ACSM Position Stand Exercise and Fluid Replacement

Link naar position stand: http://www.acsm.org/access-public-information/position-stands

SUMMARY

This Position Stand provides guidance on fluid replacement to sustain appropriate hydration of individuals performing physical activity. The goal of prehydrating is to start the activity euhydrated and with normal plasma electrolyte levels. Prehydrating with beverages, in addition to normal meals and fluid intake, should be initiated when needed at least several hours before the activity to enable fluid absorption and allow urine output to return to normal levels. The goal of drinking during exercise is to prevent excessive (>2% body weight loss from water deficit) dehydration and excessive changes in electrolyte balance to avert compromised performance. Because there is considerable variability in sweating rates and sweat electrolyte content between individuals, customized fluid replacement programs are recommended. Individual sweat rates can be estimated by measuring body weight before and after exercise. During exercise, consuming beverages containing electrolytes and carbohydrates can provide benefits over water alone under certain circumstances. After exercise, the goal is to replace any fluid electrolyte deficit. The speed with which rehydration is needed and the magnitude of fluid electrolyte deficits will determine if an aggressive replacement program is merited.

SAMENVATTING

Deze position stand bevat richtlijnen voor vochtsuppletie om een adequate *hydratietoestand* tijdens fysieke activiteit te onderhouden.

TABLE 6. American College of Sports Medicine exercise and fluid replacement Position Stand evidence statements.

Section Heading	Evidence Statement	Evidence Category
Fluid & Electrolyte Requirements	Exercise can elicit high sweat rates and substantial water and electrolyte losses during sustained exercise, particularly in warm-hot weather.	A
	There is considerable variability for water and electrolyte losses between individuals and between different activities.	A
	If sweat water and electrolyte losses are not replaced then the person will dehydrate.	A
Hydration Assessment	Individuals can monitor their hydration status by employing simple urine and body weight measurements.	B
	A person with a first morning USG $\leq$ 1.020 or UOsmol $\leq$ 700 mOsmol·kg^{-1} can be considered as euhydrated.	B
	Several days of first morning body weight values can be used to establish base-line body weights that represent euhydration.	B
	Body weight changes can reflect sweat losses during exercise and can be used to calculate individual fluid replacement needs for specific exercise and environmental conditions.	A
Hydration Effects	Dehydration increases physiologic strain and perceived effort to perform the same exercise task, and is accentuated in warm-hot weather.	A
	Dehydration (>2% BW) can degrade aerobic exercise performance, especially in warm-hot weather.	A
	The greater the dehydration level the greater the physiologic strain and aerobic exercise performance decrement.	B
	Dehydration (>2% BW) might degrade mental / cognitive performance.	B
	Dehydration (3% BW) has marginal influence on degrading aerobic exercise performance when cold stress is present.	B
	Dehydration (3–5% BW) does not degrade either anaerobic performance or muscular strength.	A & B
	The critical water deficit and magnitude of exercise performance degradation are related to the heat stress, exercise task, and the individual's unique biological characteristics.	C
	Hyperhydration can be achieved by several but has equivocal benefits and several disadvantages.	B
	Dehydration is a risk factor for both heat exhaustion and exertional heat stroke.	A & B
	Dehydration can increase the likelihood or severity of acute renal failure consequent to exertional rhabdomyolysis.	B
	Dehydration and sodium deficits are associated with skeletal muscle cramps.	C
	Symptomatic exercise-associated hyponatremia can occur in endurance events.	A
	Fluid consumption that exceeds sweating rate is the primary factor leading to exercise-associated hyponatremia.	A
	Large sweat sodium losses and small body weight (and total body water) can contribute to the exercise-associated hyponatremia.	B
Modifying Factors	Women generally have lower sweating rates than men.	A
	Sex differences in renal water and electrolyte retention are subtle and probably not of consequence.	C
	Women are at greater risk than men to develop exercise-associated symptomatic hyponatremia.	C
	Older adults have age related decreased thirst sensitivity when dehydrated making them slower to voluntarily reestablish euhydration.	A
	Older adults have age related slower renal responses to water and may be at greater risk for hyponatremia.	A & C
	Children have lower sweating rates than adults.	B
	Meal consumption promotes euhydration.	A
	Sweat electrolyte (sodium and potassium) losses should be fully replaced to reestablish euhydration.	A
	Caffeine consumption will not markedly alter daily urine output or hydration status.	B
	Alcohol consumption can increase urine output and delay full rehydration.	B