Letters to the Editor

Serum ferritin concentration and fat distribution

To the Editor: In a recent issue of the Journal, we reported on the results of a study to determine whether the associations that have been found between cardiovascular risk factors and serum ferritin could be explained through confounding by diet (1). During the course of the study, we examined the relationship between serum ferritin and one measure of fat distribution, namely, the waist to hips ratio, a widely used indicator of abdominal fat.

There are of course, other anthropometric measures of fat distribution which have been found to be associated with cardiovascular risk. Although we made some such measurements, they were not included in our article because their association with serum ferritin concentration had not been as extensively studied as that of the waist to hips ratio. As our data set is one of the few to include measurement of nutrient intakes, as well as of serum ferritin and fat distribution, we have taken the opportunity to examine the associations between these other measures of fat distribution and serum ferritin.

Waist circumference is associated with cardiovascular risk and is a better indicator of visceral fat than the waist to hips ratio (2). Waist circumference also avoids a particular problem with using the waist to hips ratio to study the association between visceral fat and serum ferritin. Rather than a link between serum ferritin and visceral fat alone, a positive association between waist to hips ratio and serum ferritin in men could also reflect wasting of the gluteal muscles and liver damage, respectively, from chronic alcohol abuse (3).

We regressed waist circumference against serum ferritin, initially, with only age and body mass index (BMI) but then with total energy intake (in kJ per day) as well. It was dietary energy which had previously reduced the correlation between serum ferritin and both BMI and waist to hips ratio in our study (1). After adjusting for only age and BMI, waist circumference was significantly associated with serum ferritin (regression coefficient 0.09, $P = 0.002$). However, after adjusting for dietary energy too, the association was lost.

Indicators of subcutaneous fat have also been found to be associated with cardiovascular risk (4). However, only one study has sought an association between skinfold measurements and serum ferritin—in Mexican American men with a high prevalence of obesity (4). It found no association between serum ferritin and the ratio of central to peripheral subcutaneous fat, specifically, with neither the ratio of the subscapular to the triceps skinfolds, nor the ratio of the subscapular plus suprailliac skinfolds to the triceps plus thigh skinfolds.

In our study, triceps, subscapular and suprailliac skinfolds were measured on the right side of the body in three sequences using Harpenden skinfold calipers (British Indicators, Luton, England) and British Indicators’ definitions and techniques (5). We regressed the average measurement for each skinfold and the ratio of the subscapular to the triceps skinfolds in turn against serum ferritin, with age and BMI. As with serum ferritin and dietary energy, the average skinfold measurements and subscapular to triceps ratio had to be normalised through a logarithmic or square root transformation. After adjusting for age and BMI, none of the skinfolds nor the subscapular to triceps ratio were significantly associated with serum ferritin.

We conclude that the association between waist circumference and serum ferritin, like those between serum ferritin and both BMI and waist to hips ratio, can be explained through confounding by diet. We also confirm, in an Australian population with a high mortality from cardiovascular disease, that skinfold thickness does not have an association with serum ferritin which is independent of age and BMI. There is therefore no reason to believe that fat distribution influences men’s risk of cardiovascular disease through iron stores.

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Wrong messages about black salt

To the Editor: Most of the patients who avoid salt make greater use of herbs and spices. They and their doctors need to be warned of grossly misleading statements in two spice books about a form of rock salt imported from India called ‘black salt’.

An attractive book from a leading publisher (1) tells its readers that ‘black salt contains no sodium, so has no effect on blood pressure and is in fact considered an antidote to dehydration (it is even mixed into lemonade to counter the effect of the heat)’. Our letter to the publisher was referred to the author, who named her source—another authoritative and attractive book (2). It has a whole page on Indian rock salt, sometimes called black salt or saindhav, which is headed ‘Sodium chloride, rock salt (kala namak)’. Although expressly describing black salt as sodium chloride, the book claims it has medicinal uses: ‘As it does not increase the sodium content of the

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blood, unlike ordinary salt, it is recommended for patients with high blood pressure or those on a low salt diet. It is also a sure cure for flatulence and heartburn.’

To check Manfield’s allegations that black salt has no sodium, we analysed a sample of Indian black salt supplied by a Hobart spice shop. The black lumps of rock salt exactly matched the colour photograph in the second book and the solution had the authentic sulphurous smell (2). Analysis showed it to be 98% sodium chloride, with small amounts of calcium and magnesium and a small insoluble sediment. Thus it is almost as pure as table salt, and able to negate the effect of a low salt diet in proportion to the amount consumed (3).

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