NCLEX 2026 · MATERNAL-NEWBORN · ANTEPARTUM TESTING

Biophysical Profile & Contraction Stress Test

Two fetal surveillance tests every nurse must master before the NCLEX

HIGH-YIELD
OB / ANTEPARTUM
CLINICAL JUDGMENT

1 What are BPP & CST?

DEFINITION · OVERVIEW

Biophysical Profile (BPP)

Ultrasound + NST that scores **5 parameters** of fetal well-being.

- Each component scored **0 or 2** (max = **10**)
- Used when NST is *nonreactive* or pregnancy is high-risk
- Evaluates acute *AND* chronic fetal status

Contraction Stress Test (CST)

Evaluates fetal HR **response to contractions** (stresses the placenta).

- Induced by **nipple stimulation** or **IV oxytocin**
- Need **3 contractions in 10 min** (40–60 sec each)
- **NEGATIVE = GOOD** (opposite of most tests!)

2 The Oxygen Logic

WHY THE TESTS WORK

Both tests ride on the same principle: **a well-oxygenated fetus moves, breathes, flexes, and tolerates contractions**. A hypoxic fetus conserves oxygen for vital organs and shows predictable signs of distress.

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Placental insufficiency → ↓ O₂ delivery to fetus → Fetus shunts blood to brain & heart
→ ↓ Movement, ↓ breathing, ↓ tone, ↓ amniotic fluid (↓ renal perfusion → ↓ urine)
→ During contractions: ↓ placental blood flow → LATE decelerations appear
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3 BPP: The 5 Components

FINDINGS · WHAT YOU ASSESS

Fetal Breathing	Gross Body Movement	Fetal Tone	Amniotic Fluid	Reactive NST
≥1 episode of rhythmic breathing ≥30 sec in 30 min	≥3 discrete body/limb movements in 30 min	≥1 extension + return to flexion of limb or trunk	Single deepest pocket >2 cm	≥2 accels of 15 bpm × 15 sec in 20 min
2	2	2	2	2

BPP SCORE INTERPRETATION

8–10	6	4	0–2
NORMAL	EQUIVOCAL	ABNORMAL	CRITICAL

Reassuring → routine care; repeat per protocol	Repeat in 24 hr; consider delivery if term	Consider delivery — fetal compromise likely	DELIVER NOW — strong evidence of asphyxia

CST INTERPRETATION

RESULT #1

✅ Negative (Desired)

NO late decelerations with adequate contractions. Placenta is handling stress → fetus is well-oxygenated. *Negative = good news.*

RESULT #2

🚨 Positive (Bad)

LATE decels with ≥50% of contractions. Indicates **uteroplacental insufficiency** → prompt delivery usually indicated.

Equivocal: intermittent late decels or variables — repeat in 24 hr. **Unsatisfactory:** <3 contractions in 10 min or uninterpretable tracing.

4 Nursing Interventions

PRIORITY ACTIONS · ABC / SAFETY

🤰 Before the Test

- ✓ **Verify consent** and gestational age
- ✓ **Obtain baseline** maternal VS & FHR
- ✓ Have mom **empty bladder** (except BPP — may need full)
- ✓ **Semi-Fowler's, left lateral tilt** — prevents supine hypotension
- ✓ Explain procedure to reduce anxiety

📊 During the Test

- ✓ **Monitor FHR & contractions continuously**
- ✓ Assess maternal BP q10–15 min during oxytocin CST
- ✓ Watch for **tachysystole** (>5 contractions/10 min) 🚨 STOP
- ✓ Identify accels, decels (early / late / variable)
- ✓ Document fetal movements reported by mother

- **If LATE decels appear:** STOP oxytocin → reposition left side → O_2 8–10 L/min non-rebreather → increase IV fluids → notify provider PRIORITY
- **If BPP ≤ 4:** Prepare for **expedited delivery**; keep NPO, notify OB/anesthesia, continuous monitoring
- **After the test:** Monitor until contractions subside; ensure mother is **not in active labor** before discharge
- **Always verify** no contraindications exist *before* CST — review chart for placenta previa, classical C/S, PTL history

5 Oxytocin (Pitocin) — the CST drug

MEDICATION FOCUS

CLASS · MECHANISM

Posterior pituitary hormone (synthetic). Binds uterine receptors → **stimulates rhythmic contractions** by ↑ intracellular Ca^{2+}.

