

The Relationship between Dietary Intake and Sleep Quality in Endurance Athletes

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ABSTRACT

Athletes have a high prevalence of poor sleep quality. It is unknown if dietary intake affects sleep quality in athletes. **PURPOSE:** To examine if sleep quality in endurance athletes is related to dietary intake. **METHODS:** Endurance athletes (n=187), 42.0±13.7 y, participated in the study. Participants completed questionnaires on demographics, dietary intake, and sleep quality. Sleep quality was assessed using the Athlete Sleep Screening Questionnaire (ASSQ), a validated tool, with scores ranging from 0-40 (higher scores indicate poorer sleep quality). The ASSQ subscales included sleep difficulty (SD), chronotype (C), and sleep disordered breathing (SDB). ASSQ-SD was categorized as having none (0-4), mild (5-7), moderate (8-10), and severe (11-17) SD. ASSQ-C was categorized as morning (>4) or evening (higher risk for sleep issues) (≤4) type. ASSQ-SDB was categorized as difficulty breathing (>1) or not (<1) during sleep. Dietary intake was collected on fruit, vegetable, cow's milk, whole grain, and caffeinated beverage intake. A general linear model was run to assess the relationship between dietary intakes and ASSQ total and subscale scores, controlling for age, race, and ethnicity. **RESULTS:** ASSQ score was 22.3±3.96, indicating average sleep quality among athletes. ASSQ-SD score showed that 33.7% of athletes had no SD, and 38.5%, 21.9%, and 5.9% had mild, moderate, and severe SD, respectively. ASSQ-C score was 9.4±2.82, and 93% of athletes were morning type and 7% were evening type. ASSQ-SDB score indicated that 79.1% of athletes had normal and 20.9% had disordered breathing. Preliminary analyses revealed that ASSQ scores were significantly related to vegetable (p=.038) and caffeinated beverage (p=0.034) intake, but not to the other dietary variables. Significantly higher ASSQ score, (i.e., poorer sleep quality) was found in athletes who consumed ≥5 servings/d (24.0±4.0) of vegetables compared with <1 (20.9±3.18, p=.011) or 1-2 (21.6±4.11, p=.030) servings/d. Athletes who drank >2.5 cups/d of caffeinated beverages had higher ASSQ score or poorer sleep quality versus those who consumed <1-1.5 cups/d (23.9±4.67 vs. 21.4±3.68; p=.032). ASSQ-C was significantly related to fruit (p=.023) and whole grain (p=.00) intake. ASSQ-C score was lower among those who consumed <1 serving/d of fruit (8.35 ± 2.81, i.e., more evening type) versus 1-2 (9.59±2.63, p=.016) and ≥ 3 (9.54 ± 3.09, p=0.036) servings/d. Consuming <1 serving/d of whole grains had a lower ASSQ-C score (7.74±2.76, i.e., more evening type) versus 1-2 (9.06±3.05, p=.019), 3-4 (10.4±2.23, p<0.001), and ≥5 (9.44±2.53, p=.01) servings/d. Further, ASSQ-SDB was significantly related to cow's milk (p=.028) and whole grain (p=.049) intake. Athletes who consumed >3 cups/d of milk had a higher disordered breathing score (.69±.947) versus those who drank 1-2 (.18±.521, p=.009) and <1 (.30±.641, p=.016) cups/d. Athletes who consumed <1 serving/d of whole grains had a higher ASSQ-SDB score (.48±.79) versus those who consumed 3-4 servings/d (.09±.401, p=.029). ASSQ-SD was not related to any of the dietary variables. **CONCLUSIONS:** Increased vegetable and caffeinated beverage consumption were associated with decreased sleep quality. Less whole grains and fruits were associated with evening chronotype. Athletes who consumed more milk and less whole grains had increased disordered breathing.