Thyroid Problems: The TPA GUIDEBOOK

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Intended Use Statement

The content of this TPA Guidance is intended for information purposes only and should not be used in any way to diagnose, treat, cure, or prevent any disease. The aim of this guidance is to present and highlight significant information and offer suggestions and protocols for those with symptoms of thyroid disease and associated conditions. It is the sole responsibility of the user of this information to consult with a qualified medical practitioner before changing any medication.

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TPA would like to dedicate this guidance to the millions of thyroid patients who have been ignored and made to feel wretched by their health care practitioners, and also to all the health care practitioners who are reading these notes and the information in our web site, because they want to better serve their patients.

ABOUT THYROID PATIENT ADVOCACY (TPA)

THYROID PATIENT ADVOCACY is an independent, user-led, organisation established to ensure that all thyroid disease sufferers are given a correct diagnosis and receive effective treatment. TPA believes that all patients should have access to all relevant tests and treatment, including synthetic or natural T3. On 27th October, 2010, Thyroid Patient Advocacy was registered as a Charitable Trust with the Charity Commission in the UK. (No. 1138608)

TPA campaigns for better education in diagnostics and treatment and provides extensive support and guidance for all sufferers.

The TPA web site, Internet Thyroid Support Forum and local Thyroid Support Groups are managed by a group of dedicated thyroid patients who volunteer their services freely. These are available to all, and will help patients and doctors develop greater knowledge and understanding about the illness, will advise on reliable diagnostic tests and recommend where to obtain proper, effective treatment.

In TPAs efforts, the following critical questions are being asked, but remain unanswered:

WHY do the GMC, the RCP, and the BTA et al. deliberately choose to ignore the scientific evidence that has been available for over 40 years?

WHY does the British Thyroid Association refuse to reduce its top TSH limit - due to iodine deficiency in the UK, to bring us in line with Germany?

WHY are medical associations ignoring the 13% failure rate of T4-only therapy for the past 50 years? Why are patients' complaints dismissed?

WHY has there been no correction to the RCP statement when there are patients who are counterexamples to the validity of T4-only therapy?

WHY is the confusion of two definitions for hypothyroidism allowed to continue?

WHY are guideline authorship and concise guidance to good practice protocols ignored?

WHY are individual symptoms of hypothyroidism stated to be "non-specific" when Baisier found groups of these symptoms may be quite specific?

WHAT further investigations for non-thyroidal causes are recommended as relevant to the symptoms of hypothyroidism when pituitary and thyroid GLAND function tests are biochemically normal – Levels of fT3, rT3 and adrenal levels?

WHY are the studies by Das (2007) and Lewis (2008), which found that patients could be successfully treated with thyroid extract being ignored?

WHY is medicine ignoring false negative test results?

WHY do doctors refuse to explain and/or justify their decisions, thereby withholding information necessary for valid consent to treatment?

WHY does the NHS refuse to take steps to protect human rights when sufferers are put at risk through a disregard of the demand that patients should be treated with fairness, respect, equality, dignity and autonomy?

WHY are laboratory discrepancies in serum testing being ignored?

WHAT'S IT ALL ABOUT…?

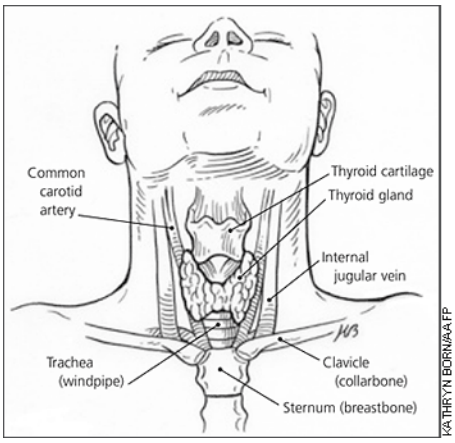
An estimated 1 in 4 people throughout the world have some form of thyroid disease, a risk that increases with age and for those with a family history of thyroid problems. More than half are being left without a diagnosis and therefore are not being prescribed any treatment for their condition.

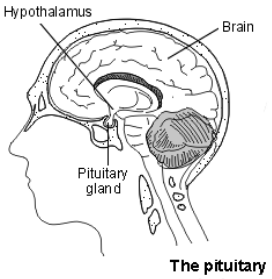
Frequently misunderstood, and too often overlooked and misdiagnosed, thyroid disease affects almost every aspect of our health, so understanding more about the thyroid, and the symptoms that occur when something goes wrong with this small gland, can help you protect or regain your good health.

Women are at the greatest risk, developing thyroid problems seven times more often than men. However, it is interesting to note that more and more men over the past 6 years are joining our TPA Internet Thyroid Support Group.

What Does the Thyroid Do?
Most doctors will tell you "it controls metabolism," which they learned in medical school. That statement is basically the same as saying "it's really complicated and I don't understand it." It also presumes that you already know what 'metabolism' is, and why controlling it is important. Well, we'll do our best to actually explain the thyroid gland.

Where is the Thyroid Located?
The thyroid gland is located in the neck, just below the Adam's apple. It's fairly flat, so you normally can't feel it (unless there's a problem). The main job of the thyroid is to secrete the thyroid hormones thyroxine (T4) and triiodothyronine (T3), which are a pair of chemicals that float through the bloodstream and, you guessed it, control metabolism. The normal thyroid gland secretes approximately 85% of the mainly inactive T4, and approximately 13% of the active thyroid hormone T3. It is T3 that every cell in your body and brain needs to make them function – not T4





The pituitary

What Is the Pituitary Gland?
The thyroid isn't as smart a gland as you might believe; it doesn't know how much thyroid hormone to secrete to control the metabolism – at least, not on its own. That job is the duty of the tiny (pea sized) pituitary gland, which is located at the bottom of your brain. The pituitary gland is the control centre for many glands besides the thyroid. This is covered in a later article.

How Do the Thyroid and Pituitary Work Together?
The pituitary controls the thyroid by secreting a hormone called thyroid stimulating hormone (TSH). The pituitary recognises when there are insufficient levels of thyroid hormone in the blood, so it secretes TSH to tell the thyroid to start secreting more hormones. If the body needs a lot of thyroid hormone, the TSH level goes up, and if the body has enough, the TSH level goes down. That's a really important thing to remember, because it gets many people confused. A high TSH means there isn't enough thyroid hormone, whereas a low TSH means there's too much. It's much like an automatic thermostat that is switched on to tell the furnace to get hot when the house is cold, and to cool down when the house is hot.

What Regulates the Pituitary?
The pituitary gland is regulated by another gland, known as the hypothalamus. Again, the hypothalamus is part of the brain and produces TSH Releasing Hormone (TRH) which tells the pituitary gland to release TSH to stimulate the thyroid gland to release more hormones. One might imagine the hypothalamus as the person who regulates the thermostat, since it tells the pituitary gland at what level the thyroid should be set.

What Do Thyroid Hormones Do?
The best analogy to explain this is: your car needs fuel to run; most cars use petrol as their fuel. Gas gets burned in the engine and turns the wheels of the car so you can drive wherever you want to go.

The speed of the car depends on how much gas is burned in the engine. The more gas, the more the engine revs. The carburettor, or the fuel injectors, are the parts of the car that control the amount of gas going to the engine, telling the engine how high to rev.

In the same way, the body needs fuel for you to function properly, like getting out of your car and going shopping. It also needs energy to keep the heart beating, the lungs breathing, and the other hormone glands working. The burning of energy to do all of these things is called the *metabolism*. Thyroid hormone is much like the carburettor. Low thyroid hormone levels make the body burn less energy, whereas high levels make the body burn more energy.

How Does the Thyroid Affect Metabolism
That doesn't mean that high thyroid levels help you run fast, but it does mean that people with over-active thyroid glands tend to have higher heart rates; their muscles and hands shake, they lose weight, and they are nearly always hot. This is called *hyperthyroidism.* People with under-active thyroid glands, on the other hand, have slower heart rates, are fatigued, often gain weight, and feel cold. That is called *hypothyroidism.* I have underlined under-active thyroid glands for a specific reason and you will read and learn more about this in a later chapter. Children use much of their energy to grow, so children with hypothyroidism don't grow well.

I am sure there are people suffering with hypothyroidism thinking, "I wish I had hyperthyroidism so I could lose weight." Don't envy them. Hyperthyroidism is actually a much more serious problem than hypothyroidism, which can be controlled with the correct thyroid hormone replacement.

What are Thyroid Tests?
Thyroid blood tests are extremely confusing to both doctors and patients. There are three main levels of thyroid hormones that are important: The TSH level, which we know the pituitary gland releases, and levels of two hormones secreted by the thyroid itself, known simply as T3 and T4. To make things more confusing, there are two types of T3 and T4 found in the blood. The majority of thyroid hormone is bound to protein and is inactive; the active portion is present in very low concentrations and is called the *free T3 and free T4.* Standard tests for T3 and T4 can test for the total T3 and total T4, but it is more important to test the free hormone concentrations (fT4 and fT3). Learn more about thyroid function tests in a later chapter.

What are the Causes of Thyroid Disease?
There are a variety of factors that can contribute to the development of thyroid problems:

- Exposure to radiation, such as occurred after the Chernobyl nuclear accident.

- Radioactive iodine treatment (RAI) for Graves' disease and hyperthyroidism typically leave patients hypothyroid
- Radiation treatment for tonsils, adenoids, lymph nodes, thymus gland problems, or acne. "Nasal Radium Therapy" which took place during the 1940s through 1960s, as a treatment for other ailments, or as a military submariner and/or pilot who had trouble with drastic changes in pressure.
- Autoimmune Diseases of the Thyroid i.e. Hashimoto's thyroiditis, atrophic thyroiditis, and postpartum thyroiditis.
- Over consumption of isoflavone-intensive soy products, such as soy protein, capsules, and powders.
- Over consumption or shortage of iodine in the diet can also trigger some thyroid problems. (This also applies to iodine-containing supplements, such as kelp and bladderwrack.)
- Some drugs, such as lithium*,Amiodarone, phenytoin and carbamazepine. Certain antidepressants may cause hypothyroidism, although this is rare. Interferons and interleukins used for treating hepatitis, multiple sclerosis, and other conditions. Evidence suggests that these drugs increase antibodies that put patients at risk for hypo- or hyperthyroidism. Some drugs used in cancer chemotherapy, such as sunitinib (Sunent) or imatinib (*Gleevec), can also cause or worsen hypothyroidism.
- A number of medical conditions can involve the thyroid and change the normal gland tissue so that it no longer produces enough thyroid hormone. Examples include heamochromatosis, scleroderma, and amyloidosis.
- Failure of the pituitary gland to produce TSH (usually due to a tumour). When this happens, secondary hypothyroidism occurs.
- Over consumption of uncooked "goitrogenic" foods, such as Brussels sprouts, broccoli, rutabaga, turnips, kohlrabi, radishes, cauliflower, African cassava, millet, babassu, cabbage and kale.
- Surgical treatments for thyroid cancer, goitre, or nodules, in which all or part of the thyroid is removed.
- Subacute Thyroiditis (temporary)
- Thyroid Dysfunction Syndromes

You have a higher risk of developing thyroid disease if, among a variety of factors:

- You have a family member with a thyroid problem
  - You have another pituitary or endocrine disease
  - You or a family member have another autoimmune disease
  - You've been diagnosed with Chronic Fatigue Syndrome
  - You've been diagnosed with Fibromyalgia
  - You're female
  - You're over 60
  - You've just had a baby
  - You're near menopause or menopausal
  - You're a smoker
  - You've been exposed to radiation
  - You've been treated with lithium
  - You've been exposed to certain chemicals (i.e., perchlorate, fluoride)

Understanding the above will help you and your medical practitioner to reach a diagnosis and, hopefully, to find the best form of treatment that will give you back your optimal health. You might find that as well as the information in this booklet, it might help you even more, if you can join the TPA Internet Thyroid Help and Support Forum

Thyroid Problems and Solutions

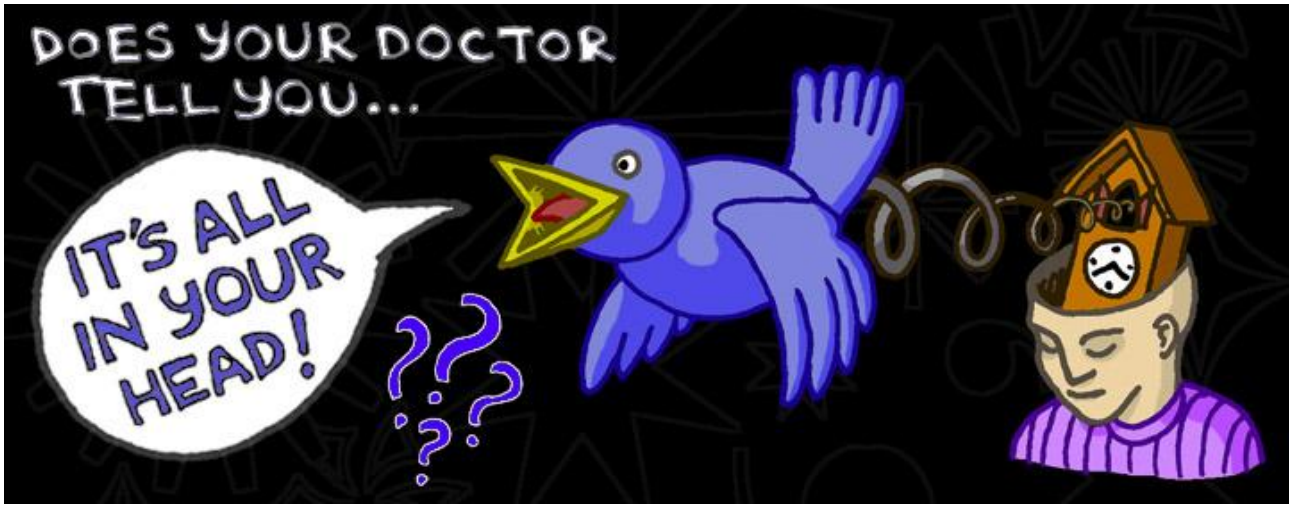
Are you tired of feeling tired? Are you tired of hearing that nothing else can be done for you? Are you tired of hearing "you are depressed and would feel better if you lost weight"? Are you tired of getting rushed in and out of your doctor's surgery...each visit, walking out with a new prescription for one of your many symptoms and being given NO ANSWERS. Your medication dose increases/decreases...but you continue to suffer the effects of low thyroid function – but nobody listens?

So what's important when it comes to diagnosing thyroid problems? Is it the symptoms of thyroid problems, family history, physical presentation, or should more or less weight be given to the serum thyroid function tests, i.e. TSH, fT3, fT4?

Before we answer, let's look at the patients' and the doctors' points of view.

In order for a patient to tell their doctor about their symptoms of thyroid problems, the doctor needs to spend time with them, as well as listen to their story.

But most doctors do neither, and these doctors know it – and often tell you that "It's all in your head" – making you feel even more concerned.



So, if the doctor doesn't listen - it can't be very important, right?

Patients may subconsciously be persuaded to feel that maybe it isn't that important and takes the doctor's word or their actions as reasonable – and after all – doctor knows best – doesn't s/he?.

What about the doctors? They listen to patient's problems all day long. Some problems are real, some are not and some unfathomable. They don't have time to sort out what's real and what's not, *so, the best way is to rely solely on laboratory testing (because lab test never lie, right?).*

So doctor and patient accept that the laboratory tests are the way to go. Wrong!

This has huge implications for those with symptoms of thyroid problems. A huge problem of under-diagnosis exists for such patients when a doctor relies on TSH as the only marker for thyroid dysfunction. Truth be told, this test is very inaccurate and serves better as a secondary marker for the diagnosis of thyroid problems.

Far superior ways to assess thyroid problems are:

- symptoms of thyroid disease
- signs of thyroid disease
- family history of thyroid or autoimmune disease (especially your mother)
- low basal temperature upon waking
- Iodine deficiency

Once the diagnosis is made, it is again the symptoms of thyroid disease and physical presentation that are the ultimate marker of improvement. Laboratory tests are still unreliable on their own, and should serve as secondary markers (but be assured, thyroid function tests do have a purpose).

So here's the solution: Thyroid Patient Advocacy feels the time is long overdue for the medical profession to change their current way of thinking and are campaigning to get the current protocol regarding the diagnosis and treatment of hypothyroidism amended. In TPA's efforts, all endocrinologists and GP's are being urged…

1. To screen patients with thyroid deficiency for low adrenal reserve, a condition that may be more common than generally expected. Patients with weak adrenals may have difficulty tolerating the dose of thyroid hormone they need, and may experience apparent "hyperthyroid" symptoms, even at low insufficient doses. In other patients with low adrenal reserve, the problem may be the opposite: the patient may remain hypothyroid even at higher doses of thyroid hormones. Thyroid hormones cannot normally be used by the cells and may instead build up too high in the blood, leading both doctor and patient to believe that a particular dose is too high and that the treatment doesn't work. The solution to both problems is treatment of the low cortisol condition, prior to the thyroid treatment, or simultaneously.

2. To use the following laboratory tests as a guide in the assessment and treatment of those with symptoms of hypothyroidism: TSH, free T4, free T3, TPO Antibodies and Tg Antibodies.

3. To start the combined treatment at a safe low dose of T4/T3 synthetic combination, or, if thyroid extract is prescribed, doctors should familiarise themselves with the equivalence of this medication compared with thyroxine and begin treatment on an appropriate safe dose, adjusting the dose according to the patient's clinical needs every few weeks.

4. To listen and give more credence to patients' subjective reports of symptom continuance or resolution, rather than make laboratory results the sole guide in dosing. Moreover, TPA advocates that doctors should have freedom of choice in prescribing T4-alone, combination of T4/T3, T3-alone or natural thyroid extract, without incurring the disdain of the mainstream establishment as is happening at present.

Hypothyroidism Symptoms Check List:

General:	**Puffiness or swelling of:**	**Pain:**
Excessive tiredness Weight gain Weight loss Obesity Cold extremities Cold sweats Night sweats Slow movements Slow speech Pins & needles Breathlessness Difficulty drawing a full breath Dizziness Palpitations Sensitivity to the sun Lack of co-ordination, especially of hands and feet Trembling	Eyes Face Hands Feet Ankles **Mouth and throat:** Difficulty swallowing Sensation of lump in throat Sensation of pressure on throat Burning sensation in throat Sore throats Swollen tongue Choking fits Dry mouth	Migraines Pressure headaches Back and loin pain Wrist pain Muscles and joint pain Carpal Tunnel Syndrome Tendinitis Heel spur / plantar fasciitis **Digestive problems:** Loss of appetite Food allergy / sensitivity Alcohol intolerance Constipation Haemorrhoids Irritable Bowel Syndrome (IBS) Abdominal distention /

- Insomnia
- Loss of libido
- Repeated urinary tract infections
- Upper respiratory tract infections
- Pelvic Inflammatory Disease (PID)
- Poor response to treatments
- Candida (thrush)
- Heavy eyelids
- Hoarse voice
- Goitre
- Muscle cramps
- Joint stiffness
- Loss of stamina
- Heat intolerance
- Cold intolerance
- Low basal (morning) temperature
- Exercise intolerance
- Salt cravings
- Sweet cravings
- Hypoglycaemia
- Fainting episodes
- 3.00pm crash
- Jumpiness
- Unrefreshing sleep
- Asthma
- Internal shivering
- Lupus
- Rheumatoid arthritis
- Radioactive iodine treatment
- Surgery on thyroid

MENTAL

- Panic attacks
- Memory loss
- Confusion
- Mental sluggishness
- Poor concentration
- Noises and/or voices in head
- Hallucinations
- Phobias
- Loss of drive
- Post Natal Depression (PND)
- Nightmares

EMOTIONAL

- Halitosis (bad breath)

Hearing problems:

- Oversensitive hearing
- Noises in ears (hissing, ringing)
- Deafness

Hair:

- Body hair loss
- Head hair loss
- Brittle hair
- Eyebrow loss (outer third)
- Eyelash loss

Nails:

- Brittleness
- Flaking
- Peeling

Skin:

- Dry
- Flaky
- Coarse patches
- Sallow in colour
- Pallor
- Dark rings under eyes
- Pigmentation in skin creases
- Rashes & dermographia (wheals)

Numbness and tingling:

- Legs
- Feet
- Arms
- Hands
- Back
- Face

MEDICATIONS

- Use of medications containing fluorine (Prozac, generic fluoxetine)
- Certain anti-depressants
- Lithium – used to treat

flatulence
- High cholesterol
- Diabetes

Blood pressure & pulse:

- High blood pressure
- Low blood pressure
- Slow/weak pulse (under 60 bpm)
- Fast pulse (over 90 bpm at rest)

Menstrual disorders:

- Cessation of periods (amenorrhoea)
- Scanty (light) periods (oligomenorrhoea)
- Heavy periods (menorrhagia)
- Infertility
- Premenstrual syndrome/tension (PMS/PMT)
- Endometriosis

Visual disturbances:

- Poor focusing
- Double vision
- Dry eyes
- Gritty eyes
- Blurred vision

◴ Easily upset ◴ Wanting to be solitary ◴ Mood swings ◴ Depression ◴ Nervousness / anxiety ◴ Personality changes ◴ Feelings of resentment ◴ Lack of confidence **ENVIRONMENTAL** ◴ Exposure to fluoridated water ◴ Exposure to PCBs (Polychlorinated biphenyls) ◴ Use of products containing fluoride (toothpastes) ◴ High consumption of soya products ◴ High consumption of broccoli, cauliflower, Brussels sprouts, cabbage	psychiatric disorders ◴ Epilepsy drugs like phenytoin and carbamazepine ◴ Amiodarone - used to treat abnormal heart rhythmns ◴ Drugs used in chemotherapy or to fight infections (interleukins, sulfamethoxazole and other sulfa drugs, and interferon alpha	

Commonly Reported Signs of Hypothyroidism

Apart from the symptoms provided in the Hypothyroid Symptoms Checklist, you also need to know the most common signs of hypothyroidism and thyroid hormone resistance (THR). A sign is an abnormality experienced by the patient that others can see and independently confirm. Dry, scaly skin is a sign that you can show to your doctor.

Other disorders can cause signs typical of hypothyroidism and THR. Because of this, it's important not to rush to judgment and conclude that a thyroid disorder is the cause of your sign. Some signs may be so subtle that only you and your doctor may be certain that you had them only in their absence, after you reach an effective dose of thyroid hormone replacement. An example is the dull, listless appearance of some patients' eyes, replaced after therapy with a bright radiance.

Skin:
Dry skin
Thick, scaling skin
Coarse skin

Hair:
Fineness of hair
Dry, coarse, brittle hair
Sparse eyebrows, especially outer ends
Hair loss

Nails and skin:
Brittle nails
Dry ridges down nails
Cold skin

Swelling:
Swelling of face - Swelling around the eyes -Swelling of eyelids - Swelling of ankles (oedema)
No pitting oedema of ankles
Fluid accumulation in abdomen (ascitis)
Thick tongue
Paleness of skin
Paleness of lips
Bluish or purplish colour of skin, nail beds, lips or mucous membrane
Unexplained weight gain
Hoarseness
Low basal and activity level temperature
Protrusion of one or both eyeballs (exophthalmos)
Slow speech
Slow pulse rate
Slow thinking
Sluggish movement
Slow relaxation phase of the knee and/or ankle reflex
Listless, dull look to eyes
Wasting of tongue
Nervousness
Rapid heart rate with weak force of contraction
Slow heart rate despite low aerobic fitness
Pounding heart beat
Cardiac enlargement on X-ray
Indistinct or faint heart tones

Low QRS voltage on ECG
Long normal intervals on ECG
Fluid around heart (pericardial effusion)
Changes at the back of the eye (at fundus oculi)

Standard Tests for Thyroid Disease

Laboratory tests for thyroid disorders need to be carried out to:

1. check if your thyroid is working normally
2. find the fault, if any
3. tell whether the problem is mild or serious
4. to help find the correct dosage of any medication
5. monitor progress

However, no test is 100% accurate. The tests used are:

FT4 - Free Thyroxine - Reference Range 9.0 - 24 pmol/L
FT3 - Free triiodothyronine - Reference Range 2.5 - 5.3 pmol/L
RT3 - Reverse T3
TSH - Thyroid-stimulating hormone – Reference Range 0.5 - 4.7 mIU/L
TPO - Thyroperoxidase
Tgab - Thyroglobulin antibodies

T4 - measures the amount of T4 in the blood, both free and attached to proteins. If the reading is below 9 standard units, it suggests an underactive thyroid; if it is more than 24 standard units, this could mean an overactive thyroid, but other things may not be equal. A shortage of carrier protein will give a low result and an excess of protein will give a high result. Even so, the thyroid may be working correctly.

