Seizures and spinal cord injury

Seizure types, care during and after, status epilepticus, antiseizure drugs, EEG, injury levels, autonomic dysreflexia

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1 AT A GLANCE

In a seizure, keep the client safe, time it, and know when it's an emergency. In a spinal cord injury, where the damage happens decides what the client loses.

Seizure types

Type	What happens
Focal aware	Once called simple partial. The client stays aware, often after an aura, like deja vu or a strange smell
Focal impaired awareness	Once called complex partial. Repeated movements; the client is unaware, may wander, and won't remember it
★ **Tonic-clonic**	Body stiffens, consciousness is lost, then rhythmic jerking; may bite the tongue or lose bladder or bowel control. **Convulsions still going at 5 minutes need emergency treatment**
Myoclonic	Brief jerks of the arms or legs
Atonic	Muscle tone suddenly drops; the client often falls

Phases, epilepsy, causes: Phases: early warning changes, the aura, the seizure, then the postictal recovery period. Epilepsy: two unprovoked or reflex seizures more than 24 hours apart, or one with a 10-year recurrence risk of 60% or more, or an epilepsy syndrome. Causes: most have no known cause; tumors, high fever, low sodium, low glucose, alcohol withdrawal, stroke and infections can trigger them.

During a seizure

- Ease the client to the floor. In bed: remove extra pillows and raise the side rails.
- Cushion the head, loosen clothing, remove glasses, move objects away.
- ★ **Don't restrain** the client or try to stop the movements.
- **Time** the start and the end.
- ★ **Never put anything in the mouth** or pry the jaw open.
- Watch the aura, eyes and pupils, consciousness, breathing, color, drooling, incontinence. Stay with the client and call for help.

After a seizure

- ★ **Turn the client on their side** to prevent aspiration; keep the airway open.
- Check vital signs and neuro signs; let the client rest.
- Confusion is common: keep the area safe and reorient calmly.
- Watch for more seizures, and for pauses in breathing, right after a generalized seizure.
- Seizure precautions: oxygen and suction at the bedside, the bed low, padded rails per policy.

Status epilepticus

- ★ A seizure lasting **5 minutes or more**, or seizures one after another without full recovery.
- It damages neurons and is unlikely to stop on its own: an emergency.
- ★ Call for help, give oxygen per policy, expect lorazepam, diazepam or midazolam. **Without IV access, IM midazolam is a first-line option.**
- These drugs can depress breathing: watch the heart, breathing and oxygen saturation closely.

EEG

- Records the brain's electrical activity through scalp electrodes. Explain it's painless, with no shock.
- ★ Before: wash the hair, with **no conditioner, creams or gels**.
- Avoid caffeine and fasting, which change the results. Ask the provider which drugs to hold.
- After: restart any held drugs, and wash out the electrode paste.

Antiseizure drugs

Drug	Watch for and teach
After a first seizure	Drugs usually aren't started, but it needs prompt assessment, and a specialist within 2 weeks. Never wait out emergency signs
★ **All**	Control seizures but don't cure epilepsy. **Never stop them suddenly**: seizures or status epilepticus can follow. Watch mood: they can bring suicidal thoughts
★ **Phenytoin**	Total level **10 to 20 mcg/mL**; free levels differ. IV slowly, with heart monitoring. Gum overgrowth, jerky eye movements, unsteadiness. A new rash: hold the dose and notify the provider at once; the prescriber decides whether to stop it
Carbamazepine, lamotrigine	Severe skin reactions
Valproate	Can harm the liver and a developing baby

Teach: What to do about a missed dose; check before any over-the-counter drug; wear a medical alert ID; keep a seizure diary; follow state driving laws; avoid alcohol and getting overtired. Make sure the family knows how to respond, and when to call emergency services.

Educational use only. Not a substitute for clinical judgment, your facility's policy or the provider's orders. Where practice varies, follow facility policy and state law. No patient information.

