MATERNAL-NEWBORN NURSING • NCLEX 2026

Nutrition & Diet During Pregnancy

High-yield NGN review • Clinical Judgment Measurement Model

1 DEFINITION / OVERVIEW

- **Adequate prenatal nutrition** supports fetal growth, prevents congenital defects, and reduces maternal complications (anemia, preeclampsia, GDM).
- Nutrient demands ↑ sharply in the **2nd & 3rd trimesters** — the 1st trimester needs quality, not extra quantity.
- Inadequate nutrition is linked to **neural tube defects (NTDs), low birth weight, IUGR, preterm birth, and maternal iron-deficiency anemia.**

2 PATHOPHYSIOLOGY (Why Nutrition Matters)

Pregnancy → ↑ Blood volume 40-50% → ↑ Iron demand → Risk: anemia

Rapid fetal cell division → ↑ Folic acid demand → Neural tube closes by Day 28 → Deficit = NTD (spina bifida)

Fetal skeleton forms → ↑ Calcium / Vit D demand → Maternal stores depleted if deficient

↑ BMR & placental growth → ↑ Caloric demand (T2/T3) → Inadequate intake = IUGR/SGA

Progesterone ↑ → ↓ GI motility → Constipation, heartburn, nausea

CALORIC NEEDS BY TRIMESTER

1st Trimester	2nd Trimester	3rd Trimester	Lactation
+0 kcal	+340 kcal	+452 kcal	+450-500
No extra calories	Above pre-pregnancy	Above pre-pregnancy	During breastfeeding

Protein: +25 g/day → total **71 g/day**

Fluids: 8-10 cups (2-2.5 L) water/day

Fiber: 28 g/day to prevent constipation

RECOMMENDED WEIGHT GAIN (Singleton Pregnancy)

PRE-PREGNANCY BMI	CATEGORY	TOTAL GAIN (LBS)	RATE T2/T3 (LBS/WK)
< 18.5	Underweight	**28–40 lbs**	1.0 (0.4–0.6 kg)
18.5–24.9	**Normal weight**	**25–35 lbs**	1.0 (0.4 kg)
25.0–29.9	Overweight	**15–25 lbs**	0.6 (0.2–0.3 kg)
≥ 30	Obese	**11–20 lbs**	0.5 (0.2 kg)
Twin pregnancy (normal BMI)		**37–54 lbs**	

⚠ **T1 weight gain target: only 1–4.5 lbs total.** Sudden gain >2 lbs/week or >6 lbs/month after T1 = **Possible preeclampsia — investigate edema, BP, proteinuria.**

3 SIGNS & SYMPTOMS OF INADEQUATE NUTRITION

EARLY / MILD

- Fatigue, pallor, dizziness
- Poor weight gain (<1 lb/wk in T2/T3)
- Constipation, heartburn
- Hair loss, brittle nails
- **PICA** — clay (geophagia), ice (pagophagia), starch (amylophagia) **= iron deficiency**
- Frequent infections (low protein/zinc)

LATE / SEVERE

- **Hgb <11 g/dL** — iron-deficiency anemia
- **IUGR / SGA infant** on ultrasound
- **Neural tube defects** (spina bifida, anencephaly)
- **Preterm labor <37 wks**
- **Hyperemesis gravidarum** — weight loss >5%, ketonuria, dehydration
- Maternal osteopenia, tetany (low Ca)
- Wound dehiscence post-cesarean (low protein)

HIGHEST-PRIORITY RED FLAGS **Hyperemesis gravidarum** with ketonuria, >5% weight loss, or signs of dehydration → **HOSPITALIZE** for IV fluids, antiemetics, electrolyte replacement.
Sudden weight gain >2 lbs/week + edema + headache → rule out **preeclampsia**.

4 PRIORITY NURSING INTERVENTIONS (ABCs → Safety → Education)

ASSESS & SCREEN

- **Assess** 24-hr diet recall every prenatal visit
- **Calculate** pre-pregnancy BMI → set weight-gain target
- **Weigh** at every visit — trend pattern, not single number
- **Screen** for food insecurity, eating disorders, PICA
- **Monitor** Hgb/Hct at **1st visit + 28 weeks**
- **Assess** cultural/religious dietary practices — do not override
- **Refer** to WIC, dietitian, or social work as indicated

ADMINISTER & EDUCATE

- **Administer** daily prenatal vitamin (start before conception ideally)
- **Teach** iron + vitamin C pairing for absorption
- **Teach** food-safety rules to prevent **Listeria, Toxoplasma, Salmonella**
- **Encourage** 5-6 small meals to manage nausea/heartburn
- **Reinforce** hydration goal: 8-10 cups water/day
- **Counsel** — **NO alcohol, illicit drugs, raw fish/meat**
- **Document** all teaching and patient understanding

NCLEX Priority Hierarchy for Nutrition Questions **1. Airway/dehydration** (hyperemesis, electrolytes) → **2. Fetal safety** (alcohol, listeria, mercury, vitamin A toxicity) → **3. Maternal physiology** (anemia, weight gain) → **4. Comfort** (nausea, constipation, heartburn).

