

Thymus Gland - Its Overlooked But Vital Role

By James South MA

The thymus gland (TG) is a small gland in the upper chest. It weighs one third - to one half ounce at birth, and reaches its peak weight of about 1? ounces at puberty. Thereafter, under the influence of many factors, including adrenal and sex hormones, the active TG cells begin to die off, with much of the TG tissue being gradually replaced by fat and connective tissue.

Much of the healthy TG structure typically atrophies by age 20, and the decline accelerates through-out life thereafter. As immunologist Keith Kelly notes: "The involution [shrinkage] of the thymus gland is one of the cardinal bio-markers of aging." (1).

In the past 40 years, science has discovered that the TG is the key regulator of immunity.

Thymus - research

In the 1960's research showed that immature white blood cells would "incubate" for a period inside the TG, and exit transformed into one of the specific types of T-lymphocytes, such as T4 helper cells or T8 suppresser or cytotoxic T cells.

By the 1970's, the TG began to be viewed as an endocrine gland, similar to other endocrine glands, such as the pituitary or thyroid.

Thus, pioneer TG hormone researcher Allan Goldstein, MD stated in concluding his classic 1974 paper Thymosin and the Immunopathology of Aging: "Our studies indicate that the thymus controls the maturation of T cells by an endocrine mechanism, and that the hypothesis that the [TG] must come into contact with T-cell precursors is no longer tenable. We propose that the [TG] secretes thymosin, and perhaps other hormones, which can act at sites distant from the thymus to influence the ontogenesis [and] function... of lymphoid cells involved in cell mediated immunity." (2)

By the 1990's, at least 4 different peptide hormones naturally secreted by the TG had been discovered and clinically tested. These included the Thymosins, a group of 40 or so related peptides, found in thymus extracts called "Thymic Fraction 5"; Thymopoietin; Thymulin; also called "Facteur Thymique Serique"; and Thymus Humoral Factor (3). Collectively, these TG hormones have been shown, in human, animal and in vitro studies, to have a broad range of action, well beyond merely maturing and differentiating T cells.

Thymus -Action

TG hormones can increase key immune signals, called "lymphokines", including interleukin 2 (IL2), interferon, colony stimulating factor, and others (4,6). TG hormones can cause greater numbers of T cells to develop more IL2 receptors more quickly, which is critically necessary to allow rapid white blood cell proliferation and activation to fight invading germs (4).

TG hormones can prevent the tissue wasting that occurs with TG removal or severe TG atrophy, and promote healthy weight gain in disease states- such as AIDS- where catabolic body wasting is typical (3).

TG hormones can reduce autoimmune reactions, clinically and experimentally, such as occur in rheumatoid arthritis (5).

TG hormones prevent the bone marrow injury and subsequent reduction in white and red blood cell production, frequently produced by X-ray or chemotherapy cancer treatment (5).

TG hormones can increase disease-fighting antibodies when they're needed, yet reduce the levels of the "allergic antibody" IgE, in patients suffering allergic rhinitis, asthma, and atopic dermatitis (5). These are just some of the many ways TG hormones have been shown to enhance, restore, and balance immunity!

As cellular physiologist Dennis Fahy has noted: "If you restore immune function, your ability to make DNA, to have normal cell division, to have normal insulin sensitivity, to have normal thyroid levels and other things, such as normal population of certain molecules in the brain that change with age, all these things are restored by an improvement in the immune system." (1).

Thymus- aging and growth hormone

As the thymus gland shrinks with age, so the blood levels and activity of various TG hormones decline with age. Thus, Goldstein observed a significant drop in blood thymosin levels in normal individuals between the ages of 20 and 40 (2). Thymulin, a zinc-activated TG hormone, shows bioassay evidence of a significant drop in activity in aging, healthy adults, and in hypothyroidism (3).

Since TG hormones are secreted by the very TG cells that "shrivel up" and waste away due to aging, stress, disease, radiation and malnutrition etc., the drop in TG hormone activity with aging should hardly be surprising.

Part of the restorative, rejuvenate, anabolic, general health-enhancing effects of TG hormones may relate to the parallel and synergistic interactions between the pituitary and TG, and growth hormone (GH) and TG hormones.

TG hormones increase the number, activity, and healthy structure of T cells, and T cells secrete GH and GH releasing hormone (7,8). Furthermore, they can stimulate the pituitary to release GH (3).

Also, experimental TG removal is accompanied by degeneration of the pituitary cells that produce GH (3).

Thymus- immune system

Another important effect of TG hormones is their immune normalizing action. TG hormones do not automatically just "turn up the volume" and increase all immune activity. Rather, TG hormones tend to reduce immunity when excessive, as evidenced by overly high T4: T8 ratios, often seen in rheumatoid arthritis.

TG hormones increase immune activity when it is weak, as shown by low T4: T8 ratios, a hallmark of AIDS. TG hormones will also more precisely normalize the T4: T8 ratio in persons whose T4: T8 ratio is already more or less normal, and bring the ratio closer to the "ideal", healthy T4: T8 ratio of 1.74.

A retrospective study of the results from clinical trials with 130 patients suffering various ailments, who received oral pharmaceutical thymus extract demonstrates this clearly. 40 subjects had T4: T8 ratios below normal (under 1.02); 78 had normal ratios (between 1.02 and 2.46); while 12 cases had above normal ratios.

