ENDOCRINE / METABOLIC | MED-SURG | NGN NCLEX 2026

Obesity

Weight Management • Bariatric Care • Patient Teaching • Complications & Comorbidities

1 Definition & Overview

Obesity is a **chronic, complex, multifactorial disease** characterized by excessive accumulation of body fat that increases health risk. It is classified by Body Mass Index (BMI = kg/m²).

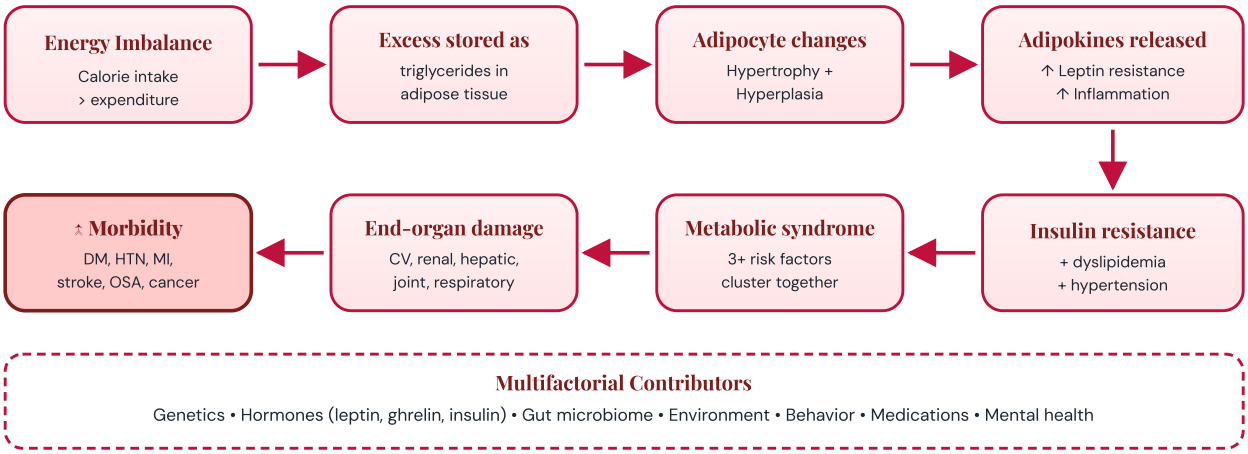
Why it matters: Obesity is the #1 modifiable risk factor for Type 2 DM, HTN, CAD, stroke, OSA, and several cancers. NCLEX expects the nurse to act on it as a **disease**, not a lifestyle choice.

CATEGORY	BMI (KG/M²)	RISK LEVEL
Underweight	< 18.5	Increased
Normal weight	18.5 – 24.9	Baseline
Overweight	25 – 29.9	Increased
Obesity – Class I	30 – 34.9	High
Obesity – Class II	35 – 39.9	Very High
Obesity – Class III (severe / morbid)	≥ 40	Extremely High

Waist Circumference (Visceral Fat = Highest Risk)

- **Women:** > 35 inches (88 cm) → increased cardiometabolic risk
- **Men:** > 40 inches (102 cm) → increased cardiometabolic risk

2 Pathophysiology (Simplified)



Multifactorial Contributors

Genetics • Hormones (leptin, ghrelin, insulin) • Gut microbiome • Environment • Behavior • Medications • Mental health

3 Signs & Symptoms

Early / Mild Findings

- Gradual weight gain, ↑ BMI
- Fatigue, decreased exercise tolerance
- Snoring, mild daytime sleepiness
- GERD / heartburn after meals
- Joint discomfort (knees, low back, hips)
- Stress incontinence
- Dyspnea on exertion (mild)
- Skin striae, mild intertrigo (skin folds)

Late / Severe Findings

- Obstructive sleep apnea (witnessed apnea)
- HTN, dyslipidemia, T2DM
- Acanthosis nigricans (insulin resistance)
- Edema, dependent / pitting
- Severe dyspnea, hypoxia (obesity hypoventilation)
- Skin breakdown, fungal rash, cellulitis
- Limited mobility / pressure injury risk
- Depression, social isolation, low self-esteem