SPECIAL POPULATIONS & SITUATIONS

ADOLESCENT

- Mom is still growing → ↑ **calories, calcium (1300 mg), iron**
- Higher risk: anemia, preterm, LBW
- Refer to WIC + adolescent clinic

VEGETARIAN / VEGAN

- Supplement **B12, iron, zinc, DHA**
- Combine plant proteins (rice + beans)
- Fortified plant milk for calcium

LACTOSE INTOLERANT

- Lactose-free milk, hard cheese, yogurt
- Fortified soy/almond milk
- Greens, tofu, sardines for Ca

HYPEREMESIS

- Small frequent meals, dry crackers AM
- Ginger, vitamin **B6 (pyridoxine)**
- Avoid spicy/fatty/strong odors
- Ondansetron / doxylamine PRN

GESTATIONAL DM

- Complex carbs, even meal spacing
- Pair carbs with protein
- Limit simple sugars/juice
- Glucose monitoring 4×/day

PICA

- Screen Hgb/Hct, ferritin
- Replace with healthy crunchy snacks
- Iron supplement + vit C
- Non-judgmental approach

5 KEY NUTRIENTS & SUPPLEMENTS (Pharmacology)

Folic Acid (B9)
`600 mcg/day`

MOA: DNA synthesis, neural tube closure (Day 18–28).
Best: Start before conception — 400 mcg/day pre-pregnancy.
Foods: Leafy greens, fortified cereals, citrus, beans, asparagus.
High-risk: Prior NTD → **4 mg/day**.

Iron (Ferrous sulfate)
`27 mg/day`

MOA: Hemoglobin & oxygen transport; supports ↑ blood volume.
Take: Empty stomach + **vitamin C** (OJ).
AVOID with: Calcium, dairy, coffee, tea, antacids.
SE: Constipation, dark/green-black stool (NORMAL), nausea.
Foods: Red meat, beans, fortified cereal, spinach.

Calcium
`1000 mg/day`

MOA: Fetal skeleton & teeth; protects maternal bone.
Adolescent: 1300 mg/day.
Foods: Pasteurized dairy, fortified plant milk, kale, broccoli, sardines, tofu.
Tip: Don't take with iron.

Vitamin D
`600 IU/day`

MOA: Calcium absorption, fetal bone mineralization.
Foods: Fortified milk, fatty fish (salmon), egg yolks, sunlight.
Deficit: Maternal osteomalacia, neonatal rickets.

Iodine
`220 mcg/day`

MOA: Fetal thyroid & brain development.
Foods: Iodized salt, dairy, seafood, eggs.
Deficit: Cretinism, ↑ miscarriage.

Vitamin A
`770 mcg RAE`

MOA: Vision, immune, organogenesis.
⚠ **TERATOGENIC if > 10,000 IU/day.**
AVOID: Liver, organ meats, isotretinoin (Accutane).

DHA / Omega-3
`200–300 mg/day`

MOA: Fetal brain & retinal development.
Foods: Salmon, sardines, light tuna (low-Hg fish 8–12 oz/wk).

Choline
`450 mg/day`

MOA: Neural tube + brain development.
Foods: Eggs, lean meat, soy, peanuts.

Vitamin B6 (Pyridoxine)
`1.9 mg/day`

MOA: Reduces nausea/vomiting (1st-line for morning sickness).
Use: 10–25 mg PO TID; often combined with doxylamine.

6 NCLEX TEST TRAPS ⚠

COMMON WRONG ANSWER / TRAP	CORRECT ANSWER / WHY
"Start folic acid at the first prenatal visit."	Start **BEFORE conception** — neural tube closes by Day 28, often before pregnancy is recognized.
"Take iron with milk for the calcium."	Calcium **blocks iron absorption**. Take iron with vitamin C; calcium 2 hr apart.
"Black/dark stools mean GI bleeding."	Dark/black stool is a **NORMAL side effect** of oral iron — not a complication.
"You need to eat for two starting now."	Myth. **0 extra kcal in T1**; only +340 (T2) and +452 (T3).
"Liver is high in iron — eat it daily."	Liver = **vitamin A toxicity** (teratogenic). Choose lean red meat, beans instead.
"PICA is just a normal pregnancy craving."	PICA = **iron / zinc deficiency**. Screen labs, treat the deficit.
"All cheese is unsafe in pregnancy."	Only **unpasteurized soft cheese** (feta, brie, queso fresco) — pasteurized cheese is fine.
"All fish should be avoided due to mercury."	Eat **8–12 oz/wk low-mercury fish** (salmon, sardines, light tuna). Avoid only shark, swordfish, king mackerel, tilefish, bigeye tuna.
"One glass of wine in T3 is safe."	**NO** safe amount of alcohol — FAS risk in any trimester.
"Caffeine should be eliminated entirely."	Limit to **< 200 mg/day** (~one 12-oz coffee). Total elimination not required.
"Hot tubs are fine if she's eating well."	Avoid hot tubs & raw sprouts — nutrition does not protect against hyperthermia or Listeria.

