single or double digits. If a double-digit reading is only one digit, precede with a lead zero. If a measurement is between two millimeter markings, record the lesser value.
4. Subjects will sit in chairs with the chair back in a vertical position (i.e., 90 degrees relative to the floor).
5. Examiners will wear gloves at all times.
6. Subjects with replacement prostheses will be examined with the prostheses in their mouth except if it is necessary to remove these for observing the mucosa and gingiva and performing intraoral palpations. Bite plates and other appliances that do not replace teeth are to be removed for the examination.
7. If the subject has a beard, a neck brace or any other potential physical barrier that may interfere with muscle or TMJ palpation, indicate this [by checking "Yes" to item E., "Physical Barrier" and specify].
8. Conduct the examination procedures in the order on the form and record all measurements in the appropriate places on the specified form.

9. Items 4.d, Vertical incisal overlap, and 6.d, Midline deviation, are included so corrections to measurements in items 4 and 6, respectively, can be done post hoc to determine actual values of openings and excursions. For items 4.a through 4.c, the amount of vertical incisal overlap (4.d) should be added to each of these measurements to determine the actual amount of opening. For items 6.a and 6.b, if midline deviation (6.d) is greater than 0, this measurement should be added to one side of the lateral excursion and subtracted from the other side.

*For example:* If a subject has a 2-mm midline deviation to the right, then subtract 2 mm from the value given to the right lateral excursion and add 2 mm to the value given to the left lateral excursion.

10. If the subject has other responses to “pain” such as “tightness, achiness, pressure, or uncomfortable”, the examiner will use the neutral probe, “Is that pain, yes or no?”
11. Scoring “Muscles” for subjects reporting pain on items 0, 2, 4 and 6: Muscle sites which can be scored as positive when a subject indicates pain include only the muscles that are palpated in this exam (items 8 and 10) and do not include non-masticatory muscles (e.g. sternocleidomastoid, occipitalis, etc.)
12. If it is unclear to the examiner whether the subject is indicating a joint, muscle or both, press on the area as lightly as possible to correctly identify the anatomic structure. If the examiner is still unclear about the location of pain, leaving the examining finger lightly on the structure, ask the subject to protrude their jaw and/or open and close (until movement in the joint is felt), then return to a “comfortable position” with back teeth completely touching, and then clench their teeth together. The examiner asks the subject, “Slide your jaw straight out in front of you until I ask you to stop and then slide your jaw back to a comfortable position with your back teeth completely touching”; and/or “Open until I ask you to stop and then close in a comfortable position with your back teeth completely touching.” After the subject does this [these] movements, the examiner asks; “Now, gently clench your teeth together, and relax.” Record as follows:
- “Muscle”: If muscle contraction during clenching can be felt by the finger; or if after the subject protrudes, or opens/closes, and returns to their “comfortable position” and the lateral pole *is not* felt.
  - “Joint”: If there is no perceptible muscle contraction directly beneath the finger during clenching; or if after the subject protrudes, or opens/closes, and returns to their “comfortable position” and the lateral pole *is* felt.
  - “Both”: If the site over the lateral pole is painful and muscle contraction is felt over the joint [or just anterior to the joint and on the masseter muscle] during clenching.
  - The examiner’s decision is made independent of feedback from the subject. For example, if the subject indicates pain in the joint but the examiner identifies the location as muscle, the examiner’s findings are those recorded.

13. If the subject has a positive pain report not associated with palpations, (items 2, 4 and 6), then clarification is allowed. For item 2, ask the subject: "Could you point with one fingertip to each of the areas where you have felt pain *in the past month*". If the subject points to at least one area, then ask the subject, "Are there any other areas where you felt pain *in the past month*?" For items 4 and 6, ask the subject: "Could you point with one fingertip to each of the areas where you felt pain with that movement?" If the subject points to at least one area, then ask the subject, "Are there any other areas where you felt pain with that movement?"

**Note:** Because the Research Diagnostic Criteria require self-report of pain location (examination items 1 and 2), verified by the examiner, these items have been moved from the questionnaire to the examination. This will allow the examiner the opportunity to reliably confirm the type and location of pain.

