

NEUROLOGICAL SYSTEM · TRAUMA · ADULT & PEDIATRIC

Concussion

Mild Traumatic Brain Injury (mTBI)

A functional, neurometabolic brain injury without structural damage on imaging. The NCLEX tests your ability to recognize subtle cues, prioritize neuro deterioration, and educate clients on second-impact prevention.

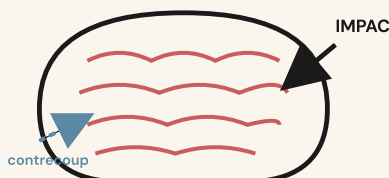
From *Diane's NGN NCLEX 2026 Visual Study Library* · Neuro Cluster

 **Content Sourcing Note:** Concussion is not covered in your uploaded reference flashcards. This infographic draws from standard NGN NCLEX 2026 references: **Saunders Comprehensive Review (9th ed.)**, **ATI Adult Medical–Surgical Nursing**, **Lippincott NCLEX–RN**, and current CDC HEADS UP clinical guidelines.



SECTION ONE

Definition & Overview



- ▶ **What it is:** A mild traumatic brain injury (mTBI) caused by a bump, blow, or jolt to the head — or a body hit that transmits force to the head — making the brain move rapidly inside the skull.
- ▶ **Why it matters:** Most common form of TBI. Imaging (CT/MRI) is typically *normal* — diagnosis is **clinical**. Repeat concussions raise the risk of **Second Impact Syndrome** (potentially fatal cerebral edema) and long-term CTE.
- ▶ **Common causes:** Sports injury, falls (#1 in older adults & young children), motor vehicle accidents, assault, military blast injury.
- ▶ **Key point:** Loss of consciousness is **NOT required** for the diagnosis — many concussions occur without any LOC.

2

SECTION TWO

Pathophysiology — Simplified

The brain isn't bruised structurally — it's a **neurometabolic crisis**. Imaging looks normal, but cell function is temporarily disrupted.

1

Mechanical force (blow, jolt, whiplash)

2

Brain accelerates & decelerates inside skull
→ **coup-contrecoup**

3

Axonal stretching & shearing of neurons

4

Massive glutamate release → ionic imbalance (K^+ out, Ca^{2+} in)

5

ATP energy crisis ↓ cerebral blood flow

6

Temporary neuro dysfunction → symptoms (*no structural lesion*)



SECOND IMPACT SYNDROME: A second concussion *before the first heals* can trigger catastrophic cerebral edema and herniation — often fatal in adolescents. "*When in doubt, sit them out.*"

3

SECTION THREE

Signs & Symptoms

EARLY (MINUTES – HOURS)

- ▶ **Headache** (most common symptom)
- ▶ Confusion, dazed appearance, "foggy"
- ▶ Brief LOC (*less than 30 seconds; NOT required*)
- ▶ **Amnesia** — retrograde (events before) or anterograde (events after)
- ▶ Nausea or single episode of vomiting
- ▶ Dizziness, balance problems
- ▶ "Seeing stars," blurred vision, double vision
- ▶ Photophobia & phonophobia (light/sound sensitivity)
- ▶ Slurred speech, slowed responses

LATE (HOURS – DAYS – WEEKS)

- ▶ Persistent or worsening headache
- ▶ Sleep disturbances (too much OR too little)
- ▶ Irritability, mood changes, depression
- ▶ Difficulty concentrating or remembering
- ▶ Fatigue, decreased energy
- ▶ Slowed reaction time
- ▶ **Post-Concussion Syndrome** (symptoms > 4 weeks)

RED FLAGS — CALL HCP / RETURN TO ER IMMEDIATELY

- ▶ **Worsening or severe headache** not relieved by acetaminophen
- ▶ **Repeated vomiting** (more than one episode)
- ▶ **Unequal or dilated pupils (anisocoria)** — sign of increased ICP / herniation
- ▶ Seizures or convulsions
- ▶ Slurred speech, new weakness, numbness, or loss of coordination
- ▶ LOC > 30 seconds, or cannot be awakened
- ▶ Increasing confusion, agitation, or unusual behavior
- ▶ **Clear fluid (CSF) leaking from nose or ears** — basilar skull fracture
- ▶ **Battle's sign** (bruising behind ear) or **Raccoon eyes** (periorbital ecchymosis)
- ▶ Cushing's triad: ↑ BP, ↓ HR, irregular respirations = late ICP sign

4

SECTION FOUR

Priority Nursing Interventions (ABC Framework)