RED FLAG FINDINGS — Escalate Immediately

- **SpO_2 < 90% or signs of obesity hypoventilation** (somnolence, cyanosis, ↑ $PaCO_2$)
- **BP ≥ 180/120** with target organ symptoms (chest pain, vision changes, neuro deficit)
- **Acute chest pain, dyspnea, unilateral leg swelling** → MI / PE / DVT risk
- **Suicidal ideation, severe depression** after weight-loss attempts or surgery
- **Post-bariatric surgery:** tachycardia > 120, fever, severe abdominal pain → anastomotic leak

Major Comorbidities & Complications

❤️

Cardiovascular

HTN, CAD, MI, HF, stroke

🩸

Endocrine

Type 2 DM, metabolic syndrome, PCOS

🫁

Respiratory

OSA, obesity hypoventilation, asthma

🦴

Musculoskeletal

OA (knees/hips), back pain, gout

🟡

Hepatic / GI

NAFLD, cholelithiasis, GERD

🩻

Renal

CKD, proteinuria

🎗️

Oncologic

↑ breast, colon, endometrial, kidney CA

🧠

Psychosocial

Depression, anxiety, stigma, ↓ QOL

4 Priority Nursing Interventions (ABC + Safety)

🅰️ Airway / Breathing

- **Position** semi-Fowler's or reverse Trendelenburg to maximize lung expansion.
- **Monitor** SpO_2, RR, capnography; screen for OSA (STOP-BANG).
- **Apply** CPAP/BiPAP as ordered, especially overnight and post-op.
- **Anticipate** difficult intubation; have airway adjuncts ready.

❤️ Circulation

- **Measure** BP with appropriate large/extra-large cuff (small cuff = falsely high).
- **Monitor** for HF, dysrhythmias, edema, glycemia.
- **Apply** SCDs & administer prophylactic anticoagulant — VTE risk is HIGH.
- **Encourage** early ambulation post-op.

🛡️ Safety & Skin

- **Use** bariatric-rated bed, lifts, commode, BP cuff, gown, wheelchair.
- **Inspect** skin folds (under breasts, abdomen, perineum) every shift; keep clean & dry.
- **Reposition** q2h; offload pressure points.
- **Use** proper body mechanics & ≥ 2-person transfers.

🧱 Assessment

- **Calculate** BMI & measure waist circumference.
- **Obtain** diet recall, exercise history, weight-loss attempts.
- **Screen** for depression (PHQ-9), eating disorders, body image.
- **Review** labs: glucose, A1C, lipid panel, LFTs, TSH.

🥦 Nutrition & Activity

- **Plan** 500–1000 kcal/day deficit → 1–2 lb/week loss (safe goal).
- **Promote** 150 min/week moderate aerobic + 2× resistance training.
- **Refer** to RD, behavioral therapist, exercise specialist.
- **Avoid** very-low-calorie diets without HCP supervision.

💬 Therapeutic Communication

- **Use** nonjudgmental, person-first language ("client with obesity," not "obese client").
- **Acknowledge** obesity as a chronic disease — not a willpower failure.
- **Set** SMART, realistic goals with the client.
- **Reinforce** small wins; address relapse without shame.

5 Pharmacology — Anti-Obesity Medications

Orlistat (Xenical, Alli OTC)

LIPASE INHIBITOR

MECHANISM

Blocks pancreatic lipase → ↓ fat absorption (~30%) in the gut.

SIDE EFFECTS

Oily/loose stools, fecal urgency, flatulence, ↓ fat-soluble vitamins (A, D, E, K).

NURSING

Take with meals containing fat. Give multivitamin **2 HR APART**. Avoid in malabsorption / cholestasis.

Phentermine (Adipex-P)

SYMPATHOMIMETIC APPETITE SUPPRESSANT — SCHEDULE IV

MECHANISM

↑ Norepinephrine release → suppresses appetite, ↑ satiety.

SIDE EFFECTS

HTN, tachycardia, insomnia, dry mouth, anxiety, constipation.

NURSING

Short-term use only (≤ 12 wk). Avoid in CV disease, hyperthyroidism, MAOI use, pregnancy.