Increased protein and hence a high reading may be caused by many problems:

- Pregnancy, HRT (or contraceptive pill)
- Hepatitis
- Porphyria
- Cannabis
- hereditary

Reduced protein giving a low reading could be caused by:

- Steroids used in illness
- Bodybuilding steroids
- Nephrosis
- Cirrhosis
- hereditary

To check if an abnormally high or low T4 level is due to the thyroid, there are a couple of choices - the TSH or the FT4 test.

TSH TEST:
This is often used instead of, rather than as well as, the T4 test. If the thyroid is not producing enough hormone for the body's requirements,TSH comes into action to make

the thyroid increase production. If the TSH result is above the critical level (2 or more in either international or standard units), the thyroid is underactive.

FT4 TEST:
Some medical practitioners believe that this is the true measure of thyroid activity - other practitioners do not believe this test should be used alone, without taking into account clinical examination and symptoms

TPO and Tgab are tests for thyroid antibodies produced by the system itself, and above normal levels indicate autoimmune thyroiditis (Hashimoto's disease).

T3, FT3 AND RT3 TESTS:
A high FT3 level occurs in T3 hyperthyroidism or Graves' Disease. With a healthy thyroid, increasing age causes a slow reduction in T3, unlike T4 and a number of illnesses have the same effect - low T3 syndrome. Going on a fast, unwanted starvation and anorexia nervosa all induce a low T3 level with a corresponding increase in reverse-T3.

ANTIBODY TESTS:
From a patients' point of view, these are simple - just an ordinary blood test. For the laboratory, they are complex. Antibodies in the blood indicate susceptibility to autoimmune thyroid problems.

1. Graves' disease. The main responsible antibody is TRAb - thyroid receptor antibody. If there is a high level of this during pregnancy, it is a warning to take action to protect the unborn baby

2. Hashimoto's disease. Several antibodies are involved, including anti-Tg (antithyroglobulin) and anti-M (antimicrosomal). The majority of Hashimoto sufferers carry these antibodies, but so do 1 in 5 people who have never had a thyroid problem. This last group may, however, be more susceptible to developing an autoimmune disorder if the thyroid is put under stress by, for instance, lithium medication, an infection or a faulty diet.

24-HOUR URINE THYROID HORMONE TESTING
The 24-hour urine thyroid test serves as a valuable tool for detecting thyroid dysfunction that can go undetected through the usual standard blood tests. It is important to use this test in conjunction with other indicators of thyroid function, such as body temperature, symptoms and standard blood thyroid tests.

RADIOACTIVE UPTAKE (RAIU) TEST
This tests how effectively the thyroid cells are latching on to the iodine in the circulation, which is a necessary ingredient of thyroid hormones. The test starts with a scan of your basic level of radioactivity, with a sort of Geiger counter. You are given a measured dose of a mildly radioactive form of iodine in a capsule or as a liquid. The thyroid area is then scanned again at various intervals for up to 24 hours to see how much of the iodine has been taken up. For a quicker test the follow-up scan can be done three to four hours after the start, but in this case you must do without food during the whole time.
The results are useful in diagnosis and also ion assessing the dosage necessary if radioiodine treatment is in view.

High uptake will result from:
- Graves' disease and other overactivity
- Iodine deficiency
- Having stopped antithyroid drugs
- A diet full of soya
- Kidney disease

Low uptake will result from:
- An underactive thyroid
- Medication containing iodine
- Diet - iodine-enriched foods or vitamins products
- Taking thyroxine - you must stop one month before the test
- Previous radioiodine treatment or thyroid operation
- Old age
- Having just exercised very energetically

The radioactive iodine used for the RAIU test has nothing like the strength of that used in treatment. Its radioactivity only lasts for 18 hours. Another radioactive material, technetium, is sometimes used instead of iodine; it is given by injection. Whichever material is used, the test is unsuitable for young children or anyone who might be pregnant, even at this low level of radiation.

SCINTIGRAM: This technique uses a special camera to produce a brightly multicoloured picture showing where iodine is taken up by thyroid tissue, and how vigorously. Like the RAIU test, it depends on having a measured amount of the weak radioiodine,123I, or technetium 99m first. In a few centres fluorescent scanning is available: this measures ordinary, non-radioactive iodine through something like an X-ray, and almost no radiation is involved.

This test is useful:

- To show the size and shape of the gland.
- To check for thyroid tissue behind the breastbone.
- To find out whether a lump in the tongue or neck is thyroid tissue that has gone off course during development.
- Most importantly, to provide information on a particular knob or lump of tissue in the thyroid.

- a 'hot' nodule (showing as red) is overactive, taking in a lot of iodine;
- a 'warm' nodule (showing as orangey-yellow) is normally active;
- a 'cold' nodule (showing as greenish) is not taking up iodine and may be a cyst or a tumour. This calls for further investigation, to exclude cancer.

X-RAY: An ordinary X-ray gives a shadowy idea of the size and position of the thyroid. In particular, a chest X-ray may reveal a shadow behind the breastbone, which could be an extension of thyroid tissue. Ultrasound, a CY scan or a scintigram will be needed for more precise information.

BARIUM SWALLOW: This is an X-ray taken while you are swallowing a barium drink that shows up on X-ray. It reveals any pressure on your gullet.

CT (COMPUTERISED TOMOGRAPHY) SCAN:. This is an X-ray that presents what looks like pictures of slices through the next or other area.

ULTRASOUND: This is a simple painless method of obtaining a picture of an internal organ, including the thyroid. It produces an on-going picture by processing the echo of a high-frequency sound projected on to the organ. Apart from distinguishing a cyst from solid tissue, the ultrasound provides an ongoing image of the organs and structures in your neck. This is invaluable for guiding the needle when a biopsy of a particular part of the thyroid is required.

FINE NEEDLE ASPIRATION: This is a neat method of doing a biopsy to obtain a sample of tissue to examine under the microscope and identify precisely. The great value of FNA is for distinguishing between a commonplace nodule of normal thyroid tissue, a harmless cyst or benign growth and a cancer. This knowledge is a signpost to the best form of treatment.

METABOLIC RATE: Although the main work of the thyroid is controlling the rate at which the bodily processes use up the available nourishment, the metabolic rate is seldom tested. A raised background or basic metabolic rate goes with over-activity of the thyroid, and accounts for the person who eats enormously and stays thin. The opposite happens with an under-active thyroid.

ELECTROCARDIOGRAPH: This electrical tracing of the heart's activity is the standard method of assessing how well the heart is working. It shows characteristic changes in overactive and underactive thyroid.

OPTHALMIC CURVE METER: This apparatus measures the degree of protrusion of the eye or eyes.

TESTING SPECIFIC LOW MINERALS AND VITAMINS AND THE THYROID CONNECTION

We recommend that all sufferers of the symptoms of hypothyroidism should also ask that their doctor test the following specific minerals and vitamins (ferritin, vitamin B12, vitamin D3, magnesium, folate, copper and zinc) to see whether any of the results show low within the reference range. This is because if levels are low, thyroid hormone (either your own, or thyroid hormone replacement) is unable to be fully utilised at the cellular level.

Should your doctor tell you that there is no connection between these specific minerals and/or vitamin levels and hypothyroidism, copy the following links to the research/studies to show him/her.
Low iron/ferritin: Iron deficiency is shown to significantly reduce T4 to T3 conversion, increase reverse T3 levels, and block the thermogenic (metabolism boosting) properties of thyroid hormone (1-4). Thus, iron deficiency, as indicated by iron saturation below 25 or a ferritin below 70, will result in diminished intracellular T3 levels. Additionally, T4 should not be considered adequate thyroid replacement if iron deficiency is present (1-4)).

1. *Dillman E, Gale C, Green W, et al. Hypothermia in iron deficiency due to altered triiodithyroidine metabolism. Regulatory, Integrative and Comparative Physiology 1980;239(5):377-R381.*
2. *Smith SM, Johnson PE, Lukaski HC. In vitro hepatic thyroid hormone deiodination in iron-deficient rats: effect of dietary fat. Life Sci 1993;53(8):603-9.*
3. *Zimmermann MB, Köhrle J. The Impact of Iron and Selenium Deficiencies on Iodine and Thyroid Metabolism: Biochemistry and Relevance to Public Health. Thyroid 2002;12(10): 867-78.*
4. *Beard J, tobin B, Green W. Evidence for Thyroid Hormone Deficiency in Iron-Deficient Anemic Rats. J. Nutr. 1989;119:772-778.*

Low vitamin B12: http://www.ncbi.nlm.nih.gov/pubmed/18655403

Low vitamin D3: http://www.eje-online.org/cgi/content/abstract/113/3/329 and http://www.goodhormonehealth.com/VitaminD.pdf

Low magnesium:
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC292768/pdf/jcinvest00264-0105.pdf

Low folate: http://www.clinchem.org/cgi/content/full/47/9/1738 and
http://www.liebertonline.com/doi/abs/10.1089/thy.1999.9.1163

Low copper http://www.ithyroid.com/copper.htm
http://www.drlwilson.com/articles/copper_toxicity_syndrome.htm
http://www.ithyroid.com/copper.htm
http://www.rjpbcs.com/pdf/2011_2(2)/68.pdf
http://ajplegacy.physiology.org/content/171/3/652.extract

Low zinc:
http://www.istanbul.edu.tr/ffdbiyo/current4/07%20Iham%20AM%C4%B0R.pdf and
http://articles.webraydian.com/article1648-
Role_of_Zinc_and_Copper_in_Effective_Thyroid_Function.html

The Basal Temperature Test

Barry Durrant-Peatfield MBBS LRCP MRCS Medics Cert. Nutritional Therapy (BCNH)

First described by the great physician Broda Barnes in 1945, the basal temperature test provides an extremely valuable screening test for metabolic function. The idea is to obtain the temperature immediately on waking, when it reflects most accurately your body temperature at rest.

I think that the best thermometer to use is the old fashioned – and perfectly good and accurate – glass mercury thermometer. In this day and age, where time is at a premium, a reading from under the tongue is probably the most convenient. Dr Broda Barnes always recommended that the temperature should be taken under the armpit; you will probably find that the readings are a little lower than those under the tongue and you should make a ½ degree allowance upwards if it is taken in the armpit. If you are using an electric thermometer, you should be aware that some will tend to under read in the armpit because they don't have time to warm up enough before the electronics make the reading. So use the under the tongue route if your thermometer is electric.

The ear thermometers are quick, if rather expensive, and I am not convinced of their accuracy.

Make sure the thermometer works properly; check it against another.
Three minutes in the mouth immediately on waking, before you get out of bed – having shaken it down **the night before,** and made sure it really has zeroed. You don't necessarily have to read it straight away – one may be a bit bleary first thing – but when you do, write it all down there and then. Ideally I would like the basal temperature to be taken in the evening as well. A lowering of temperature during the day may indicate low adrenal reserve.

Make sure that you don't have a cold or flu coming on, or that you don't have a sore throat or sinus infection, or dental abscess – all these things will raise your temperature and make the basal reading invalid. You will remember that if you are of the fair sex, you have a five or six day window from the beginning of your period each month in which to take your temperature, starting on day 2.

Your normal basal temperature should be above 97.6° F / 36.8° C. The correct figures are 98.4° F or 37° C. Below the lower limit of the range, it is more than likely that you have a lowered metabolism due to hypothyroidism. The only other causes of temperatures below these limits are malnutrition, liver failure, hypothermia and alcoholism. If you have had "a good drink" the night before, discount your temperature in the morning.

It's useful at the same time to take your pulse as a base line, since on successful treatment a rise of pulse may be the first signal of success. It is well worth doing it for two or three weeks and averaging it all out.

Hmm...the symptoms are fatigue,
weight gain, memory problems...
that sounds vaguely familiar

Having "Thyroid" Problems ?

"Your Tests Came Back. You're As Fit As A Teenager !"

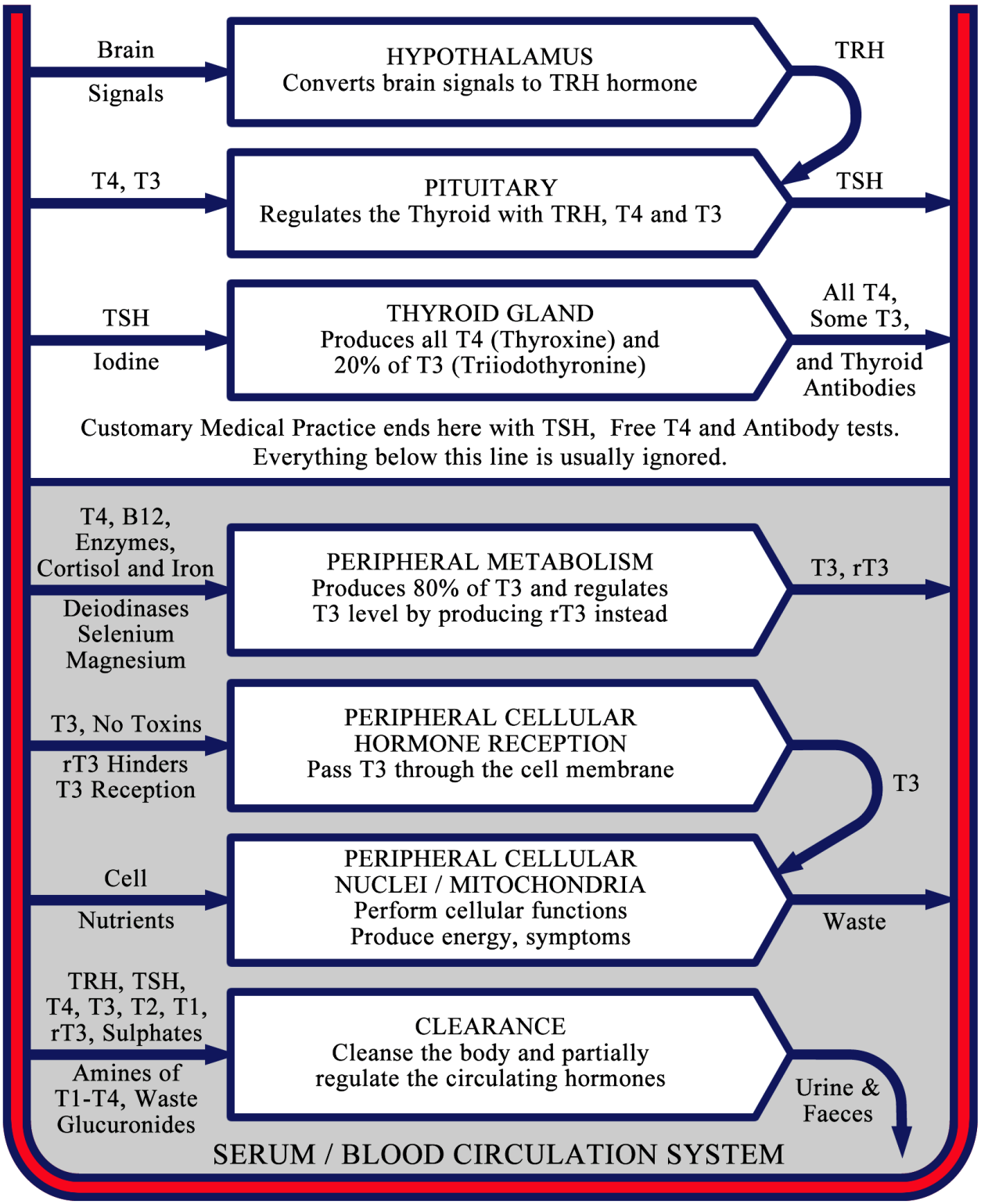
These mistaken diagnostics are the result of *ignoring* medical science and the logical demands of differential diagnostics. These diagnoscs can *not* be made until all physical possibilities have been excluded ! *But* medical practice *ignores* the known and important physiological functions that come after the thyroid gland in the grey area of the Greater Thyroid System.

"I feel so bad, the tests must be wrong !"

Indeed, the tests are *not* complete. They *only* test the thyroid gland. But Medical science, circa 1970, discovered more functions on the thyroid hormones destined for the cells that operate the body. These functions are *not* tested. See the grey area of the Greater Thyroid System.

"Your Non-Specific Symptoms Are Caused By Functional Somatoforms Disorders"

The Greater Thyroid System
(Customary practice ignores the grey area)



Many patients are being denied adequate relief from the symptoms of hypothyroidism because less than half of the greater thyroid system is being considered by physicians. The half which is being considered is not fully tested if the Thyroid Stimulating Hormone (TSH) is 'normal'. This chart illustrates the flow through the system starting at the top of the chart with signals from the brain to the bottom of the chart where the symptoms are sensed.

AN EXPLANATION ABOUT THE 'NORMAL REFERENCE RANGES' OF THYROID FUNCTION BLOOD TESTS AND WHAT THEY MEAN

You can be born with a weak thyroid; it can attack you as a young adult, in the prime of your life or in your mature years. The risk is about 1 in 3 or 4.

You are more tired than you should be, depressed, feel cold, and can't control the pace of your metabolism. Every part of our body needs thyroid hormone to work properly and our energy output depends on it, which is why we can get so many symptoms when it doesn't work properly. (It can, much less commonly, overact; then we get thin and shaky and hot). Having a low metabolism from a thyroid winding down has other effects. One is that the urinary system runs down too, so that you are more likely to get infections, and less able to fight cancer; your adrenals which fight stress, also weaken, which not only worsens the effect of low thyroid, but prevents the treatment working properly.

Most doctors can quite easily diagnose it from your story and a simple examination; but it can be terribly wrong when only blood tests are done – more than half the time, an underactive thyroid doesn't show up, and you are left tired, ill and depressed. You need to find out what is wrong with you, so ask your doctor and s/he will give you a thyroid function blood test.

You wait in anticipation of the results and then your doctor will probably tell you "your test was out of the normal range" handing you a sheet of paper showing a set of test results and numbers. Your heart races in fear that you are really sick.

What does this statement mean? Should you be concerned? The simple answer is that any blood test results out of the "normal reference range" are a signal that further investigation should be taken.

Test results – all medical data – can only be understood once all the pieces can be put together. One of the simplest medical indicators of all is your heart rate. You can take your resting heart rate right now, by placing your fingers lightly on your pulse and counting the beats for one minute. Most of us know that the "average" heart rate is about 70 beats per minute. How do you know what a "normal" heart rate is? We know this on the basis of taking the pulse rate of millions of people over time.

You probably also know that if you do regular exercise or are otherwise in good physical shape, your pulse rate could be considerably lower – so a pulse rate of 55 could also be "normal". Say you walk up a hill – your heart rate is now 120 beats a minute. That would be high for a resting heart rate but "normal" during this kind of activity.

Your heart rate, like any medical observation, must be considered in context. Without the proper context, any observation or test result is absolutely meaningless. To understand what is "normal" for you, your doctor must know what is the normal heart rate of most other people of your age, and what activity you are doing at the time – or just before your heart rate is measured.

The interpretation of any clinical laboratory test involves an important concept in comparing the patient's results to the test's "reference range". It is also commonly called the "normal range" but today, reference range is considered a more descriptive term.

Some tests provide a simple yes or no answer. Was the culture positive for strep. throat? Did the test find antibodies to a virus that indicates an infection?

But for many more tests, the meaning of the results depends on their context. A typical lab report will have your results, followed by "normal" or "reference range". For example, your results for your thyroid stimulating hormone (TSH) test might look something like: 2.0 m-IU/L, ref. range 0.5 – 5.0m-IU/L. Such a test result indicates that it falls within the "normal range".
How was the "reference range" established? The short answer is, by testing a large number of apparently healthy people and observing what appears to be "normal" for them.

The first step in determining a given reference range is to define the population to which the reference range will apply, for example, healthy females between 20 and 30 years old. A large number of individuals from this category would be tested for a specific laboratory test. The results would be averaged and a range (plus or minus two standard deviations of the average) of normal values would be established.

The term "reference range" is preferred over "normal range" because the reference population can be clearly defined. Rather than implying that the test results are being compared with some ill defined concept of "normal", the reference range means the results are being considered in the most relevant context. When you examine test results from different populations, you quickly discover that what is "normal" for one group is not necessarily "normal" for another group. For example, pregnancy changes many aspects of the body's chemistry, so pregnant women have their own set of reference ranges.

This is the problem – we Thyroidians and CFS – ME – FM folk, along with others with chronic illnesses, are being tested against a "reference range" that was established for a group of "normal" people. People who were healthy at that time didn't have any health issues. A new "reference range" must be established especially for sufferers showing the unexplained symptoms which most of us are presenting with.

To stop all the confusion and misdiagnosis (OR NO DIAGNOSIS IN TENS OF THOUSANDS OF CASES) that come from lack of correct interpretation, everybody should have their thyroid levels checked automatically to see what their "normal" reference range is when they are, say, a healthy 18 year old. Then when they present with unexplained symptoms, blood tests would then be a fairer comparison.

By not being correctly diagnosed and treated, if we have a low metabolism from our thyroid winding down we suffer other effects. One is that our urinary system runs down, so that we are more likely to get infections and less able to fight cancer; our adrenals which fight stress also weaken, which not only worsens the
effect of low thyroid, but prevents any treatment from working properly.

Getting a Second Opinion

If you feel you need a second opinion regarding your diagnosis and/or treatment, what do you do?

A second opinion may be requested by:

• **You, the patient** - you may have doubts about the first diagnosis or suggested course of treatment and may like an alternative diagnosis/course of treatment to be investigated. You may simply require confirmation from another doctor.

• **Your carer or a relative** (this must be with your consent).

• **GP**
If your GP is unsure about a diagnosis, they may refer you to a consultant or another GP. They could be found negligent if they fail to do this and you suffer as a result.

• **Consultant**
It is fairly common for a consultant to ask for a further opinion from a colleague if a case is particularly complicated.
You may request a second opinion after you have seen your GP, consultant or other health professional.

Second opinion from a GP:
If you are not happy with the advice you have been given by your GP, and would like a second opinion, you have three options:

• If you are registered with a multi-GP practice, you can ask to see another GP in the practice,
• Your GP can write a letter referring you to a GP in another local practice, or
• Your GP can write a letter referring you to a private GP, which you may have to pay for.

You may at any time ask to register with another GP practice. However, the practice is under no obligation to accept you on their register.

Second opinion from a consultant or specialist:
A specialist is a doctor who has chosen and trained in a speciality area, e.g. paediatrician, surgeon, gynaecologist. Your GP will refer you to the specialist in your geographical area, who has the most expertise and is most appropriate for you. A specialist will only see you with a letter of referral from your GP. This letter will give the specialist essential background information on medication, previous treatments and anything your GP would like considered.

If you would like a second opinion on any recommended treatment, your specialist or GP will usually be prepared to arrange this. Or you may ask your consultant to do a consultant-to-consultant referral. If you want to see a private specialist, you should get a referral from your GP. But if you see a private specialist without a GP referral, your GP is not obliged to accept the specialist's advice.

Free or Reduced Cost Prescriptions (UK ONLY)

Certain people are automatically entitled to free prescriptions. Others can obtain an exemption certificate to obtain free prescriptions. In addition, anyone needing regular prescriptions may save money by buying a Prescription Prepayment Certificate.

Who is entitled to get free prescriptions?
If you are under 16 (under 25 in Wales)
If you are under 19 and in full-time education
If you are aged 60 or over

If you (or your partner) receives one of the following:
Income Support
Income-based Jobseeker's Allowance
Pension Credit Guarantee Credit
If you have an NHS tax credit exemption certificate
Some war pensioners - if treatment is connected with the pensionable disability

If you have a prescription exemption certificate (see below)
People on a low income who have a certificate HC2 (see below)

If you are entitled to free prescriptions, complete the declaration on the back of the prescription and sign it. You may be asked for proof that you are exempt.

Who can get a prescription exemption certificate? - If you are pregnant or have had a child in the past year. Obtain form FW8 from your doctor, midwife, or health visitor to apply for a Maternity Exemption Certificate. The form is sent to the Prescription Pricing Authority who will issue the certificate.

People who have certain medical conditions. Although there are many conditions requiring permanent medication, only the following qualify for an exemption certificate:

A permanent fistula requiring dressing
Forms of hypoadrenalism, such as Addison's Disease

Diabetes insipidus and other forms of hypopituitarism
Diabetes mellitus except where treatment is by diet alone
Hypoparathyroidism
Myasthenia gravis
Myxoedema (underactive thyroid) or other conditions where supplemental thyroid hormone is necessary
Epilepsy requiring continuous anti-convulsive therapy
Permanent disability, that is, if you cannot leave the house without help.

If you have one of these conditions, obtain form FP92A from your doctor's surgery and fill it in. This is sent to the Prescription Pricing Authority who will issue a Medical Exemption Certificate (HC2).
If you have a Maternity Exemption Certificate or Maternity Exemption Certificate, all your prescriptions are free, whatever the medication is for.

SOURCE: http://www.patient.co.uk/showdoc/23069022

NUTRITION: An Overview

By Dr Barry Durrant-Peatfield and Nikki Tovell

What do you think of when you see that word? For most people, nutrition conjures up some vague ideas about eating a balanced diet comprising something of each of the four main food groups, and maybe sticking to low-fat, low-sugar, low-salt foods. Eating healthily is commonly associated with lettuce leaves and raw carrots — rabbit food — to most people. But nutrition isn't so much about what we eat, as what our bodies do with the foods we eat.