PRIORITY	ACTION	RATIONALE
A Airway	Maintain patent airway; suction PRN ; in-line cervical stabilization if mechanism suggests C-spine injury.	Trauma victims may have concurrent C-spine injury until proven otherwise.
B Breathing	Monitor RR, depth, SpO₂ ; watch for irregular respirations (Cheyne-Stokes = late ICP).	Respiratory changes are a late sign of brain stem compression.
C Circulation	VS every 15 min × 1 hr , then per protocol; watch for Cushing's triad (↑ BP, ↓ HR).	Bradycardia + widened pulse pressure = increased ICP emergency.
D Disability	Neuro checks q1–2 h : GCS, pupils (PERRLA), LOC, motor strength, orientation.	Trending decline = bleed or edema; act <i>before</i> herniation.
E Environment	HOB 30° (neutral neck), dim lights, quiet room, cluster nursing care .	Promotes venous drainage from brain & reduces stimulation.
F Pharmacology	Acetaminophen for headache. AVOID NSAIDs/ASA initially (bleed risk) and opioids/sedatives (mask neuro changes).	Preserves ability to assess neuro status & prevents bleeding extension.
G Activity	Cognitive & physical rest first 24–48 h. NEVER return to play / sport same day.	Prevents Second Impact Syndrome & worsening symptoms.
H Monitor	Strict I&O; monitor for signs of SIADH (low Na ⁺ , concentrated urine) — common with brain injury.	Brain injury can disrupt ADH regulation → fluid/electrolyte shifts.

5

SECTION FIVE

Pharmacology

DRUG / CLASS	USE	KEY SIDE EFFECTS	NURSING CONSIDERATIONS
Acetaminophen (<i>Tylenol</i>)	First-line for headache	Hepatotoxicity (max 4 g/day adult)	✅ PREFERRED — no bleeding risk; assess liver function in chronic use.
NSAIDs / Aspirin (<i>Ibuprofen, ASA</i>)	Pain — but contraindicated acutely	↑ bleeding risk, GI upset	❌ AVOID in the first 24–48 h — could worsen an undetected intracranial bleed.
Opioids (<i>morphine, hydrocodone</i>)	Severe pain only — rarely used	Sedation, miosis, respiratory depression	❌ AVOID initially — they mask LOC and pupil changes (your neuro assessment).
Ondansetron (<i>Zofran</i>)	Nausea / vomiting	Headache, constipation, QT prolongation	Monitor for repeat vomiting — > 1 episode is a red flag.
Levetiracetam (<i>Keppra</i>)	Seizure prophylaxis if seizures occur	Drowsiness, mood changes, irritability	Monitor for behavioral changes; do not stop abruptly.
Mannitol (<i>osmotic diuretic</i>)	If concussion progresses to ↑ ICP	Hypotension, dehydration, electrolyte loss	Use filter tubing ; monitor osmolality, I&O, BP, neuro status closely.

6

SECTION SIX

NCLEX Test Traps ⚠️

Watch for these classic distractors. The "obvious" answer is often wrong.

❌ COMMON WRONG CHOICE "The client must have lost consciousness to have a concussion."	✅ CORRECT THINKING LOC is NOT required for diagnosis. Most concussions occur without any LOC.
❌ COMMON WRONG CHOICE "Administer ibuprofen for the headache."	✅ CORRECT THINKING Give acetaminophen. NSAIDs/ASA increase bleed risk if there's an undetected intracranial hemorrhage.
❌ COMMON WRONG CHOICE "Wake the client every hour throughout the night."	✅ CORRECT THINKING Outdated teaching. Sleep is restorative; current CDC guidance allows sleep with periodic checks per HCP order.
❌ COMMON WRONG CHOICE "Athlete is symptom-free after 1 hour — clear to return to play."	✅ CORRECT THINKING NEVER return to play same day. Risk of Second Impact Syndrome. Follow stepwise return-to-play protocol.
❌ COMMON WRONG CHOICE "A normal CT scan rules out concussion."	✅ CORRECT THINKING CT/MRI is usually normal in concussion. Imaging rules out <i>bleeding/fracture</i>, not concussion itself.
❌ COMMON WRONG CHOICE "Give morphine for severe headache."	✅ CORRECT THINKING Opioids mask LOC and pupil changes — your most important neuro signs. Avoid acutely.
❌ COMMON WRONG CHOICE "One episode of vomiting is an emergency."	✅ CORRECT THINKING One episode is common. Repeated vomiting (> 1 episode) is the red flag for increased ICP.
❌ COMMON WRONG CHOICE "Priority: Pain medication."	✅ CORRECT THINKING Priority: Neuro assessment. Pain comes after airway, breathing, circulation, and neuro checks.

7

SECTION SEVEN

Patient & Family Education



Cognitive Rest

Limit screens, school, reading, video games for 24–48 h. Brain needs metabolic recovery.



Physical Rest

No sports, gym, or heavy activity. Gradual return as tolerated — symptom-guided.



Sleep Is OK

Old "wake hourly" rule is outdated. Sleep helps healing — follow HCP's check schedule.



Medication Safety

Acetaminophen only for HA. **Avoid alcohol, sedatives, sleeping pills** — they mask symptoms.



