

University of Texas Medical Branch Center for Sleep Disorders Policy: MWT Protocol	Effective Date: February 28, 2013 Revised Date: January 18, 2019 Campus: Galveston and Webster
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MWT PROTOCOL

PURPOSE

A standard MWT protocol that is consistent with AASM practice parameters promotes consistency, allows comparisons between tests, and ensures accurate interpretations that are consistent with published data.

POLICY

The sleep facility performs MWTs in accordance with AASM practice parameters and published guidelines. MWT is indicated to assess a person's ability to remain awake when his or her inability to remain awake constitutes a public or personal safety issue. MWT may be indicated in patients with excessive daytime sleepiness to assess response to treatment.

MWT must be ordered or approved by an appropriately-licensed facility medical staff member. Performance of a PSG prior to MWT is decided by the physician based on clinical circumstances. MWT trials last 40 minutes. On occasion the staff physician may order 20 minute trials (e.g., for FAA requirements).

PROCEDURE

General Considerations

The patient's use of tobacco, caffeine and medications before and during MWT should be determined by the sleep clinician before the MWT. Drug screening may be indicated to ensure that sleepiness or wakefulness during the MWT is not influenced by substances other than medically prescribed drugs. The physician may request a urine specimen for drug screening; the timing of this specimen is determined by the physician.

General Description:

- 1.0** The MWT consists of four trials performed at two-hour intervals.
 - 1.1 The first trial begins about one and a half to three hours after the patient's usual wake-up time. It is recommended that each trial last 40 minutes if no sleep occurs.
 - 1.2 Twenty-minute trials may be done based on the judgment of the sleep clinician.
 - 1.3 Use of 20-minute trials must be justified.
- 2.0** A light breakfast is provided about one hour prior to the first trial, and a light lunch is provided immediately after the end of the second trial.
- 3.0** Between trials the patient is kept out of bed and is visually monitored to ensure that no napping occurs.

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- 4.0** During each test, the patient sits in a semi-reclining position (45–90 degrees) on the bed in a dimly lit room (a 7.5 W night light is positioned slightly behind the patient’s head so that it is just out of the patient’s field of vision), and the patient is told to try to stay awake.
- 5.0** The recording is terminated after 40 minutes if no sleep occurs. If the patient falls asleep during the 40 minutes, then the trial is terminated after unequivocal sleep, defined as three consecutive epochs of stage N1 sleep or one epoch of any other stage of sleep.
- 6.0** The MWT is recorded with standard polysomnography using the following montage: REOG, LEOG, chin EMG, EEG (C3-A2 or C4-A1), EEG (O2-A1 or O1-A2) and EKG.
- 7.0** The mean sleep latency is determined across four trials.
- 8.0** Sleep latency is defined as the time from lights out to the first epoch of any stage of sleep scored according to the most current version of the *AASM Scoring Manual*.

Details of the Procedure:

- 1.0** After completion of the polysomnogram (if applicable), airflow, chest respiration belts, oximeter probe and leg EMG leads are removed.
- 2.0** After arising, the patient should use the bathroom, dress in street clothes and eat breakfast.
- 3.0** The MWT procedure should be explained to the patient. The patient is told that he or she cannot sing or make unnecessary movements during the test.
- 4.0** Between trials the patient should be out of bed and overseen by continuous visual monitoring to ensure that no napping occurs.
- 5.0** The first page of the MWT is labeled with the following information:
 - 5.1 Patient name
 - 5.2 Patient identification number
 - 5.3 MWT
 - 5.4 Room number
 - 5.5 Date of test
 - 5.6 Patient date of birth
 - 5.7 Ordering physician
 - 5.8 Initials of technologist performing study

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5.9 Montage for the MWT:

Channel #	Parameter	Derivation	Sensitivity	Low filter	High Filter
1	REOG	REOG/A1	7uv/mm	0.3	35
2	LEOG	LEOG/A1	7uv/mm	0.3	35
3	Chin EMG	Chin EMG	3uv/mm	10	100
4	EEG	C3/A2 or (C4A1)	7uv/mm	0.3	35
5	EEG	O2/A1 or (O1A2)	7uv/mm	0.3	35
6	EKG	EKG	variable	0.3	70

