



— HOCKEY PERFORMANCE NUTRITION SERIES —

ELECTROLYTES EXPLAINED

Electrolytes are essential minerals — including sodium, potassium, chloride, calcium, magnesium, and phosphate — that carry an electrical charge when dissolved in body fluids. They are not optional extras: every shift you play, every sprint, every save depends on them working correctly in the background.

AUDIENCE

AGES 17–21

FOCUS

ICE HOCKEY PERFORMANCE

SOURCE

JEUKENDRUP, A.





WHAT ARE ELECTROLYTES?

Essential minerals that carry an electrical charge in body fluids — and the foundation of everything you do on the ice.

When minerals like sodium, potassium, and calcium dissolve in water, they split into positively charged cations and negatively charged anions — this is what makes them electrolytes. Sodium and chloride dominate the fluid *outside* your cells (e.g., blood), while potassium is the key electrolyte *inside* cells such as muscle and brain cells. All major electrolytes are obtained through your diet; **the body cannot manufacture them**, so consistent, balanced nutrition is the foundation of electrolyte status.

■ THE SIX ESSENTIAL MINERALS

SODIUM**POTASSIUM****CHLORIDE****CALCIUM****MAGNESIUM****PHOSPHATE**

● OUTSIDE THE CELLS

SODIUM & CHLORIDE

Dominate the fluid outside your cells — for example, the blood.

● INSIDE THE CELLS

POTASSIUM

The key electrolyte inside cells such as muscle and brain cells.



KEY ELECTROLYTES & THEIR ROLES

Five minerals do the heavy lifting for a hockey player. Sodium leads — but each has a job that performance depends on.

Na⁺ SODIUM

● PRIORITY

Controls fluid volume in the blood and around cells

Drives thirst and stimulates drinking behaviour

The dominant electrolyte lost through sweat

Supports nerve impulse transmission

Aids glucose and water absorption in the gut

K⁺ POTASSIUM

INTRACELLULAR

Maintains fluid balance *inside* cells

Essential for muscle contraction — including your heart

Supports normal blood pressure

Critical for nerve signal conduction

Works in opposition to sodium to regulate cell function

Ca²⁺ CALCIUM

STRUCTURAL

Builds and maintains bone density — vital during ages 17–21

Required for muscle contraction signalling

Supports healthy cardiovascular function

Sweat losses are small; diet covers daily needs

Pair with Vitamin D for optimal absorption

Mg²⁺ MAGNESIUM

ENZYMATIC

Involved in 300+ enzymatic reactions in the body

Supports energy production at the cellular level

Contributes to protein synthesis and muscle recovery

Sweat losses are very small

Balanced diet provides adequate amounts

Fe²⁺ IRON

OXYGEN TRANSPORT

Carries oxygen in red blood cells (haemoglobin)

Strongest evidence for performance impact if deficient

Deficiency directly reduces aerobic capacity & endurance

Athletes in intensive training are higher risk

Can be restored through targeted dietary or supplemental iron

WHERE TO FOCUS

Calcium, magnesium and iron are largely covered by a balanced diet, with very small sweat losses. **Sodium** is the one lost in real volume through sweat — and **iron** carries the strongest direct link to performance.



PERFORMANCE & HEALTH

What electrolytes do for you on the ice — and the general health they protect off it.

■ PERFORMANCE ON THE ICE

01 • SPEED

NERVE & MUSCLE SPEED

Sodium and potassium work together to fire nerve impulses and trigger fast muscle contractions — think explosive first strides and sharp turns. Even minor imbalances can blunt your reaction time and speed.

02 • HYDRATION

FLUID REGULATION & SWEAT LOSS

Hockey is played in full equipment in a cold, dry arena environment — sweat loss is significant but easy to underestimate. Sodium is the primary electrolyte in sweat and is what drives the thirst response. Without adequate sodium, fluid replacement is inefficient.

03 • ENGINE

CARDIOVASCULAR EFFICIENCY

Maintaining blood volume through sodium and fluid balance allows the heart to deliver oxygen to muscles more effectively during high-intensity shifts. This directly impacts your ability to sustain effort through 3 periods.

04 • MIND

DECISION-MAKING & FOCUS

Brain function relies on precise electrolyte gradients to send and receive signals. Dehydration combined with sodium losses can impair cognitive sharpness — a real cost in a fast, read-and-react sport like hockey.

■ GENERAL HEALTH BENEFITS

BONES

BONE DEVELOPMENT

Ages 17–21 are peak bone-building years. Calcium and phosphate form the structural matrix of bone. This is the window to build the density that protects your skeleton for decades of sport.

IMMUNITY

IMMUNE FUNCTION

Multiple minerals — including iron and magnesium — support immune defences. Deficiency in even one is linked to increased susceptibility to illness and infection, which disrupts your training block.

ENERGY

ENERGY PRODUCTION

Minerals are co-factors in the enzymatic reactions that generate ATP (cellular energy). Without adequate micronutrient status, your energy systems cannot function at full capacity.

HEART

HEART RHYTHM

Potassium and calcium are essential for maintaining a healthy, regular heartbeat. The cardiac muscle relies on precise electrolyte balance at every beat — a basic non-negotiable for any athlete.



THE BOTTOM LINE

What actually matters for a hockey player — and where to put your attention.

THE BOTTOM LINE

For most healthy hockey players, a varied, well-balanced diet covers electrolyte needs. The exception is **sodium** — it is lost in higher quantities in sweat and deserves attention around training and games — and **iron**, which has the strongest direct link to performance and is worth monitoring with your sports medicine team. Electrolyte drinks are not necessary for everyday training, but ensuring your diet is nutritionally complete is the real game-changer.

WATCH • 01

SODIUM

Lost in higher quantities in sweat — deserves attention around training and games.

WATCH • 02

IRON

Strongest direct link to performance — worth monitoring with your sports medicine team.

A COMPLETE DIET IS THE REAL GAME-CHANGER.

PREPARED BY SPORTS PERFORMANCE NUTRITIONIST

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Source: Jeukendrup, A. (2022). *Electrolytes Under Investigation*. MySportScience.com | For educational use only — not a substitute for individual nutritional assessment.