Before beginning the Examination the examiner first says, "I am going to ask about areas of pain, and these are the areas [all palpation sites in the exam] that I am primarily interested in... here... here... here... and also possibly areas within the mouth." As the examiner says this, she touches, bilaterally, the temporalis, TMJ, masseter area, posterior-mandibular area, and sub-mandibular areas. The examiner does not identify the areas by name.

## B. EXAMINATION

1. Ask the subject, "In the past month, have you had pain on the right side of your face, the left side, or both sides?" Circle the appropriate answer
2. "Could you point with one fingertip to each of the areas where you have felt pain *in the past month*." If the subject points to at least one area, then ask the subject, "Are there any other areas where you felt pain *in the past month*?" Circle the appropriate answer. If it is unclear to the examiner whether the subject is indicating a joint or muscle, press on the area as lightly as possible to correctly identify the anatomic site. For example, if the subject indicates pain in the joint, but the examiner identifies the location as muscle, the examiner's findings are those which are recorded.
3. *Opening Pattern*. General Instruction: Ask the subject to position the mandible in a comfortable position. ("Place your mouth in a comfortable position with your back teeth completely together.") Place your thumb under the subject's lower lip so that the lip reveals the lower teeth. This will facilitate observing midline deviation. Ask the subject to open the mouth as wide as possible, even if he/she feels pain. ("I'd like you to open your mouth as wide as you can, even if it's painful.") If the degree of deviation is unclear, then use a millimeter ruler held vertically between the maxillary and mandibular incisor embrasures (or mark mandibular incisor if midlines do not match) as a guide. Ask the subject to open three times. If the subject exhibits more than one opening pattern then ask the subject to repeat the three

openings and score the most reproducible pattern according to the following criteria (*note*: only opening pattern is assessed).

a. *Straight*. If there is no perceptible deviation upon opening.

b. *Lateral Deviation to Right or Left*. For deviations that are visually perceptible to one side at maximum opening, determine which side of the subject's face the deviation goes towards and record accordingly.

c. *Corrected Deviation ("S" Deviation)*. The subject exhibits a perceptible deviation to the right or left but corrects to the midline before or upon reaching the maximum unassisted mandibular opening.

*Other*. The subject exhibits jerky opening (not smooth or continuous) or has an opening other than those provided; indicate this and the type of deviation. If the subject has no dominant opening pattern, use this category and write "more than one."

4. *Vertical Range of Motion of Mandible*. If the subject is wearing a denture or partial and it is loose, compress it against the ridge for all opening measurements.

a. *Unassisted (Mandibular) Opening Without Pain*

i. *Obtaining Measurement*. Ask the subject to place the mandible in a comfortable position. ("Place your mouth in a comfortable position.") Choose the maxillary incisor that is most vertically oriented, [if there is no difference choose tooth #8]. Ask the subject to open the mouth as far as possible (unassisted), without feeling any pain. ("I would like for you to open your mouth as wide as you can without feeling any pain, or without increasing your current pain.") Place the edge of the millimeter ruler at the mesial-distal center of the incisal edge of the opposing mandibular central and measure vertically to the labioincisal edge of the opposing maxillary incisor; record this measurement. Indicate on the form which maxillary incisor was chosen. If the subject did not open at least 30 mm, repeat the opening in order to insure understanding. If the second opening still does not produce more than a 30-mm opening, record the measurement.

b. *Maximum Unassisted (Mandibular) Opening*

i. *Obtaining Measurement*. Ask the subject to place the mandible in a comfortable position. ("Place your mouth in a comfortable position.") Then ask the subject to open the mouth as wide as possible, even if he/she feels pain. ("I would like for you to open your mouth as wide as you can, even if it's painful.") Place the edge of the millimeter ruler at the mesial-distal center of the incisal edge of the same mandibular central incisor and measure vertically to the labioincisal edge of the opposing maxillary incisor; record this measurement.

