How was it discovered?

The element iodine was discovered by Bernard Courtois in 1811. Like most of the other elements, iodine was discovered by accident. The most accurate historical explanation is that Courtois was hired as a new chemist by the French government while Napoleon was in power and fighting wars in many different places. His job was to try and create a new type of gun powder. In the process he added an acidic mixture to a sample of seaweed and it exploded into a purple gas which is why he named it after the Greek word "iodes" meaning violet. After some simple tests he proved his hypothesis that the purple gas was an element.

How is it obtained?

Iodine is never found as an element in nature. It is obtained in various ways such as extracting it from seaweed and brines in the ocean. The iodine found in most manufactured goods is harvested from saltpeter deposits in Chile.

What is the current UK iodine status?

Of all the World Health Organisation regions, Europe continues to have the lowest coverage of iodised salt and nearly half of all school-age children have inadequate iodine intakes. Although the UK had historically been considered to be a country of sufficient iodine intake, concern has been previously expressed about the UK iodine status. At the 20-year follow-up of the Whickham survey in 1995, the median urinary iodine excretion for a random sample of 101 subjects aged 38 years and over was 102μg/g creatinine (range 44-990), which did not suggest that iodine deficiency was present in the survivors of this cohort.

Concern was expressed about the iodine status of UK women following a more recent survey in Middlesbrough. In this study of 227 women at 15 weeks gestation and 227 non-pregnant age-matched controls, 3.5% of the pregnant women had evidence of iodine deficiency and 40% were borderline iodine deficient. This has been supported from data reported in a study of pregnant women in Dundee and Wales. A recent study of a small sample of 26 women recruited from the University of Surrey found that the median value for urine iodine was 66μg/L and 20% were classified as iodine deficient. Thus, up to 50% of pregnant women in the UK could be significantly iodine deficient during gestation.
A further and recent study measured the iodine content in 36 different salt preparations from nine major national supermarkets in Cardiff. Iodine concentrations varied from undetectable in 32 samples to trace quantities in two. Only two samples contained meaningful concentrations of iodine (20mg/Kg) related to the prevention of iodine deficiency. A similar pattern of iodine deficiency has been seen in Ireland, with iodine intake being particularly low in the summer months.

How to test for Iodine Status?

Urinary analysis of urinary iodine status has been employed for many years as a comparative based test against many large population values.

In more recent times a “24-hour iodine/iodide load test” has become a useful analysis for practitioners. A specified oral dose of iodine/iodide is given and urine is collected for the subsequent twenty-four hours. The test is based on the concept that the body has specific and saturable mechanisms to take up iodine/iodide. When maximal retention is attained, the percentage of an iodine/iodide load that is retained decreases and the percentage urinary excretion increases.

The percentage excretion is calculated by dividing the patient’s mg/24-hour iodine results by the oral iodine/iodide dosage (mg) provided on the requisition form by the practitioner, then multiplied by 100. The iodine excretion value represents iodine plus iodide oxidised to iodine. The load test requires a complete twenty-four hour urine collection.

References:

1 International Council for Control of Iodine Deficiency Disorders. IDD Newsletter Volume 29, No 3, August 2008. Read Iodine Newsletter