**SUPPLEMENTARY MATERIAL**

**Supplementary Table 1. Characteristics**1 **of men and women aged 25-64 years with spot urine samples in the HUNT Study: HUNT3 (2006-08, n=499) and HUNT4 (2017-19, n=500). Median values**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | Men | p value2 |  | Women | P value2 |
|  |  | HUNT3 | HUNT4 |  | HUNT3 | HUNT4 |
| Age |  | 45.1 | 45.0 | 0.92 |  | 44.7 | 45.1 | 0.75 |
| BMI |  | 27.6 | 27.1 | 0.17 |  | 25.0 | 25.6 | 0.24 |
| Na (mmol/l) |  | 121.3 | 114.4 | 0.20 |  | 86.2 | 82.3 | 0.67 |
| K (mmol/l) |  | 65.9 | 69.6 | 0.33 |  | 56.1 | 55.9 | 0.88 |
| Na/K ratio |  | 1.85 | 1.66 | 0.11 |  | 1.67 | 1.48 | 0.07 |
| Creatinine |  | 11.3 | 11.5 | 0.70 |  | 7.9 | 7.2 | 0.45 |
| Calculated NaCl (g/24h) |  | 11.10 | 10.83 | 0.14 |  | 7.58 | 7.59 | 0.92 |
|  |  |  |  |  |  |  |  |  |

1BMI, body mass index. Na, urinary sodium concentration. K, urinary potassium concentration. Na/K ratio, ratio of urinary sodium to potassium concentrations. NaCl, salt.

2 p-values estimated by quantile regression (Stata function ‘qreg’)

**Supplementary Table 2. Median spot urinary sodium (Na), potassium (K), sodium to potassium ratio (Na/K ratio), creatinine and estimated 24-hour salt intake by age groups in men and women participating in HUNT4 (n=750).**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | N | Na (mmol/l) | K(mmol/l) | Na/Kratio | Calculated NaCl(g/24h)2 | Creatinine (mmol/l) |
| Men |  |  |  |  |  |  |
| 25-44 years | 125 | 118.5 | 62.4 | 1.99 | 10.6 | 11.5 |
| 45-64 years70-79 years | 125125 | 107.3102.3 | 80.668.2 | 1.411.54 | 11.011.2 | 11.610.5 |
| p-value1 |  | 0.10 | 0.24 | **0.003** | **0.017** | 0.35 |
|  |  |  |  |  |  |  |
| Women |  |  |  |  |  |  |
| 25-44 years | 95 | 105.8 | 61.8 | 1.65 | 8.0 | 9.1 |
| 45-64 years70-79 years3 | 155125 | 65.985.0 | 51.061.5 | 1.241.35 | 7.35.9  | 6.56.8 |
| p-value1 |  | **0.027** | 0.74 | **0.043** | **<0.001** | 0.06 |

1Age group entered as a continuous variable in quantile regression (Stata function ‘qreg’)

2Estimated using the INTERSALT equation with sex-specific coefficients for the Northern European region (see Supplementary Figure 1)

3Three women aged 70-79 years had missing values for BMI and thereby calculated NaCl

P-values <0.05 bolded.

**Supplementary Table 3. Age-standardized median sodium (Na), potassium (K), sodium to potassium ratio (Na/K ratio) and estimated 24-hour salt intake by educational attainment in men and women aged 25-64 years participating in HUNT4.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Education1 | N | Na (mmol/l) | K(mmol/l) | Na/Kratio | Calculated NaCl(g/24h)3 |
| Men |  |  |  |  |  |
| Primary  | 38 | 121.1 | 70.6 | 1.84 | 11.1 |
| Secondary Tertiary, short (<4 yrs) | 11059 | 115.0108.9 | 68.479.5 | 1.821.76 | 10.810.4 |
| Tertiary, long (≥4 yrs) | 42 |  99.2 | 61.8 | 1.50 | 10.7 |
| p-value2 |  |  0.22 | 0.82 | **0.048** | 0.19 |
|  |  |  |  |  |  |
| Women |  |  |  |  |  |
| Primary | 39 |  84.6 | 69.3 | 1.54 | 7.8 |
| Secondary  | 67 | 100.4 | 53.2 | 1.81 | 8.0 |
| Tertiary, short (<4 yrs) | 72 |  76.1 | 54.9 | 1.37 | 7.5 |
| Tertiary, long (≥4 yrs) | 71 |  81.2 | 55.7 | 1.34 | 7.5 |
| p-value2 |  |  0.38 | 0.43 | **0.020** | **0.007** |

1Attained educational level in four categories. Primary education: Completed primary school or 1-2 years of high school/vocational school; secondary education: Completed high school or certificate of apprenticeship; tertiary short: University or other post-secondary education less than 4 years; tertiary long: University/college education of 4 years or more.

2Education level entered as a continuous variable in quantile regression (Stata function ‘qreg’)

3Estimated using the INTERSALT equation with sex-specific coefficients for the Northern European region (see Supplementary Figure 1)

P-values <0.05 bolded.

**Supplementary Figure 1. The INTERSALT equation with coefficients for the Northern European region for estimating 24-hour sodium excretion (mmol/24h) from spot urine1,2**



1Brown IJ, Dyer AR, Chan Q, Cogswell ME, Ueshima H, Stamler J, et al. Estimating 24-hour urinary sodium excretion from casual urinary sodium concentrations in Western populations: the INTERSALT study. *Am J Epidemiol* 2013;177(11):1180-92

2To convert to g Na/24h, results are multiplied by a factor of 0.023, then multiplied by 2.54 to obtain the corresponding g NaCl/24h.