ii. *Pain*. Ask the subject if he/she felt pain on maximum unassisted opening. ("When you opened this time, did you have any pain?" If "Yes", ask the subject, "Could you point with one fingertip to each of the areas where you felt pain with that movement?". If the subject points to at least one area, then ask the subject, "Are there any other areas where you felt pain with that movement?") Record whether or not the subject had pain, and the

location. The location is scored in two ways: by left and/or right side and specifically whether or not the pain is in the joint. Two entries are required for items 4.b and 4.c to assess pain: for each side, record as "None" (0), "Joint" (1), "Muscle" (2) or "Both" (3). If the subject indicates pressure or tightness, the examiner will use the neutral probe, "Is that pain, yes or no?" If "No" score as "None."

c. *Maximum Assisted (Mandibular) Opening*

- i. *Obtaining Measurement.* Ask the subject to position the mandible in a comfortable position. ("Place your mouth in a comfortable position.") Ask the subject to open the mouth as wide as possible, even if he/she feels pain. ("I would like for you to open your mouth as wide as you can, even if it's painful.") After the subject has opened this wide, place your thumb on the subject's maxillary central incisors, and cross your index finger over to the subject's mandibular central incisors. From this position you will gain the leverage necessary to force the subject's mouth open wider. Use moderate pressure, but do not forcefully open the mouth wider. ("I am checking to see if I can push your mouth open a little further and I will stop if you raise your hand.") Measure from the mesial-distal center of the labioincisal edge of the same mandibular central incisor as before to the labioincisal edge of the maxillary incisor with the millimeter ruler; record the measurement. [Record on the exam form whether or not the subject raised his/her hand to terminate the opening.]
- ii. *Pain.* Record whether or not the subject felt pain and the location. ("Did you feel any pain when I tried to open your mouth wider with my fingers?" If "Yes", ask the subject, "Could you point with one fingertip to each of the areas where you felt pain with that movement". If the subject points to at least one area, then ask the subject, "Are there any other areas where you feel pain with that movement?" Score pain locations as in maximum unassisted opening. If the subject indicates feeling pressure or tightness, the examiner will use the neutral probe, "is that pain, yes or no?" If "No" score as "None."
- d. *Vertical Incisal Overlap.* Ask the subject to close the teeth completely together. "Put your back teeth completely together." With a pen, pencil or fingernail, mark the line where the incisal edge of the same maxillary central incisor used before for measurements overlaps the mandibular incisor. Measure the distance from the mandibular incisal edge to the marked line and record the measurement.

5. *Temporomandibular Joint Sounds on Palpation for Vertical Range of Motion.*

*General Instructions:* Subjects will indicate the presence or absence of sounds; if present, the examiners will score the *type* of sound observed. As guidance to the examiner, ask "Do you have sounds in your right joint, left joint or both?" If the subject says "Yes", the examiner asks the subject "What sounds do your joints make and on which side do you hear these sounds?" While assessing sounds, the examiner can ask the subject if he/she heard any sounds, the type of sound(s) and which side the sound(s) occurred. The examiner says "Did you

hear or feel any sounds in either of your joints when you opened and closed your mouth?" If the subject says "yes", then the examiner asks "What sounds did you hear and on which side did you hear them?"

Place left index finger over the subject's right TMJ and the right index finger over the subject's left TMJ (preauricular area). Use minimal pressure, less than 1lb. The pad of the finger is placed anterior to the tragus of the ear. Ask the subject to slowly open as wide as possible, even if it causes pain. Each closure should bring the teeth completely together in maximum intercuspation. Ask the subject: "While I have my fingers over your joint, I would like you to slowly open as wide as you can, even if it is painful, and then slowly close until your back teeth are completely together." Ask the subject to open and close 3 times. Use these three opening/closing movements to "get acquainted" and to determine if the subject has sounds. Next, assess each joint unilaterally. Ask the subject to repeat the three opening/closing movements and assess sounds on the right joint. Record the action/sound that the joint produces, on opening or closing as detected by palpation and as defined below. Repeat for the left joint.

a. *Definition of sounds*

0 = *None*.