Liraglutide (Saxenda) & Semaglutide (Wegovy)

GLP-1 RECEPTOR AGONISTS — SUBQ INJECTION

MECHANISM

Mimics GLP-1 → ↑ satiety, slows gastric emptying, ↓ glucagon.

SIDE EFFECTS

N/V, diarrhea, constipation, pancreatitis, gallbladder disease, injection site reaction.

NURSING

Black-box: **THYROID C-CELL TUMORS** — contraindicated with personal/family hx of MTC or MEN-2. Titrate dose slowly.

Naltrexone–Bupropion (Contrave)

COMBINATION — OPIOID ANTAGONIST + AMINOKETONE

MECHANISM

Acts on hypothalamus & reward pathway → ↓ appetite, ↓ cravings.

SIDE EFFECTS

N/V, constipation, headache, insomnia, ↑ BP/HR, seizure risk.

NURSING

Avoid in seizure disorder, uncontrolled HTN, opioid use,

eating disorders. Monitor BP & suicidality.

Phentermine–Topiramate (Qsymia)

COMBINATION — APPETITE SUPPRESSANT + ANTICONVULSANT

MECHANISM

Topiramate enhances satiety & ↓ appetite alongside phentermine.

SIDE EFFECTS

Paresthesia, dry mouth, dysgeusia, insomnia, cognitive changes, teratogenic (cleft lip/palate).

NURSING

PREGNANCY CONTRAINDICATED — verify negative pregnancy test & effective contraception monthly.

6 Bariatric Surgery — Indications & Care

Criteria: BMI ≥ 40, OR BMI ≥ 35 with serious comorbidity (T2DM, OSA, HTN, NAFLD), with documented failure of nonsurgical weight management.

Restrictive

Sleeve Gastrectomy

~80% of stomach removed → tube/sleeve remains. Most common procedure. Reduces ghrelin (hunger hormone).

- No malabsorption; fewer vitamin issues
- Risk: leak along staple line

Restrictive + Malabsorptive

Roux-en-Y Gastric Bypass (RYGB)

Small gastric pouch + bypass of duodenum/proximal jejunum. Greatest long-term loss.

- High risk of **dumping syndrome** & vitamin deficiency (B_{12}, iron, calcium, D)
- Lifelong supplementation required

Restrictive — Adjustable

Adjustable Gastric Banding (LAGB)

Inflatable band around upper stomach. Reversible, less weight loss; less common today.

- Risks: band slippage, erosion, port infection

Endoscopic / Temporary

Intragastric Balloon

Saline-filled balloon placed for 6 months → restricts intake, induces satiety.

- N/V common in first week
- Removed endoscopically

Post-Op Priorities (First 24–48 hr)

🚨 Watch for Anastomotic Leak

- Tachycardia > 120 (often **earliest** sign)
- Fever, ↑ pain (esp. left shoulder), restlessness
- Decreased urine output, hypotension
- **Notify HCP immediately** — surgical emergency

🩹 VTE / DVT Prevention

- Early ambulation within hours of surgery
- SCDs & prophylactic LMWH (heparin/enoxaparin)
- Encourage leg exercises & deep breathing

🍽️ Diet Progression

- Stage 1: clear liquids (sips of 1 oz)
- Stage 2: full liquids → puréed → soft → regular
- Advance over weeks; **no straws** (air → distention)

💊 Lifelong Supplements (esp. RYGB)

- Multivitamin, calcium citrate + vitamin D
- Vitamin B_{12} (sublingual or IM)
- Iron (esp. menstruating women)
- Annual labs: CBC, B_{12}, ferritin, vit D, calcium

- Separate fluids from meals by 30 min

⚠ DUMPING SYNDROME (post-RYGB)

- **Cause:** Rapid emptying of hyperosmolar food into small bowel — especially refined sugars.
- **Early (10–30 min):** diaphoresis, palpitations, dizziness, cramping, diarrhea, tachycardia.
- **Late (1–3 hr):** reactive hypoglycemia → tremor, confusion, weakness.
- **Teaching:** small frequent meals, ↓ simple carbs, ↑ protein/fat, fluids 30 min before/after meals (NOT with), lie down 20–30 min after eating.

