



FIG 3—Simulation of study comparing the 24 hour sodium intake in people with high blood pressure and people with normal blood pressure. The solid circles show the mean 24 hour sodium intake for each group

2000 subjects the probability is only 68%. It is therefore not surprising that only six of the 14 individual within population studies (median size 500 subjects) and only seven out of 52 Intersalt centres (each with 200 subjects)¹¹ recorded a significant positive result.¹¹

Some published within population studies have been designed differently but have also misleadingly suggested little or no association between blood pressure and sodium intake. These studies have identified people with high blood pressure (usually on a single reading) and compared their 24 hour sodium excretion (single measurement) with that of controls with "normal" blood pressure. Such studies have usually found little or no difference.¹⁹ Figure 3 shows a simulation of such a study. From the Western population in figure 1 we plotted typical values of blood pressure and 24 hour sodium intake for 400 people. From these 400 people, those with high and normal blood pressure (systolic pressure >150 and <140 mm Hg respectively) were selected. The average sodium intake in subjects with normal blood pressure was 173 mmol/24 h and that in subjects with high blood pressure was 182 mmol/24 h; the mean difference in sodium intake between the two groups was only 9 mmol/24 h. The difference is small because the between person range of 24 hour sodium intake across Western populations is narrow, whereas the range of blood pressure values at any given sodium intake is wide (reflecting mainly genetic differences). In selecting people with high and normal blood pressure within a population, we are predominantly selecting for genetic differences among people with similar average sodium intake.

For a 50% probability of showing the small difference in sodium intake to be significant a study of this design would need to recruit 400 subjects with high blood pressure and 400 with normal blood pressure, and for an 80% probability 800 of each. Studies conducted to date have been much smaller than this,¹⁹ and it is therefore not surprising that their results have mostly been negative.

The two types of within population study, those yielding regressions of blood pressure on sodium

intake in a defined group of people and those estimating the average difference in sodium intake in people with high and normal blood pressure, are both consistent with the estimates of the association of blood pressure with sodium intake derived from our between population analysis. There is no discrepancy between the estimates of the association between blood pressure and sodium intake from within population and between population data.

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Corrections

Clinical trials of homoeopathy

An editorial error occurred in the second paragraph of the introduction of this paper by Dr Jos Kleijnen and others (9 February, p 316). Hahnemann's *similia* concept is "similia similibus curentur," which is a recommendation, not "similia similibus curantur" as published, which is an order.

Case-control study of leukaemia and non-Hodgkin's lymphoma in children in Caithness near the Dounreay nuclear installation

There was an authors' error in this paper by Mr James D Urquhart and others (23 March, p 687). In the last line of table IV (father's radiation dose six months before conception ≥ 10 v < 10 mSv, resident anywhere in Caithness at diagnosis) of a total of 45 controls, one was positive. This gives a Fisher's exact p value of 0.38. The conclusions remain unchanged.