Method: ICR-CD1 old female mice were maintained in group (n=8) or isolated (n=10) during one month. Then, a group of isolated mice (n=5) was submitted to a 4-weeks hydrotherapy treatment. Peritoneal leukocytes were obtained and macrophages and lymphocytes chemotaxis, and lymphoproliferation in absence (basal) or presence of the mitogens Lipopolysaccharide and Concanavalin A were analyzed. Mortality was also monitored.

Results: Hydration and Hydrotherapy improves lymphocytes chemotaxis and lymphoproliferative response to mitogens (functions reduced with aging), decreases basal lymphoproliferation (which increases with age) and increases life span in socially isolated mice.

Conclusions: Hydration-Hydrotherapy seems to be an effective strategy to reverse the immune decline induced by social isolation in elderly as well as to increase longevity.

Key words: aging, hydration-hydrotherapy, social-isolation, immunity, longevity.

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Parents body mass index as modulator of fluid intake habits among their children

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Introduction: Overweight and obesity is a growing health problem nowadays. Its relationship with inadequate life habits (including low fluid intake) is an added problem.

Objective: To evaluate fluid intake by school children of the Community of Madrid according to body mass index (BMI) of their parents.

Method: 564 schoolchildren (258 boys and 306 girls) aged 9-12 years, were studied. Data on fluid intake was obtained using SPSS (v 19.0) and it was set as statistical significance at p<0.05.

Results: 23.4% children had mothers with overweight/obesity (BMI ≥25 kg/m2). Fluid intake of these children was lower (1,465.5±380.3 mL/day) than those whose mother’s BMI below 25 kg/m2 (1,532.1±384.45 mL/day). BMI of children increased according to parents BMI, even more in the case of father BMI (r=0.243) vs mother BMI (r=0.199) (p<0.05). There were no differences in water intake of children considering BMI of fathers.

Conclusions: Most of the studied children had an inadequate water intake. Higher BMI of mothers is linked with lower fluid intake in their descendants, and higher BMI of parents is associated to higher BMI in children. This group needs special counseling to improve their patterns of hydration.

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Key words: children, fluids, parents, body mass.

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Fluid intake habits among school children in Madrid depend on the educational level of their parents

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Introduction: Several studies show the influence of educational level of parents in their children’s habits, including their fluid intake.

Objective: To evaluate fluid intake by of school children of the Community of Madrid, differing according to educational level of their parents.

Method: 564 schoolchildren (258 boys and 306 girls) aged 9-12 years, were studied. Data on fluid intake was obtained by applying a food intake record (3 days). Educational level of parents was self-declared, and it was classified depending on the type of studies completed (low, medium or high). Statistical data was obtained using SPSS (v 19.0) and it was set as statistical significance at p<0.05.

Results: Children with mothers with higher educational level (medium or high) take more liquid (1,562.4±406.9 and 1,565.7±371.9 mL/day, respectively) than those whose mother’s educational level is lower (1395.0±367.5 mL/day) (p<0.001). It occurs similarly in the case of children whose fathers have higher educational level (fluid intake in children whose parents educated middle and upper: 1,538.7±411.4 and 1,606.8±380.5 mL/day, respectively), compared to those whose fathers have low

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Questionnaire design to evaluate water balance

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Introduction: Body water balance is determined by the difference between the sum of water intake and endogenous water production and the sum of losses. Several questionnaires have been developed to evaluate water intake through food and drinks. However, assessing water losses through different routes of elimination is more complicated. Thus, few questionnaires evaluate intake and loss of water at the same time.

Objective: This study aims to develop a hydration questionnaire which can accurately determine the hydration status in the university population.

Method: The questionnaire development process included 3 steps: (1) identifying all foods and beverages from Spanish food composition tables which have water content higher than 80% (w/w); (2) recognizing the drugs and pathologies that may compromise hydration status as well as important hydration habits such as daily fluid consumption; (3) compiling all items and developing the hydration questionnaire.

Results: The final version of the hydration questionnaire comprises 24 items about hydration habits, relevant pathologies and questions related to regular fluid elimination (urination/defecation). In addition, it includes a brief food frequency questionnaire of the main water diet contributors.

Conclusions: We have designed a comprehensive, short and simple screening tool to assess the population’s hydration status.

Key words: hydration, water balance, questionnaire.

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Relationship between hydration status and psychological tests in Spanish schoolchildren aged 7-11 years

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Background: Data about hydration status in children and psychological aspects are scarce.

Objective: To analyze the relationship between diuresis and urine osmolarity and indicators of stress, mood, and attention in a group of Spanish schoolchildren.

Method: 278 children (aged 7-11 years) from different Spanish provinces participated in a cross-sectional study. Single 24-h urine samples were collected and urine osmolarity was calculated. IECI, CDI and “d2” tests were applied in order to assess stress, mood and attention, respectively. Sample was divided regarding urine osmolarity in children with high urine osmolarity (HO) (>800 mOsm/L) and with low urine osmolarity (LO). Statistical analyses were performed with SPSS v.20.

Results: Finally 129 boys and 120 girls provided complete urinary and psychological data. In boys there were no differences in psychological scores between HO and LO but significant positive correlations were found between diuresis and attention (r=0.2262, p<0.01) and concentration scores (r=0.2512, p<0.01).

In females, stress scores in health domain (IECI-Health scores) and Global stress were significantly higher in HO than in LO. Also osmolarity positively correlated with IECI-Health scores (rho-Spearman=0.2236, p<0.05) and Global stress scores (rho-Spearman =0.2015, p<0.05), while inverse correlations were found between diuresis and IECI-School (rho-Spearman =-0.2130, p<0.05), Global stress (rho-Spearman =-0.2215, p<0.05) and CDI-Depression scores (rho-Spearman =-0.1879, p<0.05).

Conclusion: In this study, a better hydration status is related to better selective attention and mental concentration scores in boys, and lower stress and better mood in girls.

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Key words: hydration, stress, mood, attention, schoolchildren.

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