

LGA vs SGA Newborn

LARGE & SMALL FOR GESTATIONAL AGE — HIGH-YIELD REVIEW

NCLEX 2026 · NGN

MATERNAL-NEWBORN · NURSING

01 · OVERVIEW

What Are LGA & SGA Newborns?

Both are **growth-abnormality classifications** plotted on standardized intrauterine growth curves. Both babies **look fragile in different ways** and share critical risks — especially **hypoglycemia**, **thermoregulation problems**, and **polycythemia** → jaundice.

LGA — Large for Gestational Age

Birth weight **> 90th percentile** for gestational age. Term macrosomia = **> 4,000 g (8 lb 13 oz)**.

SGA — Small for Gestational Age

Birth weight **< 10th percentile** for gestational age. Often linked to **IUGR** (intrauterine growth restriction).

02 · PATHOPHYSIOLOGY

How Each Condition Develops

► LGA — HYPERINSULIN CASCADE (CLASSIC INFANT OF DIABETIC MOTHER)

Maternal hyperglycemia → Glucose crosses placenta (insulin does NOT) → Fetal hyperinsulinemia + fat deposition → Macrosomia

⚡ After cord cut: maternal glucose supply stops — but fetal insulin stays HIGH → rapid-onset neonatal hypoglycemia within 30–60 min of birth.

► SGA — PLACENTAL INSUFFICIENCY / CHRONIC HYPOXIA

Poor uteroplacental flow (HTN, smoking, TORCH) → ↓ O₂ + nutrients to fetus → ↓ Glycogen + ↓ brown fat + ↑ RBC production → Wasted newborn

⚡ After birth: no glycogen reserves → hypoglycemia; low brown fat → hypothermia; chronic hypoxia → polycythemia → hyperbilirubinemia.

03 · SIGNS & SYMPTOMS

How They Look at the Warmer

LGA Newborn

PLUMP & FRAGILE

- Weight **>4,000 g** or **>90th %**
- Plump, full-faced; ruddy/plethoric skin
- **RED FLAG** Shoulder dystocia injuries — clavicle fracture, Erb's palsy (asymmetric Moro), brachial plexus
- Cephalohematoma, caput, bruising
- **RED FLAG** Hypoglycemia: jittery, tremors, lethargy, high-pitched cry, poor feed, apnea, seizures
- Respiratory distress (↑ C-section rate)
- Jaundice day 2–3 from polycythemia

SGA Newborn

THIN & WASTED

- Weight **<10th %**
- Thin, wasted, loose skin; minimal subq fat
- Wide-eyed, alert ("old man" look)
- Dry, cracked, peeling skin
- Meconium staining of skin/cord/nails
- **RED FLAG** Hypothermia (low brown fat)
- **RED FLAG** Hypoglycemia (no glycogen) — same signs as LGA
- Polycythemia → jaundice; perinatal asphyxia, meconium aspiration

🔴 Neonatal hypoglycemia = blood glucose **< 40 mg/dL** (first 24 h). Check within 30 min of birth for all at-risk newborns.

ABCs → Glucose → Warmth → Injury Check

LGA — Action Priorities

- ▶ **Assess airway/breathing** — risk of respiratory distress, meconium
- ▶ **Check blood glucose within 30 min** of birth, then per protocol (q1h × 4, then q3h)
- ▶ Initiate **early feedings** (breast or formula) within the first hour
- ▶ If glucose **< 40 mg/dL** → feed; if symptomatic or persistent → **IV D10W**
- ▶ **Inspect for birth trauma**: palpate clavicles, check symmetric Moro, bruising, caput
- ▶ Monitor **bilirubin** day 2–3 (polycythemia risk)
- ▶ Thermoregulate — skin-to-skin, pre-warmed blankets
- ▶ Monitor **calcium** (hypocalcemia common in IDM)

SGA — Action Priorities

- ▶ **Airway FIRST** — high risk of meconium aspiration, asphyxia
- ▶ **Thermoregulation is top non-airway priority** — radiant warmer, hat, skin-to-skin, pre-warm all surfaces
- ▶ Check blood glucose within 30 min — **same < 40 cutoff**
- ▶ **Early and frequent feedings** (q2–3 h) — glycogen stores depleted
- ▶ Monitor **Hct** — polycythemia if **> 65%**
- ▶ Watch for **jaundice** from RBC breakdown
- ▶ Strict I&Os, daily weights
- ▶ Protect from **infection** (↓ immune reserves)
- ▶ Neuro/developmental follow-up plan

★ **Shared priority for BOTH:** Airway → Blood glucose → Temperature → Feeding → Injury/complication assessment.