Linus Pauling, Nobel Prize winner for Chemistry, and widely considered to be the father of molecular biology, stated that "the use of nutritional supplements, in the treatment as well as the prevention of disease, is clearly the future of medicine." What he meant by that was that every single degenerative disease and every single case of "natural death" in humans can be traced to a nutritional deficiency. This apparently controversial statement is borne out by extensive amounts of research done in this field; research papers, clinical trials, double blind trials, and scientific evidence beyond dispute all demonstrate quite categorically that this is indeed the truth. In the early 1970's Dr Joel Wallach, renowned nutritionist, medical doctor, and former veterinary surgeon, found it to be true after spending twelve years completing 17,500 autopsies on more than 454 different species of animals for American zoos, and more than 3,000 autopsies on humans. Literally thousands upon thousands of articles, papers and books have been published confirming the scientific validity of this theory. Inadequate nutrition causes disease and death. It's a scientific fact. And yet orthodox doctors will disagree most vehemently. This is simply because they are not taught about this in medical school.

What they are taught in medical school is that disease is an invader to be beaten off with the big sticks of pharmaceutical drugs and surgery. What we teach is that disease is a sign of an imbalance in the body, and can be rectified without necessarily bombarding an already weakened system with heavy drugs or surgery. Full and active health can be restored and maintained simply by providing the body with the basic tools it needs to achieve this. This means that we have to look at the body as a whole, and not at individual systems in isolation from each other. Everything within the body is designed to work in harmony with the other parts, and if one part is not working optimally it will naturally have a knock-on effect on other parts. Some of you will be aware of this already; low back pain can lead to headaches, a bad hip can lead to back pain, PMS leads to mood swings and depression, and so on. The majority of degenerative illnesses (arthritis, fibromyalgia, rheumatism, heart conditions, diabetes, osteoporosis, multiple allergies, etc, etc.) are linked to hypometabolic disorders, and those of you with hypothyroidism or hypoadrenalism will be only too familiar with the enormous range and ferocity of symptoms that these conditions can bring about. Yet if you go to an orthodox doctor, they will try to treat all the symptoms individually, never once addressing the underlying cause. And of course, you never really feel well, despite the amount of pain killers, diuretics, antifungals, antibiotics, antihistamines or other drugs you are taking to relieve your myriad of symptoms. Hardly seems fair, does it?

Metabolism is the term used to describe the rate at which your body performs each and every one of its billions and billions of functions. At its most basic, it can be described as

energy. If you have low energy, you have a low, or hypoactive, metabolism; if you have excessive energy, you have a hyper or overactive metabolism. Humans are no different from any other living organism in that they must ingest certain substances to provide this energy; plants pull minerals from the soil, animals eat plants and other animals. Even viruses and bacteria "feed", on whichever human, plant or animal they are currently hitching a ride on. No form of life exists without getting nutrition suitable to it's needs. Any gardeners out there will be familiar with the fact that alkaline-loving plants do badly in acid soil, and vice versa. Any dog owners will know that you can't really give your hound cattle feed and expect him to do well on it.

Studies show that humans need no fewer than NINETY-ONE nutrients every day in order to meet your body's essential needs. Please note the use of the word "essential" – there.

Supplements: Things you can do to help your recovery

Vitamin C:

Powerful adrenal helper, and therefore immune system too. Also acts as antioxidant, eliminating free radicals which cause damage to your body; builds collagen (the elastic fibres that keep your skin, bones, hair and nails supple and strong), helps maintain cellular integrity. The adrenals have the highest concentration of vitamin C than any other organ in the body. You need to take an awful lot more vitamin C than you probably realise to maintain optimum health, and that applies even more so when you've been ill for a long time. Your body's' needs for vitamin C will vary from time to time, dependent on how well your adrenals and other systems are coping with whatever stresses they are trying to deal with at that time.

How do you tell how much you need ? Very simple. You have to apply the Bowel Intolerance Test, which is a standard homeopathic medicine protocol. This means that you must take as much vitamin C as it takes to give you a slightly urgent bowel movement. Because vitamin C is a water-soluble vitamin, the body takes what it needs, and chucks out the rest. You cannot over-dose on it. Find your current Bowel Intolerance level, then reduce that dose by 1 gram (1,000mg), and that will be your maintenance dose for the time being. The average amount needed to give this result is about 9 grams daily. It's best to take it in blocks of 2 grams, and on an empty stomach. Vitamin C neutralises stomach acid, so if you take it immediately before or after food, you will be unable to digest that meal properly. As you begin to get better, you will find that you need less vitamin C to reach the bowel intolerance level. If you become ill with a virus or a bug, or become generally run-down, you will need more. Sometimes it will take 3 grams to send you to the loo, sometimes it may take 30 grams. It all depends on how much your adrenals need at the time. Be prepared to adjust your dose accordingly.

Milk Thistle:

This is an amazing herb, the active ingredient of which is called Silymarin. It is used widely in European emergency rooms as the standard treatment for fatal Amanita mushroom poisoning. Your liver will currently be extremely stressed, and needs as much help as it can get. This helps with allergies and intolerances, illness, hormone imbalances, and to generally relieve some of the load on your liver. Standard daily dose

is 560mg, but if you experience a bad headache, nausea, shakiness, or feel "poisoned", take another 560mg immediately. You will get to know how much of it you need to help your own particular system.

Echinacea:

Another powerful herb, greatly helps the immune system. Take 20-25 drops every two hours for the first day at the onset of any virus or bacterial infection, and a maintenance dose of 20-25 drops twice a day thereafter. As you begin to get better, you won't need to rely on it so much, but whilst your immune system is delicate, it's an enormous help to take it every day.

Valerian and Hypericum:

Both of these herbs help with all the anxiety and depression that are common features of hypometabolic disorders. Valerian is very calming and relaxing. Take at any particularly stressful times and before going to bed. Immensely helpful at those times when you cannot sleep, even though you feel utterly exhausted.
Hypericum (St Johns' Wort) should not be taken if you are on any prescription medication for depression, and there are a few rare incidences of it interfering with the effectiveness of the contraceptive pill. If you are on the pill and take Hypericum, stop taking it if you experience any breakthrough bleeding or spotting. Other than that, it's as safe as houses. It really is most effective at relieving depression, however badly you get it. One of its names is "Natural Prozac”!

Flax Seed Oil:

Rich in the essential fatty acids vital to reduce inflammation, this is very helpful wherever you have any inflamed conditions such as eczema, acne, rashes, arthritis (or any other –itis, since "-itis" means inflammation in medical jargon), inflamed bowel conditions, and even constipation. You may take up to 2 tablespoons a day. Add it on to food in place of other dressings or oils. It has a pleasant, slightly nutty taste. A useful note - we are told by a local pharmacist that all of the hormone medications, such as thyroid and adrenal medications (so T3, Armour, cortisone, progesterone, etc), are better absorbed, when taken orally, in the presence of oily substances. If you can bear it, try taking a drop along with your meds.

Replenish Your Mineral Levels!

Read the "Nutrition - An Overview" document. You can buy good quality colloidal minerals from a number of suppliers. "Colloidal" is a term meaning that the particle size is extremely small - 7,000 times smaller than a red blood cell, so it is far more readily available to your body than the larger particle sizes commonly found in other preparations such as tablets. A lot of vitamin and mineral supplements only give you roughly 20% of what they say they contain, because the body cannot absorb large particles effectively.

Other:

Where possible, buy your supplements in either a liquid or capsule form, since these are better absorbed. Also, many of the binders and fillers in tablets can cause sensitivity reactions - if your liver is stressed, which it will be if you've been ill for a long time, it will be unable to cope and you are therefore likely to react badly to a lot of substances which would normally not cause a problem. Avoid coffee, if you can bear to. Coffee causes the liver an awful lot of work. If you are the sort of person who can drink coffee to no apparent effect, this means that the two sections of your liver’s detoxifying system are

not working in harmony. Phase One breaks down chemicals and passes them on in an even more potentially toxic form to the second phase, which then eliminates them. If drinking coffee makes

you very "hyper", Phase One is underactive and not breaking it down effectively, and extra loading then gets put on to Phase Two. If you are the opposite, and drinking coffee has little or no effect on you, then Phase One is overactive, which means it is producing even more toxic substances to be passed on to Phase Two. Drinking some herbal teas is far less stress for your poor exhausted system. Some herbal teas are rich in all kinds of good and friendly things. Some are not! Please be aware that most Green Tea is high in Fluorides. Fluorides are toxically depressant for the Thyroid - see **http://www.rense.com/general67/theeffectsoffluoride.htm**

An excellent article on "Teas & Fluorides" - see **http://www.bruha.com/pfpc/html/green_tea.html**

Virtually every company selling Green Tea advertises its high fluoride content as "beneficial" in preventing caries, promulgating the misleading and false data supplied for the last 50 years by the ADA/CDA and other dental health trade organisations, as well as various public health agencies. There are NO double-blind studies anywhere proving the efficacy of fluoride as a caries preventative . There ARE double-blind studies proving adverse health effects, at the level of 1ppm (1mg/l) in water. There are no studies documenting safety at any intake level.

Drinking a cup of tea with fluoride content as mentioned above (7.8mg) would mean a fluoride intake much higher(!) than amounts which were actually given as medication to treat hyperthyroidism (-> over-functioning thyroid) for numerous decades - in several countries - specifically to reduce thyroid activity! [(2 -10 mg NaF/day => 0.9mg - 4.5mg F-)"

It goes without saying that where possible, you should try to eat organic produce. Less toxins = less loading. Less loading = better healing potential.

FOOD: What's Good and What's Bad for your Thyroid

What's Good?

Your thyroid is a very sensitive and complicated machine. It makes immediate, medium and long term alterations to your metabolism according to what you eat, how much you use your muscles, your mood, your age and any stresses you are under – and you will probably already be aware, that even the weather makes a difference.

To keep this remarkable and priceless piece of equipment running, its demands could not be more modest. It needs a good diet and a copious supply of clean drinking water. The ingredients of your food, which are of special concern to the thyroid, are iodine, a vital element, which no other hormones use, and various vitamins.

Sources of iodine for most of us:

1. Dairy products – 56% (this is at a maximum during the spring and summer months.
2. Bread and cereals – 16%
3. Meat and fish (especially sea fish and shellfish) – 11%
4. Sugar – 11%
5. Drinks – 4%

Which vitamins and where to find them:

Vitamin A – Go for yellow – carrots, cheese, butter or margarine, egg yolk, fresh apricots and, the exception, green vegetables.

The B-group vitamins:

1. Thiamin: This is found in whole-wheat, pulses, nuts and pork, but rice, white flour and raw fish interfere with your being able to use it.
2. Riboflavin: This is found in liver, cheese and eggs, or meat and yeast extracts.
3. Niacin: This is found in liver, kidneys, eggs, yeast extract and instant coffee.
4. Vitamin B12: Meat, poultry, liver, eggs and milk.
5. Vitamin B6: This is available in almost all foods. The biggest danger is accidentally overdosing with vitamin pills.

Vitamin C: Citrus fruits, peppers, salads, green vegetables.

Vitamin D: Herrings (including kippers), sardines, margarine and eggs plus a regular dose of sunshine.

Vitamin E: Margarine, sunflower seed oil and other polyunsaturates, wheat germ.

Water: A good supply of clean, uncontaminated drinking water.

What's Bad?

Chronic overeating

Under nutrition

Too much iodine: These are called goitrogens, because eating them freely leads to goitre and the symptoms of under-active thyroid. They are all plant foods:

1. Raw cabbage and many other members of the brassica family, sprouts, cauliflower, kohlrabi, horseradish (NOTE: Heat from cooking kills goitrogens)
2. Peanuts, walnuts, almonds
3. Rape and mustard seed
4. Maize (sweet corn), millet, sorghum
5. Soya – especially as part of a high-fibre diet, since too much thyroid hormone and iodine are excreted from the body
6. Cassava – a minor problem in Third World countrie
7. Kale, raw swedes and turnips fed to cattle and coming through in their milk, as has occurred here in the UK

Medicines that can cause problems

Any of the following can interfere with the smooth working of the thyroid gland and can upset the tests:

1. Tolbutamine (Rastinon) - for diabetes
2. Chlorpropamide (Diabinese) - also for diabetes
3. Phenylbutazone (Butacote) - for ankylosing spondylitis
4. Diazepam, Valium - for anxiety
5. Heparin - to prevent clotting in heart problems
6. Lithium (Priadel) - to prevent relapse in psychiatric illness

7. Beta-blockers (e.g. Inderal) - for high blood pressure
8. Salicylates, including aspirin (e.g. Disprin) - a pain-killer
9. Steroids (e.g. prednisolone) - for any severe physical reaction
10. Phenothiazines (e.g. Largactil) - major tranquillizers
11. Amiloride (e.g. Moduretic) - a water tablet
12. Androgens (e.g. testosterone) - male sex hormone
13. Tamoxifen - an anti-oestrogen to ward off breast cancer
14. Sulphonamides - anti-bacterial drugs
15. Acetazolamide (Diamox) - for glaucoma and fluid retention
16. Resorcinol (Anusol) - used for piles
17. PAS - for tuberculosis

The following medicines have a different effect:

1. Phenytoin and related medicines – these anticonvulsants, used to control epilepsy, use up the thyroid hormones unusually quickly and this may cause a shortage.
2. Carbamazepine (Tegretol) - this anticonvulsant inhibits the release of T4 into the blood.
3. Co-trimoxazole (Septrin) - for urinary infections, also inhibits the release of T4 into the blood.
4. Levodopa (Sinemet) and bromocriptine (Parlodel) - are both used for Parkinson's disease and both stop the stimulating action of TSH, leading to T4 and T3 lack.

Medicines that appear to increase T4 and T3:

1. Oestrogen (in the contraceptive pill and HRT) - provides more of the transport protein.
2. Furosemide type water tablets (e.g. Lasix) - by getting rid of fluid, make the blood more concentrated so there is more of the hormones per millilitre.

Medicines containing iodine:

1. Amioarone (Cordarone X) - causes thyroid problems in 6% of people taking it
2. Cough medicines containing iodides - including over-the-counter preparations
3. X-ray contrast media - given for instance for gall-bladder investigations;
4. Povidone skin antiseptic (Betadine) and tincture of iodine
5. Multivitamins/multimineral health pills

Your genes – autoimmune disorders:

1. Vitiligo - patchy loss of pigment in the skin
2. Diabetes – the type that requires insulin
3. Rheumatoid arthritis
4. Pernicious anaemia
5. Myasthenia gravis – a rare muscle weakness
6. Lupus
7. Parkinson's disease

Stresses that can affect your thyroid:

1. Starvation, as in anorexia nervosa or drastic slimming
2. A road-traffic or similar serious accident
3. Surgical operation
4. Severe burns

5. Radiation, for treatment or by accident
6. Emotional upset, such as bereavement
7. Important examinations
8. Major psychiatric illness, such as schizophrenia, mania or severe depression, but not Alzheimer's disease or being a psychopath, nor neurotic problems
9. Great restriction of freedom, e.g., in prison
10. Withdrawal symptoms for heroin or alcohol
11. Taking amphetamines or Ecstasy
12. Physical illness – you can expect the thyroid to bounce back to normal as soon as your body does, except when the liver or kidneys are involved
13. Feverish illness
14. Common illnesses, such as cystitis, bronchitis, tummy upsets and flu, all lead to the low-T3 syndrome
15. Serious illnesses, either acute or long-term, such as pneumonia, a coronary heart attack, cancer, especially of the lung, severe anorexia nervosa, diabetes or alcoholism – all cause a reduction in both thyroid hormones
16. HI
17. Heroin, methadone or other narcotic abuse
18. Chronic diarrhoea
19. Liver disorders
20. Kidney disorders

DRAFT LETTER YOU MAY WISH TO SEND TO YOUR DOCTOR

If you are not being given a diagnosis because your thyroid function test results are returned within the normal reference range, and your doctor tells you these results show that you do not have a problem with your thyroid, or, if you have already been given a diagnosis and prescribed L-thyroxine-only therapy, but you are still suffering symptoms and your doctor refuses either to increase your dose or give you a trial of the active thyroid hormone T3 - then consider writing a letter to her/him. Adapt the letter according to your specific needs. You may wish to send a copy of your letter to the Head of Practice too, but remember to keep a copy for yourself in case this needs to be referred to at any time. Ask that your doctor place your letter into your Medical Notes.

"Dear Doctor

As I have been suffering with symptoms of hypothyroidism for a long time now without anybody apparently knowing the reason why, I am now determined to do whatever is necessary to find the cause, and hope that you will work with me.

The present symptoms I am suffering are *(here, list all of your symptoms and list your signs. You can check these against those under 'Hypothyroidism' in our web site www.tpa-uk.org.uk).*

My basal temperatures before getting out of bed in a morning and before having anything to drink for the last four mornings have been *(here, list these if they were 97.8 degrees F (36.6 degrees C) – or less.*

*(If this applies…)*There are members of my family who have a thyroid and/or autoimmune disease and I am aware this can run down the family line *(here, list those members of your family and their relationship to you).*

Please would you arrange for me to have a test to check my levels of TPO and Tg antibodies.

I understand there are specific minerals and vitamins that should be checked to see whether any are low in the reference range that stop thyroid hormone from being fully utilised at the cellular level. Would you please arrange for my levels of iron, transferrin saturation%, ferritin, vitamin B12, vitamin D3, magnesium, folate, copper and zinc levels to be tested? *(If your doctor doesn't know about these, or tries to tell you there is no association between these nutrients and low thyroid, copy out the references in the Minerals/Vitamin Section, and enclose these with your letter).* Please would you make all these results available to me together with the reference range for each test that has been done? *(If any are shown to be low in the range, these will need to be supplemented before the thyroid hormone will work).*

(You do not have to give any reason to a doctor why you want these results. Also, doctors cannot withhold any information that is in your medical notes under The Date Protection Act 1998).

I would like a referral to a specialist in thyroid disease for a thorough clinical examination and an assessment of my clinical history, as well as the results of serum thyroid function tests.

Please will you place this letter of requests in my Medical Records?

I await hearing from you in due course.

Kind regards"

Hopefully, this will start the ball rolling. Once doctors know that you are determined to do whatever is needed to find the cause of your symptoms, and once they have been requested in writing for the above information/tests/requests for a referral etc, they usually take much more notice.

Do remember to keep a copy of the letter yourself.

LOW LEVELS OF SPECIFIC MINERALS AND VITAMINS CAN STOP THYROID HORMONE FROM BEING FULLY UTILISED AT THE CELLULAR LEVEL. Check for…

Low iron/ferritin*:*

Iron deficiency is shown to significantly reduce T4 to T3 conversion, increase reverse T3 levels, and block the thermogenic (metabolism boosting) properties of thyroid hormone (1-4). Thus, iron deficiency, as indicated by an iron saturation below 25 or a ferritin below 70, will result in diminished intracellular T3 levels. Additionally, T4 should not be considered adequate thyroid replacement if iron deficiency is present (1-4)). See also Iron supplementation for unexplained fatigue in non-anaemic women: double blind randomised placebo controlled trial (5)

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Suggestions for an Approach to the Management of Thyroid Deficiency

By Dr Barry J Durrant-Peatfield MBBS, LRCP, MRCS

Hypothyroidism is due either to:

A. Deficiency of thyroid hormone production, or

B. Failure of thyroid hormone to reach the tissues.

Both may operate together in varying degrees.

Deficiency of hormone production is due to:

1. Environmental toxins/deficiencies
2. Genetic thyroid failure
3. Thyroid failure secondary to pituitary insufficiency
4. Thyroid surgery
5. Treatment of previous over-activity
6. Major surgery
7. Tonsillectomy
8. Major trauma
9. Glandular fever

Failure of hormone to reach the tissues results from:

1. Receptor resistance, or failure
2. Dysfunction of T4-T3 conversion
3. Adrenal insufficiency

Dealing in turn with the therapeutic management of these problems, we may turn first to (A) Thyroid hormone production failure. This will be due to:

1. Environmental toxins and deficiency

a)Toxins

A number of chemical agents tend to interfere with the manufacture of thyroid hormone. Notables among these are:

-Poly chlorinated Biphenyls (Paints and wood preservatives)
-Resorcinol (Millet)
-Phthylate Esters (Plastics)
-Thiouracil (Cabbages, Turnips, Cassava)
-Anthracin
-Bromoform
-Cyanides (Barbiturates)
-Fluorides
-Thiocyanates (Smoking)
-Caffeine
-Aspirin
-Lithium
-Amiodarones

The elimination of these from the diet may be desirable, if not always practical.

b) Nutritional Deficiencies

(i) Iodine. Endemically absent in certain inland areas, e.g., Peak District, UK.

(ii)Minerals, in particular:

-Selenium
-Iron
-Magnesium
-Zinc

(iii) Vitamins

Vit A - Conversion of Carotene to Vit A is inhibited by low thyroid states, and may cause yellow pigmentation. It controls uptake of Iodine into the thyroid gland. Deficiency also reduces TSH'

Vit B Riboflavin, Niacin, Pyridoxine play a role in thyroid hormone manufacture.

Vit C and Vit E - Deficiency has been shown to cause hyperplasia at cellular level in the thyroid. Clearly, part of the management of hypothyroidism requires some dietary advice; the provision of iron and vitamins and other minerals is simple and obvious.

2. Genetic Thyroid Failure

This will have become apparent soon after birth; but may not be obvious cretinism. A sickly child, with poor weight gain, frequent infections, lethargy, or oddly enough, hyperkinesia, is a candidate for genetic poor thyroid function. Thyroid replacement is mandatory as early as possible.

3. Pituitary Failure

This is a more common problem than is recognized, and apart from its specific clinical features, it may be a cause of secondary hypothyroidism. The pituitary may have a genetic deficiency, when it will have been probably recognized early. Not uncommon is Sheehan's Syndrome, resulting from major trauma from accidents or surgery. Adenomas of the pituitary may cause pressure atrophy and/or abnormal hormone outputs. But the pituitary may be involved in the general multiple deficiency state, and more specifically in low thyroid states. This partial failure in hypothyroidism may well be a cause of low TSH, so that a vicious spiral may slip into being. The danger of a low or normal TSH in this situation being misinterpreted when thyroid function tests are carried out is quite clear. In this situation, correction of the thyroid state will bring benefits to the pituitary; and may explain why some patients on thyroid replacement therapy begin to need lesser doses as time passes. Correction of the thyroid deficiency is clearly necessary; but adrenal insufficiency, considered in more detail later, as a consequence of lowered ACTH output, may require cortisone and Dehydroepiandrosterone (DHEA) in addition.

4. Thyroid Surgery. This is undertaken as a treatment for pathology of the thyroid itself, or as a treatment for over-activity, discussed below. Thyroid cysts, adenomas or carcinomas are necessarily removed by surgery; and it is sometimes necessary to

remove goitres where the size is causing respiratory or oesophageal embarrassment. Hashimoto's disease may come into this category.

Replacement by thyroid hormone is an obvious consequence.

5. Treatment of previous thyroid over-activity, by surgery or Iodine 131 ablation

Graves' disease is widely treated, where medical methods are deemed unsatisfactory, by partial thyroidectomy, or Radioactive Iodine ablation. This is often unsatisfactory, since it is very difficult to get it right. Either too much is removed or destroyed; (in which case replacement therapy is a permanent necessity) or too little, and it may have to be done again.

For such patients, replacement therapy is an obvious no-option requirement.

6. Major Surgery

Most particularly in this context comes cholecystectomy and hysterectomy. Many doctors are aware that women may suffer weight gain and loss of wellbeing after this surgery; and this will be found to be due to early loss of thyroid function. Replacement therapy is required.

7. Tonsillectomy

Quite why in adults, tonsillectomy may result in slow running down of thyroid function is not clear, but may be the result of interruption of the blood supply. The present writer has noted a number of cases of young adults misdiagnosed as M.E sufferers in this situation. Replacement therapy provides a most satisfactory return to normal.

8. Major Trauma

Major road traffic accidents, and surgical operations are known to precipitate thyroid and/or pituitary insufficiency. In this category have been noted the major psychic trauma of certain life events. Replacement indicated, with regard given to pituitary/adrenal function.

9.Glandular Fever

This is an often met with cause of failure of the thyroid/adrenal axis. Evidence has pointed to pituitary damage causing secondary hypothyroidism, but progressive loss of thyroid-producing cells within the thyroid has been noted. In either event, replacement is required. Discussion of failure of uptake at tissue level may be conveniently dealt with in the section below on therapeutic options. Consideration should now be given to the aims of replacement therapy.