1 = *Click*. A distinct sound, of brief and very limited duration, with a clear beginning and end, which usually sounds like a "click".

2 = *Coarse Crepitus*. A sound that is continuous, over a longer period of jaw movement. It is not brief like a click or pop; the sound may make overlapping continuous noises. This sound is not muffled; it is the noise of bone grinding against bone, or like a stone grinding against another stone.

3 = *Fine Crepitus*. Fine crepitus is a fine grating sound that is continuous over a longer period of jaw movement on opening or closing. It is not brief like a click; the sound may make overlapping continuous sounds. It may be described as a rubbing or crackling sound on a rough surface.

*Eminence Click*. This sound is not scored; a definition is provided so that if the sound/movement is encountered, the examiner will know what it is.

The eminence click has to include at least an opening click; it is detected when the condyle-disk unit translates around the eminence, which is accompanied by a bodily shift of the mandible.

b. *Scoring of clicking sounds*. While many of the following types of sounds are not pertinent to specific diagnostic criteria, this exhaustive list of definitions is provided in order to better delineate how the sound types required to meet RDC may differ from other sounds.

i. *Reproducible Opening Click*. If upon opening and closing from maximum intercuspation, a click is noted on two of three opening movements, record as "Click" for opening click.

ii. *Reproducible Closing Click*. A click present on two of three closing mandibular movements, record as "Click" for closing click.

- iii. *Reproducible Reciprocal Click*. This sound is determined by the millimeter measurement of opening and closing clicks and the elimination of both clicks when the subject opens and closes from a protruded position. With the millimeter ruler, measure the interincisal distance at which the first opening and last closing clicks are heard. Measure from mesial-distal center of the mandibular central used in #4 vertically to the labioincisal edge of the opposing maxillary incisor. Measurements of the click can be either subject-directed or examiner-directed. If the subject is aware of the click, and can stop as the click occurs then the subject-directed method can be used. If the subject is unaware of the click, or cannot stop the movement at the click, then the examiner must direct the subject to stop the movement. Ask the subject: "I would like you to slowly open your mouth as wide as you can, even if it's painful, until you feel a click (OR: "...I ask you to stop") and I will take a measurement." Then, to get closing click measurement, "Open your mouth as wide as you can, even if it's painful, and then close until you feel a click (OR: "...I ask you to stop") and I will take a measurement." If the clicking ceases and therefore the click is not measurable, leave the measurement fields unfilled and check "9" (Cannot Assess) on exam form. (Computer analyses will then indicate this is not a reciprocal click; even though a click *had* been present, it did not *continue* to be present.) Assess elimination of clicks on protrusive opening by asking the subject first to maximally protrude. Next ask the subject to open and close from this protruded jaw position. "Open slightly and slide your jaw straight out in front of you as far as you can, even if it is painful. Keep your jaw forward and open and close from this position." Circle "Yes" (1) if the click can be eliminated when the jaw is opened and closed in a protruded or more anterior jaw position. If the click is not eliminated, circle "No" (0). If the subject lacks a reciprocal click circle "Not Applicable" (8).
- iv. *Non-Reproducible Click* (not scored on exam form). A non-reproducible click is present if the sound is only demonstrated periodically during opening or closing; it cannot be reproduced on at least two of three full mandibular movements.

More than one sound can be circled overall for Opening (a) and Closing (b). If None (0) is circled, no other responses can be circled.

## 6. *Mandibular Excursive Movements*

Measurements are taken from the labioincisal embrasures between the maxillary and mandibular central incisors. If one central incisor is missing, measure from the mesial incisal edge of the other central incisor. If neither central incisor is present, then measure from the incisal papilla. If there is a diastema, measure from the middle of the space. If the subject cannot perform a movement record "9" (Cannot Assess).