Meds to Know

Dextrose 10% (D10W)

HYPERTONIC CARBOHYDRATE • IV

Use: Symptomatic hypoglycemia or glucose < 40 not responsive to feeds

Mech: Rapid ↑ serum glucose

Side FX: Rebound hypoglycemia, hyperglycemia, phlebitis

Nsg: Recheck glucose 15–30 min after bolus; continue infusion until stable; wean slowly

Glucose Gel 40%

ORAL BUCCAL DEXTROSE

Use: Asymptomatic hypoglycemia, adjunct to feeding

Mech: Buccal absorption for rapid rise

Side FX: Transient hyperglycemia

Nsg: Massage into buccal mucosa (not under tongue); follow with feed; recheck in 30 min

Vitamin K (Phytonadione)

FAT-SOLUBLE VITAMIN • IM

Use: Prevent vitamin K deficiency bleeding in ALL newborns

Mech: Activates clotting factors II, VII, IX, X

Side FX: Injection-site pain, rare hemolysis

Nsg: 0.5–1 mg IM vastus lateralis within 1 h of birth

Surfactant (Beractant/Poractant)

PULMONARY SURFACTANT • ET

Use: RDS — common in LGA (IDMs) & preterm SGA

Mech: Reduces alveolar surface tension → prevents collapse

Side FX: Transient bradycardia, O₂ desat, ET tube block

Nsg: Do NOT suction for 1–2 h after dose; monitor SpO₂, HR continuously

Where Students Lose Points

▶ TRAP 1 • LGA ≠ Macrosomia

LGA = >90th percentile for **gestational age**. **Macrosomia** = absolute weight >4,000 g at term. A preterm baby can be LGA without being macrosomic.

▶ TRAP 3 • Shoulder Dystocia — NEVER FUNDAL pressure

Correct actions: **McRoberts maneuver** (hyperflex maternal thighs) + **SUPRAPUBIC pressure**. **DO NOT** push on the fundus — worsens impaction & ruptures uterus.

▶ TRAP 5 • Jittery Newborn — First Action?

CHECK blood glucose — do not assume cold stress or normal newborn tremor. Jitteriness in an at-risk infant = hypoglycemia until proven otherwise.

▶ TRAP 7 • Asymmetric Moro = Brachial Plexus

In the LGA newborn, an **absent or asymmetric Moro reflex** with arm adduction/internal rotation = **Erb's palsy**. Notify provider; position arm across abdomen.

▶ TRAP 2 • Symmetric vs Asymmetric IUGR

Symmetric (proportional) = early onset insult (genetic, TORCH); head & body equally small. **Asymmetric (head-sparing)** = late onset (placental insufficiency, preeclampsia); normal head circ, wasted body.

▶ TRAP 4 • Hypoglycemia — Different Mechanisms

LGA → high insulin (IDM pathway). **SGA** → low glycogen stores. Same cutoff (**<40 mg/dL**), same interventions, different "why."

▶ TRAP 6 • SGA Priority = WARMTH, not feed first

After airway, **thermoregulation comes before feeding** in SGA — a cold baby cannot feed effectively, and hypothermia worsens hypoglycemia & acidosis.

▶ TRAP 8 • Polycythemia Cutoff

Central venous **Hct > 65%** in the newborn = polycythemia. Causes ruddy skin, jaundice, hyperviscosity (lethargy, poor feeding, respiratory distress).

What to Teach Parents

LGA Family Teaching

- ▶ **Feed every 2–3 h** (do not skip overnight) — prevents rebound hypoglycemia
- ▶ Report jitteriness, poor feeding, temp instability immediately
- ▶ Support **breastfeeding**; observe jaundice day 2–5
- ▶ Pre-conception glucose control for diabetic moms; gentle handling if brachial injury

SGA Family Teaching

- ▶ **Keep baby warm** — hat, skin-to-skin, avoid cold surfaces/drafts
- ▶ Frequent small feedings q2–3 h to rebuild glycogen
- ▶ Monitor output: **≥6 wet diapers/day** after day 3; handwashing & limit visitors
- ▶ Keep **growth & neurodevelopmental follow-ups**; cessation support if smoking/substance use

Mnemonics & Pattern Recognition

PLUMP

- P** — Polycythemia → jaundice
- L** — Large (>4,000 g / >90th %)
- U** — Usually hypoglycemic
- M** — Macrosomia & Moro asymmetry
- P** — Perinatal trauma (shoulder dystocia)

For LGA signs & risks

THIN

- T** — Thermoregulation problems (low brown fat)
- H** — Hypoglycemia (no glycogen stores)
- I** — Infection risk + Increased Hct
- N** — Neurodevelopmental follow-up

For SGA care priorities

▶ WORKED NCLEX VIGNETTE • BIG BABY / SAD BABY PATTERN

A 40-week newborn weighing 4,320 g is born to a mother with gestational diabetes. At 45 minutes, the baby is jittery with a weak, high-pitched cry. **What is the nurse's priority?**

✓ **Obtain a heel-stick blood glucose.** Jitteriness + IDM macrosomia = hypoglycemia until proven otherwise. If <40 mg/dL → feed immediately; if symptomatic or persistent → expect IV D10W bolus. Pattern: **BIG baby** = check Blood sugar, Injury exam, Glucose feeds. **SAD baby** = Small, Alert-eyed/wasted, Dry peeling skin.