

RELATIONSHIP BETWEEN BLOOD PRESSURE AND WATER SODIUM  
IN RURAL SCHOOL CHILDRENB.M. MARGETTS,<sup>1</sup> B.K. ARMSTRONG,<sup>1</sup> C.W. BINNS,<sup>2</sup> J.R. MASAREI,<sup>3</sup> and M.G. McCALL<sup>4</sup>

In a recent study Calabrese and Tuthill (1977), demonstrated an elevation of blood pressure in children drinking water with a high sodium content. Since water supplies in W.A. range considerably in their level of salinity it was important to investigate this relationship. Six towns were selected in the South West of W.A. representing three levels of water sodium (50 mg/l; 110 mg/l and 210 mg/l). All children in year 8 attending schools in these towns were invited to participate in the study. The final sample consisted of 635 children (80.2% of those eligible) with an average age of 12.3 years. Each child completed a questionnaire on their normal nutrition practises and maintained a 24 hour dietary record. Anthropometric measures were made and blood pressures recorded using standardised techniques. The boys participating in the study were asked to collect two 24-hour urine specimens.

The results showed no significant differences between schools in dietary habits, particularly in the use of salt or high salt containing foods. Similarly, no differences were found in social background, physical activity or in measures of body fatness.

Children living in higher water sodium areas retained a higher proportion of their sodium intake from water (9% in the highest schools compared to 0.9% in the lowest). These children also excreted more sodium in their urine.

Univariate and multivariate analyses revealed no significant relationship between any measure of water sodium intake and either diastolic or systolic blood pressure. These findings do not support those of Calabrese and Tuthill (1977), but do not exclude the possibility of an effect of water sodium on blood pressure of adults.

CALABRESE, E.J. and TUTHILL, R.A. (1977). Arch. Environ. Health, 32:200-202.

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