### a. *Right Lateral Excursion*

- i. *Obtaining Measurement*. Ask subject to open slightly and move the mandible as far as possible to the right, even if it is painful. If the

subject is confused about which direction she/he should move their jaw, say "Move your jaw towards this hand" and touch the subject's jaw on the side of the desired movement. If necessary, for any excursive movement, repeat the movement. (*Example*, "Open slightly, and move your jaw as far as possible towards the right, even if it is painful. Then hold it in that position with your teeth slightly apart until I take a measurement." With the teeth slightly separated, use a millimeter ruler to measure from the labioincisal embrasure between the maxillary centrals to the labioincisal embrasure of the mandibular incisors; record this measurement. Then tell the subject to "Move your jaw back to a comfortable position ".)

- ii. *Pain*. Ask the subject if he/she had pain. "Did you feel any pain when you moved your jaw to the side?" If "Yes", ask the subject, "Could you point with one fingertip to each of the areas where you felt pain with that movement?" If the subject points to at least one area, then ask the subject, "Are there any other areas where you felt pain with that movement?" Record whether or not the subject felt pain and the location. The location is scored in two ways: by left and/or right side and specifically whether or not the pain is in the joint. Two entries are required for items 6.a through 6.c to assess pain: for each side record as "None" (0), "Joint" (1), "Muscle" (2), or "Both" (3). If the subject indicated feeling pressure or tightness, the examiner will use the neutral probe, "Is that pain, yes or no?" If "No", score as "None."

b. *Left Lateral Excursion*

- i. *Obtaining Measurement*. "Open slightly, and move your jaw as far as possible towards the left, even if it is painful. Then hold it in that position with your teeth slightly apart until I take a measurement". With the teeth slightly separated, use a millimeter ruler to do the measurement. Then tell the subject to "Move your jaw back to a comfortable position". Record this measurement in the same manner as right excursion.
- ii. *Pain*. Ask the subject if he/she had pain. Record whether or not the subject felt pain and the location. Ask "Did you feel any pain when you moved to the side?" If "Yes", ask the subject, "Could you point with one fingertip to each of the areas where you felt pain with that movement?" If the subject points to at least one area, then ask the subject, "Are there any other areas where you felt pain with that movement?") Score pain locations as in right lateral excursion. If the subject indicated feeling pressure or tightness, the examiner will use the neutral probe, "Is that pain, yes or no?" If "No", score as "None."

c. *Protrusion*

- i. *Obtaining Measurement*. Ask the subject to open slightly and protrude the mandible. ("Open slightly and slide your jaw straight out in front of you as far as you can, even if it is painful. Then hold your jaw in that position until I take a measurement". Use a millimeter ruler to measure



from the mesial distal center of the maxillary incisor used in #4 to the labioincisal edge of the opposing mandibular incisor; record this measurement. After the measurement is done tell the subject to "Move your jaw back to a comfortable position".) If the subject has a deep overbite, ask him/her to open wider so he/she can protrude without interference from the maxillary incisors.

- ii. *Pain.* Ask the subject if he/she had pain. Record whether or not the subject felt pain and the location. ("Did you feel any pain when you moved your jaw forward?" If "Yes", ask the subject, "Could you point with one fingertip to each of the areas where you felt pain with that movement?" If the subject points to at least one area, then ask the subject, "Are there any other areas where you felt pain with that movement?") Score pain locations as in right lateral excursion. If the subject indicated feeling pressure or tightness, the examiner will use the neutral probe, "Is that pain, yes or no?" If "No", score as "None."
- d. *Midline Deviation.* Ask subject: "Put your back teeth completely together." If the incisal embrasures of the maxillary and mandibular incisors do not line up vertically, determine the horizontal difference between the two while the subject is biting together. Measure in millimeters how far the mandibular embrasure is from the maxillary embrasure and on which side of the subject the mandibular embrasure is located. If the midline deviation is less than 1 mm, or there is no deviation, enter "00."

#### 7. *Temporomandibular Joint Sounds on Palpation for Lateral Excursions and Protrusion*

The guidelines for assessing sounds are the same as for Temporomandibular Joint Sounds on Palpation for Vertical Range of Motion.

Ask the subject to move to the right, to the left, and protrude (see 6).