The overall purpose is to restore metabolism to normal, so as to eliminate all hypothyroid symptoms, and to secure a sense of normal well being. This implies that thyroid hormone levels in each and every cell are nominal; that all the exchange reactions are taking place, as they should be. Sadly, this ideal is at least as often as not, simply not reached, often by a long way. Residual tiredness, lack of drive, or depression is frequently admitted to. Menstrual dysfunction may remain a feature. Skin problems, fluid retention, digestive problems, or arthralgia may remain in some degree. Many patients will continue to complain of weight gain, or great difficulty in losing it, and receive scant sympathy.

In this situation, the physician may estimate thyroid function by Free Thyroxine Index (Free T4), or Thyroid Stimulating Hormone (TSH) and be confronted by normal readings. It is the present writer's view that these estimations may be seriously flawed, and their value fundamentally limited. The most popular, at the moment, is the TSH. This may be much affected by poor pituitary function itself due to hypothyroidism; it may be low or normal, rather than raised. The Free T4 test is subject to several errors. Poor tissue uptake is probably the most telling. If the actual use by the tissues is reduced by poor conversion of T4 to T3 (see below) and/or receptor block, then high or normal Free T4 blood tests will result. Haemoconcentration may be an additional factor.

There can be no substitute for proper clinical appraisal. If the patient sounds and looks hypothyroid, then probably that is the problem, irrespective of pathological testing.The net result very much too often in clinical practice is to under-dose. To provide full remission of symptoms, the level in the tissues of thyroid hormone should be as high as possible, short of too much. (The patient/doctor monitoring to achieve this is described later). The situation is worsened by a tightly held misapprehension in many quarters that there are grave risks associated with overdose. These are largely apocryphal and must be corrected. Probably most widely held, is that thyroid overdose is bad for the heart. The risk is there if coronary artery insufficiency, previous M.l or incipient failure already compromises the heart; the risk of over working a damaged heart is obviously undesirable. The healthy heart will not be damaged by minor degrees of overdose, whether by accident or design; and is rarely much affected even by high levels of thyroid hormone, as in Graves' Disease.

Another anxiety is osteoporosis. There is a risk in sustained overdose, and untreated hypothyroidism, but this is still not certain. There is NO risk of osteoporosis in thyroid supplementation in correct, physiological doses obviously; and in any inadvertent minor overdose is rapidly detected by monitoring, and therefore of no consequence either.

Suppression of the thyroid gland as a result of treatment is another frequently expressed anxiety. There is a sensitive negative feedback operating through the hypothalamus and the pituitary. Overdose will suppress the thyroid; but this will come back to normal at once when the dose is adjusted. Not treating a patient with an under-active thyroid for tear of promoting further depression is quite unrealistic.

Vague fears that thyroid is like "speed"; that any deliberate or accidental overrunning of the metabolism will result in early "burn out" have been expressed. All that can be said is that is simply not true.

The correct management of thyroid replacement requires a flexible approach; full explanation to the patient, and monitoring, relying as much on the patient's assessment as the physician's own clinical impression. One may often be obliged to deal with partial response to replacement therapy, with failure to respond to an increase of dose; and more wrongly, some symptoms of overdose on small levels of treatment. These will include raised pulse rate, tremor, breathlessness, headaches. Sometimes an encouraging response levels off and drops back.

To understand what is happening, it should be clear that five matters have to be considered in planning replacement therapy:

1. Dose

2. Vehicle

3. Conversion T4 - T3

4. Receptor resistance or deficiency

5. Adrenal insufficiency

1. Dose. This has to be infinitely variable. It starts low and will be increased progressively and incrementally, until full response is obtained. Neither doctor nor patient should be satisfied with 60% response, or 80%. 100% is the target. The patient will be asked to monitor his/her response to treatment. This is satisfactorily done by three simple exercises.

a. Basal Temperature, this is the temperature (10 mins axillary, or 3 mins in mouth) immediately on waking. It is low in hypo-metabolic states, but will rise, albeit slowly, in response to treatment, (as reported elsewhere this is valuable diagnostically). A sudden rise may indicate, all things being equal, the start of overdose.

b. Basal Pulse. This may be taken at the same time as temperature; overdose will result in a rise of the resting pulse. 80 bpm will usually signify overdose.

c. "Feel good factor". It is possible to ask the patient to make a subjective assessment, say, one out of ten, on the same days as temperature or pulse. Since improvement in thyroid replacement may be quite slow, placebo effect does not occur; if the patient feels better, then s/he is better.

Considerations will be given to actual dosage shortly.

2. Vehicle. There are three options to choose from.

a. Thyroxin (T4)

b. Tertroxin (T3)

c. Dried, natural thyroid U.S.P

a. In this country (Great Britain), Thyroxine (marketed usually as Eltroxin—Synthroid in the US), is almost invariably used. Of the naturally occurring thyroid hormones it is the most plentiful. The thyroid hormone in the natural state is made up of around 80% Thyroxine (T4), 15% Triiodothyronine (Tertroxin T3—Cytomel in the US), and 5% Diiodothyronine (T2),Mono idothyronine (T1), and Thyronine (T0).

Thyroxine has a half-life of 8 days and works fairly well for the more simple, uncomplicated, early, not too severe, hypothyroid patient. But note should be made that this is not how thyroid hormone is naturally produced. There is a body of opinion, sympathetically supported by the writer, that if natural thyroid is not to be used, then at least T4 should be combined with T3 for a more satisfactory and more logical replacement.

b. Triiodothyronine – (T3) Tertroxin or Cytomel. This is quite considerably more potent than T4, four or five times so, but unlike T4, the half life of T3 is about 8 hours.

c. Dried Natural Thyroid. Used from about 1900, desiccated thyroid fell into disfavour in Great Britain and availability ceased in 1985. The synthetic Thyroxine (T4) was considered to be a better, purer preparation. Though, of course, it is purer in that it does not contain the other thyronines. However, this may be its weakness and ignores the fact that thyroid replacement need not be exact. The amount required varies from day to day, even hourly, and this dynamic variation may be compensated for by the patient's

own thyroid - which although deficient, may still be taking some of the load. Natural thyroid is widely used in USA, as Natural Thyroid U.S.P., but in the UK has to be specifically imported. It almost invariably works better than the synthetic T4, and is generally preferred by the patient. About half of the patients in the writer's practice are maintained on this preparation. (obtained from Gold Line Laboratories, Fort Lauderdale; or Armour thyroid, from The Barnes Foundation, Trumbull, Connecticut).

3. Conversion. Thyroxine (T4) has a low biologic activity and is transported linked to a binding globulin in a non-active state. The removal of one of the four Iodine atoms from the Thyronine molecule converts it to the biologically most active Triiodothyronine (T3) - available as Tertroxin (Cytomel in the US). This is achieved by the (largely liver produced), 5'deiodinase enzyme. In this form, it will be passed, via receptors, into the cell, where passage of protein and sugars across cell membranes is encouraged, and mitochrondrial activity stimulated. It is now clear that prolonged and/or severe hypothyroidism may be associated with partial failure of the 5'deiodinase enzyme. Although suspected, this situation may be diagnosed in default when failure of response in thyroid replacement occurs.

The effect of Thyroxine (T4) in this situation is to cause an overload of unused T4 due to conversion failure. This will cause some symptoms of thyroid excess, high pulse, tremor, headache for example, while the hypothyroid symptoms remain. (It is of remark that on occasions, high T4 levels in this situation have resulted in inappropriate hypothyroid medication, or thyroid ablation). Thyroid function tests will show high Free T4 and low TSH; resulting in thyroid supplementation actually being withdrawn by the physician.

Management, where this problem is believed to be present, consists in discontinuing some or all T4 and substituting with T3, preferably in divided doses. Since poor conversion may be associated with a raised sex hormone binding globulin (SHBG) and high levels of exogenous oestrogen, re-appraisal of any HRT may need to be considered. Ensuring correct levels of vitamins A & B, Iron and Magnesium (as above), is also mandatory.

4. Receptor resistance or deficiency:

Resistance to the passage of T3 via the receptors has been seen in a number of cases. Why this occurs is not clear, but long periods of thyroid dysfunction are associated. The replacement dose of the chosen thyroid hormone has to be much larger than usual, which may cause some heart searching. Deficiency results from a protracted low thyroid state; prolonged low levels de-sensitizes the receptors. This will improve with time, and treatment of any Adrenal insufficiency present.

5. Adrenal Insufficiency

This might be more properly described as low adrenal reserve. Since hypothyroidism adversely affects every cell, every tissue, and every gland in the body it is clear that the endocrine system as a whole will be also similarly affected. The adrenals will be subject firstly to lowered efficiency resulting from a lowered vitality primary to hypothyroidism, and secondarily, to reduced ACTH stimulation from the pituitary. As a result, in general, patients with a protracted and/or severe hypothyroid state will have some degree of adrenal insufficiency. A significant level of this will be suspected in these situations:

a. Longstanding and severe hypothyroidism.

b. Episodes of extreme exhaustion, or collapse.

c. Bad response to minor illness.

d. Multiple allergies.

e. Digestive problems – alternate diarrhoea and constipation

f. Flatulence

g. Weight loss

h. Increasing arthralgia (fibromyalgia) and morning stiffness.

i. Pallor, yellow pigmentation (due to poorly metabolized carotene)

j. Fainting, dizziness

These patients often present with dark rings under their eyes, looking quite ill. Blood pressure is low, with a positive Raglan's sign. (Pressure fails to rise on standing). These symptoms and signs, it will be appreciated, are those of the early phases of Addison's Disease.

A single estimation of blood Cortisol is usually unhelpful, but De-hydroepiandrosterone sulphate (DHEA), the main hormone output from the adrenals, will be found to be low. Depressed levels in the endocrine system as a whole are likely to be found. The low adrenal reserve means patients are more or less well, until challenged by the stress of illness or life events--even the thyroid replacement therapy itself initially. And this partial failure will affect adversely T4-T3 conversion and the integrity of the thyroid receptors.

It is essential to manage this insufficiency where present, or where suspected. Remarkably, patients with symptoms, signs and blood pathology of low thyroid, may improve completely on management and correction of the adrenal problems alone; as conversion and receptor efficiency improves, the thyroid hormone circulating - partly unused - is brought into play.

Adrenal insufficiency is dealt with by the provision of the two hormones most likely to be lacking; Cortisonehydrocortisone, and DHEA. (as pointed out above, low DHEA may be used to infer low cortisone output). The treatment therefore, is the exhibition of, ideally, Hydrocortisone. This should be given in divided doses initially of 5mg qds; after a week, 10 mg qds may be used. This remains a physiological dose, not challenging or suppressing the adrenal function, but supplementing it. In these doses all of the usual anxieties associated with cortisone do not apply, since restoration of normality is being aimed at.

This may need to be explained to patients long subject to media-induced fears of the horrors of corticosteroids (Their physicians may share these anxieties, unnecessarily). Dr McCormack Jeffries' papers on the subject are most worthy of study. DHEA has reached prominence in recent times as a hormone of multiple, and magic properties. Certain it is that the adrenals secrete more DHEA than anything else, and the amount is inversely proportional to age. It is metabolized to oestrogen and/or testosterone, but also has been shown to play a role in reducing obesity; in reducing atherosclerosis and cholesterol; it inhibits the glucose -6-dehydrogenase enzyme in cancer; it improves immune response, and, possibly, acts as a neural facilitator. In physiological doses, there seems to be no problem in its long-term use. If levels are demonstrably low, it is reasonable to provide replacement therapy.

Treatment Protocol

Before reading the following text, it can be helpful to know that natural thyroid extract, has the weight of the pill measured in "grains" on the bottle. Additionally, the conversion to "milligrams" (mg) appears alongside. For example: 2 GRAIN (120mg). Thyroxine, however, is measured in micrograms (mcg). For example: 50mcg.

1. General consideration. Correction of Nutritional deficiencies, and elimination of environmental challenges and toxins, has been noted above.

2. Simple, early hypothyroidism. Readily available tablets of Levothyroxine 50mcg may be used. Initial dose is low (in the elderly as low as 25mcg daily) and will usually start at 50mcg daily. This may be increased 25mcg daily every two or three weeks. The ceiling is reached at the judgement of the physician with feedback from the patient. It is unusual to go higher than 300mcg.

3. Moderate hypothyroidism. If the synthetic products are to be used, many patients will benefit if, when a dose of 100mcg or more levothyroxine is used, Tertroxin (T3) is added. 10mcg for each 100mcg of T4 is to be preferred. The dose may be increased incrementally at the physician's (and patient's) discretion.

If natural thyroid is to be used, a start may be made with 1/2 grain (30 mg). (Commensurate with its 100 years of use by the medical profession, natural thyroid is still measured in grains). Dosage is increased by 1/2 gr. every two weeks; usually by six weeks the dose will level off. Improvement on any given dose continues for weeks and weeks, and the temptation, scenting victory, to increase the dose too soon, should be resisted. The definitive dose may remain unchanged for months or years, but the patients should be allowed to make small adjustments themselves, depending on activity, ambient temperature, for example.

4. Severe hypothyroidism. As indicated above, simple replacement is unlikely to be sufficient. Receptor block and adrenal insufficiency require adrenal support; preferably initiated a week before thyroid supplementation is started. A satisfactory protocol is to start with 5mg hydrocortisone qds, and after a week, double the dose. Alternatively Prednisolone 2.5 mg (or the enteric-coated Deltacortril) may be used, doubling after a week. Clinical judgment, based on the patient's condition being normal - perhaps after about three months - will enable the dose then to be halved, and then discontinued. It will be a matter of clinical judgment and preference to use T4 and T3, or natural thyroid.

Some patients already on levothyroxine (T4), but far from well, have to be considered separately. If the condition is really quite severe, and increasing thyroxine makes matters worse, it should be stopped for a short while and cortisone prescribed. The sudden improvement in thyroid uptake brought about by the cortisone may actually result in overdose symptoms if exogenous thyroid is continued. The treatment of choice is to restart thyroid hormone, using instead T3, after a 7 day interim period; 10 mcg for a few days, then 20 mcg and so on. After the improvement is seen to be full, and sustained, natural thyroid can be reintroduced. The general improvement may, secondarily, improve endogenous thyroid production, which can result in the overall exogenous dose being reduced.

As regards DHEA, its significance in the management of adrenal insufficiency is unsure, but where low levels have been found, it seems proper and logical to restore them to normality. In women 25mg daily, and men 50mg daily sometimes produces significant benefit. In this practice, its use has always been an advantage.

The management of hypothyroidism in children requires fine clinical judgement; but one quarter to one half of the adult dose seems to be a satisfactory starting point. Reliance on blood testing should be modified by clinical appraisal of the child and his parents' observations. The diagnosis is often missed in children; and should be considered in any child often ill. The basal temperature test may prove a helpful pointer.

Thyroid insufficiency may have a number of different causes and its symptoms may masquerade as a number of different illnesses. It should always be considered in patients with prolonged ill health, and the diagnosis rely on history and examination. The reliance of the profession on the pathological tests in favor of thoughtful appraisal is to be deplored. The treatment is inexpensive and low tech, requiring a few simple guidelines and a listening approach by the physician. Rarely is consultant advice necessary; the family physician is well able to initiate and monitor the treatment even in quite severe cases. The rewards are invariable; with no fuss, and with delight, the patients always get better. This common condition is one of few where simple measures can transform patients' lives.

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WHY THYROID HORMONE REPLACEMENT MAY NOT BE WORKING FOR YOU

There are MANY reasons and many medical conditions associated with thyroid disease that stop thyroid hormone from getting into the cells, where it does its work. I mention these over and over and over again - ad nauseum - people must be bored with the same old story. but as each new member joins us, they need to know.

The main condition responsible for stopping thyroid hormone from working is, quite simply, a patient's thyroxine dose is too low because the doctor or consultant refuses to increase it, because the serum thyroid function test results appear OK. Sometimes, the thyroxine dose is too high, yet patients still don't feel well. They continue to suffer. Some reasons for this:

They may be suffering with low adrenal reserve. The production of T4, its conversion to T3 and the receptor uptake requires a normal amount of adrenal hormones, notably, of course, cortisone. (Excess cortisone can shut production down, however.) This is what happens if the adrenals are not responding properly, and provision of cortisone usually switches it on again. But sometimes it doesn't. If the illness has been going on for a long time, the enzyme seems to fail. This conversion failure (inexplicably denied by many endocrinologists) means the thyroxine builds up, unconverted. So it doesn't work, and T4 toxicosis results. This makes the patient feel quite unwell, toxic, often with palpitations and chest pain. If provision of adrenal support doesn't remedy the situation, the final solution is the use of the active thyroid hormone, already converted, T3 - either synthetic or natural.

Then, we have systemic candidiasis. This is where candida albicans, a yeast, which causes skin infections almost anywhere in the body, invades the lining of the lower part of the small intestine and the large intestine. Here, the candida sets up residence in the warmth and the dark, and demands to be fed. Loving sugars and starches, candida can make you suffer terrible sweet cravings. Candida can produce toxins which can cause very many symptoms of exhaustion, headache, general illness, and which interfere with the uptake of thyroid and adrenal treatment. Sometimes the levels - which we usually test for - can be very high, and make successful treatment difficult to achieve until adequately treated.

Then there is receptor resistance which could be a culprit. Being hypothyroid for some considerable time may mean the biochemical mechanisms which permit the binding of T3 to the receptors, is downgraded - so the T3 won't go in. With slow build up of T3, with full adrenal support and adequate vitamins and minerals, the receptors do come on line again. But this can be quite a slow process, and care has to be taken to build the dose up gradually.

And then there are Food allergies. The most common food allergy is allergy to gluten, the protein fraction of wheat. The antibody generated by the body, by a process of molecular mimicry, cross reacts with the thyroperoxidase enzyme, (which makes thyroxine) and shuts it down. So allergy to bread can make you hypothyroid. There may be other food allergies with this kind of effect, but information on these is scanty. Certainly allergic response to certain foods can affect adrenal function and imperil thyroid production and uptake.

Then we have hormone imbalances. The whole of the endocrine system is linked; each part of it needs the other parts to be operating normally to work properly. An example of this we have seen already, with cortisone. But another example is the operation of sex hormones. The imbalance that occurs at the menopause with progesterone running

down, and a relative dominance of oestrogen is a further case in point – oestrogen dominance downgrades production, transportation and uptake of thyroid hormones. This is why hypothyroidism may first appear at the menopause; the symptoms ascribed to this alone, which is then treated – often with extra oestrogen, making the whole thing worse. Deficiency in progesterone most especially needs to be dealt with, since it reverses oestrogen dominance, improves many menopausal symptoms like sweats and mood swings, and reverses osteoporosis. Happily natural progesterone cream is easily obtained: when used it has the added benefit of helping to stabilise adrenal function.

Then, we must never forget the possibility of mercury poisoning (through amalgam fillings) - low levels of ferritin, vitamin B12, vitamin D3, magnesium, folate, copper and zinc - all of which, if low, stop the thyroid hormone from being utilised by the cells - these have to be treated.

As Dr Peatfield says "When you have been quite unwell for a long time, all these problems have to be dealt with; and since each may affect the other, it all has to be done rather carefully".

Contrary to cherished beliefs by much of the medical establishment, the correction of a thyroid deficiency state has a number of complexities and variables, which make the treatment usually quite specific for each person. The balancing of these variables is as much up to you as to me – which is why a check of morning, day and evening temperatures and pulse rates, together with symptoms, good and bad, can be so helpful.

Many of you have been ill for a long time, either because you have not been diagnosed, or the treatment leaves you still quite unwell. Those of you who have relatively mild hypothyroidism, and have been diagnosed relatively quickly, may well respond to synthetic thyroxine, the standard treatment. I am therefore unlikely to see you; since if the thyroxine proves satisfactory in use, it is merely a question of dosage.

For many of you, the outstanding problem is not that the diagnosis has not been made – although, extraordinarily, this is disgracefully common – but that it has, and the thyroxine treatment doesn't work. The dose has been altered up and down, and clinical improvement is variable and doesn't last, in spite of blood tests, which say you are perfectly all right (and therefore you are actually depressed and need this fine antidepressant). The above problems must be eliminated if thyroid hormone isn't working for you.

THYROID AND ADRENAL DYSFUNCTION; THE DIAGNOSIS AND TREATMENT OF AN ENDEMIC SYNDROME

Thyroid specialist Dr Barry Durrant-Peatfield explains why practitioners should check for thyroid and adrenal problems when presented with a familiar range of symptoms that often mask prolonged dysfunction in these two organs.

Introduction

The first quarrel many people may have – but most especially doctors – may well be in the title: the use of the word endemic. To read a number of learned articles would leave the impression that thyroid dysfunction was a matter of a few percent of the general population and adrenal dysfunction much less than this.

I have to say now, right at the outset, that this widely held view, held by orthodox medicine, is quite wrong, disgracefully so. It is, in the profession, politically correct to believe that thyroid dysfunction is not common at all and the symptoms are due to other things, notably depression. If you want to appear really learned, you will speak of maladaption to one's environment due to a personality dysfunction.

Adrenal dysfunction fares worse and is believed to be about as rare as hens' teeth. In any event, the argument goes, Addison's disease (total adrenal failure), by definition, hardly occurs.

I cannot emphasise strongly enough that both thyroid and adrenal dysfunction are so commonly met with as indeed to be endemic and disgraceful diagnostic failure is the rule. I speak after more than 25 years of practical study and treatment of both conditions and I have suffered at the hands of an ignorant establishment for daring to diagnose and treat these problems. If you gain from this article nothing else, you must take away this fact: thyroid dysfunction, and its partner in crime, adrenal dysfunction are all around us, every day, in our
clients/patients and even our colleagues. So common are they that whenever your opinion as a practitioner is asked on an apparently complex illness, you must ask yourself first: could there be an underlying thyroid and adrenal problem? (For the moment I shall not consider over-activity of either, but only sub-optimal activity.)

Down-regulation of the metabolism

Thyroid and adrenal dysfunction usually come together but in varying degrees of emphasis. They cause a down-regulation of all metabolic processes, hence these clients/patients are all hypometabolic. Metabolism, as I need not remind you, may be defined as the rate at which energy is produced and consumed by the tissues. Glucose, oxygen in; carbon dioxide, water, energy out. For everything to work properly this process has to be optimally regulated and it is the thyroid hormone that does this.

Thyroid hormones ensure that the cell membrane is actively and positively involved in the transport of the raw materials of energy production – not just oxygen and glucose but all the required enzymes and co-factors passing into the cell; and, equally, the passage out of the waste products once the energy has been released. The activity of the Krebs cycle within the mitochondrion is equally thyroid dependent.

It's helpful to think of the whole organism as an incredibly complex and intricate, electric machine that is built and wired up for 240 volts. If we try to run it at 190

volts it's not going to work properly. The lights flicker and grow dim. A down-regulated metabolism affects the organism in the same way. This means nothing works properly. Every tissue, every organ, every biological process, suffers. Some pieces of the equipment are affected more than others and differently, depending on the original design.

In humans probably the organ most sensitive to metabolic down-regulation is the brain. Not far behind are the highly metabolically active liver, then the kidneys, then digestive processes, then our temperature control and the intricate working of our immune system. You see, the point is you name it and it doesn't work properly. Our clients/patients may have lots of different things wrong with them, so many that even they think they are hypochondriacs, never mind the doctor who came to that conclusion some time before.

It is essential to understand that a down-regulated metabolism has a total effect on the body's functioning. You cannot, you must not, focus on one or two symptoms; they must all be considered as a whole. How difficult this is in today's environment. There's never enough time, it's all got to be written down, quick decision, then out the door. Another symptom? Ah!

Make another appointment and we will talk about it later. Here the advantage many of us have who practise away from the mainstream becomes apparent – we have time!

Hypothyroidism – recognising the symptoms

Let's take hypothyroidism first - probably the most common misdiagnosis of all common illnesses. A decent history soon gives us a few facts. Fatigue, weight gain, brain fog, depression, cold/heat intolerance, arthralgic aches and pains, fluid retention, bad skin, menstrual problems and infertility, hair loss, intractable constipation and lots of others. If you take these separately, how easy it is to narrow the focus and go for the wrong thing. Typically, a standard assessment might be:

- Fatigue: Well, go to bed early, don't work so hard, you are depressed, anaemic – some
- Prozac and iron pills and you'll be OK.
- Weight: you eat too much - try this diet.
- Brain fog: well, none of us are getting any younger, are we – too much stress.
- Depression. Ah! We can help you there, no trouble.
- Cold/heat intolerance: your age - wear warmer things.
- Arthralgia: bit of arthritis here I'm afraid - try these NSAIDs.
- Fluid retention - lovely pills here, make you pee, no trouble.
- Skin: bad diet, hormones.
- Bad periods: one of the crosses you women all have to bear.
- Hair loss: age, diet - better hairdresser.
- Constipation: got something for that or try the chemist.

All the time the underlying problem is being missed. A simple examination can pick out the thyroid deficiency in minutes. And we'll come to the tests later.