7 NCLEX Test Traps ⚠️

❌ **WRONG THINKING**

Use a regular adult BP cuff on a client with obesity to save time.

✅ **CORRECT ACTION**

Use a large/extra-large cuff. A small cuff produces falsely **ELEVATED** BP readings.

❌ **WRONG THINKING**

"You just need to eat less and move more" → tells the client this on admission.

✅ **CORRECT ACTION**

Use nonjudgmental, person-first language. Treat obesity as a chronic disease; assess readiness to change.

❌ **WRONG THINKING**

After RYGB, encourage the client to drink fluids with meals to help "wash food down."

✅ **CORRECT ACTION**

SEPARATE FLUIDS FROM MEALS BY 30 MINUTES — to prevent dumping syndrome & pouch overdistention. **AVOID STRAWS** .

❌ **WRONG THINKING**

Post-bariatric surgery client reports shoulder pain — assume it's positioning related and reposition.

✅ **CORRECT ACTION**

LEFT SHOULDER PAIN + TACHYCARDIA = REFERRED PAIN FROM ANASTOMOTIC LEAK. Notify HCP immediately.

❌ **WRONG THINKING**

Recommend a goal of 5–10 lb loss per week for fastest results.

✅ **CORRECT ACTION**

Safe, sustainable loss = **1–2 LB/WEEK** (~500–1000 kcal/day deficit). Rapid loss → muscle loss, gallstones, rebound.

❌ **WRONG THINKING**

BMI alone determines health risk; a client with normal BMI is "not at risk."

✅ **CORRECT ACTION**

Also assess **WAIST CIRCUMFERENCE** & metabolic labs. Visceral fat (apple shape) carries higher CV risk than total weight.

❌ **WRONG THINKING**

Stop the multivitamin once the client has reached goal weight after RYGB.

✅ **CORRECT ACTION**

LIFELONG SUPPLEMENTATION

is required (B_{12}, iron, calcium + vit D, multivitamin). Annual labs to monitor deficiencies.

❌ **WRONG THINKING**

Place a client with severe obesity flat in bed for the night.

✅ **CORRECT ACTION**

HOB up at least **30–45°**

(or reverse Trendelenburg). Apply CPAP if OSA — supine position worsens hypoventilation.

❌ **WRONG THINKING**

Orlistat user can take their multivitamin at the same time as the medication.

✅ **CORRECT ACTION**

Take **MULTIVITAMIN 2 HOURS APART** from orlistat (the drug ↓ fat-soluble vitamin absorption — A, D, E, K).

❌ **WRONG THINKING**

Client started on semaglutide reports neck swelling and hoarseness — chalk it up to "GI side effects."

✅ **CORRECT ACTION**

Black-box warning = **MEDULLARY THYROID CARCINOMA**. Hold drug, notify HCP immediately.

8 Patient & Family Education

Nutrition

- Mediterranean / DASH eating pattern
- Plate method: ½ veggies, ¼ lean protein, ¼ whole grains
- Mindful eating, no eating in front of TV
- Read food labels; watch portions, not just calories
- Limit sugar-sweetened beverages & alcohol

Physical Activity

- ≥ 150 min/wk moderate aerobic (brisk walk)
- Resistance training 2× per week
- Start small — even 10-min bouts count
- Track steps; goal ~7,000–10,000/day
- Choose activities you enjoy & will sustain

Behavioral Strategies

- Daily food & activity journal
- Self-weigh weekly (not daily)
- Identify emotional eating triggers
- Sleep 7–9 hr/night (sleep loss ↑ ghrelin)
- Stress management (mindfulness, support groups)

Goal-Setting (SMART)

- **S**pecific, **M**easurable, **A**ttainable, **R**elevant, **T**ime-bound
- 5–10% body weight loss = significant health benefit
- 1–2 lb/week is the safe target
- Celebrate non-scale wins (energy, sleep, BP)

