



THYROID FLYER

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Iodine Revisited

Editorial

By Alun Stevens

The AGM in November 2004 saw the retirement of Gail Pascoe at the end of her two year term as president and my appointment as president for the next two years. Before outlining what we will be doing this year and beyond, I would like to officially thank Gail on behalf of the board and members too for her contribution to Thyroid Australia whilst president. The organisation has grown significantly in this time and we have now also moved into permanent accommodation with an expanding volunteer force. Thank you.

I now find myself as the first president of the organisation who does not have a thyroid condition. I bring to the position the perspective of someone who lives with a thyroid problem and can attest to the profound effect these conditions can have on families. Despite the advances we have made, our challenge remains to spread good quality information and support so that families can understand and deal with the problems and rise above them.

To this end, 2005 will see a resumption of a full program of public meetings and the publication of four *Thyroid Flyers*. Our expanding support groups will also provide more local support. We now have active support groups in Brisbane, Tweed Heads, Horsham, South Gippsland, Canberra and Perth and are in active discussion with a couple more. This is a wonderful development. When we established Thyroid Australia, we envisaged it as a national organisation made up of active local chapters each doing their own thing for a common goal. It is wonderful to see this vision starting to emerge.

These developments of course are due to the dedication and hard work of committed local volunteers. I am sure that you will all join me in thanking them for their efforts. And we must also thank the volunteers who are now coming in regularly to work in

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Iodine

By Prof Creswell Eastman

Iodine, a trace element found in the earth's crust, is widely distributed in nature. The only known physiological function for this essential micronutrient is to serve as a building block for the synthesis of the thyroid hormones tri-iodothyronine (T3) and tetra-iodothyronine (T4) in the thyroid gland. Iodine is an integral part of the thyroid hormone molecule making up approximately two thirds of the mass of T3 and T4. The thyroid secretes predominately T4, with only a small amount of T3 coming directly from the gland. T4 is a prohormone, converted in peripheral tissues by deiodinase to the more metabolically active T3. Thyroid hormone exerts multiple physiologic actions in the developing foetus, growing child and the mature adult. Besides being the principal regulator of the metabolic rate in humans, it is the most potent hormonal stimulus for growth and maturation of both the brain and skeleton.

The distribution of iodine in soil and water is quite variable, generally being adequate or abundant in coastal regions and becoming deficient the further one travels inland. Severe environmental iodine deficiency is invariably present in the mountainous zones of the world. By contrast, there are areas where iodine is present in excessive quantities in the environment, but this is not known to occur in Australia. While iodine deficiency is an important and serious cause of disease, iodine excess may also cause illnesses in predisposed individuals. *The major consequences of deficient or disordered iodine metabolism are a result of too little (hypothyroidism) or too much (hyperthyroidism) thyroid hormone.*

Iodine Metabolism

Iodine is readily absorbed, in the form of iodide, into the blood from the gastrointestinal tract, and is concentrated by the thyroid gland. Iodide rapidly inhibits its own transport when the thyroid gland is exposed acutely to an abrupt increase in the plasma iodide concentration. (This is the rationale for taking massive doses of iodine in the face of threat from nuclear fallout). Once incorporated into the thyroid gland the iodide is oxidized and bound to tyrosine residues in the thyroglobulin molecule to form T3 and T4. These processes are enzymatically regulated within the gland and are under the overall control of Thyroid Stimulating Hormone (TSH) secreted by the pituitary gland. The normal adult thyroid needs to trap at least 60 µg [mcg] of iodide daily to maintain adequate thyroid hormone production. It conserves iodine by recycling iodine stripped off the T3 and T4 molecules during metabolic breakdown. *Approximately, 90% of absorbed iodine is excreted each day in the urine with insignificant quantities appearing in the faeces.* Given this relationship, between the amount absorbed and the amount excreted, measurement of urinary iodine excretion (UIE) accurately reflects daily iodine intake and has become the most widely used index of nutritional iodine status.

Goitrogens

Goitrogens are chemicals occurring naturally in many different plants, vegetables and grains that are capable of blocking thyroidal iodine uptake and/or incorporation of

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NEXT PUBLIC MEETINGS

TWEED HEADS 26 February 2005
HORSHAM 27 February 2005
STH GIPPSLAND 28 February 2005
AND MANY MORE...

DETAILS Page 11

THYROID AUSTRALIA

MEMBER BENEFITS

Full access to Thyroid Flyer is restricted to paid up members of Thyroid Australia.

Thyroid Australia's services are funded by membership fees and donations from individual members of the public.

Membership is not expensive and your money goes towards the costs of maintaining and hosting this site, staffing our office, producing our newsletter and researching thyroid problems and treatments.

Please visit the About Us section of our web site for details of how you can join Thyroid Australia and help us help others just like you.