Possible causes

Now, as to why the thyroid goes wrong there are various possibilities. It may be due to control failure – dysfunction in the hypothalamus or pituitary. It may be failure of conversion of T4 into T3, due to enzyme failure and poor adrenal function. There may be failure or resistance to binding of T3 at the receptor sites,

damaging gene expression – the Gq/11 proteins may be activated to switch off this response. And, most of all, it may be primary failure in the gland itself. Primary failure in the gland may be:

1. Genetic, appearing at, or soon after, birth. A baby with thyroid failure is true cretinism.
2. It may be due to environmental deficiencies, like iodine, or the presence of toxins such as fluoride, PCBs, dioxins and endless others.
3. Trauma - general surgery, especially in women; for example, cholecystectomy, hysterectomy. Or damage to the gland from whiplash
4. Glandular fever
5. Autoimmune disease
6. Pregnancy and childbirth

A word about the over-active thyroid. Again, more common in women, but you don't see that many; probably two for every 100 under-active. Not a difficult diagnosis; the patient is hot, terribly nervy, has loose bowels, is losing weight and has a racing pulse. The only real differential diagnosis is an anxiety state.

Adrenal dysfunction and the General Adaptation Syndrome

Now for adrenal dysfunction. The glands can go wrong in two ways: too much or too little. Too much and we have Cushing's disease. Only three causes really; too much cortisone for the asthma, rheumatoid arthritis or whatever; an adenoma on the gland itself; or one on the pituitary. We are all familiar with the moon face, thin skin, obesity, buffalo hump, so it shouldn't be difficult. A lot of people are checked out for Cushing's just because they are a funny shape but, unless caused by over-medication, it isn't very common at all.

Adrenal hypo-function is a different kettle of fish entirely. The diagnosis is missed more decisively even than hypothyroidism because most clinicians only seem to think of it in terms of Addison's disease. In fact, the adrenals can malfunction in degrees. A failure in pituitary control may play a role, often as a spin-off from a generally low metabolic state; but usually the failure is the result of long-term stress. Hans Selye recognised three major stages in adrenal hypo-function, which he called the General Adaptation Syndrome (GAS).

Stage I is the stressed phase where, due to illness or other stress, the adrenals mobilise cortisol and DHEA (dehydroepiadrenosterone) to help the body deal with the problem. This is an acute phase; the stress settles and the adrenals settle down.

Stage II, resistance, is where it all goes on and on and the adrenals enlarge and increase their hormone output on a longer-term basis. This can go on for weeks, months, or even years but eventually they can't take it any more and start to regress into exhaustion.

Stage III. The degree of exhaustion is reflected in their output and balance of their two chief hormones, cortisol and DHEA, which is where the Adrenal Stress Index (ASI) comes in.

The last phase of the GAS is what we will often see if we are looking for it. Of course, are major life-events, trauma, operations and the general and prolonged ghastliness of existence. But, for our purposes, the big cause is persistent and chronic illness. In the attempt to help the body deal with, and compensate for the illness, adrenal exhaustion starts to take over. An example of a persistent and chronic illness untreated, or mistreated, is hypothyroidism.

So now you see why thyroid and adrenal hypo-function have to be considered together. Here's a precept for you. Anyone with undiagnosed or unsatisfactorily treated hypothyroidism will sooner or later inevitably slip into adrenal exhaustion. May take months or years, but it will happen. Symptoms of adrenal exhaustion exaggerate pre-existing thyroid symptoms. There will be ongoing and endless fatigue, even less tolerance to cold, depression, dizziness (postural hypotension), body hair loss, pigmentation (especially in skin folds), poor response to treatments generally and an obviously weak immune system. Most particularly, if there is an adrenal malfunction – I still prefer to call this low adrenal reserve – the patient responds poorly to thyroid hormone, or rapidly gets ill and toxic on even quite small doses of thyroxine.

Chronic fatigue and attendant problems

And now I want to broaden my sweep even further because we have to consider chronic fatigue. Something else to remember: all clients/patients suffering from ME and fibromyalgia have a number of features in common. Most importantly, they are metabolically down-regulated. Whatever else is wrong, their thyroid and adrenal function is damaged. It's not as simple as that, of course, because the illness brings in its train other problems too.

There is likely to be viral load. This may follow from the original event that started it all off, a nasty flu or glandular fever. If there has been a deficiency in EFAs at any time, there may have been a lower than normal eicosapentaenoic acid (EPA) level since some of these big, nasty viruses can damage the 6-delta-desaturase enzyme that makes EPA (which is viricidal and makes interferon) from linolenic acid.

There may be systemic candida. Because it's systemic and lurking in the gut, it may not have been thought of but will be producing toxins and allowing all the problems of dysbiosis and a leaky gut. This must be looked for and treated.

There may be sex hormone imbalance, especially around the menopause; oestrogen dominance, which interferes with thyroid hormone, transport, production and receptor uptake. Intervention may be considered here if there is marked deficiency or imbalance. Food allergies can be an associated problem, especially if dysbiosis has been marked. There is often deficiency of essential minerals and vitamins which have to be sought for, especially if malabsorption is a feature, as is likely. Prof Basant Puri's work at Imperial College, London,
has focused on EPA and virgin EPO as a method of clearing the viral load, which has had some success; and Dr Sarah Myhill, a private GP in north Wales, uses D-ribose, L-carnitine, magnesium, co-enzyme Q10 and high dosage B12 as another approach.

Treatment strategies for thyroid and adrenal dysfunction

I am going to pull together later the diagnostic approach to the detection of thyroid and adrenal dysfunction but before I do, it's time to consider our treatment strategies.

Thyroid

There are three levels of approach. The first is nutritional. To manufacture thyroid hormone there needs to be tyrosine, selenium and iodine, together with vitamin and mineral cofactors. We are most especially thinking of the B complex – B6 is crucially important – and magnesium, zinc, manganese and chromium. A number of companies make excellent thyroid support products – an example is Thyrocomplex from Nutri Ltd.

The next level is the use of natural glandular concentrates. In this country they

are successfully produced as nutritional supplements. Nutri make Nutri Thyroid, which contains 130 mg of glandular concentrate and enzymes and enough thyroid hormones to improve thyroid levels greatly. A dose of one to four tablets daily is recommended.

The third level is thyroid hormone replacement. Many of you are aware of the prescription only medicine, natural desiccated thyroid; Armour is the most well-known. This is available on-line in 30 mg, 60 mg, 120 mg and 240 mg tablets and may be used with confidence where the glandular concentrate has not provided would be either 30 or 60 mg.

Then there is the use of synthetic thyroxine or levothyroxine. Because the generics appear to vary in potency (an accusation thrown quite unfairly and wrongly at Armour thyroid), clients/patients may not do awfully well on them, first because the dose is managed purely on the outcome of blood tests - instead of asking the patient and actually listening to them as an alternative to blood tests, which is actually not just frowned upon, it is now a hanging offence.
(Thus far has evidence-based medicine brought us!) And, secondly, there is often an adrenal problem which, if not dealt with, will cause T4 toxicosis and/or an adrenal crisis.

Adrenal

Adrenal dysfunction may be detected clinically without difficulty – the Raglan test, Romberg test and pupillary reflex are most helpful and the Adrenal Stress Index will confirm the diagnosis. Treatment of low adrenal reserve has, like the thyroid, three levels and, if hypothyroidism is present, must be put in place before thyroid supplementation is begun. Nutritionally, the adrenals need vitamin C, 4 grams or more daily; they need pantothenic acid (B5) and benefit from using liquorice (wood or tincture), Siberian ginseng and coenzyme Q10.

Extremely valuable is the adrenal glandular concentrate; that made by Nutri Ltd is widely available (I recommend them because I have found their products to be very efficacious). One product contains 80 mg of the concentrate alone and another, 221 mg, together with a number of vitamins and minerals.

If this proves unsatisfactory, which is uncommon and usually because the adrenals have been really badly damaged over a period of time, the use of the adrenal hormone, cortisol (hydrocortisone), 2.5 mg up to 25 mg, may be considered by the practitioner, together with DHEA 25 mg or 7-keto DHEA 50 mg.

These measures will remedy the underlying damage, but intervention may be necessary to balance low progesterone or high oestrogen – the use of natural transdermal creams is the best method.

Systemic candida must be treated where present, using a fungicide (fluconazole can be helpful), together with grapefruit seed extract, caprylic acid, horopito, etc, along with an effective pre- and probiotic.

Food allergies have to be dealt with on their merits, usually by simple avoidance, while malabsorption may require the use of Betaine HCl and/or pancreatic enzymes. Nutri Ltd make a combination called Nutrigest.

A viral load may respond to VegEPA, the EPA – EPO formulation I mentioned earlier. Treatment of thyroid and adrenal insufficiency along these lines can be extremely rewarding and successful and a similarly broad approach in dealing with CFS has been proving very helpful also.

Pathological aids to diagnosis

Now we have a working knowledge of diagnosis and treatment, it is right to discuss the use of available pathological aids to diagnosis. Long recognised by many practitioners as an invaluable indication of thyroid deficiency is the waking temperature, as described by the American pioneer in this field, Dr Broda Barnes (author of "The Unsuspected Illness" and founder of the Barnes Foundation in Trumble, Conn).

Thyroid first of all. Standard NHS testing tends to be restricted to TSH (thyroid-stimulating hormone) usually, with Free T4 thrown in if you're lucky. The full range, which includes T4, T3, TSH and TPO and TgAb antibodies will not usually be done, even under extreme demand, and so clients/patients will often seek the help of private laboratories.

The full thyroid screen, if possible, should always be done, but you must remember that the TSH is often unreliable if the pituitary is suffering from a hypo-metabolic state and there are other reasons that can affect its reliability. If it's high, well and good; if it's at normal levels, it proves nothing. T4, if low, again good, if it's normal, it may mean that it is not being properly used, is building up and causing a false result. The same argument applies to the T3, but the
antibody test may be relied upon.

Thyroid tests should always be considered against the clinical findings and, remember, clinical observation is very much more reliable than tests. As you may have observed, I have a deep-rooted cynicism about the politically correct obsession with evidence-based medicine. Surely it should be observation first, tests second?
Where doubt continues to exist, this may be resolved by the 24-hour urine test. As far as I know only Individual Wellbeing and Diagnostic Lab, New Malden, Surrey, do this test in the UK; European Laboratories of Nutrition do it in The Netherlands. It relies on the findings of Hertoghe & Baisier, who showed the greatly increased reliability of the 24-hour urine test which, after all, measures the thyroid production over a whole day, as opposed to the blood test, which is a snapshot of a single moment showing levels that can vary widely with time of day and other variables. The test demonstrates the amount of T4 and T3 passed through the tissues. It is much more useful than other tests and will show even minor degrees of low thyroid function. In an ideal world both the full-serum, thyroid screen and the 24-hour urine should be done, but there are logistic and financial difficulties that have to restrain one's enthusiasm. While interpretation of the 24-hour urine is perfectly straightforward, the blood thyroid screen has to be carefully assessed.

Beware the pitfalls

The first stumbling block is the TSH; a rise of TSH indicates poor thyroid response but the level considered to be indicative of this can be a matter of different interpretation by laboratories and doctors. The recent guidelines issued by the British Thyroid Association suggesting that treatment should not be offered below 10 units is quite unbelievable. The American Association of Clinical Endocrinologists has recently considered a level of 3.2 to be the cut-off point and in my view anything over this, combined of course with a clinical appraisal pointing to the diagnosis, should demand intervention. Labs seem to vary between about four and six; but I say again, anything over two should arouse suspicion and anything over 2.5 should result in a trial of treatment at the very least.

The trouble with the TSH is that it may not be a proper response to thyroid uptake since there are four types of thyroid receptor and a metabolically challenged pituitary cannot respond properly anyway. So a high level is valuable, a low level may mean nothing.

Measurement of T4 and T3 has always been very much subject to error. The is that it is only, as I said earlier, a snapshot of a level that may vary a lot during the day, but it goes deeper than that. Failure of uptake by exhausted and missing receptors will allow

levels to be normal or even high in the bloodstream, simply conversion deficits can further distort the picture. The presence of thyroid antibodies (TPO and TgAb) should not usually cause much difficulty: either they are well raised or they are not, allowing an immediate diagnosis of Hashimoto's or Graves' disease to be made. It should be borne in mind that the levels fall away with the passage of time.

Reverse T3 is sometimes of help; high levels may indicate poor T3 receptor system trying to rid itself of surplus T3. General illness, malnutrition and trauma will also raise the T3.

Tests for adrenal function

We come now to the tests for adrenal function. Once again, one simply must place the clinical picture to the fore. A serum cortisol is greatly relied on by orthodox medicine. It is almost useless. Similarly, the Synacthen (long or short), in which ACTH is injected to test adrenal function seems to be of significance only where the adrenal insufficiency is plainly Addisonian.

More helpful by far is the salivary Adrenal Stress Index, which measures cortisol and DHEA output in 24 hours. Here the true picture of adrenal stress may be recognised and the three stages of the General Adaptation Syndrome clearly shown.

High levels of cortisol and DHEA show adrenals under stress. Sometimes the cortisol pathway starts to fade as exhaustion sets in, with DHEA still reasonably present. Less commonly, there may be a really high DHEA – a response to ACTH stimulation – but with the cortisol pathways responding poorly. Erratic levels in both are evidence of strain and uneven response.

The 21-hydroxylase and 17-hydroxylase enzyme deficiencies may be apparent here; really weak cortisol with high androgenic output enough to cause virilisation. Where cortisol levels are obviously weak and DHEA response is weak insufficiency (low adrenal reserve) slowly heading toward Addison's disease may be made.

Sex hormones

We have to consider the sex hormones in more depth. Many of us are aware that in women hypothyroidism may start with, and parallel, the menopause. One scenario is the progressive loss of progesterone often some years before the menopause itself. Apart from the obvious increased risk of osteoporosis, the imbalance will lead to oestrogen dominance – with weight gain, bloating, mastalgia and heavy, painful periods. This will increase thyroid-binding globulin, thus taking some thyroid out of use' it will adversely affect thyroid manufacture and receptor uptake. All the symptoms are put down to the menopause, of course, when actually the increasing deficiency of thyroid is the main problem.

Later, both hormones run down and under the principle of permissive action, where hormone production requires the other players in the endocrine orchestra to play their parts well and in tune, thyroid production and processing may be affected adversely. So being able to detect oestrogen dominance is pretty helpful – one can correct the balance with natural, transdermal progesterone. If levels of both are low, careful use of natural progesterone and oestrogen can
be very valuable.

So, we should consider most carefully the menopause profile, or at the very least, a spot check of a day's output of progesterone and oestrogen. In menstruating women, thought

may be given to assessment of both throughout a month. In general, however, getting the thyroid and adrenal status right will often provide welcome correction in much of the menstrual difficulties and it may perhaps be considered at a later date.

The lads must not be left out of the equation. The male menopause most certainly happens – we can call it the andropause – but is usually an altogether more gradual and insidious affair. Ideally, assessment of testosterone levels should be carried out if the slightest doubt exists.

Conclusion

To sum it all up, I am here making a plea for the recognition of the very common syndrome of thyroid and adrenal deficiency, using observation and medicine practised as an art, as the primary diagnostic method, with the lab playing a secondary role. Further, be aware that the syndrome has global effects, with imbalance of other hormones, the likely presence of systemic candida and dysbiosis, malabsorption and food allergy all playing a probable role.

FLUORIDE: The Effects of Fluoride on the Thyroid Gland

By Dr Barry Durrant-Peatfield MBBS LRCP MRCS

There is a daunting amount of research studies showing that the widely acclaimed benefits of fluoride dental health are more imagined than real. My main concern however, is the effect of sustained fluoride intake on general health. Again, there is a huge body of research literature on this subject, freely available and in the public domain.

But this body of work was not considered by the York Review when their remit was changed from "Studies of the effects of fluoride on health" to "Studies on the effects of fluoridated water on health." It is clearly evident that it was not considered by the BMA (British Medical Association), British Dental Association (BDA), BFS (British Fluoridation Society) and FPHM, (Faculty for Public Health and Medicine) since they all insist, as in the briefing paper to Members of Parliament - that fluoridation is safe and non-injurious to health.

This is a public disgrace; I will now show by reviewing the damaging effects of fluoridation, with special reference to thyroid illness.

It has been known since the latter part of the 19th century that certain communities, notably in Argentina, India and Turkey were chronically ill, with premature aging, arthritis, mental retardation, and infertility; and high levels of natural fluorides in the water were responsible. Not only was it clear that the fluoride was having a general effect on the health of the community, but in the early 1920s Goldemberg, working in Argentina showed that fluoride was displacing iodine; thus compounding the damage and rendering the community also hypothyroid from iodine deficiency.

Highly damaging to the thyroid gland

This was the basis of the research in the 1930s of May, Litzka, Gorlitzer, von Mundy, who used fluoride preparations to treat over-active thyroid illness. Their patients either drank fluoridated water, swallowed fluoride pills or were bathed in fluoridated bath water; and their thyroid function was as a result, greatly depressed. The use in 1937 of fluorotyrosine for this purpose showed how effective this treatment was; but the effectiveness was difficult to predict and many patients suffered total thyroid loss. So it was given a new role and received a new name, Pardinon. It was marketed not for over-active thyroid disease but as a pesticide. (Note the manufacturer of fluorotyrosine was IG Farben who also made sarin, a gas used in World War II).

This bit of history illustrates the fact that fluorides are dangerous in general and in particular highly damaging to the thyroid gland, a matter to which I shall return shortly. While it is unlikely that it will be disputed that fluorides are toxic - let us be reminded that they are Schedule 2 Poisons under the Poisons Act 1972, the matter in dispute is the level of toxicity attributable to given amounts; in today's context the degree of damage caused by given concentrations in the water supply. While admitting its toxicity, proponents rely on the fact that it is diluted and therefore, it is claimed, unlikely to have deleterious effects.

They could not be more mistaken

It seems to me that we must be aware of how fluoride does its damage. It is an enzyme poison. Enzymes are complex protein compounds that vastly speed up biological chemical reactions while themselves remaining unchanged. As we speak, there occurs in all of us a vast multitude of these reactions to maintain life and produce the energy to

sustain it. The chains of amino acids that make up these complex proteins are linked by simple compounds called amides; and it is with these that fluorine molecules react, splitting and distorting them, thus damaging the enzymes and their activity. Let it be said at once, this effect can occur at extraordinarily low concentrations; even lower than the one part per million which is the dilution proposed for fluoridation in our water supply.

The body can only eliminate half

Moreover, fluorides are cumulative and build up steadily with ingestion of fluoride from all sources, which include not just water but the air we breathe and the food we eat. The use of fluoride toothpaste in dental hygiene and the coating of teeth are further sources of substantial levels of fluoride intake. The body can only eliminate half of the total intake, which means that the older you are the more fluoride will have accumulated in your body. Inevitably this means the ageing population is particularly targeted. And even worse for the very young there is a major element of risk in baby formula made with fluoridated water. The extreme sensitivity of the very young to fluoride toxicity makes this unacceptable. Since there are so many sources of fluoride in our everyday living, it will prove impossible to maintain an average level of 1ppm as is suggested.

What is the result of these toxic effects?

First the immune system. The distortion of protein structure causes the immune proteins to fail to recognise body proteins, and so instigate an attack on them, which is Autoimmune Disease. Autoimmune diseases constitute a body of disease processes troubling many thousands of people: Rheumatoid Arthritis, Systemic Lupus Erythematosis, Asthma and Systemic Sclerosis are examples; but in my particular context, thyroid antibodies will be produced which will cause Thyroiditis resulting in the common hypothyroid disease, Hashimoto's Disease and the hyperthyroidism of Graves ' disease.

Musculoskeletal damage results further from the enzyme toxic effect; the collagen tissue, of which muscles, tendons, ligaments and bones are made, is damaged. Rheumatoid illness, osteoporosis and deformation of bones inevitably follow. This toxic effect extends to the ameloblasts making tooth enamel, which is consequently weakened and then made brittle; and its visible appearance is, of course, dental fluorosis.

The enzyme poison effect extends to our genes; DNA cannot repair itself, and chromosomes are damaged. Work at the University of Missouri showed genital damage, targeting ovaries and testes. Also affected is inter-uterine growth and development of the foetus, especially the nervous system. Increased incidence of Down's Syndrome has been documented.

Fluorides are mutagenic. That is, they can cause the uncontrolled proliferation of cells we call cancer. This applies to cancer anywhere in the body; but bones are particularly picked out. The incidence of osteosarcoma in a study reporting in 1991 showed an unbelievable 50% increase. A report in 1955 in the New England Journal of Medicine showed a 400% increase in cancer of the thyroid in San Francisco during the period their water was fluoridated.

My particular concern is the effect of fluorides on the thyroid gland

Perhaps I may remind you about thyroid disease. The thyroid gland produces hormones which control our metabolism - the rate at which we burn our fuel. Deficiency is relatively common, much more than is generally accepted by many medical authorities: a figure of 1:4 or 1:3 by mid life is more likely. The illness is insidious in its onset and

progression. People become tired, cold, overweight, depressed, constipated; they suffer arthritis, hair loss, infertility, atherosclerosis and chronic illness. Sadly, it is poorly diagnosed and poorly managed by very many doctors in this country. What concerns me so deeply is that in concentrations as low as 1ppm, fluorides damage the thyroid system on four levels.

1. The enzyme manufacture of thyroid hormones within the thyroid gland itself. The process by which iodine is attached to the amino acid tyrosine and converted to the two significant thyroid hormones, thyroxine (T4) and liothyronine (T3), is slowed.

2. The stimulation of certain G proteins from the toxic effect of fluoride (whose function is to govern uptake of substances into each of the cells of the body), has the effect of switching off the uptake into the cell of the active thyroid hormone.

3. The thyroid control mechanism is compromised. The thyroid stimulating hormone output from the pituitary gland is inhibited by fluoride, thus reducing thyroid output of thyroid hormones.

4. Fluoride competes for the receptor sites on the thyroid gland which respond to the thyroid stimulating hormone; so that less of this hormone reaches the thyroid gland and so less thyroid hormone is manufactured.

These damaging effects, all of which occur with small concentrations of fluoride, have obvious and easily identifiable effects on thyroid status. The running down of thyroid hormone means a slow slide into hypothyroidism. Already the incidence of hypothyroidism is increasing as a result of other environmental toxins and pollutions together with widespread nutritional deficiencies.

141 million Europeans are at risk

One further factor should give us deep anxiety. Professor Hume of Dundee, in his paper given earlier this year to the Novartis Foundation, pointed out that iodine deficiency is growing worldwide. There are 141 million Europeans at risk; only 5 European countries are iodine sufficient. The UK now falls into the marginal and focal category. Professor Hume recently produced figures to show that 40% of pregnant women in the Tayside region of Scotland were deficient by at least half of the iodine required for a normal pregnancy. A relatively high level of missing, decayed, filled teeth was noted in this non-fluoridated area, suggesting that the iodine deficiency was causing early hypothyroidism which interferes with the health of teeth. Dare one speculate on the result of now fluoridating the water?

Displaces iodine in the body

These figures would be worrying enough, since they mean that iodine deficiency, which results in hypothyroidism (thyroid hormone cannot be manufactured without iodine) is likely to affect huge numbers of people. What makes it infinitely worse, is that fluorine, being a halogen (chemically related to iodine), but very much more active, displaces iodine. So that the uptake of iodine is compromised by the ejection, as it were, of the iodine by fluorine. To condemn the entire population, already having marginal levels of iodine, to inevitable progressive failure of their thyroid system by fluoridating the water, borders on criminal lunacy. I would like to place a scenario in front of those colleagues who favour fluoridation. A new pill is marketed. Some trials not altogether satisfactory, nevertheless, show a striking improvement in dental caries. Unfortunately, it has been found to be thyrotoxic, mutagenic, immunosuppressive, cause arthritis and infertility in comparatively small doses over a relatively short period of time.

Do you think it should be marketed? Fluoridation of the nation's water supply will do little for our dental health; but will have catastrophic effects on our general health. We cannot, must not, dare not, subject our nation to this appalling risk.

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Med Wochenschr 63:1037-1040 (1937) (discusses the basis of the use of fluorides in anti-thyroid medication, documents activity on liver, inhibition of glycolysis, etc.).

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Sarin: (GB: isopropyl methylphosono-fluoridate) is a colorless, odorless volatile liquid, soluble in water, first synthesized at IG Farben in 1938. It kills mainly through inhalation.

Cyclosarin (GF) and Thiosarin are variants. Pennsylvania Department of Health

Sarin: (GB: CH3-P(=O)(-F)(-OCH(CH3)2)
Source: A FOA Briefing Book on Chemical Weapons
Gerhard Schrader, a chemist at IG Farben, was given the task of developing a pesticide. Two years later a phosphorus compound with extremely high toxicity was produced for the first time.