Post-Bariatric Lifestyle

- Eat slowly, chew thoroughly (20–30 chews)
- Stop at first sign of fullness
- Protein first (60–80 g/day)
- No carbonated drinks, no straws, no smoking
- Lifelong vitamins + annual labs

When to Call HCP

- Persistent vomiting / inability to keep fluids down
- Severe abdominal pain, fever, ↑ HR
- Rapid unexplained weight loss after surgery
- Signs of dehydration (dizziness, dark urine)
- Symptoms of depression / suicidal thoughts

9 Memory Boosters & Mnemonics

5 A's

Behavioral Counseling Framework

- **A**sk about weight & readiness
- **A**dvise on health risks
- **A**ssess motivation & barriers
- **A**ssist with plan/resources
- **A**rrange follow-up & referrals

DUMPING

Post-RYGB Dumping Syndrome

- **D**iaphoresis
- **U**nsteady / dizzy
- **M**alaise / cramping
- **P**alpitations
- **I**ncreased HR
- **N**ausea
- **G**I cramping & diarrhea

BARI

Bariatric Surgery Complications

- **B**leeding / blood clots (DVT/PE)
- **A**nastomotic leak
- **R**eflux / dumping syndrome
- **I**nfection / nutritional deficiency

30 / 35 / 40

BMI Class Cutoffs

- **30** = Class I obesity begins
- **35** = Class II + bariatric surgery (with comorbidity)
- **40** = Class III (severe/morbid) + bariatric surgery alone qualifier

"Apple vs Pear"

Body Fat Distribution

- **Apple** (central / visceral) = HIGHER cardiometabolic risk
- **Pear** (gluteofemoral) = LOWER metabolic risk
- Waist circumference matters as much as BMI

STOP-BANG

OSA Screening (highly correlated w/ obesity)

- **S**noring loudly
- **T**ired daytime
- **O**bserved apnea
- **P**ressure (HTN)
- **B**MI > 35
- **A**ge > 50
- **N**eck circ > 16"
- **G**ender male

10 NCJMM Clinical Judgment Scenario

CASE

Day 1 post-op Roux-en-Y gastric bypass. A 48-year-old client (BMI 46, OSA on home CPAP) reports left shoulder pain rated 6/10. Vitals: T 38.4°C (101.1°F), HR 124, BP 96/58, RR 24, SpO_2 91% on 2 L NC. Abdomen distended, decreased bowel sounds. Urine output 20 mL last hour.

1 Recognize Cues

Tachycardia (HR 124), hypotension (96/58), fever, tachypnea, hypoxia, oliguria, abdominal distention, **referred left shoulder pain**. Recent RYGB.

2 Analyze Cues

Cluster of cues = early **septic / hypovolemic shock pattern**. In a post-RYGB client, the most likely cause is an **anastomotic leak** with peritonitis. Tachycardia is often the earliest & most reliable early sign of leak.

3 Prioritize Hypotheses

#1 Anastomotic leak with developing sepsis / shock. Differential: PE (also post-op risk), hemorrhage, pneumonia. Leak takes priority — surgical emergency.

4 Generate Solutions

Notify surgeon STAT • prepare for imaging (CT with oral contrast) and likely return to OR • IV fluid resuscitation per order • broad-spectrum antibiotics • NPO • supplemental O_2 to maintain SpO_2 ≥ 94% • continuous monitoring • blood/sputum/urine cultures.

5 Take Action

Place HOB ≥ 30°, apply 100% NRB if SpO_2 does not improve, ensure two large-bore IVs, begin ordered isotonic fluid bolus, draw labs (CBC, lactate, CMP, blood cultures), administer ordered antibiotic, hold all PO intake, alert rapid response team, document & communicate using SBAR.

6 Evaluate Outcomes

Target: HR < 110, MAP ≥ 65, SpO_2 ≥ 94%, urine output ≥ 0.5 mL/kg/hr, lactate trending down, pain managed, leak repaired in OR. Continue monitoring for ARDS, AKI, DVT/PE, prolonged ileus.

Obesity • Endocrine / Metabolic Reference Infographic • For educational use only — verify clinical decisions with current institutional protocols and evidence-based guidelines.