No Driving

Slowed reaction time. Don't drive, operate machinery, or ride bikes until HCP clears you.



Return-to-Play Protocol

Stepwise progression. **Must be cleared by HCP.** "When in doubt, sit them out."



When to Call 911

Worsening HA, repeated vomiting, seizures, slurred speech, unequal pupils, weakness, won't wake up.



Recovery Timeline

Most resolve in 7–10 days. If symptoms > 4 weeks: Post-Concussion Syndrome — needs follow-up.



Repeat Concussions

Each one increases risk of CTE & Second Impact Syndrome. Use helmets, seat belts, fall prevention.

8

SECTION EIGHT

Memory Boosters & Mnemonics

HEADS UP

Concussion symptoms to recognize

- H** Headache
- E** Eyes — vision changes, photophobia
- A** Amnesia (retro- or anterograde)
- D** Dizziness, balance loss
- S** Stars — "seeing stars"
- U** Unsteady gait, slowed thinking
- P** Phonophobia / Photophobia

VOMIT-PSC

Red flags = call HCP / 911

- V** Vomiting repeated (> 1x)
- O** One pupil bigger (anisocoria)
- M** More confusion / agitation
- I** Inability to speak / slurred speech
- T** Tonic-clonic seizure activity
- P** Persistent worsening headache
- S** Sleepy — can't be awakened
- C** CSF leak (clear nasal/ear drainage)

 **Sports Quick Rule:** "When in doubt — sit them out." No return to play same day. Always.

 **Pattern Recognition:** Imaging = *normal*. Symptoms = *real*. Concussion is a **functional**, not **structural**, injury.

9

SECTION NINE · NEXT GENERATION NCLEX

NCJMM Clinical Judgment Scenario

Scenario: A 16-year-old male high school football player is brought to the ED by his coach 20 minutes after being tackled and striking the back of his head on the turf. He reports a 6/10 headache, feels nauseated, and "saw stars" briefly. He denies losing consciousness but cannot recall the plays from the second quarter. **VS:** BP 124/76, HR 88, RR 18, SpO₂ 98%, T 98.6°F. **GCS 14** (confused to time). Pupils 3 mm, equal, reactive. No focal motor deficits.

1

Recognize Cues

Relevant findings: Mechanism (head trauma to turf), headache, nausea, "saw stars," anterograde amnesia (can't recall plays), GCS 14 (down from baseline 15), confusion to time. Pupils equal & reactive, VS stable, no LOC, no focal deficits — currently.

2

Analyze Cues

This is a classic concussion presentation. **LOC is not required** for diagnosis. The amnesia + "seeing stars" + headache after a clear mechanism = mTBI until proven otherwise. *Cues that argue against* a more serious injury: equal pupils, stable VS, no focal deficits, no Cushing's triad. *Cues that demand vigilance:* GCS already dropped 1 point — must trend.

3

Prioritize Hypotheses

#1 Priority Hypothesis: Concussion (mild TBI).

Rule out: Intracranial hemorrhage (epidural, subdural, subarachnoid), skull fracture, cervical spine injury — all life-threats requiring imaging before discharge.

4

Generate Solutions

- ▶ Order non-contrast head CT to rule out bleed/fracture
- ▶ C-spine precautions until cleared
- ▶ Neuro checks (GCS, pupils, motor) q1h × 4, then q2h
- ▶ HOB 30°, quiet/dim environment, cluster care
- ▶ Acetaminophen 650 mg PO for headache (avoid NSAIDs/opioids)
- ▶ Ondansetron IV PRN for nausea
- ▶ Strict NPO until cleared (in case of surgery or worsening)
- ▶ Hold from sport — **no same-day return to play**

- ▶ Teach family the red flag warning signs before discharge

5

Take Action

Nurse implements C-spine precautions, places HOB at 30°, dims lights, performs serial GCS and pupil checks, administers acetaminophen 650 mg PO, accompanies client to CT, and begins return-to-play teaching with the parent at bedside (no driving, no sports, no screens × 48 h, red-flag list provided in writing).

6

Evaluate Outcomes

Desired outcomes: CT scan negative for hemorrhage/fracture. GCS returns to 15 within 2 hours. Headache decreases to 2/10 after acetaminophen. No further vomiting. Pupils remain equal & reactive. VS remain stable — no Cushing's triad. Client and parent verbalize all red-flag warning signs and the stepwise return-to-play protocol before discharge. Follow-up scheduled with HCP in 7–10 days.

If outcomes NOT met (worsening HA, GCS drops, repeated vomiting, pupil change): Escalate immediately — repeat CT, notify HCP, prepare for possible neurosurgical intervention.

Diane's NGN NCLEX 2026 Visual Study Library · Neurological Cluster · Concussion (mTBI)

Sources: Saunders, ATI, Lippincott, CDC HEADS UP clinical guidelines · Created for personal study use