- 6.0** A 50-microvolt standard calibration is performed for all recording channels.
- 7.0** The electrodes are visually inspected for good adherence, and any loose electrodes are replaced.
- 8.0** An impedance check is performed, and any electrodes greater than 5,000 ohms are replaced and rechecked.
- 9.0** Patient is placed in bed at test time, and the jack box is plugged in.
- 10.0** The room lights are out with a dim light illuminated behind the patient.
- 11.0** The following schedule of events occurs prior to each test:
- 11.1 30 minutes before: cessation of smoking
 - 11.2 15 minutes before: suspension of physical activity
 - 11.3 10 minutes before: preparation for bed
 - 11.4 5 minutes before: electrodes connected and calibrations completed (see below)
 - 11.5 5 seconds before: instructions to relax and remain awake
 - 11.6 0: lights out
- 12.0** Technologist starts polygraph or computer and makes adjustments in tracing. When tracing is acceptable, technologist performs the following patient bio-calibrations:
- 12.1 Eyes open for 30 seconds
 - 12.2 Eyes closed for 30 seconds
 - 12.3 Moving eyes only, look right
 - 12.4 Moving eyes only, look left
 - 12.5 Moving eyes only, look up
 - 12.6 Moving eyes only, look down
 - 12.7 Blink several times

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- 12.8 Swallow
- 12.9 Grit teeth
- 13.0** Inform patient that the nap has begun with the following statement: “Please sit still and remain awake for as long as possible. Look directly ahead of you, and do not look directly at the light.”
- 14.0** Patients are not allowed to use extraordinary measures to stay awake such as slapping the face or singing.
- 15.0** Label the “lights out” page with the following information:
 - 15.1 Lights out and time
 - 15.2 Patient position
- 16.0** Document any changes made in sensitivity or filter settings, as well as patient position and behavior during the study.
- 17.0** The test is ended after 40 minutes if no sleep occurs. If sleep does occur, the test is ended after unequivocal sleep, defined as three consecutive epochs of stage N1 sleep or one epoch of any other stage of sleep.
- 18.0** On the “lights on” page, label the following information:
 - 18.1 Lights on and time
 - 18.2 Post-test machine calibrations
 - 18.3 Standard 50-microvolt calibrations
- 19.0** Knock and enter patient’s room and disconnect jack box from cable. Inform patient that he or she must stay awake until the start of the next test at approximately (time).

End of Study:

- 1.0** At the end of the last trial, turn off polygraph or exit computer.
- 2.0** Gently remove all sensors from patient. Take care to avoid irritation of patient’s skin.
- 3.0** Carefully remove tape and electrodes from the patient’s skin.
- 4.0** Ensure that all paste residue has been removed by using a damp wash cloth on the skin and a fine-toothed comb through the hair after all electrodes have been removed.
- 5.0** When patient is ready to leave, the technologist should recommend that the patient schedule a follow-up visit with his or her physician to discuss the results of the study. Then discharge the patient from the facility.

After the Polysomnogram:

- 1.0** Carefully sort wires and group them together by lengths and application sites.
- 2.0** Remove any remaining tape, wash electrodes with soap and water, rinse and allow to soak in Wex-cide solution for a minimum of 10 minutes. Rinse well and allow to dry.
- 3.0** Inspect wires at this time to insure their integrity.
- 4.0** Return any equipment and all cleaned and disinfected wires to the storage area for future use.

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General Cleanup Checklist:

- 1.0** Discard all used tape, collars, gauze, etc.
- 2.0** Return patient preparation kit to appropriate area.
- 3.0** Stock patient preparation kit as needed.
- 4.0** If CPAP and/or oxygen equipment was used, remove and empty humidifier, connecting tubing, nasal cannula, and any other equipment, and place in designated “dirty equipment area” for cleaning and disinfecting.
- 5.0** Discard disposable equipment such as the nasal cannula or disposable oximeter probe.
- 6.0** Remove any lint from CPAP equipment filter.
- 7.0** Remove used linen and place in appropriate dirty linen container.
- 8.0** Leave patient suites in clean and orderly condition.

Scoring:

- 1.0** Sleep-stage scoring is based on the most recent version of the *AASM Scoring Manual*.
- 2.0** The sleep latency is determined from lights out to the first epoch of any stage of sleep.