Analytics
Keeping athletes hydrated

SALAM FOON

Insight from Articles

These are extracted from articles and show insights that may be useful in understanding what athletes or sport practicing people experience related to hydration.

Physiological effects:

- “Dehydration can cause a reduction in blood volume, decreased skin blood flow, decreased sweat rate, increased core temperature, and increased rate of glycogen use.”
- “Reduced plasma volume from dehydration increases blood viscosity and decreases cardiac output, potentially affecting maximal aerobic power (VO2 max) and athletic performance.”

Quoted from The effects of Hydration on Athletic Performance (1.1)

“Muscle Fatigue and Dehydration: Dehydration may lead to an increased rate of glycogen breakdown in muscles, contributing to muscle fatigue during athletic activities.”

Quoted from The effects of Hydration on Athletic Performance (1.1)

“**Impact of Dehydration on Exercise Performance:**

- Fatigue during prolonged sporting events can be as much a result of dehydration as fuel substrate depletion.
- Exercise performance is impaired when an individual is dehydrated by as little as 2% of body weight, and losses exceeding 5% of body weight can decrease work capacity by approximately 30%.”

Quoted from Dehydration and its effects on performance - Human Kinetics (1.2)

“Sweating and Skin Blood Flow:

- Dehydration reduces sweat rate and skin blood flow at the same core temperature, causing body temperature to rise faster during exercise.
- Dehydration impacts the body's ability to lose heat.”

Quoted from Dehydration and its effects on performance - Human Kinetics (1.2)

Recommendations and observations:

“Optimal Fluid and Nutrient Intake:

- Endurance athletes should consume beverages containing carbohydrates and electrolytes during and after training or competition.
- Carbohydrates favor consumption, while sodium (Na(+)) favors water retention.
- Proper hydration during training or competition can enhance performance, prevent thermal stress, maintain plasma volume, delay fatigue, and prevent injuries associated with dehydration and sweat loss.”

Quoted from Fluid replacement for the physically active - Journal of Athletic Training (1.4)

“Timing of Fluid Intake:

- Drinking during competition is more desirable than fluid ingestion before or after training or competition.
- Athletes rarely fully replace fluids lost due to sweat during physical activity.”

Quoted from Fluid replacement for the physically active - Journal of Athletic Training (1.4)

“Preventive Measures and Recommendations:

- Athletes are recommended to replace sweat loss through fluid intake, typically containing about 4% to 8% carbohydrate solution and electrolytes during training or competition.
- Before an event, athletes should consume about 500 mL of fluid solution 1 to 2 hours in advance.
- Athletes should continue to consume cool or cold drinks at regular intervals to replace fluid loss due to sweat.”

Quoted from Fluid replacement for the physically active - Journal of Athletic Training (1.4)

References:

- 1.1 The effects of Hydration on Athletic Performance
- 1.2 Dehydration and its effects on performance - Human Kinetics
- 1.3 Accuracy of Urine Color to Detect Equal to or Greater Than 2% Body Mass Loss in Men Journal of Athletic Training
- 1.4 Fluid replacement for the physically active - Journal of Athletic Training
- 1.5 The importance of hydration - Harvard School of Public Health
- 1.6Fluids and hydration in prolonged endurance performance - Pubmed