

Background

What we commonly refer to as Salt is a salt of two very hazardous elements – Sodium and Chlorine but because of their very nature, bound together in an ionic lattice, they neutralise each other to produce the relatively inert compound – Sodium Chloride.

Sodium Chloride has been known for centuries its main uses having been as a food preservative and flavour enhancer. It exists widely in nature and is extracted by one of two routes – either by mining or by evaporation of seawater in salt beds. Salt from the latter source also contains a wide variety of useful trace elements, the most of important of which is iodine – an element related to chlorine. Iodine is important for maintaining a balance of thyroxin in the thyroid gland and avoiding the onset of goitre and other diseases caused by iodine deficiency. This problem has been overcome in recent years by the addition of sodium iodide to table salt to produce iodised salt. Other materials may be added to make the salt free flowing or the crystal size varied through different rates of evaporation.

Why do we use salt?

Salt is an important part of our food chain, through its use as a preservative, though this has largely been overtaken by refrigeration and other methods. More importantly, it is one of the primary electrolytes in the body and is vital in controlling the amount of water in the body, acting as a buffer for controlling the pH of blood, transmitting nerve signals and aiding muscular movements. Salt is essential to maintain electrolyte balance. Too little salt in the diet can lead to an electrolyte imbalance resulting in dizziness, neurological problems and even death. A further important but often overlooked need is the breakdown in the stomach to produce the hydrochloric acid that provides an acid environment to aid the digestion of our foods.

Why is there concern over the use of salt?

Salt through its constituent sodium and chloride ions is very important for a healthy body. In times of stress, salt in the diet should be replaced either by saline drinks or in extreme cases intravenously through saline drips. Drinking pure water after salt loss through exercise or elevated temperatures can lead to water intoxication (hyponatraemia).

However, it has been recognised that an excess of salt in the diet can give rise to high blood pressure – increasing the risk of strokes, ischemic heart disease, kidney disease and fluid retention (oedema). Levels of salt should be kept controlled through dietary intake. Most foods naturally contain small quantities of salt sufficient for our wellbeing. However, some foods contain more salt than others – seafood will naturally contain salt but most can be washed out. Most ready-prepared foods contain salt to improve flavour – bread and potato crisps are other examples of foods with a relatively high salt content. Intake of these high-salt foods should be minimised.

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How are the levels of salt in our foods recognised?

Prepared foodstuffs are labelled with, amongst other things, the salt content. This may be expressed in two ways – either as the sodium content or as the salt content. The sodium content should be multiplied by a factor of 2.5 to give the salt content. It should be remembered that other additives and in particular monosodium glutamate (MSG) (for example a component of soy sauce) also contain sodium and this calculation will give the “effective” salt content. As with other food components, the labels may also provide a “traffic light” guide where red would indicate a high level usually accepted as (more than 1.5 g salt (0.6g sodium) per 100g) and green a low level (less than 0.3g salt (0.1g sodium) per 100g).

As a guide, one teaspoon of salt contains approximately 2.3 g sodium (6 g salt).

What should our intake of salt be?

There has been considerable discussion and disagreement on suitable levels of salt in the diet. The general belief is that quantities of added salt should be kept to a minimum both in cooking and that added to the cooked meal on the plate. Comparisons are not helped by different units and levels being recommended in different countries -

In the UK and Ireland, the recommended salt intake (expressed as Reference Nutrient Intake (RNI)) is 6 g salt per day (this is likely to be lowered later in 2012). Canada and New Zealand recommend an Adequate Intake (AI) of between 1.2 – 1.5 g and an Upper Limit (UL) of between 2.2 and 2.3 g of sodium per day for those over 9 years of age. In Australia, the recommendations are for an AI of 0.46 – 0.92 g per day and a UL of 2.3 g of sodium per day for adults. In the USA, dietary guidelines are for citizens to consume less than 2.3 g per day of sodium. For those over 51 years of age, Afro-Americans and other special cases, the recommendation is to limit intake to 1.5 g of sodium per day.

Conclusions

As with many issues, salt is a good friend but a bad enemy. Salt is needed to keep a healthy balanced diet but an insufficiency or excess can cause us problems.

The following are suggested

- Keep to a healthy, balanced diet with fresh rather than too many processed foods.
- Check labels of foods to recognise those which contain higher quantities of salt and minimise these.
- Use less salt when cooking, use herbs and spices rather than salt for flavouring.
- Try to avoid foods that have been preserved with salt. If using these, soak well in water before using.

Note was prepared by a Working Party of the RSC Environment, Health and Safety Committee.

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