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# Dietary exposure to arsenic in young (18-23 yrs-old) university students in Leicester, England

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**BACKGROUND AND AIM:**To evaluate dietary exposure to arsenic (As) in young adults (18-22 years-old) attending De Montfort University (DMU, UK).

**METHOD:**Nutrient intake was collected from 111 (78 female) DMU students using a validated variant of the Nutrition Norfolk Food Frequency Questionnaire (EPIC-Norfolk FFQ). As was analysed in scalp-hair provided by 73 of the participants (58 female) by ICP-MS, after removal of exogenous contamination. Owing to the percentage of censored data (61.6%; LoD=0.0196 µg/g), data was processed with the NADA software available in R.

**RESULTS:**Levels of As were significantly higher in male participants ( $p < 0.05$ ; data presented as median and IQR, in µg/g): [0.0238 (<0.0196-0.1495) vs. 0.0084 (0.0025-0.0277)]. The concentrations of As were higher and lower than the mean averages reported in Spanish unexposed individuals aged 20-24 years-old for men (<0.001 µg/g) and women (0.011 µg/g), respectively; and lower than the geometric mean reported in individuals aged 18-39 years-old (0.0676 vs. 0.0899 µg/g) from Cornwall (south-west England), who were studied following reports of levels of As exceeding the 10 µg/L prescribed concentration in private water supplies. The sex differences on the concentration of As in hair could be explained by the intake of fish/seafood (72.656 vs. 53.907 g/day; non-significant) and cereals (436.165 vs. 308.750 g/day;  $p$ -value=0.0016), which were much higher in male participants. A positive and significant correlation was also found between hair As and cereals intake ( $r=0.252$ ;  $p$ -value<0.05), and could explain our results as fish/seafood and rice (cereals) are foods with the highest content in As.

**CONCLUSIONS:**Although the levels of As found in hair would suggest a generally low exposure to As in the population studied, some individuals should be followed up for monitoring and dietary recommendations, as some individuals presented levels of As (0.0199-0.610 µg/g) higher than the range suggested for chronic exposure to As (0.1-0.5 µg/g).

**Keywords:** As, human hair, dietary exposure, university students.