Specifically, for right excursive movements, ask the subject to "Open slightly and move your jaw as far as possible towards the right, even if it is painful, and move your jaw back to a comfortable position and put your back teeth completely together every time." For left excursive movements, ask the subject to "Open slightly and move your jaw as far as possible towards the left, even if it is painful, and move your jaw back to a comfortable position and put your back teeth completely together every time." For protrusive movements, ask the subject to "Open slightly and slide your jaw straight out in front of you as far as you can, even if it is painful and move your jaw back to a comfortable position and put your back teeth completely together every time." If the subject is confused about which direction she/he should move their jaw, say "Move your jaw towards this hand" and touch the subject's jaw on the side of the desired movement. For all excursive movements, ask the subject to repeat movement for a total of three times. Then after the subject does each movement, as guidance to the examiner, ask the subject "Did you hear or feel any sounds in either of your joints when you moved to the right?" If the subject says "Yes", the examiner asks the subject "What sounds did you hear and on which side did you hear them?"

- a. *Definition of Sounds.* Refer to item 5.
- b. *Scoring of Clicking Sounds.*
  - i. *Reproducible Laterotrusive and Protrusive Click.* Occurs when the TMJ displays a click with two of three lateral movements to the same side or protrusion of the mandible respectively. Record as “Click” on exam form.
  - ii. *Nonreproducible Laterotrusive and Protrusive Clicks.* A nonreproducible click is present if the click is only demonstrated periodically during laterotrusion movements or protrusion but cannot be reproduced on at least two of three movements. Not recorded on exam form.

### **C. GENERAL INSTRUCTION FOR MUSCLE AND JOINT PALPATION FOR PAIN**

1. Examining the muscles and joint capsules for tenderness requires that you press on a specific site using the fingertips of the index and third fingers or the spade-like pad of the distal phalanx of the index finger only with standardized pressure, as follows: palpations will be done with 2 lbs of pressure for the temporalis and masseter muscles, 1 lb of pressure on the posterior mandibular and submandibular regions, the joints and intraoral muscles. Two fingers are used for palpations when subject and examiner anatomy allow (temporalis, masseter, posterior mandibular and submandibular region); otherwise a single finger is used. Within each group of items, 8-10, palpate the right side then the left side; e.g. #8 Right side: Temporalis, Masseter, Posterior Mandibular Region and Submandibular Region; then #8 Left side Temporalis, Masseter, Posterior Mandibular Region and Submandibular Region. Palpate the muscles while using the opposite hand to brace the head to provide stability. The subject's mandible should be in a resting position, without the teeth touching. Palpate while muscles are in a passive state.

As needed, have the subject lightly clench and relax to identify and to insure palpation of the correct muscle site. ("I'm going to press on some muscles. I would like you to clench your teeth together gently and then relax your jaw with your teeth slightly apart.") Also, as needed, have the subject protrude their jaw and/or open and close to insure location and palpation of the correct joint site. ("Open slightly so your teeth are not touching and slide your jaw forward and then back" OR "Open until I ask you to stop and then close.") First locate the site of palpation using the landmarks described and then press. Because the site of maximum tenderness may vary from subject to subject and is localized, it is important to press in multiple areas in the region specified to determine if tenderness exists. Before beginning the palpations, say: "In the next part of the exam, we'd like [you] to report whether you feel pain or pressure when I palpate or press on certain parts of your head and face." Ask the subject to determine if the palpation is painful or if he/she just feels pressure. If it is painful, ask the subject to indicate if the pain is mild, moderate, or severe. Ask the subject, "Did you feel pain?" If "Yes", then ask "was that mild, moderate or severe?" For any equivocal response such as "tightness" or the report of pressure only, the

examiner will use the neutral probe, "Is that pain, yes or no?" If "No", record as "No Pain." If, for any reason, the subject asks the examiner not to palpate an area, record "Subject Refused" on exam form.