IG Farben: "...the board of American IG Farben had three directors from the Federal Reserve Bank of New York, the most influential of the various Federal Reserve Banks. American IG Farben. also had interlocks with Standard Oil of New Jersey, Ford Motor Company, Bank of Manhattan (later to become the Chase Manhattan Bank), and AEG. (German General Electric) Source: Moody's Manual of Investments; 1930, page 2149."

Other fluoride information:

EU ruling which affects flouridation in the UK

In view of the current UK Government push to supply more of the UK with fluoridated water a few of the papers and reports on the adverse effects of fluoride on the thyroid are listed below. These listed are not in any particular order.

International Fluoride Information Network reported in August 2003 that following the news that Basel, Switzerland had halted water fluoridation after 41 years the Korean Medical Association and Pharmaceutical Association have withdrawn their support for fluoridation and four city councils have stopped fluoridation.

The report notes that the English speaking countries are getting more and more isolated in their pursuit of this obsolete form of medicine. Areas in the U.K rejecting fluoridation at this date include Liverpool, Bradford, Lancaster, Brighton and Calderdale.

A Guardian report by Bob Wolfenden on 25.6.03

That after Finland, Cuba, Canada and East Germany all abandoned water fluoridation Basel in Switzerland had recently given it up as it was not found to prevent tooth decay. This article notes in a revue of fluoridation and tooth decay that "we could discover no reliable good quality evidence in the fluoridation literature world wide" fluoridation helps

reduce decay. On adverse effects the article notes the accumulation of fluoride in the pineal gland the EFFECTS ON THE THYROID by displacement of iodine and the growth of this problem in the USA which is heavily fluoridated. The University of Illinois in connection with bone cancer state that this would pose a significant risk if imposed on the UK population.

SCOTTISH WATER IN THE HOUSE

There was a report on 2.7.1997 in The Daily Telegraph, one of several reports over many years that the restaurants at Westminster have been buying bottles of spring water for M.P.'s since before November, 1987. Other reports show that both the organic food bought for the restaurants and the bottled spring water is taxpayer subsidised, one report giving over £11,000 as the cost of bottled water.

ENVIRONMENTAL FLUORIDE by Dyson Rose and J.A. Marrier for the National Research Council of Canada 1977

This gives details of a report in 1972, in areas where goitre was already endemic, an increase due to hydrofluorosis and quotes from a Medical Research Council (U.K.) report that in "in some areas, even moderate concentrations of fluoride in drinking waters could block iodine absorption. It is known iodine concentrations are lower in soft waters than in hard waters. If fluoride is added to soft waters a proportion of the population may come to have subnormal iodine intake. The effects might be subtle and slow to develop, and would certainly not be picked up by the crude screening used at present. This paper refers to other studies which show in animals fluoride is connected to hypothyroid function.

FUNDAMENTALS OF CLINICAL ENDOCRINOLOGY by Hall, et al, Pitman Press 1974

Classification of causes of hypothyroidism notes radiation and some evidence that fluoride in areas of iodine deficiency might act as a goitrogen.

FLUORIDATION - THE GREAT DILEMMA by G.L.Walbott MD 1978

This book gives several references to fluoride and hypothyroidism including court cases in the US following exposure to industrial fluorides from aluminium smelters and also the effects from drinking water in many areas around the world. (Note high levels of industrial fluorides have been found by others e.g. Dr. K. Melanby in his book ‘Pesticides and Health’ where he notes levels of fluoride in fields down wind of brick works at 2000 parts per million. The nuclear industry also utilises large amounts of fluorides).

THE BRITISH NATIONAL FORMULARY (BNF) by the BMA and Royal Pharmaceutical Soc. of Great Britain.

The book doctors in the UK prescribe from says of fluoride that where it is used as a gel on teeth "Extreme caution is necessary to prevent a child swallowing any excess" (There has been compensation paid for just such a death in the USA).

This same book says of the drug Amiodarone Hydrochloride for heart arrhymias that side-effects can be hyperthyroidism and hypothyroidism.

Note: There are many prescribed drugs having this effects e.g. the phenothiazines. I have one report in 2000 of fluoxetine the SSRI drug containing fluoride causing hypothyroidism due to its inhibition of P450 leading to thyroid hormone reduction.

PARENTS OF FLUORIDE POISONED CHILDREN OCTOBER 2000

Schuld, the director of this organisation in the USA, explained how hyperthyroidism, caused by added iodine to the public water supply in the early 1920's, led to the use of fluoride as an antithyroid medication.

The international bible of pharmacology **THE MARTINDALE** (cost about £200) gives some references to effects of fluoride on thyroid.

WOMAN TO SUE OVER FLUORIDE. A report from the Birmingham Evening Mail on a woman suing for severe thyroid problems caused by the fluoride added to tap water in Birmingham. (I have not seen the result of this case but I know of one in the UK where out-of-court compensation was paid for possible ill health by fluoridated water)

DISEASES OF THE THYROID by D.C.Evered Bsc. MD, MRCP 1976 cites fluoride as interfering with thyroid function

CANDIDA ALBICANS

By Dr. Barry Durrant-Peatfield

Are you sick and doctors can't find anything wrong with you? Is everyone saying "it's all in your head"? *Candida albicans* may be your problem.

It's really only over recent decades that the full significance of *Candida albicans,* the worst of the varieties, and probably the commonest, has been appreciated. It used to be thought that it was limited to small children whose bottles weren't properly sterilised, to women, or was merely a cause of rashes and nail infections.

But *C*andida is an endemic, silent destroyer, because wherever the immune system is compromised, *Candida* will rear its ugly head. *Candida* is a fungus, which has a relatively innocuous resting state, and a really nasty active state, where it bores its way into and through tissues in order to reproduce its evil self. When it does this, you get all the usual expected symptoms; but if it has taken over the intestines, or indeed other tissues, it can cause all sorts of on-going problems. Boring its way through the lining of the small intestine, it opens channels, causing only partly digested foodstuffs to enter the circulation, which in their partly digested state, stimulate allergic response of the immune system. This is horribly inconvenient, since as time goes on, you become allergic to all sorts of different foods which previously had no effect. Moreover, *Candida* has another sinister role to play. It is normally kept in check by beneficial bacteria in the small intestine; the good guys. These include *Lactose bacillus* , *bacteroides,* and *bifido* bacteria, which, in addition to keeping our insides healthy, have a part to play in the integrity of our immune systems. The presence of C*andida,* and the toxins it produces, has the effect of edging out these good guys, and replacing them with the mob. These include klebsiella, pseudomonas, and clostridia; when this happens, it is called dysbiosis.

Dysbiosis is bad news since it inevitably means that intestinal health is damaged and the overall immune system compromised. In addition, this situation promotes "leaky gut". The leaky gut syndrome means (1) antigens passing into the blood stream (2) pathogens also entering the blood stream, (3) toxins similarly and (4) undigested food in the blood.

We are likely, as a result, to suffer from inflammatory autoimmune and allergic diseases. Probably the most common presentation of this is the irritable bowel syndrome (IBS) in its various guises and it is possible that Crohn's Disease may have its original cause in this process. The entrance of toxins means an over-load situation on a liver already in trouble from low metabolism.

Candida has a lot to answer for and we should do all we can to eliminate it as far as possible; however good the treatment of the thyroid and adrenal problems, C*andida* will prevent proper response and recovery.

Its treatment falls into four sections. First, you try to starve it out. *Candida* thrives on sugar - so much so it can actually make you crave sugar and starch. It's impossible to eliminate carbohydrates completely, but you can cut out all refined sugars and starches, and have high fibre fruit and vegetables - the complex carbohydrates. Second, we must try to kill the *Candida* with fungicide. Nystatin has long been popular; another is Sporonox. I recommend, partly for the sake of simplicity, Fluconazole (without prescription), 1 x 150mg weekly for 2 or 3 weeks, which can be very effective. More so if combined with caprylic acid or grapefruit seed extract, garlic, or horopito. Essential is the provision of the beneficial bacteria to replace the mob; these are the pre-and pro-biotics which contain millions of the beneficial bacteria and the food to feed them.

You have to go on with the treatment for weeks, or even months; the good news is that as your metabolism comes back to normal, it will control re-infection, an ever-present risk (worsened by antibiotics, the pill, and phyto-oestrogens). You may have several days of feeling really awful when there is a massive C*andida* die-off. Don't worry; it will pass and proves that the need was great.

To test for *Candida,* there is the old fashioned test - often used by nutritionists where you have a good spit into a glass of water on waking. If your spit starts to form tails and looks like a small jellyfish, there is a good chance that *Candida* is present. To confirm this, you can do a salivary antibody test, which is a most reliable way of making a diagnosis. These tests are available from Genova Diagnostics.

Check out the Candida Questionnaire in our FILES section of the TPA Internet Support Group http://health.groups.yahoo.com/group/thyroidpatientadvocacy, to see how you score!

Many symptoms can indicate candidiasis, which can include:
Adrenal problems
Diabetes
Hyperactivity
Hypothyroidism
Burning tongue
Clogged sinuses
Chronic fatigue
Low energy
Decreased libido
Thrush
Bloating
Gas
Intestinal cramps
Rectal itching
Vaginal yeast infection
Bladder infection
PMS
Depression
Irritability
Lack of concentration
Allergies
Chemical sensitivities
Low immune function
Psoriasis
Irritable bowel
Carbohydrate cravings
Jock itch
Athlete's foot
Ring worm
Diaper rash
Nail fungus
Arthritis

Many things can be pre-disposing factors to candidiasis. These may include:
Dietary factors
Nutrient deficiency
Birth control pills
Impaired liver function
Impaired immunity
Antibiotics
Synthetic oestrogen
AIDS or cancer

SOME BACKGROUND INFORMATION ON THYROID TREATMENTS

Compiled by Sheila Turner

One of the early methods of treating an underactive thyroid was to fry sheep's thyroid glands and eat them with currant jelly or brandy. This was considered preferable to the previous treatment of grafting sheep's glands beneath the skin of thyroid patients or injecting thyroid extract [1]

In 1894 E. Merck, introduced one of the first thyroid preparations in the world (triiodothyronine siccatum)[2]. According to Burgess, a woman in the US was first treated for hypothyroidism with thyroid extract in 1896. She began taking it when she was 39 years old and continued treatment for the rest of her life until she died at age 91[3].

Natural desiccated porcine thyroid extract contains thyroxine (T4) and triiodothyronine (T3) hormones, as well as T2, T1 and calcitonin. T2 is considered necessary for production of the Deiodinase enzyme that helps convert T4 into T3. T3 is the "active" hormone that regulates the metabolism and is of short duration in the body. T4 has a much longer half life in the body. T1's physiological role was still being evaluated until very recently when it was found that T1 has an influence on the electrical input and charge of the brain and various mental disorders, including multiple sclerosis and Lou Gherig's syndrome, which can be a result of not enough T1 to re-charge the brain[4].

New findings suggest that "although the compound, known as T1 Amine, is a derivative of thyroxine, an essential thyroid hormone that influences development, body temperature, metabolic rate and cardiac performance, it has the opposite effect of thyroxine[5]. This research also suggests that T1 Amine affects several organ systems. Consequently, if its molecular and cellular actions can be precisely described, physicians will be in a better position to treat a variety of cardiovascular and endocrine diseases, as well as mental health disorders", says David Grandy PhD. Associate Professor of Physiology and Pharmacology and Cell and Developmental Biology in the OHSU School of Medicine. "Here we thought we knew thyroid hormone so well only to find out there's this whole new aspect of it," says Grandy, co-author of a study published in an online edition of the journal 'Nature Medicine'. "T1 Amine's normal function in the body may be to counteract, or keep in check, thyroid hormone's actions"[6].

For almost 60 years, desiccated porcine thyroid was the only thyroid treatment and was used successfully from 1894 until 1958, when synthetic T4 only medications first appeared on the market. Since then, doctors have increasingly viewed desiccated thyroid as old fashioned and obsolete. Unfortunately, teaching about the use of natural thyroid extract in medical schools stopped suddenly in 1975 and many doctors are untrained in its use. Many patients on Internet support groups for those suffering the symptoms of hypothyroidism have reported that their doctors have never even heard of desiccated thyroid.

Doctors obtain their information about drugs mainly from Universities and from Pharmaceutical companies. When a medical treatment with a long history of success is relegated in favour of one that sometimes works, but is overall less effective and less expensive, doctors and patients have a serious problem.

Around about the same time as natural desiccated thyroid was relegated in favour of synthetic preparations, there was a similar argument made for infant formulae over breast milk. Infant formulae was marketed as being superior to natural mother's milk, and mothers who nursed their babies instead of feeding them formulae were seen as being less well informed. That situation has turned around completely since then.

However, the belief that synthetic T4 is superior to natural desiccated thyroid, which contains all the thyroid hormones, still exists among endocrinologists and general practitioners.

The question arises about how these doctors got the impression that desiccated thyroid is unstable. The following quote from the Bible of Thyroid Treatment Goodman and Gilman's 'The Pharmacological Basics of Therapeutics', provides some light on this question.

"Several years ago (1963), a large batch of material came into the hands of a number of distributors in the United States and Europe and, although having a proper iodine content, it later proved not to be thyroid extract at all. This episode gave desiccated thyroid a bad name because several publications about the unreliability of thyroid extract appeared before the hoax was uncovered"

The best-known brand names of desiccated thyroid are 'Armour Thyroid', 'Erfa 'Thyroid'', 'Westhroid' and 'Nature Throid'. Desiccated thyroid was 'grandfathered in' when Congress passed the Kefauver-Harris Drug Efficacy Amendments of 1962, to tighten control over drugs. Before marketing a drug, firms had to prove safety and effectiveness for the products' intended use. The requirement was applied retroactively to 1938, when the FDC Act was passed. Pre-1938 drugs were allowed because they were generally recognised as safe and effective, provided no evidence to the contrary developed. Too much evidence to the contrary developed concerning the levothyroxine products and the FDA decided that none of them was generally recognised as safe and effective, so the levothyroxine products lost their "grandfathered" privilege and had to go through the NDA process. The above desiccated thyroid products retained their 'grandfathered' status since no evidence to the contrary has developed concerning the safe and effective status.

Until around 1970, the hormone concentrations of thyroid medications were titrated based on iodine content, but since then, they have all (including desiccated thyroid products) been assayed by their hormone content. However, desiccated thyroid has been assayed the same way as other thyroid hormone medications for several decades[7], and it is recalled far less often for stability issues that are its synthetic counterparts. For details, see a 2003 Newsgroup Post that compares FDA recalls of different medications [8].

Dr Raymond Peat states, "When synthetic T4 first became available, and in healthy young men, it acted like the thyroid hormone". Older practitioners recognised that it was not metabolically the same as the traditional thyroid substance, especially for women and seriously hypothyroid patients, but marketing, and its influence on medical education, led to the false idea that the
standard thyroid extract wasn't properly standardised and that certain thyroxine products were, despite the fact that both of these ideas were shown to be false"[9]

When NHS medical practitioners are asked by patients why they are not prescribing desiccated thyroid extract for patients who are unable to tolerate levothyroxine – typical responses are –

1. Thyroid extract was found to have had potency problems in the past
2. Desiccated extract is an unreliable preparation in terms of active thyroid
3. There is no adequate quality control
4. The Medicines Control Committee will not allow this product to be licensed because of previous potency problems
5. Thyroxine is the only medication which provides steady hormone levels

6. Because of issues surrounding "mad cow disease" and other ailments, some are reluctant to offer animal based therapy to patients when a safe, effective, well-studied synthetic preparation is widely available.

As determined by pharmaceutical companies, the liothyronine and levothyroxine content in desiccated thyroid are well within the specifications set by the US Pharmacopoeia. The precision of the assay procedure as determined by Armour, Eli Lilly and the FDA is considerably better than that reported by Pharmaceutical Basics [10].

What many doctors fail to recognise is that the thyroid powder that contains the active ingredients for desiccated thyroid is derived from the thyroid glands of **"grain fed" pigs and hogs.** The USDA changed the requirements about feeding animal remains to pigs several years ago. The porcine thyroid glands that go into desiccated thyroid tablets are only derived from animals that do go into the US food supply. If any animal was rejected from the food supply, its thyroid gland would never be used. Desiccated thyroid has been on the US pharmaceutical market for over 100 years and there are no reports of any desiccated thyroid patient every contracting CJD.

As some endocrinologists imply, T4 replacement (and T4/T3 replacement, which they discourage) will indeed work well for some hypothyroid patients. For others, however, synthetic replacement therapies are clearly ineffective.

Desiccated thyroid is highly effective for many hypothyroid patients who often have lingering symptoms on synthetic medication. It is absorbed more completely and more consistently than pure T4 because all the hormones are protein bound, which is the natural way for the hormones to be absorbed. In the natural, desiccated form, T3 appears to spread out its effects more evenly, causing fewer of the ups and downs that patients often experience with synthetic T3. For many patients, taking desiccated thyroid instead of T4 alone, or even a T4/T3 combination. relieves many symptoms that were not reversed previously.

Desiccated thyroid does not have the stability problems that synthetic medications are known for. It is remarkably uniform and well absorbed and the potency is sufficiently standard that variation cannot be detected clinically [11]. It is a highly satisfactory preparation for clinical use. Desiccated thyroid is to be preferred to any other type of thyroid preparation for many people [12].

A 2001 study that apparently received little notice proves what thyroid patients have been saying for years – desiccated thyroid is more effective in relieving hypothyroidism symptoms than the synthetic hormones [9].

Today, the Endocrine Society's membership consists of over 11,000 scientists, physicians, educators, nurses and students in more than 80 countries. As this society has previously undertaken trials into the synthetic T4 versus T3, it should not be impossible for them to conduct a large, multi-centre, double blind, randomised control trial, to prove the efficacy or otherwise of T4 versus T4/T3 combination versus natural desiccated porcine thyroid extract. Patients suffering from the symptoms of hypothyroidism living in the UK who have benefited from switching from synthetic to natural thyroid extract would undoubtedly be astonished and dismayed to read the Endocrine Society's trial report which indicated once again that synthetic T4 alone provides the ONLY answer to this condition[13].

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Medicines and Healthcare Regulatory Agency (MHRA) confirmation letter to TPA as to whether or not NHS doctors can prescribe Armour Thyroid, Erfa Thyroid, Nature-Throid and Westhroid

June 2004

Dear Ms Turner

ARMOUR THYROID AND PORCINE THYROID EXTRACT FOR THYROID REPLACEMENT THERAPY.

I am responsible for the professional aspects of the importation of unlicensed medicine and would like to clarify the situation with respect to the above products, as requested.

As you know, synthetic levothyroxine T4 and Liothyronine T3 are available in the UK as licensed medicinal products. "Natural" desiccated thyroid hormone, which contains both T4 and T3, is extracted from the thyroid glands of pigs, and is marketed in the USA under a number of brands. Some of these brands are marketed under US law as food supplements and as such are not authorised by the Food and Drugs Administration (FDA). These products can vary considerably in the content of thyroid hormones, because they are not standardised, and as a result could potentially be dangerous. However, other brands are authorised by the FDA as medicines, and are standardised to the specification of the United States Pharmacopoeia.

The specification of the USP for the content of T4 (85 to 115% of labelled strength) and T3 (90 to 110%) in natural thyroid tablets are similar to the specifications for the content in the individual synthetic hormones (90 to 110% T4, 90 to 110% T3). Thyroid tablets USP contain approximately 38 micrograms of T4 and 9 micrograms of T3 per 65 milligrams of desiccated thyroid, and are available in a wide variety of strengths.

UK and European law recognises that there may be circumstances when licensed products may not be suitable for some patients. The regulations on medicines allow doctors to prescribe an unlicensed medicine for a patient to meet such a special clinical need, on their own direct personal responsibility. Where these unlicensed medicines are not available in the UK they can be imported by appropriately licensed medicines wholesalers, for supply to a doctor or pharmacy, to meet these needs. The importer is required to notify the MHRA in advance of every occasion that they wish to import such a product.

The MHRA can object to importation of an unlicensed medicine if there are concerns about the safety or quality of the product. The MHRA cannot object to importation of an unlicensed medicine solely on the grounds of efficacy. In the case of these thyroid preparations, the MHRA has not objected to their importation provided that they are authorised prescription only medicines, standardised to the USP, and that they are for the treatment of patients with thyroid diseases, for whom the UK licensed synthetic thyroid hormones are not suitable.

We have not told importers that they must provide evidence from prescribers, as this is a matter of clinical judgement. Consequently, these products can be made available to those people who need them, subject to them being prescribed by a doctor.

I hope that this answers your concerns. If you have any further questions, please do not hesitate to contact me.

Dr Graham Matthews - Medicines and Healthcare Products Regulatory Age

My letter to MHRA*:" Please could you let me know if NHS medical practitioners can prescribe Nature Throid and Westhroid in the same way they can prescribe Armour Thyroid, USP for those patients who do not do well on levothyroxine alone. I have pasted below a copy of a letter sent to me by Dr Graham Matthews in 2004 about the prescribing of Armour Thyroid."*

Dear Ms Turner,

Nature Throid and Westhroid

Thank you for your recent enquiry to the MHRA.

We can confirm that the situation as stated in the original letter also applies to these two products but please note that where the letter states "We have not told importers that they must provide evidence from prescribers, as this is a matter of clinical judgement. We do reserve the right to request this information should we deem it necessary.

We do not normally object to importation of the products you have named. However please note that even though a Prescriber may be able to prescribe anything they wish, this does not mean that it can necessarily be obtained - especially if the MHRA were to object to importation of an imported unlicensed medicine.

Please contact us again if you need further assistance with this, or any other queries.

Ben
On behalf of the Central Enquiry Point
Information Centre
Medicines and Healthcare products Regulatory Agency
Tel: 020 7084 2000

From: MHRA Information Centre [mailto:info@mhra.gsi.gov.uk]
Sent: 10 November 2009 13:44
To: sheila@tpauk.com
Subject: RE: Armour Thyroid, Nature Throid, Westhroid and Canadian 'Thyroid'

Dear Sheila Turner,
We have no say on what may be prescribed on the NHS, however we do not generally object to importation of thyroid products intended for the special clinical needs of patients where there are no overriding concerns over the safety or quality of the products in question. We will treat the "Erfa" product in the same way as other unlicensed medicines and range of products.

Please contact us again if you need further assistance with this, or any other queries.

Kind Regards, Ben, on behalf of the Central Enquiry Point, Information Centre

HOW TO TREAT WITH NATURAL THYROID EXTRACT (ARMOUR THYROID, NATURE THROID, WESTHROID and ERFA 'THYROID','THYROID-s' etc)

Thyroid hormones, either alone or combined with other medications, should NOT be used for the treatment of obesity and should NOT be taken by patients with uncorrected adrenal cortical insufficiency, untreated thyrotoxicosis, or apparent hypersensitivity to thyroid hormones.

NATURAL DESICCATED THYROID EXTRACT tablets should be used with caution in patients with cardiovascular disease. Thyroid hormone may increase symptoms of diabetes mellitus, diabetes insipidus, or adrenal insufficiency. Adjustment of treatment measures for these endocrinological diseases is necessary if thyroid hormone therapy is added. If THYROID EXTRACT is used in the treatment of myxoedema coma, glucocorticoids should be administered. Adverse events other than those indicative of hyperthyroidism are rare and usually the result of therapeutic over dosage.

1) Armour Thyroid is the most well known of the natural desiccated thyroid medications. However, more and more sufferers of the symptoms of hypothyroidism are using the Canadian licensed thyroid extract by Erfa – simply called 'Thyroid', and many use the US RLC Inc. Labs. to btain Nature Throid and Westhroid. There are other brands of natural desiccated thyroid extract, but the above are the brands that the Medicines and Healthcare Products Regulatory Agency (MHRA) in the UK say doctors can prescribe for their patients if they don't do well on levothyroxine (T4) alone.

Thyroid extract has been used since 1884 and has been used successfully for well over 100 years. Thyroid extract contains the same hormones that your own thyroid would produce-T4, T3, T2, T1, calcitonin and other enzymes, and that is why natural thyroid is superior to synthetic thyroxine (T4). Armour meets the stringent guidelines of the US Pharmacopoeia and is approved by the FDA.

2) It is always wise to start taking a very small dose of thyroid extract for the first 7 days to see if this treatment would cause you any adverse effects. The reason for this is that your body may need to adjust to the active hormone triiodothyronine (T3) because for some people, T3 may cause palpitations, dizziness and feeling 'spaced out'. Your body needs time to adjust to this new hormone, and your adrenal glands may have become stressed (as they may well have if you have suffered hypothyroidism for some time and been without treatment). You may also find that you are low in essential minerals or vitamins needed to help the thyroid hormones get into the cells. Ask your doctor to test your ferritin (stored iron), vitamin B12, vitamin D3, magnesium, folate, copper and zinc to see if any of these are low. If any of these are low, you must supplement with the appropriate vitamin or mineral.

