compared to hypohydrated ones. A lower consumption of water and juices 100% was associated with a higher risk of hypohydration (OR = 2.16, 95% CI: 1.02 – 4.58, p = 0.045), adjusting for confounders.

Conclusions: Almost 60% of children were at risk of hypohydration. Water and fruit juices were significantly associated with a better hydration status.

Key words: children, dietary Intake, hydration status.

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Beverage consumption habits amongst the Spanish population: association with total water and energy intake. Findings of the ANIBES study

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Introduction: Inadequate hydration is a public health issue that imposes a significant economic burden. In Spain, data on hydration status are scarce. There is a clear need for a national study that quantifies total water and beverage intake and explores associations between types of beverages consumed and energy intake.

Method: The ANIBES study is a national survey of diet and nutrition conducted in a representative sample of 2,285 healthy subjects aged 9 to 75 years in Spain. Food and beverage intakes were assessed using weighed food and beverages records by age and gender. Time and day of beverage consumption were also recorded.

Results: On average, total water intake (TWI) was 1.66 L (SD 673.03) for men and 1.58 L (SD 596.24) for women, below the EFSA recommended adequate intake. Mean total energy intake (EI) was 1810 Kcal/day (SD 504.4). The contribution to the total EI from beverages was 12%. Water was the beverage most consumed, followed by milk. Out of 8 different types of beverages, the variety score was positively correlated with TWI (r = 0.39); and with EI (r = 0.23), suggesting that beverage variety is an indicator of higher consumption of food and drinks. Multiple regression models showed that replacing 100 g of caloric beverages with 100 g non-caloric drinks was associated with a reduction in EI of 50 kcal, or 40 kcal if EI from food was unchanged. Using within-person data, each 100 g change in caloric beverages was associated with 43 kcal change in EI or 34 kcal if EI from food was constant.

Conclusions: The present study demonstrates that well-conducted national surveys such as the ANIBES study have the potential to yield rich contextual data that can be linked to health and nutrition policies. Although neither men nor women consumed sufficient amount of TWI when compared to the EFSA reference value, further work must be warranted to explore correlations with biological markers of hydration status by population sub-groups.

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Key words: total water intake, energy intake, beverages, Spain.

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Drinking habits in a sample of university students. Relationship between the adherence to the Mediterranean Diet and BMI


Introduction: The university period is marked by changes in food consumption patterns. Hydration habits affect students’ physical and cognitive performance.

Objective: analyze beverage consumption, calculate the total water intake and compare it with the recommendations of the EFSA and analyze its relationship with the adherence to the Mediterranean Diet and BMI in a sample of university students.

Method: This is a descriptive cross-sectional study on a sample of 1978 students from the Rey Juan Carlos University of Madrid (2010/2011 academic year). The frequency and amount of beverage consumption was determined by Hendrick 2010. To assess the adherence to the Mediterranean Diet the TestkidMed was used.

Results: The average consumption of water from all drinks was 1673.6 ml/day in women and 1701.8 ml/day in men. The most consumed beverages were water (886.22 ml / day), dairy (341.38 ml / day), juices (202.17 ml / day), coffee and tea (171, 86 ml / day) and soft drinks (155, 10 ml / day). The average value in the test Kidmed was 6.18(± 2.61), 32.5% of cases reported high adherence, and 53.2% medium adherence. Only the 14.3% was classified as low adherence, showing a significant association between low adherence and younger subjects (≤ 20 years). This age group showed a higher proportion of underweight and greater total water consumption was observed.
Hydration patterns among a Latin American sample

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Introduction: Water is essential to health, but is often overlooked. This can result in vulnerable individuals missing out on the support they need to help maintain a healthy level of hydration.

Objective: To evaluate the liquid intake habits of a Latin American population and if they know and support the current policies and recommendations of hydration.

Method: A record of fluid intake was obtained from 342 participants from Mexico and Uruguay and then compared with current consensus about hydration by the EFSA.

Results: The average fluid intake ranges from 1,900 mL/day, in females, to 2,600 mL/day in males, both above EFSA’s recommendation. Though water contributes the largest part to total fluid intake (mean of 1,440 mL/day in Mexico and 1530 mL/day in Uruguay), bottled water consumption was much higher (100% of the sample) than tap water, at least in Mexico. Hot beverages (50.5%), milk (36.7%) and carbonated soft drinks (32.4%), in Mexico, and hot beverages (41%), specially mate, in Uruguay, follow water in highest consumption. 8.5% vs. 35.2% of Mexicans and 10.6% vs. 50.8% of Uruguayans knew or not, respectively, the recommendations for hydration. Only 14% followed them.

Conclusions: Large differences in consumption habits were reported and were not enough to get the individual fluid intake recommendation. Knowledge of differences in beverage consumption patterns is important for nutrition policymakers. Better understanding of the many factors that influence beverage consumption levels is needed.

Key words: hydration, fluid intake, Latin American.

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Whole body water after 16 weeks of high intensity interval training in Metabolic Syndrome patients


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Introduction: Exercise is a cornerstone in the treatment of metabolic syndrome (MSyn). However exercise implies acute whole body water losses (i.e. sweating) which, if not properly recovered lead to chronic hypohydration.

Objective: To determine if a high intensity interval training (HIIT) program with “ad libitum” hydration strategy during exercise sessions is able to reduce fat maintaining euhydration in MSyn patients.

Method: Forty-two MSyn patients (15 women and 27 men; 54.0±7.9 years old) participated in a 16-week training program based on 3 sessions per week of HIIT performed in a cycle-ergometer (i.e., 5 x4-min at 90% of the maximal heart rate (HRmax), interspersed with 5x3-min at 70% of HRmax). During exercise sessions participants were allowed to drink water “ad libitum”. Body weight (BW), fat mass (FM), lean mass (LM), and whole body water (WBW) were measured before and after intervention using electrical bioimpedance analysis (Tanita TBF 300, Japan).

Results: After training participants loss 1.0±3.1 kg of BW (P=0.045) without changes in FM and LM (-0.2±3.2 kg; P=0.690, and -0.8±4.5 kg; P=0.264, respectively). WBW losses represented a 60% of the BW lost during training (0.6±3.5 kg; P=0.286). FM changes were inversely correlated with WBW changes (r=-0.747, P<0.001).

Conclusion: Hydration status was maintained after training, however participants did not reduce FM. Maintenance of WBW could enhance exercise-related FM reductions.

Key words: metabolic syndrome, interval training, hydration.

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Assessment of the body water content in the Spanish Women’s National Waterpolo Team

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Introduction: The regular practice of physical exercise generates in the human body a series of acute and