Seizures and spinal cord injury

1 AT A GLANCE, CONTINUED

Spinal cord injury: level and function

Level	What's affected
★ **High cervical (C1-C4)**	**Breathing can stop**: those nerves move the diaphragm
Cervical	Arms, legs and trunk: tetraplegia
Thoracic	Legs: paraplegia
Lumbar and sacral	Legs, bowel and bladder

Complete or incomplete: Sacral sparing decides it: a complete injury keeps no feeling or movement at S4 to S5; an incomplete injury keeps some there. Neck and high chest injuries can also disturb blood pressure, sweating and temperature.

At the scene

- ★ Move the client **only when airway protection, CPR or danger requires it**, keeping alignment with enough trained help.
- Hold head and neck as found; don't straighten, bend or twist.
- Don't let the person get up and walk; don't remove a helmet.
- If CPR is needed: keep the neck in line and open the airway with a jaw thrust. If that fails, the airway comes first.
- Vomiting: log-roll with enough trained help, keeping the head, neck and back in line.

Treatment and problems afterward

- Paralysis can appear at once, or later from bleeding and swelling. Relieving pressure early may help: time matters.
- ★ **Respiratory problems, often pneumonia, are the leading cause of death.** Aspiration precautions help prevent it.
- Blood pressure swings, rhythm changes, leg clots: expect blood thinners and compression stockings.
- Reposition per the client's surface, skin and tolerance.
- Bladder and bowel: a catheter or a bowel program.

Autonomic dysreflexia: an emergency

- ★ **Who:** classically an injury at **T6 or above**: the neck or upper back.
- **Trigger:** something below the injury, most often a full bladder or bowel, or tight clothing.
- **Signs:** a pounding headache; a sudden rise in blood pressure compared with the client's low baseline; slow heart rate; flushing, sweating.
- ★ **First: sit the client up**, keeping the body aligned; call for help; loosen tight clothing; check the blood pressure urgently and repeatedly.
- ★ **Then:** find and remove the trigger, **bladder first**, then the bowel; give ordered rapid antihypertensive treatment when indicated.
- **Prevent:** check and train the bladder and bowel; keep the bladder empty and the urine dilute; protect the skin.

2 PRIORITY AND SAFETY CALLS

★ Tonic-clonic seizure in bed: raise the rails, remove pillows, time it. **No tongue blade, no holding down, don't leave** to get help.

★ A tonic-clonic seizure has lasted 6 minutes: status epilepticus. Call for emergency help.

★ T4 injury with a pounding headache, flushing and sweating: **sit the client up first**, get help, loosen clothing, recheck the pressure, then look for the trigger.

Just admitted after a high cervical injury: breathing and airway come first.

3 EXAM ANCHORS

1. During: protect, time it, don't restrain, and nothing in the mouth.
2. Traps: something in the mouth, holding the client down, leaving to get help first, stopping drugs when seizure-free.
3. Higher injuries affect more; the top four neck levels can stop breathing.
4. Dysreflexia at T6 or above: sit up, get help, monitor the pressure, remove the trigger, treat as ordered.
5. Traps: lying a dysreflexia client flat, or hunting for the cause before sitting them up.

4 SELF-QUIZ

1. Status epilepticus is a seizure lasting _____ minutes or more.
2. After a seizure, turn the client on their _____.
3. The total phenytoin range is 10 to _____ mcg/mL.
4. Before an EEG, avoid caffeine and _____.
5. Sacral sparing at S4 to _____ decides complete or incomplete.
6. In dysreflexia, check the _____ first for the trigger.

ANSWER KEY 1. 5 · 2. side · 3. 20 · 4. fasting · 5. S5 · 6. bladder

5 SOURCES

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5. MedlinePlus, Spinal injury (first aid). medlineplus.gov/ency/article/000029.htm

Built from RN PocketPal course lessons: Seizures and epilepsy (c10-l03); Spinal cord injury (c10-l04). Every line on this sheet comes from those lesson scripts.

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