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Energy balance during two days of continuous stationary cycling.

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ABSTRACT: This study examined the capabilities of an ultraendurance athlete to self-regulate their diet during an attempt on the record for the longest period of stationary cycling. The attempt required the athlete to complete at least 20 km/hr, with a 15 minute break allowed every eight hours. Laboratory tests determined a heart rate-oxygen consumption regression equation enabling calculation of energy expenditure from heart rate during the attempt. Energy intake was determined by a non-weighed dietary record collected at the time of consumption. The athlete completed 46.7 hours, covering 1126 km, at a speed of 24 \pm 1.6 km/hr. He expended 14486 kcal and consumed 11098 kcal resulting in an energy deficit (-3290 kcal) and a weight loss (-0.55 kg). The carbohydrate (42 \pm 32 g/hr), water (422 \pm 441 ml/hr), and sodium (306 \pm 465 mg/hr) intake were all below current recommendations. The athlete was unable to self-regulate his diet or exercise intensity to prevent a negative energy balance.