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A scientifically based nutrition strategy allows experienced cyclists to improve performance

Introduction

Despite advanced knowledge on nutrition strategy during prolonged exercise, some cyclists ride far with modest fluid and carbohydrate (CH) intake. We tested whether cyclists during long-term cycling perform better on a scientifically based than on their usual nutrition strategy.

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Methods

Fifteen cyclists (14 men, 1 woman, mean height 181 cm, s = 6; body mass 73 kg, s = 8; age 34 years, s = 12,) with 12 years, s = 8, of competitive experience and 10 hours/week, s = 3, of cycling during the preceding 3 months reported twice. The first test consisted of 80 km self-paced cycling on a simulated 16 km hilly course followed by 5 min rest and 48 km time trial (TT) on the hilly course. Cyclists used their own road bicycles that were mounted on Computrainer ergometers being connected to laptop computers running the Computrainer software. In the second test, during the initial 80 km, each cyclist repeated the same performance as in the first test. Subsequently, a TT was performed as in the first test, i.e. without any feedback of previous performance. In one of the tests, a scientifically based nutrition strategy (S) was applied where High5 EnergySource drinks containing 95 g CH/L water were ingested. Cyclists ingested 500 mL 15-0 min before test start, then 250 mL from 15-30 min, and subsequently 1 L/hour throughout rest of the test. In the other test, cyclists applied their usual nutrition strategy (U). Two weeks separated the tests. Nutrition strategies were counterbalanced.

Results

Cyclists ingested substantially more fluid and CH with S than with U. TT time and power output (PO) were considerably improved with S.

	Body mass	Intake				Performance			
	After vs. before the test	80km		48km	TT	80km		48km	TT
	Decrease (kg)	Fluid (L)	CH (g)	Fluid (L)	CH (g)	Time (hrs:min:s)	PO (W)	Time (hrs:min:s)	PO (W)
S	1.2 ±0.6*	2.3 ±0.3*	223 ±25*	1.3 ±0.4	123 ±37*	2:32:09 ±0:10:10	197 ±25	1:24:31 ±0:07:11*	238 ±42*
U	2.5 ±0.7	1.3 ±0.4	112 ±50	1.1 ±0.3	33 ±27	2:32:55 ±0:11:33	195 ±27	1:32:24 ±0:12:05	206 ±52

*Different from U, $P < 0.01$.

Discussion

Experienced cyclists performing a 48 km TT after 80 km of self-paced moderate cycling completed the TT on average 8 min faster when a scientifically based rather than the cyclists' usual nutrition strategy was applied.