

MODULE

**SUPPLEMENTAL LOW FLOW
OXYGEN TITRATION IN
POLYSOMNOGRAPHIC
TECHNOLOGY**

SUPPLEMENTAL LOW FLOW OXYGEN TITRATION IN POLYSOMNOGRAPHIC TECHNOLOGY

OBJECTIVES:

At the end of this module the student must be able to:

- Explain the purpose and indication of supplemental low-flow oxygen during overnight polysomnogram
- Explain the contraindications for oxygen therapy
- Explain the complications of oxygen therapy
- Apply the oxygen titration technique to the patient
- Explain the therapeutic objective of oxygen therapy during overnight polysomnogram

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PURPOSE and INDICATION:

- To provide documentation of the patient's need for supplemental nocturnal oxygen and ascertain the minimum liter flow of oxygen required to maintain a SpO₂ baseline of no less than 90%.
- Commonly used by patients who are at risk of sleep apnea or decreased levels of oxygenation at rest. Indications for patients requiring supplemental oxygen should be when the patient's baseline oxygen saturation is in the range of 85-88% without any associated respiratory events on waking state.

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CONTRAINDICATIONS/HAZARDS:

- Open flames

Oxygen supports combustion, therefore no open flame or products that are combustible should be permitted when oxygen is in use. These include petroleum jelly, oils, and aerosol sprays.

- Smoking

A spark from a cigarette, electric razor, or other electrical device could easily ignite oxygen-saturated hair or bedclothes around the patient.

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COMPLICATIONS:

- Patients who received excessive supplemental oxygen may develop carbon dioxide (CO₂) retention
- Nasal mucosa dryness and irritation may result from diminished humidification
- Nasal mucosa irritation may result from excess oxygen flow. (Flow should not exceed 4 liters per minute unless otherwise ordered by the sleep physician. Humidifier inline is recommended for liter flows above 3 liters per minute)
- Epistaxis may develop as a result of high flow oxygen via nasal cannula

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EQUIPMENT/SUPPLIES NEEDED FOR SLEEP STUDY FOR O₂ TITRATION:

- Oxygen tank
- Oxygen flow meter
- Disposable pre-filled humidifier
or flow meter adapter
- Nasal Cannula
- Dual wire no casing or comparable
thermocouple or thermistor



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PROCEDURE:

Prior to patient arrival to the Sleep Center

- Assemble flow meter, pre-filled humidifier/ flow meter adapter, nasal cannula, appropriate thermocouple or thermistor for monitoring patient's nasal airflow

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PATIENT PREPARATION FOR TESTING:

- Prepare patient for sleep study
- Prior to Final Patient Preparation for Sleep Study:
 - a. Confirm Physician's order for supplemental nocturnal oxygen titration
 - b. Explain oxygen titration procedure to patient
 - c. Place oxygen delivery device in position and secure
 - d. Assure proper location of airflow device(s) for adequate nasal/oral airflow recording(s)

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PATIENT PREPARATION FOR TESTING: (cont'd)

- Continue patient preparation for sleep study.
 - a. Initiate Oxygen, if indicated;
 - after an adequate SpO₂ baseline of less than 85% on room air has been established. Supplemental O₂ should be initiated beginning at 1 liter per minute.
 - If SpO₂ continues to remain below 90% increase O₂ until SpO₂ is at or above 90%. Increase O₂ in increments of 0.5 LPM to a maximum of 4 LPM.

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PATIENT PREPARATION FOR TESTING: (cont'd)

Patients requiring higher concentrations of oxygen must contact the sleep physician on-call. Be cognizant of patient's diagnosis and any history of retaining CO₂.

b. In addition to the usual documentation, record baseline liter flow of 0 as "Room Air" at the beginning of the Sleep Study and any time the liter flow is adjusted.

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OBJECTIVE ACHIEVEMENT:

Adequate supplemental oxygen was administered to the patient when the following conditions are achieved:

- Improvement of patient's nocturnal SpO₂
- Improvement of patient's quality of sleep
- Additional benefits for patient might include: less daytime drowsiness, more alert feeling, improved memory, more motivation, better work performance, improve outlook on life.