3) It is important to understand that you will need to raise your natural desiccated thyroid hormone (NDT) within 3 to 4 weeks, to prevent your hypothyroid symptoms returning. At times, you may feel you are suffering more symptoms, but this does not mean that NDT is bad for you or that it isn't working. Most of the time, it simply means your body is crying out for more hormones, or it may mean that you need to cut back on your dosage. Don't worry – all will become clear...I promise!

4) For most people, they can stop taking synthetic Thyroxine (T4) one day, and the following day replace it with NDT, but for others, who may well have stressed adrenals, it is best to stop taking any thyroid hormone replacement for at least a week and start treating with adrenal supplements. (See information in our ADRENALS Folder)

5) The most biologically effective way to take the Erfa 'Thyroid' is by placing the tablet between your gums and cheek. This way, it is absorbed directly by the tiny capillaries that line your mouth - taking the hormones direct to your blood, bypassing the stomach. Swallowing also brings stomach acid into contact with the Calcitonin in NDT, and you may lose up to 45% of other hormones and some of the benefits to your bones. However, it's OK if you would rather swallow your medication – you will still get great benefits! NDT has a very 'interesting' smell and you will soon become used to it. The smell used to be very strong, but a recent new formulation has made the smell fainter. The other brand NDT's are not designed to be taken sublingually, and should be swallowed with plenty of water.

6) It is important to avoid taking **iron, oestrogen** and **calcium** supplements at the same time as NDT, since both bind the thyroid hormones to some degree. T4 needs time to build up in your system so, you may find your 'optimal' dose fairly quickly, but more likely, it may take up to 6 weeks. Personally, I started to feel really great on day 9 after starting Armour. It appears that the 'average' dose is between 2 and 3 grains – but we are all different...remember this, you take the amount of NDT you need to make you feel good - you do not 'dose' according to the results of laboratory blood tests. Keep an eye on your symptoms, and either raise your dose or lower it according to how you feel. Don't be afraid. You have come a long way in deciding that the only way you are going to have a chance to regain your normal health is to take your health into your own hands. There are over 1725 members of our Internet Support Group at the time of writing this, and many who can help you out with your questions, should these arise.

7) Most folk find that dividing their dose twice a day is optimal for them. NDT contains T3, which has a half-life of 6/8 hours and peaks in the blood about 2 hours after you take it. If you are taking 2 grains (120mgs), an example is to take 1 grain (60mgs) before breakfast and another in the early afternoon. Some people dose 3 or more times a day. A few decide to take their dose at one go in the morning, and find that to be effective, but most notice a difference when they multi-dose.... it stops that afternoon 'slump'. Experiment to find what is best for you. And remember: a normal thyroid gives you what you need throughout the day instead of one 'dump', thus, multi-dosing is a way to replicate that.

8) Before blood tests were developed (around 1960's) doctors ALWAYS treated patients solely by symptoms, clinical examination, and basal temperature test.... and successfully. One important symptom is your temperature. Temperature reflects metabolism, and metabolism is controlled by your thyroid. Find a **MERCURY THERMOMETER,** shake it down and place it on your bedside table. First thing before you get out of bed, place the thermometer under your tongue and leave it there for at least 3/4 minutes. Normal temperature is 98.4 degrees Fahrenheit. If your temperature is 97.8 or less (and you might find it MUCH less), and you have symptoms of hypothyroidism and showing signs of hypothyroidism (see Signs and Symptoms of Hypothyroidism in the FOLDER 'Hypothyroidism') then tell your doctor. It is a good idea to start taking your temperature every morning when you begin taking NDT and check to see if it rises as your body gets used to this thyroid hormone replacement.

9) Unhappily, as we are all aware, your doctor is going to put a HUGE reliance on thyroid function tests over symptoms. These tests do NOT tell the whole story, especially if you are taking NDT and not levothyroxine alone. If you are faced with such tests, then your goal is generally to get your free T3 and T4 in the upper half of the range, but you have to figure out where YOU feel best, based on symptoms. When you get your free T3 at the top of the range, (or when you dose yourself to eliminate all symptoms) you will often find that your Thyroid Stimulating Hormone (TSH) is BELOW the so called 'normal' reference range but that does **NOT** mean you are going hyperthyroid. Your doctor must learn that the TSH is less important once you start natural thyroid extract treatment, and just because one's TSH can get lower than 1 while getting the free T3 up, does NOT

mean you have become hyperthyroid. Your pituitary gland doesn't need to push out TSH as NDT provides all the hormones a normal thyroid makes.

10) Most doctors are not aware of the efficacy and safety of the brand Armour Thyroid. You can read more about this on our website www.tpa-uk.org.uk under 'Treatment'...then 'Some Background information on other Thyroid Medications' or look under 'Campaigns' and read the information (true facts) that we sent to the British Thyroid Association/Foundation about their mis-leading (some incorrect) statements on their web site about Armour. Be prepared for your doctor to tell you that what you have learned is incorrect and that levothyroxine (T4) only works for everybody. Always ask these doctors to cite the references to the scientific evidence so you can check this out for yourself – they will never give you any – because there are none!

11) If your doctor refuses to prescribe NDT for you, then you may consider changing your doctor. If you live in an area where there are several pharmacies, then please visit them and ask the pharmacist if there are any doctors within the area who prescribe any of the NDT's. You may also wish to be referred to an endocrinologist who may look sympathetically on your individual case.

12) Note that T4-to-NDT 'conversion charts' that you will find on many websites (including the manufacturers of Armour www.armourthyroid.com are VERY inaccurate.)

13) Often, there are other areas that need assistance when you are treating yourself with NDT. For one, many folks need to optimise their ferritin level (storage iron), which is low in many with hypothyroidism. We are not yet sure why low ferritin can cause similar symptoms to those in hypothyroidism, or can cause you to have hyper-like symptoms when you try to raise the NDT dose. The ferritin reference range is very wide. In women, it is 20 to 200 and in men, it is 30 to 300. For a woman, you should aim to get your level somewhere between 70 and 90. In men, you should aim for a level of 150 to 180.

14) If, upon starting NDT, you experience symptoms, including anxiety, insomnia, shakiness, sweating, dizziness, feeling 'spaced out' it's a strong sign that you may need adrenal support. Either adrenal hormones or Nutri Adrenal Extra is needed to distribute thyroid hormones to your cells, and if you are not making enough cortisol from stressed adrenals, your blood will be high in thyroid hormones, producing the above symptoms. This is why we advise taking adrenal support before starting ANY thyroid hormone replacement, synthetic or natural.

15) If you are already taking NDT and suffer these symptoms, you may need to stop the thyroid extract and get on adrenal support for a while before starting to take NDT again. It is strongly recommended that you get an adrenal test – Genova Diagnostics and Lab21 both do an excellent 24 hour salivary adrenal profile to check the levels of your cortisol and DHEA at four specific times during the day - and this is FAR superior to the one time blood test that doctors will use on you.

It is advisable to take Selenium 200 mgs daily with your main meal. This helps with the T4 to T3 conversion. Zinc and Vitamin C also play a role here. Your need for vitamin B will increase as you improve. Again, you can check out the recommended supplements in this 'Thyroid Problems: The TPA Guidance'. Extra copies can be ordered by using the Order Form on our website.

16) If you are able to buy a large quantity of NDT (as this saves on shipping), you can safely keep them in the freezer or refrigerator to preserve its potency, taking out about 1-2 months supply at a time.)

See below on the recommended way to use NDT**:**

How to Dose with Natural Desiccated Porcine Thyroid Extract

If you are particularly sensitive to thyroid hormone, then start taking a quarter of a grain (15mgs) only, **and stay on this for 7 days**. If no adverse effects (i.e. palpitations or feeling 'strange'), then increase by another quarter of a grain, but take this second quarter grain about 2.00 to 3.00p.m. If still no adverse effects, then, after 3 to 4 weeks of taking half a grain, follow the same instructions below for those who are changing from T4 –only to NDT – who will start

> **Day One** taking quarter of a grain (15mgs) in the morning and quarter of a grain in the afternoon and **stay on this for 7 days**. If no adverse effects, then...
>
> **Day Eight:** increase your dose by another half grain (30mgs) a day. Take half a grain in the morning and half a grain in the afternoon and **stay on this dose for at least 3 weeks.** If no adverse effects, then...
> **Three Weeks:** increase by another half grain and take 1 grain (60mgs) in the morning and half a grain in the afternoon. **Stay on this dose for 3 weeks** and again, if no adverse effects, then...increase by another half grain and take one grain in the morning and one grain in the afternoon and **stay on this for another 3 weeks**.

By this time, you are probably beginning to feel some real difference and noticing that many of your symptoms and signs are disappearing. However, if at any time during this period you begin to feel any palpitations, dizziness, shakiness and generally feeling 'spaced out' (and you may feel a little frightened if this happens) – then you need to STOP all your thyroid medication and **stay off it for 24 hours** at least in order to get the T3 (the culprit!) out of your body. This could happen a couple of hours or so after you have taken your morning dose as the T3 (the active thyroid hormone) peaks in the blood between 2 to 4 hours after taking it. Don't be alarmed, nobody has ever died of this, honestly, and you will be surprised at how soon you begin to feel normal again. Don't take any more NDT that day. After 24 hours, start taking your NDT again but drop your dose by the extra half-grain that probably caused this to happen to you. Start taking the dose you were on before the increase.

> **After 3 weeks** try adding just a quarter of a grain and see how you go from there. This is how many NDT users throughout the world have found what works best for them when increasing their dosage. You will probably only know where your 'sweet spot' is when you do actually "go over the top", because there is really no other way to find this out. I repeat there is nothing to be frightened about; the T3 in NDT leaves your body very quickly. Just try to relax until it has settled down.

Because the T4 and T3 in NDT is standardised to USP specifications, you may find the T4 and T3 hormone balance in NDT may not be the right one for you. You may need a little more thyroxine (T4), or you may need a little more triiodothyronine (T3) and you might need to experiment with this, but many others are happy with NDT on its own.

If you would like to ask your doctor to prescribe one of these brands of NDT – this might be a little difficult, as the vast majority are not acquainted with the facts. However, please do join our Internet Thyroid Support Group where we have lots of information and sample letters that may help you achieve your goal. http://www.tpauk.com/forum

This is a big adventure for you all. Always remember that since 1894 to the early 1970's desiccated porcine (pig) thyroid extract was the **ONLY** medication for all those suffering

the symptoms of hypothyroidism. It has proven VERY successful for the treatment of hypothyroidism for those who didn't do well on levothyroxine-only therapy.

GOING IT ALONE

Unhappily, we have heard too often stories from patients who have many of the signs and symptoms of hypothyroidism, yet whose blood test results are within the so called 'normal' reference range. Because of this, many NHS doctors refuse to help you because they believe 'normal' thyroid function tests (TFTs) mean 'normal' patient and there is little they appear to be able to do to help you, telling you that you are depressed, menopausal, old, or whatever and you have to "get on with it". They will prescribe you antidepressants, tell you to go on a diet, take more exercise, take pain killers where appropriate, and, generally, to "get a life". This leaves sufferers so frustrated, one could scream at what the NHS is doing to sufferers with symptoms of hypothyroidism in leaving them to fend for themselves if they wish to regain their normal health.

Is this your experience, and do you feel you don't know what to do, or where to turn next in order to regain your normal health? If so, then you must decide if self treatment is the road that you can take. If you feel it is, then carry on reading….

First, take a long hard look at what you are going through right now; take a long hard look at what your doctor is NOT doing for you – in fact, is s/he giving you any treatment at all that is removing any of your symptoms of hypothyroidism? If the answer is no….take a long hard look at what options are left.

The NHS is responsible for leaving tens of thousands of people suffering symptoms of hypothyroidism undiagnosed and untreated, or giving the wrong thyroid hormone replacement or an incorrect dose. You do NOT have to put up with this if you don't want to. Take responsibility yourself for your own health, if nobody else will. The only option left for you is to "Go it Alone" as many members of Thyroid Patient Advocacy Internet Thyroid Support Group http://health.groups.yahoo.com/gorup/thyroidpatientadvocacy have done, and found that they have, or are, regaining their optimal health.

One of the very first things that I would recommend is that you obtain Dr Barry Durrant-Peatfield's Book 'Your Thyroid and How to Keep it Healthy'. He has written this for both patients and doctors and it especially teaches patients how they can help themselves if the NHS refuses to do so. You can buy this book direct from the publishers (Hammersmith Press) or from Amazon and/or Dr Gordon Skinner's Book 'Diagnosis and Management of Hypothyroidism' published by Louise Lorne, 22 Alcester Road, Birmingham, B13 8BE. This book has two purposes, namely, to provide a detailed account of the diagnosis and management of hypothyroidism and to reassert the importance of clinical observation in medical practice.

I can say of either of these books, you have a better chance of regaining your health than leaving it in the hands of the NHS.

The two things we already know about are the "Signs and Symptoms" of hypothyroidism and the symptoms of "Adrenal Insufficiency", and we know what is needed to supplement these hormone deficiencies. There is much in the 'FILES' which you can access from the Home Page of our Internet Thyroid Support Group. You can also read the information in our web site www.tpa-uk.org.uk . I recommend that you read everything that there is on natural desiccated porcine thyroid extract (Armour thyroid, Erfa 'Thyroid', Nature Throid and Westhroid),

Adrenals, Systemic Candidiasis, Mercury poisoning caused through amalgam fillings. You will find also a questionnaire in the 'Medical Questionnaire' Folder that will help in telling

you whether you have problems with your adrenals, systemic candidiasis or magnesium levels.

You will need to attend to your diet and cut out junk food. Ensure you have a proper balance between carbohydrates, proteins and fats; reduce refined carbohydrates, sugars and starches. You shouldn't avoid fats, as they do not necessarily make you fat, and, unsaturated fats in particular are vital for so many of our body's complex systems. Just go for moderation.

Before going down the self-medicating route, write a letter to your doctor telling him that you are no longer prepared to put up with your symptoms and that you are now determined to find the cause of these, and that you would like her/his help to find the cause. Check out the 'Draft Letter You May Wish to Send to Your Doctor' included in this Information Booklet.

THE BIGGEST BARRIER TO SELF HELP IS A LACK OF CONFIDENCE. Dare you treat yourself?

In the good old days, doctors would give their patients a trial of thyroid hormone replacement if they had symptoms of hypothyroidism, low basal temperature and/or high cholesterol; then take it from there.

Dr Peatfield states in his book that after using nutritional strategies, vitamins and minerals and glandular extracts that if you don't get better, they will have done you no harm. You will know.

The anxieties about over stimulation of the system and the heart and so on have little place with natural treatment, sensibly and knowledgeably used. Usually the worst that can happen is that the vitamins and minerals perhaps upset the digestion. Some people will no doubt shake their heads, but this is YOUR life and health and not theirs… and what other option have you – seriously? The shakers of heads will no doubt be people who have no idea about the workings of the endocrine system, never mind hypothyroidism – so what does their opinion matter, unless, they have some better alternative treatment that they could help you with, and within the NHS?

Coming to the question of cost, if you find that through reading, comparing symptoms, doing the questionnaires etc., that you have adrenal insufficiency, you can buy Nutri Adrenal Extra (glandulars), Liquorice Tincture, Siberian Ginseng to help you. You will find details of how to order, using the TPA Members Reference Number (TPA members get 33% discount on supplements from Nutri) and what supplements you can order in this web site under the subject heading 'Discounts on Tests and Supplements'. Paste this into the Search Engine."

For Nutri Adrenal Extra, (NAE) take 1 tablet with breakfast and stay on that for 10 to 14 days. You can add another tablet with your lunch and stay on that for the same length of time. You can start thyroid hormone replacement about the 8th day of starting the Nutri Adrenal Glandulars. You can take up to 6 NAE daily, but if you still have adrenal symptoms, this may be an indication that you need a course of Cortisol.

Natural thyroid extract (Armour Thyroid, Erfa Thyroid', Nature Throid or Westhroid) can be purchased without prescription from reputable Internet Pharmacies. Again, Type 'Reputable Internet Pharmacies' into the search Engine to find this. Please remember that only Approved Members' of our Online support Forum can get access to this document. As far as dosage is concerned, please see - please check the document 'How to Treat Using Natural Thyroid Extract' in this web site.

If you decide to **'Go it Alone'** you will need to read as much information as you can, and ask as many questions as you wish on our Support Forum.

Don't be frightened about going down this road. The majority of us have been exactly where you might be right now, and have come through it. We are not qualified medical doctors and, therefore, we are unable to give advice. All we can do is to recommend what others have found useful on this group and what has worked for them, and what we personally have experienced and found to work. It is your decision and YOURS alone.

Meanwhile, keep asking questions, TPA is here to give you as much support and help as we can.

EUTHYROIID HYPOMETABOLISM

Euthyroid Hypometabolism (*The clinical consequences of inadequate levels of thyroid hormones **in the body***) suggesting deficiencies in the hypothalamus-pituitary-thyroid axis *plus* the potential deficiencies in the peripheral metabolism and peripheral hormone reception, which are recognized by science.

While it is clear that hypothyroidism with all its obvious symptoms and signs should be evident to patient and doctor alike, there are one or two other aspects of thyroid dysfunction which we must talk about. One is Euthyroid Hypometabolism and the other is thyroid hormone resistance.

Euthyroid Hypometabolism is low cellular metabolism despite normal thyroid function test results. The tissues simply are unable to respond properly to the thyroid hormones. This offers, for example, notably with low adrenal function. This may occur where the feedback loop governing ACTH secretion from the pituitary (to increase adrenal function) doesn't work properly. It would be clear that simply increasing thyroid hormone (thyroxine) from outside may well not work; the tissues are unable to respond. Many of these patients may respond to Tertroxin (T3) provided the adrenal status is also considered as part of the treatment. At a small risk of belabouring the point we can conveniently list some five causes of failure of diagnosis; (i) Psychoneurosis. Encouraged by invested interests but a false concept. (ii) Sick Euthyroid Syndrome. Is simply a variation of normal health at the lower end of the spectrum. (Tell that to the patients.) (iii) CFS. It is very rare so it doesn't really happen. (iv) Hypothyroidism. It is indeed hidden hypothyroidism all the time, but is not bad enough to treat. (v) Uptake Failure. There is no evidence that the thyroid hormones fail to act where they should. (There is ample, of course).

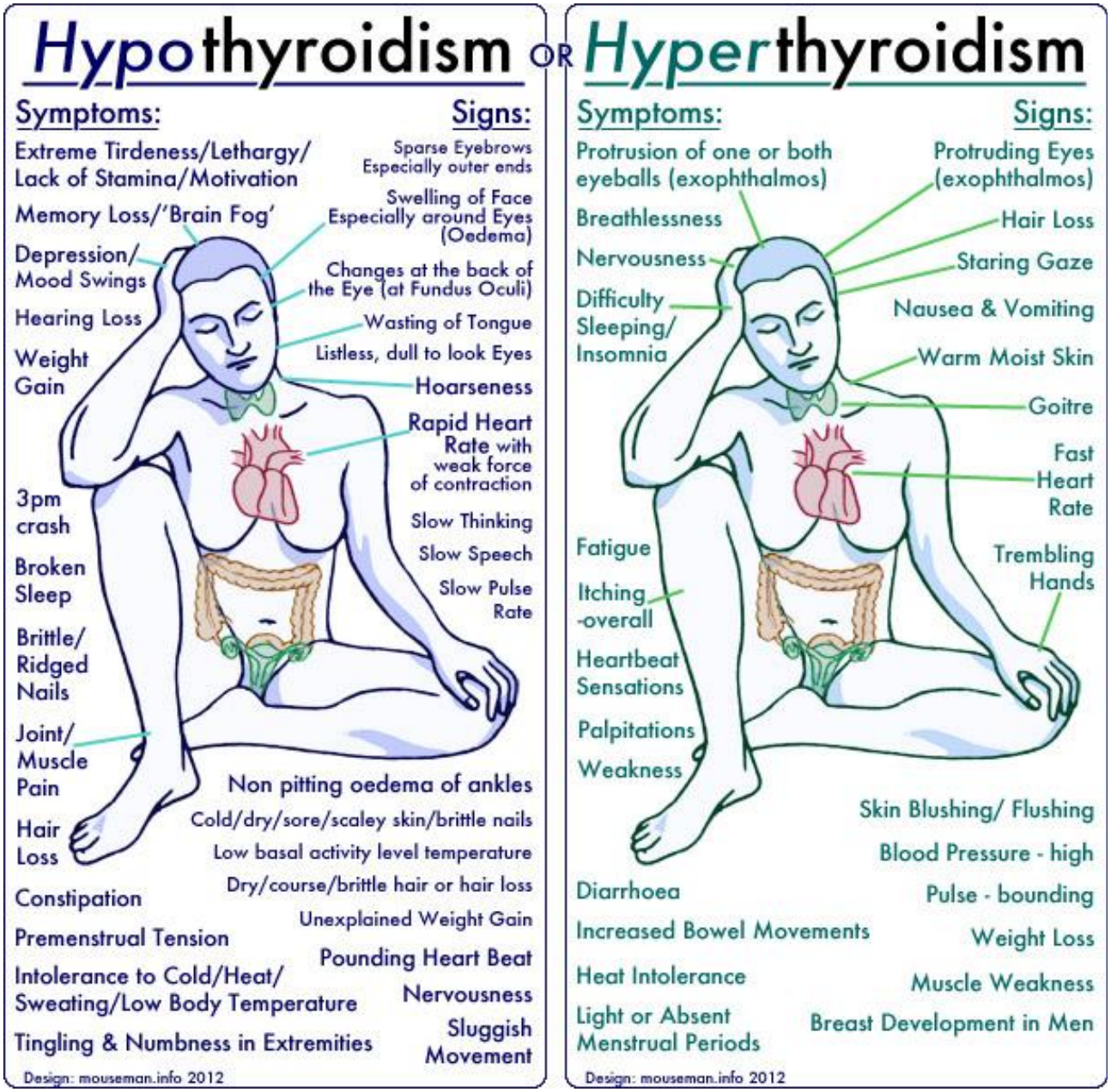
Both patients AND doctors must watch this youtube video! This is a MUST

http://tpauk.com/articles/3070-the-great-thyroid-scandal/

http://tpauk.com/articles/2813-sheilas-own-story

http://tpauk.com/articles/3377-creator-of-tsh-and-t3-test-said-body-temperature is-better/

Check here to see whether you have Symptoms of Hypothyroidism or Hyperthyroidism:



HYPERTHYROIDISM

The patient will appear nervous and anxious as a general rule and indeed may be thought to be suffering from anxiety only. Most patients will be losing weight, in spite of a good appetite, although occasionally they may be anorexic (without appetite). They complain of frequent and loose bowel action. They tend to be breathless and though

often hyperactive, tired at the same time. There is a usual complaint of feeling hot much of the time, always turning down the heating and they become aware of palpitations, either because the heart beats too fast or the pulse has become irregular.

Signs:
The doctor will look for the following: Weight loss may well be apparent in a number of patients but certainly not all. There may be staring eyes, the result of the fat behind the eyes swelling partly with fluid; this is called exophthalmos. One classic sign is lid-lag, where the doctor asks the patients to look at his finger as he rapidly drops it in front of their vision. The upper lid lags behind the eye following the finger. The pulse will be rapid, sometimes irregular and the hand will be unexpectedly warm to the touch; obvious too, will be the tremor of the hand. The extra blood flow to the thyroid can sometimes be picked up by the doctor through his stethoscope; he can hear a rushing noise, which is called the "thyroid bruit". The blood pressure will be revealing too; the upper (systolic) value will be unusually widely separated from the lower (diastolic) value. Another typical finding is pre-tibial myxoedema, a puffiness apparent over the bone of the lower leg.

List of symptoms the patient may experience:

- Palpitations
- Heat intolerance
- Nervousness
- Insomnia
- Breathlessness
- Increased bowel movements
- Light or absent menstrual periods
- Fatigue
- Weakness
- Sleeping difficulty
- Itching - overall
- Heartbeat sensations
- Diarrhoea

List of signs:
Signs are those things that a physician can objectively detect or measure.

- Fast heart rate
- Trembling hands
- Weight loss
- Muscle weakness
- Warm moist skin
- Hair loss
- Staring gaze
- Skin blushing/flushing
- Pulse - bounding
- Nausea and vomiting
- Breast development in men
- Blood pressure - high
- Protruding eyes (exophthalmos)
- Goitre

Armed with all this information, the diagnosis should be clear. Confirmatory blood tests will show abnormally high T4 and/or T3 levels and abnormally low TSH which, together with the presence of antibodies (TgAb) will suggest autoimmune thyroiditis. Clearly, the diagnosis in general isn't difficult to make. The rub comes in the treatment.

