Heat Stroke

Recognition, active cooling strategy, and medication management for adults and children with classic or exertional heat stroke.

2025 SCCM Guideline
Treatment of Heat Stroke
Barletta et al. · Crit Care Med 2025;53:e490–e500

GRADE — Strong For | Strong Against | Research Context Only | Good Practice Statement

1 Recognition

GPS

Heat stroke = core temperature >40°C with CNS abnormalities (confusion, seizure, coma). Subclassified as **classic** (nonexertional) or **exertional** — both are treated similarly. Higher-risk groups: infants, older adults, athletes, outdoor/military workers, and those who are domestically displaced. ICU mortality approaches 60%; ~30% of survivors have lasting cognitive or motor impairment.

2 Active Cooling

Strong V.Low

Use **active cooling over passive cooling** in all patients with heat stroke — desirable effects (reversing life-threatening hyperthermia) strongly outweigh undesirable effects despite very-low-certainty evidence.

GPS

Prioritize the **fastest cooling method** — **ice-water immersion (1–5°C)** or **cold-water immersion (9–12°C)** — targeting a cooling rate **≥0.155°C/min** and a core temperature **<39°C within 30 minutes** of symptom recognition. Use the same approach for classic or exertional heat stroke; choose the fastest feasible alternative if immersion is unavailable.

COOLING METHOD (FASTEST → SLOWEST)	MEAN RATE (°C/MIN)
Ice-water immersion (1–5°C)	0.178
Cold-water immersion (9–12°C)	0.154
Cold-water immersion (14–17°C)	0.102
Cold shower (~21°C) / tarp with cold water	0.070–0.076
Ice sheet cooling / cooling vest / fan cooling	0.057–0.061
Cold IV saline	0.039
Commercial ice packs (neck/axilla/groin)	0.021
Evaporative cooling (misting + fanning)	0.002

3 Medications

Strong V.Low

Against dantrolene for heat stroke — no mortality benefit or meaningful difference in cooling time despite mechanistic overlap with malignant hyperthermia.

GPS

Avoid routine antipyretics — acetaminophen, NSAIDs, and salicylates have no proven benefit for temperature reduction in heat stroke and carry real risk (hepatotoxicity, AKI, bleeding) in a population already prone to organ dysfunction.

Research Only

Prophylactic antibiotics or antiseizure medications should be used only in the context of research — insufficient evidence to support routine use.

Remember — Heat stroke is a time-critical emergency: cool first, ask questions later. Immerse in ice or cold water immediately, target <39°C within 30 minutes, skip dantrolene and routine antipyretics, and treat classic and exertional heat stroke with the same aggressive cooling approach.

Barletta JF, Palmieri TL, Toomey SA, et al. Society of Critical Care Medicine Guidelines for the Treatment of Heat Stroke. *Crit Care Med.* 2025;53(2):e490–e500.