2. *Description of Specific Extraoral Muscle Sites (2 lbs digital pressure)*

- a. *Temporalis (Posterior)*. Palpate posterior fibers behind the ears to directly above the ears. Ask the subject to clench and then relax to help identify muscle. Walk fingers towards the subject's face (medially) to the anterior border of the ear.
- b. *Temporalis (Middle)*. Palpate fibers in the depression about 4-5 cm lateral to the lateral border of the eyebrow.
- c. *Temporalis (Anterior)*. Palpate fibers over the infratemporal fossa, immediately above the zygomatic process. Ask the subject to clench and relax to help identify muscle.
- d. *Origin of Masseter*. Ask the subject to first clench then relax and observe masseter for location. Palpate the origin of the muscle beginning in the area 1 cm immediately in front of the TMJ and immediately below the zygomatic arch, and palpate anteriorly to the border of the muscle.
- e. *Body of the Masseter*. Start just below the zygomatic process at the anterior border of the muscle. Palpate from here down and back to the angle of the mandible across a surface area about two fingers wide.
- f. *Insertion of the Masseter*. Palpate the area 1 cm superior and anterior to the angle of the mandible.
- g. *Posterior Mandibular Region (Stylohyoid / Posterior Digastric)*. Use only 1 lb of pressure. Ask the subject to tip the head back a little. "I would like you to tip your head back a little." Locate the area between the insertion of the SCM and the posterior border of the mandible. Place finger so it is going medially and upwards (and not on the mandible). Palpate the area immediately medial and posterior to the angle of the mandible.
- h. *Submandibular Region (Medial Pterygoid, Suprahyoid, Anterior Digastric)* Only 1 lb of pressure. Locate the site under the mandible at a point 2 cm anterior to the angle of the mandible. Palpate superiorly, pulling toward the mandible. If a subject has a lot of pain in this area, try to determine if the subject is reporting muscle or nodular pain.

3. *Description of Specific Joint Palpation Sites (1 lb digital pressure)*

- a. *Lateral Pole.* Place index finger just anterior to the tragus of the ear and over the subject's TMJ. Ask the subject to open slightly until the examiner feels the lateral pole of the condyle translated forward or ask the subject to protrude slightly. "Open slightly until I ask you to stop [palpate] and then close" OR "Open slightly and slide your jaw straight out in front of you and then move it back to its normal position with your teeth slightly apart" [palpate] and then close". Use 1 lb pressure on the side that is being palpated, supporting the head with the opposite hand.
- b. *Posterior Attachment.* This site can be palpated intrameatally. Place the tip of the right little finger into the subject's left external meatus and the tip of the left little finger into the subject's right external meatus. Point the fingertips towards the examiner and ask subject to slightly open the mouth (or wide open if necessary) to make sure the joint movement is felt with the fingertips. Ask subject: "Open your mouth. When your mouth is open I am going to put my little finger in each of your ears and then close your mouth and put your back teeth completely together." Place firm pressure on the right side and then the left side while the subject's teeth are completely together.

(Change examination gloves.)

4. *Description of Specific Intraoral Palpation Sites (1 lb digital pressure)*

Explain to the subject that you will now be palpating the inside of the mouth: ("Now I am going to palpate around the inside of your mouth. While I do these palpations I would like you to keep your jaw in a relaxed position with your teeth apart.")

- a. *Lateral Pterygoid Area.* Before palpating, make sure the fingernail of the index finger is trimmed to avoid false positives. Ask the subject to open the mouth and move the jaw to the side that is being examined. ("Move your jaw towards this hand.") Place the index finger on lateral side of alveolar ridge above the right maxillary molars. Move finger distally, upward, and medial to palpate. If the index finger is too large, use the little finger (5th digit).
- b. *Tendon of Temporalis.* After completing the lateral pterygoid, rotate your [index] finger laterally near the coronoid process, ask the subject to open slightly, and move your [index] finger up the anterior ridge of the coronoid process. Palpate on the most superior aspect of the process. *Note:* If it is difficult to determine if the subject is feeling pain in the lateral pterygoid or the tendon of the temporalis, rotate and palpate with the index finger medially then laterally. If there is still difficulty, the lateral pterygoid is usually the more tender of the two.