Treatment of Hyperthyroidism

By Dr. Barry Durrant-Peatfield

First, you may not have to do very much. Mild degrees of thyroid over activity can occur on a self limiting basis, and may sometimes be left to run their own course, with an informed patient monitoring how they are, and seeking equally well informed advice if things are not going right. The body has a remarkable ability to heal itself, and should be given a chance to do so. The most successful early physicians knew their subject so well that the natural cause, and eventually self-healing of the illness, was often quite predictable. So the "Vital Elixir" was given just before the patient showed clear signs of getting better, with, of course, miraculous results. This incidentally, is not the same as the placebo effect (often cited as the result of thyroid and adrenal therapy), which occurs for a limited time as a result of strong suggestions by the prescriber or high expectation by the patient. Sometimes, a remarkable and dramatic recovery occurs using eye of newt and toe of frog. This bedevils a balanced judgement of cause and effect.

Sorry, I digress.

So the first approach is an alert and informed assessment of progress, intervening only when necessary. Over-intervention is the curse of modern medicine in almost any illness you can imagine; we should take to heart that sometimes a policy of "masterly inactivity" is much better for the patient and may even spare his life.

The second line of approach is to relieve symptoms until it is clear that the illness is either going to resolve itself in time or will require sterner measures. There are two medical weapons in most common use. First, simply anxiolytics. These are basically tranquillisers, and are acceptable for a limited time where the degree of over activity causes nervous tremor, worry, panic and palpitations. The old fashioned and much derided Valium has a use here – not a large dose, say 5 mgs twice or three times a day – can make life bearable. Along with this, or possibly instead, "beta blockers" may be used. These are a group of compounds which prevent high levels of nervous activity reaching the tissues, and have a general calming effect on anxiety, nervous shaking and rapid pulse, in addition to their other therapeutic effects like reducing blood pressure, slowing down heart action (helping angina) and preventing migraines. The one most widely used is Propranalol, often 10 to 40 mgs 2 or 3 times a day according to need. Even with extensive use, there are very few either short term or long term side effects, although asthma is sometimes a problem. Many doctors have found that a combination of an anxiolytic and a beta-blocker, in really small doses, works better than high doses of either by themselves and may control mild hyperthyroidism for extended periods of time.

When things are getting tougher, the next approach is the use of a chemical block on the production within the thyroid of thyroxine, which prevents the iodine molecules from attaching themselves normally to the thyronine molecule. Two preparations have been in use for years; the commonest is Carbimazole (usually in multiples of 5 mgs) and the other is Propyl-thiouracil (20 mgs). They are both widely used as a bulwark against invasive surgical or medical attack, as I will discuss in a moment. There are of course, difficulties; they have been found to cause problems with the growth of white blood cells, suddenly and unexpectedly, and the immune system may be so compromised that a major or minor infection may suddenly appear. Sometimes, of course, the patient is simply intolerant of the medication and becomes ill.

A regular daily dose is chosen; rapidly, the amount of thyroid hormone production starts to fall and the circulation of thyroid hormones starts to decline. The trick, of course, is to ensure the dose is neither too much, nor too little, remembering that thyroid production

and thyroid hormone requirement may vary quite a lot. If this isn't borne in mind, the result would be that the patient may be out of balance, either over or under active. Most physicians fall back upon the blood test to adjust dosage, but I think it is tiresome to have repeated tests, when the patient – who after all, knows how they fell better than anybody – may often have a much better idea of their requirements than any blood tests. I have always taught my patients to check their pulse rate once or twice a day and their resting temperature; and to make an overall assessment as to whether they feel well or not. If too much of the medicine is given, the thyroid activity will be low and the patient will feel tired, cold and sluggish; the pulse may be low, say 60 bpm; the resting temperature below 36.6 degrees centigrade or 97.8 degrees Fahrenheit. (Of this resting Temperature, more anon). The patient should, in my view, with ordinary common sense, then adjust the dose downwards, (or have a day or so off) until things have put themselves right. And, of course, vice versa.

This treatment may be used for an extended time, certainly a year or so – so long as the self-monitoring and the advice from an understanding doctor or health care practitioner provide for virtual normality. Most commonly, the over active state will, with ups and downs, tend to correct itself; and the patient may find in time the medication becomes unnecessary. A life event or illness may, however, start it all over again, but the patient by now will recognise the symptoms and be able to deal with them. Another common sequel however, is that having normalised for a while, the thyroid activity may start running below normal. This, as we noted before, occurs with Hashimoto's disease. The management problem is that this running down may be slow and insidious, the loss of energy and wellbeing, the weight gain, may go more or less unnoticed, may be put down to age, over-work, worry, or bad eating, before it becomes obvious that all is not well. Informed patients will alert themselves to this and seek advice. This may or may not be helpful, and patients may have to take matters into their own hands, using available natural thyroid support, not requiring a prescription.

Popular in some quarters is the "block and replace" approach to treatment. A dose of Carbimozole (Neomercazole) or Propyl-thiouracil is chosen to be deliberately in excess of the actual requirements – enough more or less to shut the whole thing down. Then, thyroxine is added to bring it all back to normal. Yes – I know what you're thinking. However, the idea is to shut the thyroid down so thoroughly that it is sufficiently shocked by it all not to relapse when the anti-thyroid treatment is withdrawn. It is claimed that control is smoother, and there is a lower relapse rate. All I can say is that it may work like this way sometimes, but it is difficult to be convinced.

What should be the final solution is, in my view, all too rapidly turned to by doctors and surgeons, who may consider their solution the "treatment of choice" right from the start. It has the merit of usually having an immediate effect, but may bring in its train other problems, and simply exchange one therapeutic master for another, with no hope of a normal thyroid function without continuous and long-term medication. This final solution is thyroid ablation, which means the thyroid is knocked out finally and forever.

Two approaches are chosen; the first is radioactive iodine. Here the iodine is given to the patient as a drink. The radioactive iodine concentrates in the thyroid tissue and "nukes" it. The second is surgery, where a proportion of thyroid tissue is removed. The problem with these two solutions lies in their permanence; they cannot be undone, and getting it right that is "nuking" or removing the right amount, can only be a matter of guesswork. More often than not, the amount destroyed or removed is not right to begin with; furthermore, it obviously cannot allow for changes in thyroid function, which will occur within the passage of time.

With radioactive iodine ablation there is the merit of simplicity. A solution is prepared of the radioactive isotope of iodine, which is swallowed in one draught. The thyroid uses

iodine as its main raw material, and so this radioactive form concentrates in the colloid (hormone forming) tissue in the thyroid gland. (Of course, it goes elsewhere in the body, especially the breast, but you may not be told this). We all know that radioactivity destroys cells and Chernobyl showed us how terrible its uncontrolled effects are. Radioactive iodine concentrates itself in the cells and this radioactivity destroys them. The severity of cellular damage depends, of course, on how much is initially given. This amount is calculated by body weight and the presumed severity of the over activity of the thyroid forming cells. You hope it is about right…You have undergone all the blood tests after all. And we know blood tests are wonderful and right - or do we?

There are 3 possible scenarios. One is that the calculation is right – it does happen. The amount of thyroid tissue left is just right to produce the right level of hormones in the blood stream. (Of course, the cells may later partly recover, and then it may have to be done all over again, or further damage and loss of function may occur and the thyroid as a whole may become underactive).

The second scenario is that the patient continues to have an overactive thyroid in spite of treatment, and a further dose of radioactive iodine – or doses – may have to be given at once. In this circumstance, getting it right becomes more and more unlikely.

The third scenario is a good deal more common. Overkill becomes evident in a few days, and thyroid hormone in the blood stream falls pretty quickly. Very soon, thyroid replacement (usually thyroxine) becomes necessary. So long as the physician is convinced that this is what has happened – admits it, in spite of blood tests, which may or may not confirm the situation – and prescribes thyroxine, the resulting hypothyroidism, can be sorted out. However, as we shall see later, diagnosis is most likely to be based on blood levels, and not on what the patient is saying. So the hapless patient, bewildered by this perfect high-tech wonder treatment, repeatedly assured how much better they must be, but feeling more or less terrible, exchanged one sort of pill for another, this time for the rest of his or her life.

As I have found with many hundreds of patients, it may now be very difficult to get the balance of replacement therapy right, since for reasons not entirely clear, problems arise with the uptake of the synthetic thyroxine (we know the other thyroid hormones will assuredly not be given) and the conversion T4 to T3 doesn't work as it should, and tissue uptake doesn't take place as it should. It would seem logical, having wrecked thyroid function, that if replacement is required it should be provided as close to natural thyroid hormone as possible.

What seems to happen, however, is that our unfortunate patient, having repeated blood tests finds blood levels swinging about from one extreme to another, as the physician constantly tries to get it right by altering the thyroxine doses. The patient, of course, never feels really well, sometimes ever again.

The second "ablative" approach we saw is thyroid surgery. Let it be said at once that growths or cysts in the thyroid must be treated by surgical removal or a draining procedure, and a much-enlarged thyroid which interferes with breathing or swallowing leaves no option. But partial thyroidectomy to reduce the amount of thyroid hormone forming tissue is a popular, if in some eyes, barbaric procedure. It is popular with surgeons, if only because, their job done, they may then refer the patient back to the physician for subsequent management.

My view is that as a procedure, it should be the last resort only; and not as is so often and regrettably the case, almost the first option. Apart from all the normal objections to surgery, and a lasting reminder from the scar that one has had one's throat cut, the objection has to be the same as with "nuking"; however, can one make a good enough

guess to get it right? Well, usually it isn't possible. Too little means the surgery may have to be done again or suppressant drugs continued with; too much and one falls back on thyroxine replacement. Sometimes, the abused thyroid tissue may recover some function, so that the result of an over enthusiastic surgical removal may, in time, largely correct itself. But many patients, who have passed through my surgery doors, have found themselves underactive sooner or later. Once again, the patient is obliged to join the seesaw of more or less replacement therapy ever after, being told that they are perfectly well – whatever they say – since the blood tests show they are.

Inevitably, I have seen many patients who are hypothyroid in consequence of this treatment. They are told that thyroxine will solve all their problems, resulting in now being hypothyroid. Sometimes, sometimes, it does. But it doesn't do any such thing for a very large number of people. The thyroid produces T4, T3, T2, T1 and calcitonin (and possibly another hormone suspected by Broda Barnes) – this is how it works. Perhaps someone can tell me how one of the hormones, a synthetic precursor hormone, can do as well as the natural product. Well, largely I find it can't, and doesn't.

I find many people never recapture their original health, in spite of the constant adjustment of dose; and moreover, they often turn out to be suffering from symptoms and signs of low adrenal function. Getting them right can be very difficult but a combination of adrenal support, often natural, together with thyroid support, can go a very long way to restoring normal health.

Graves' Disease and Hyperthyroidism – When Things Go Wrong

A beautifully balanced biochemical mechanism can maintain us in perfect health all our lives. Sadly, however, it may go out of kilter sometimes quite abruptly, and sometimes insidiously slowly, causing a slow decline in health and vigour, which will inexorably destroy people's lives. On the one hand, the thyroid gland can become overactive, bringing with it a variety of unpleasant, even life threatening symptoms, or it may become underactive causing a bewildering number of problems, varying from mere loss of energy and vigour to chronic invalidism and sudden death.

There are two groups of problems, which can move the thyroid into an overactive state. First, there may be a control problem. This can originate right at the top of the chain of command. The hypothalamus may produce too much of the thyrotrophin release hormone (TRH), thus causing over activity in thyroid stimulating hormone (TSH) production, and hence, over activity of the thyroid itself. For example, the cells responsible for TRH production may overwork, as in the case of a hormone producing cancer, called an adenoma. Fortunately, not very common. But there may be over stimulation of these cells from the brain itself. High levels of stress from major life events can be responsible. Young adults, especially women may be subject to this. Or the TRH producing cells may become insensitive to circulating thyroid hormone and over produced to compensate.

More commonly, the pituitary itself may start producing more TSH. This can occur as a result of a pituitary adenoma, the growth producing the hormone in an uncontrolled fashion. There may be a genetic problem with these cells, which may escape from the proper controls and start doing their own thing. Or, they can become over sensitive to hypothalamic TRH with the same results. Whatever the cause, the thyroid becomes over stimulated and more thyroid hormone is produced than is required.

Most causes of over production of thyroid hormone however, occur in the gland itself. The receptors which respond to TSH may over respond and react by over producing

thyroid hormones. The body itself makes antibodies to the thyroid tissue, which initially may cause over production of thyroid hormone, but in time, this effect may burn itself out and then the receptors become insensitive and thyroid production starts to become affected the other way, resulting eventually in under production of thyroid hormones. This problem of antibodies as a cause of illness, applies not just to the thyroid, but to other organs and tissues as well.

For reasons that may not be clear, but again, are sometimes the result of major traumatic life events, the thyroid producing cells simply over produce. The thyroid may become subject to an inflammatory process – thyroiditis – which may run its course to leave the thyroid normal again, or subject perhaps, to instability between over and under activity.

The overactive thyroid, hypothyroidism, was first described as far back as 1835, by an Irish Physician, Robert Graves; and a German physician, Karl von Basedow, hastened to write a paper about it in 1840. Hence in the UK, we call it Grave's Disease and the Europeans Basedow's Disease. The thyroid gland is usually enlarged and clearly visible, a condition most often seen in young women. As a whole, women are more often affected than men, usually in the younger age groups; but it may occur at any age and at either sex. It is known to be the result of autoimmune antibody attack and it is for this reason also known as autoimmune thyroiditis. In general it is diagnosed without difficulty. The treatment of Graves' disease however, is often not at all satisfactory.

Surgery *versus* **Radioiodine Therapy in the Treatment of Hyperthyroidism**

If you are offered surgical intervention because you suffer hyperthyroidism (Graves') goitre, make sure that you are aware of another option.

Again, I will first quote from Dr Peatfield's book "Your Thyroid and How to Keep it Healthy"

> *". . . Let it be said at once that growths or cysts in the thyroid must be treated by surgical removal or drainage procedure, and a much-enlarged thyroid which interferes with breathing or swallowing leaves no option. But partial thyroidectomy to reduce the amount of thyroid hormone forming tissue is a popular, if in some eyes, barbaric procedure. It is popular with surgeons if only because, their job done, they may then refer the patient back to the physician for subsequent management.*
>
> *My view is that as a procedure it should be the last resort only; and not as is so often and regrettably the case, almost the first option. Apart from all the normal objections to surgery, and a lasting reminder from the scar that one has had one's throat cut, the objection has to be the same as with 'nuking'; however, can one make a good enough guess to get it right? Well, usually it isn't possible. Too little means the surgery may have to be done again, or suppressant drugs continued with;' too much, and one falls back on thyroxine replacement. Sometimes the abused thyroid tissue may recover some function, so that the result of an over-enthusiastic surgical removal may in time largely correct itself. But many patients who have passed through my surgery doors have found themselves under-active sooner or later. Once again the patient is obliged to join the seesaw of more or less replacement therapy, even after, being told that they are perfectly well – whatever they say – since the blood tests show they are."*

The use of radioiodine therapy is slightly safer and somewhat more effective than is the use of surgery for hyperthyroidism. Radioiodine therapy is regarded as the treatment of choice.

Before the Second World War, surgery was the only definitive treatment for hyperthyroidism. When iodine-131 became available after the war, it rapidly replaced surgery as the therapy of choice. Today, surgery for hyperthyroidism is rarely performed in the US, but still is in the UK, but it is performed in third-world countries that cannot afford the radioiodine.

The surgical technique is to take out most, but not all, of the thyroid gland. This is done to avoid damage to the parathyroid arteries and the recurrent laryngeal nerves, which are easy to injure or destroy if one tries to remove every bit of the thyroid gland. The parathyroid arteries feed the parathyroid glands, which are necessary for blood calcium control and normal nerve and muscle function. If blood calcium levels are very low (such as from non-functional parathyroid glands), nerves and muscles do not function properly. Very low calcium levels can be fatal. The recurrent laryngeal nerves control speech. If one is cut, you will be permanently hoarse. If both are cut, you will be unable to speak at all. The other reason to leave a small amount of thyroid tissue is to allow the patient to have some thyroid function.

Other than the risks of anaesthesia and the risks to the parathyroid glands and laryngeal nerves discussed above, the remaining thyroid tissue tends to grow back, creating hyperthyroidism once again.

Radioactive iodine (Iodine 31I, sodium iodide) is concentrated in thyroid glands, especially in hyperactive portions of the gland. For the type of hyperthyroidism called Graves' disease, it is usual for about 40-80% of the administered activity to concentrate in the thyroid gland. For functioning adenomas ("hot nodules"), the uptake is closer to 20-30%. The kidneys excrete excess iodine-131 rapidly.

The quantity of radioiodine used to treat hyperthyroidism is not enough to injure any tissue except the thyroid tissue, which slowly shrinks over a matter of weeks to months. If the first treatment is not enough to shrink the thyroid gland, you would be given another dose, usually about four months after the first. Radioactive iodine is either swallowed in a capsule or sipped in solution through a straw. It is an outpatient procedure. There are some simple radiation safety precautions necessary for about a week (it varies with the patient and the dose).

The goal of therapy in Graves' disease is to destroy the whole gland and then take thyroid hormone pills (one a day) to maintain normal thyroid function. Untreated, Graves' disease will "burn out" the thyroid gland (the disease is a chronic inflammation), so treatment with radioiodine merely accelerates the pathological process. The goal of therapy with "hot nodules" is to ablate the hyperthyroid areas, leaving normal areas to function normally afterwards, usually without the need for hormone replacement (unless the gland has numerous "hot nodules").

I hope you now understand why most people believe that radioiodine therapy for hyperthyroidism is better than surgical therapy.

THYROID CANCER

By Dr Barry Durrant-Peatfield

Thyroid cancer can occur in all age groups. People who have had radiation therapy to the neck are at higher risk. This therapy was commonly used in the 1950s to treat enlarged thymus glands, adenoids and tonsils, and skin disorders. People who received radiation therapy as children have a higher incidence of thyroid cancer.

Most distressing can be marked enlargement of the thyroid, which may be symmetrical or asymmetrical. Thus, the goitre may be due to a number of factors. Iodine deficiency will cause chronic enlargement; but this is rarely seen today, except in remote inland areas. Many people develop a diffuse, usually soft enlargement, especially teenage girls, with no real symptoms requiring attention. Sometimes, these quietly disappear, but they may progress to become rather harder and with lumps and nodules over the years. It is then called multi-nodular goitre, and may be inconvenient or unsightly. At this point, medical advice should be sought. X-rays and ultrasound may show its full extent, and whether further tests or intervention is required. Once such is the use of radioactive iodine, which is taken up to a greater degree by the abnormally active thyroid nodules and will show up as hot spots on a thyroid scan, providing a picture of the thyroid tissue health.

It is more common for the thyroid to present a nodule as a lump one side or the other. Many of these patients will have had the full thyroid function tests, but most often will have the nodule drained by a fine needle (fine needle aspiration (FNA) for the technically minded). The fluid and cells are subjected to microscopy. At this point, cancer cells may be looked for, which is why a growing nodule is not something you should try to deal with yourself. Fortunately, cancer is really quite rare and has a very high survival rate (95% overall); the average practice may not see more than one case every few years or so.

For the sake of completeness, I am going briefly to list the types of thyroid cancer that occur. Early on in life, and in young women, the cancer is likely to be papillary cancer (from its frond like appearance under the microscope). Later on in life, after about the age of 30, the cancer is more likely to be follicular cancer. Much rarer are medullary, lymphoma, or anaplastic cancer, the last two really only occurring in older age groups.

Symptoms of Thyroid Cancer

Most commonly, thyroid cancers in the early stage produce no symptoms. As the cancer grows, a small lump or nodule can be felt in the neck. The vast majority of thyroid nodules are caused by benign conditions, but about one per cent of these lumps represent early stages of thyroid cancer. If the cancer spreads, it can cause symptoms that include:

A lump—sometimes growing rapidly—in the front of your neck, just below your Adam's apple Hoarseness or difficulty swallowing

- Trouble breathing
- Swollen lymph nodes, especially in your neck
- Pain in your throat or neck, sometimes spreading up to your ears
- Cough–or cough with bleeding

Having one or more of these symptoms doesn't necessarily mean you have thyroid cancer. Other conditions—including a benign thyroid nodule, an infection or inflammation

of the thyroid gland and a benign enlargement of the thyroid (goitre)—can cause similar problems, all of which are highly treatable.

Treatment of Thyroid Cancer

Treatment is essentially surgical; the whole gland is removed, together with any associated glands with papillary cancer; some tissue may safely be left in surgical treatment of the follicular form. Any stray cancer cells are mopped up by a course of radioactive iodine a few weeks after the surgery and before thyroid replacement has been started. It is considered good practice to prevent thyroid stimulating, as by the TSH, to prevent recurrence; so thyroid replacement ensures the TSH is kept very low.

A physical examination can reveal a thyroid mass or nodule (usually in the lower part of the front of the neck), or enlarged lymph nodes in the neck.

Tests that indicate thyroid cancer:

Thyroid Biopsy showing anaplastic, follicular, medullary or papillary cancer cells

Ultrasound of the thyroid showing a nodule

Thyroid Scan showing cold nodule (a nodule that does not light up on scan)

Laryngoscopy showing paralysed vocal cords

Elevated serum calcitonin (for medullary cancer) or serum thyroglobulin (for papillary or follicular cancer)

This disease may also alter the results of the following tests: TSH, T4 and T3.

People with thyroid cancer often want to take an active part in making decisions about their medical care. They want to learn all they can about their disease and their treatment choices. However, the shock and stress that people may feel after a diagnosis of cancer can make it hard for them to think of everything they want to ask the doctor. It often helps to make a list of questions before an appointment. To help remember what the doctor says, patients may take notes or ask whether they may use a tape recorder. Some also want to have a family member or friend with them when they talk to the doctor—to take part in the discussion, to take notes, or just to listen.

The doctor may refer patients to a specialist (oncologist) who specialise in treating cancer, or patients may ask for a referral. Specialists who treat thyroid cancer include surgeons, endocrinologists, medical oncologists, and radiation oncologists. Treatment generally begins within a few weeks after the diagnosis. There will be time for patients to talk with the doctor about treatment choices, get a second opinion, and learn more about thyroid cancer.

The following are some questions you may want to ask your doctor before treatment begins:

- What type of thyroid cancer do I have?
- Has the cancer spread? What is the stage of the disease?
- Do I need any more tests to check for spread of the disease?
- What are my treatment choices? Which do you recommend for me? Why?
- What are the benefits of each kind of treatment?
- What are the risks and possible side effects of each treatment?

- How will the treatment affect my normal activities?
- Would a clinical trial (research study) be appropriate for me? Can you help me find one?

TPA MEMBERS LENDING LIBRARY of THYROID BOOKS

For UK borrowers only.

"From Fatigued to Fantastic" By - Jacob Teitelbaum, MD

"Living Well with Hypothyroidism" By – Mary J. Shomon

"Tears Behind Closed Doors" By - Diana Holmes

"Living Well With Hypothyroidism" By - Mary Shomon

"The Thyroid Diet" By - Mary Shomon

"The Thyroid Solution" By - Ridha Arem

"Solved, the Riddle of Illness" By Steven Langer

"Your Guide to Metabolic Health" By - Dr, Gina Honeyman-Lowe/Dr. John Lowe.

"Safe Uses of Cortisol"-By - William McK. Jefferies

"Hypothyroidism: The Unsuspected Illness" By - Broda Barnes

"Your Thyroid and How to Keep it Healthy" By - Dr. Barry Durrant-Peatfield

"Adrenal Fatigue: 21st Century Stress Syndrome" By - James Wilson

"Coping with Thyroid Problems" By - Joan Gomez

"Take Control of Your Health and escape the sickness industry" By – Elaine Hollingsworth

"Diagnosis and Management of Hypothyroidism" By - Dr. Gordon Bruce Skinner

"From Fatigued to Fantastic" By: Jacob Teitelbaum

"The Super Hormone Promise" By - William Regelson, MD & Carol Colman

"Recovering with T3" By – Paul Robinson

"Thyroid Problems" By - Dr John Smith

"Candida, M.E & Allergies – The Way Back to Good Health" By – Jo Hamptom

"Cooking for Candida – Recipes & Diet Plans" By – Jo Hamptom

"Thyroid Disease – The Facts" By – R.O.S Bayliss and W.M.G.Tunbridge

"Natural Hormone Balance for Women" By - Dr. Uzzi Reiss MD OB-GYN

"What Your Doctor May Not Tell You About Pre-Menopause" By - Dr John Lee

"Why do I Still Have Symptoms When my Thyroid Function Tests are Normal"
By - Dr Datis Kharrazian

"Hypothyroidism – Type 2" By - Mark Starr

"Adrenal Fatigue – The 21st Century Syndrome" By - James Wilson

"Stop the Thyroid Madness" By - Janie Bowthorpe

"The Lactose Free Cookbook" By - Sheri Updyke

See TPA Internet Support Forum for details of how you can borrow these books

TPA's INTERNET THYROID SUPPORT FORUM

If you have access to the Internet, we would highly recommend you join our Thyroid Support Forum where you will find much information about thyroid disease, diagnosis, treatment, associated conditions etc. You can join us at **www.tpauk.com/forum**

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