DOSE FOR CST

Start low IV infusion (e.g., **0.5–1 mU/min**); titrate until 3 contractions / 10 min achieved (40–60 sec each).

SIDE EFFECTS 🚨

- **Tachysystole** / uterine hyperstimulation
- **Uterine rupture** (esp. prior C/S)
- **Water intoxication** (antidiuretic effect at high doses)
- Maternal hypotension, nausea

NURSING CONSIDERATIONS

- Always give via **IV pump** on secondary line
- Continuous **EFM** required
- **STOP infusion** for late decels, tachysystole, or nonreassuring FHR

- Fetal **late decels**, bradycardia
- Strict **I & O** — watch for water intoxication
- Keep **terbutaline** available (tocolytic rescue)

⛔ CST Contraindications (NCLEX gold!)

Placenta previa · Vasa previa · Prior **classical** C-section or uterine surgery · Preterm labor risk · PPROM · Incompetent cervix · Multiple gestation (relative)

6 TEST-DAY TRAPS ⚠️ Where Students Lose Points

TRAP #1 · BACKWARDS LOGIC

Students panic at "**Positive CST**" thinking positive = good. It's the *opposite*: **Negative CST = reassuring, Positive CST = bad (late decels)**. Think: "positive for problems."

TRAP #2 · CONFUSING THE SCORING

Each BPP component is **all-or-nothing (0 or 2)** — never 1. Max = 10, and **8/10 with normal fluid is still reassuring**. A score of 8/10 with *low fluid* is NOT reassuring.

TRAP #3 · LATE VS EARLY DECELS

EARLY decels mirror contraction (head compression — benign). **LATE decels** start at or after the peak (uteroplacental insufficiency — 🚨 BAD). Only *late* decels make a CST positive.

TRAP #4 · WRONG FIRST ACTION FOR LATE DECELS

Priority is NOT to call the provider first. Order: **Stop oxytocin → reposition left side → O_2 → fluids → then notify.** Fix the fetus before paging.

TRAP #5 · BPP ≠ NST

NST = FHR only (no ultrasound). BPP = **NST + 4 ultrasound parameters**. A nonreactive NST → next step is usually BPP, not immediate delivery.

7 PATIENT EDUCATION What to Teach Mom

- **Eat a light meal** before the test — glucose often wakes a sleepy fetus and improves results.
- The test is **painless and safe**; ultrasound gel may feel cool; contractions during CST feel like strong menstrual cramps.
- Expect the test to last **30–60 minutes**; bring support person, phone, snack.
- Report any **regular painful contractions, leaking fluid, vaginal bleeding, or decreased fetal movement** immediately after going home. 🚨
- Teach **daily fetal kick counts** at home: ≥10 movements in 2 hours is reassuring.
- Reinforce **left-lateral positioning** to maximize placental blood flow at home.
- Explain that results guide decisions — not a "pass/fail," but information to keep baby safe.

8

MEMORY BOOSTERS

Lock It In

BPP · 5 COMPONENTS MNEMONIC

"Test the Baby, MAN!"

T	B	M	A	N
Tone (fetal)	Breathing	Movement	Amniotic fluid	NST (reactive)

CST · RESULT LOGIC

"Negative is Negative for problems."

Flip your brain: in obstetrics, **Negative CST = good**, **Positive CST = bad**. Pair with the VEAL CHOP reminder: Late decels → Placental insufficiency.

🐎 VEAL CHOP — FHR patterns

Variable → **C**ord compression

Early → **H**ead compression

Accelerations → **O**kay!

Late → **P**lacental insufficiency

Magic number: 8/10

A BPP of **8 or 10** with normal fluid = reassuring. Lock it in.

Rule of 3s

CST needs **3 contractions / 10 min**, each **40–60 sec**.

First action = STOP

Late decels? The FIRST thing you do is **STOP the oxytocin**.

Positive = Problem

Positive CST = Placental Problem. Both P's.