7 PATIENT EDUCATION — SAFE FOOD CHOICES

✅ ENCOURAGE DAILY

- **Lean protein:** chicken, eggs, beans, lentils, tofu, low-Hg fish 2–3×/wk
- **Whole grains:** brown rice, oats, whole-wheat bread (folate, fiber, B vitamins)
- **Leafy greens:** spinach, kale, broccoli (folate, calcium, iron)
- **Fruits:** citrus, berries (vitamin C boosts iron absorption)
- **Dairy (pasteurized):** milk, yogurt, hard cheese (calcium, protein, vit D)
- **Healthy fats:** nuts, avocado, olive oil
- **Water:** 8–10 cups/day → prevents constipation, supports amniotic fluid
- **Prenatal vitamin** daily — even with a balanced diet

❌ AVOID OR STRICTLY LIMIT

- **Alcohol:** ZERO — any amount, any trimester (FAS)
- **Raw/undercooked:** meat, eggs, fish, sushi (Toxo, Salmonella)
- **Unpasteurized:** milk, soft cheese (feta, brie, queso fresco), juices — Listeria
- **Deli meats / hot dogs:** unless heated to **steaming hot**
- **High-mercury fish:** shark, swordfish, king mackerel, tilefish, bigeye tuna
- **Raw sprouts** (alfalfa, mung): bacterial contamination risk
- **Liver / organ meats:** vitamin A toxicity (teratogenic)
- **Caffeine:** < 200 mg/day (one 12-oz coffee)
- **Herbal teas / supplements:** only with provider approval
- **Artificial sweeteners:** saccharin avoid; aspartame OK if no PKU

🍽️ **FOOD-SAFETY TEACHING POINTS** • **Wash** all produce thoroughly • **Cook** meat to safe internal temp (poultry 165°F, beef 145°F) • **Reheat** deli/leftovers to steaming • **Don't** change cat litter (toxoplasmosis) • **Refrigerate** leftovers within 2 hr.

8 MEMORY BOOSTERS & MNEMONICS

🍳 "EAT WELL" — Pregnancy nutrition essentials

- **E** **Extra calories** — +340 (T2) / +452 (T3)
- **A** **Avoid** alcohol, raw foods, high-Hg fish, liver
- **T** **Take** a prenatal vitamin every day
- **W** **Water** — 8 to 10 cups/day
- **E** **Eat** iron with vitamin C, not with calcium
- **L** **Limit** caffeine to < 200 mg/day
- **L** **Listeria** — no soft cheese, deli meat, raw sprouts

🦴 "STORK" — Foods to AVOID

- **S** **Soft cheeses** (unpasteurized) — feta, brie, blue, queso fresco
- **T** **Tuna** (high-Hg types), sushi, raw fish
- **O** **Organ meats** — liver = vitamin A toxicity
- **R** **Raw** eggs, meat, sprouts — Salmonella, Toxo
- **K** **Keep deli meat steaming hot** if eaten

🍉 "PICA" cravings → iron deficiency

- **P** Pagophagia (ice)
- **I** Iron deficiency — check Hgb/ferritin
- **C** Clay (geophagia)
- **A** Amylophagia (laundry starch, raw rice)

🍔 "FIVE" Key Pregnancy Nutrients

- **F** **Folic acid** 600 mcg — prevents NTDs
- **I** **Iron** 27 mg — prevents anemia
- **V** **Vitamin D** 600 IU + Calcium 1000 mg
- **E** **Extra calories** — T2/T3 only

📊 Caloric Rule: "0 → 340 → 452"

T1 = 0 extra (think: tiny embryo, no extra fuel)
T2 = 340 kcal (think: "three-four-zero")
T3 = 452 kcal (think: "four-fifty")
Lactation = 450–500 kcal

⚖️ Weight Gain by BMI: "11 → 15 → 25 → 28"

Lower bound for each category:
Obese → **11–20 lbs**
Overweight → **15–25 lbs**
Normal → **25–35 lbs** (easiest to remember!)
Underweight → **28–40 lbs**

🔪 "IRON" Teaching

- **I** **Increase** vitamin C (OJ) — boosts absorption
- **R** **Refrain** from dairy, coffee, tea, antacids near dose
- **O** **On** empty stomach (or with small snack if upset)
- **N** **Normal** dark/black stool — not GI bleed

🎯 **ONE-LINE EXAM RECALL** "Folate before, iron with C, no liver/raw/booze, 340-450 in T2-T3, dark stools are fine."