After 3-months the oral therapy had increased the below-normal group's T4: T8 ratio from 0.72 to 1.10, while the above-normal ratio group decreased from 3.33 to 2.18. The

already normal T4: T8 ratio group increased their ratio slightly from 1.53 to 1.70, almost exactly the "ideal", healthy ratio of 1.74 (9).

Thymus- little known

Although it is little known, even to most alternative/ anti-aging medicine devotees, there is a large body of published, human clinical research supporting the use of oral TG extracts. They have been used in a broad range of conditions, ranging from cancer treatment, to rheumatoid arthritis, to various allergy and asthma conditions, to recurrent respiratory infections and hepatitis (see reference 5 for a detailed list of references). These studies have generally shown TG extracts to be extremely non-toxic and side-effect free, with few contraindications for use.

The main block to the acceptance of the efficacy of oral TG extracts is the erroneous yet widespread belief that all proteins and peptides taken orally, as food or supplements, are 100% digested to individual amino acids before absorption, from the intestine into the body.

If this were true, then indeed orally administered TG peptide hormone extracts would be broken down completely during digestion, becoming merely very expensive, low dose amino acid supplements, with no more immune activity than (for example) a few hundred milligrams of ground beef protein! Yet it has been known since the 1970's that significant quantities of various proteins, such as gliadin from wheat, milk casein, ferritin, haemoglobin and milk immunoglobins routinely survive digestion and enter the body- and even the brain- intact.

The pioneering research of W.A. Hemmings (10) and Ziovdrov and colleagues (11) had repeatedly demonstrated this in a wide variety of experiments using many different proteins, by the late 1970's.

In the 1997 textbook Oxidology (12), Bradford and Allen even explain the mechanism of how this occurs. It is based on a cellular process called "pinocytosis."

Thymus- Thym-Uvocal

Thym-Uvocal (TUV) is not just a "desiccated whole thymus glandular extract" of the sort found in health food stores.

The active substances in TUV are obtained by a selective, multi-stage biotechnology process. The starting material is TG's from strictly selected and healthy calves.

Tissue from any given animal is used only after a veterinary physician has examined the live animal and issued a certificate of good health.

Before the tissue is processed, histological and bacteriological tests are performed.

During the multi-stage processing, proteins and prohormones in the tissue are enzymatically cleaved to short-chain pharmaceutically active oligopeptides.

Filtration and special heat treatment ensure the inactivation and removal of any microorganisms. The controlled and reproducible manufacturing process produces an activation and concentration of the desired low molecular weight peptides.

The various major TG hormones range in molecular weight from 860 Daltons (Thymulin) to 5600 Daltons (Thymopoietin). Injectable TUV is standardized to be under 2000 Daltons molecular weight, thus minimizing the risk of allergic reaction, while the oral form TUV has a molecular weight under 10,000 Daltons.

Since animal experiments and human clinical research has found no single TG hormone to be capable of performing all the immune-optimizing functions induced by the TG family of hormones as a whole, pharmaceutically balanced TG polypeptide hormone mixture is both more "natural", and more likely to be safe and effective, than any specific thymic hormone.

TUV has been in clinical use in Europe since 1976. The German company- Mulli which produces TUV has published research, as well as in-house and physician anecdotal evidence to support the efficacy and safety of TUV (13).

Who can benefit from Thym-Uvocal?

1. Patients, both children and adults, with infections, autoimmune, allergic and cancerous conditions, both acute and chronic, have been shown to benefit from Thym-Uvocal (TUV), whether taken by injection or orally. Hepatitis, recurrent respiratory infections, early-stage AIDS, candidiasis, rheumatoid arthritis, asthma and skin conditions have all been treated successfully with TUV or similar pharmaceutical TG extracts.
2. Thym-Uvocal is useful as a key endocrine-normalizing, anti-aging therapy, especially for those over 20! Thymus size and hormone activity shrink significantly by the age of 20, after peaking in the first 10-12 years of life. Further significant decline usually occurs by the age of 40, and it's all downhill from there- until death, at whatever age.
3. Thym-Uvocal is useful as part of a growth hormone-increasing program. GH and thymic hormones are mutually supporting and synergistic.
4. Thym-Uvocal is useful even for those who are relatively healthy, but who suffer frequent colds, flu, and other minor infections.
5. Thym-Uvocal (TUV) is useful as an agent to increase energy and vitality, and to "lift the spirits." In his book Life Energy (14), John Diamond, MD provides evidence that the thymus gland controls the acupuncture energy meridians of the human body, and is the glandular key to vitality, love, courage and the will to live/ will to be well. Diamond specifically recommends thymus gland (TG) extracts as a major method to restore TG structure/ function.

TUV may be given by subcutaneous or intramuscular injection from the TUV ampoules, or it can be taken orally as TUV tablets.

How to use Thym-Uvocal

For rapid results, the injections are taken on alternative days with the tablets. For those not suffering major or life-threatening illness, TUV tablets alone may be sufficient.

1 or 2 ampoules are injected every other day, while 2 tablets (240mg each) are taken 3 times a daily, or 2-4 tablets twice daily are taken on an empty stomach. TUV should be taken daily by those not using injections. Long term, even permanent TUV use is both safe and effective.

TUV cream may also be used topically for minor skin allergic conditions, infections and simply to "youthify" normal skin.

Thym-Uvocal- contraindications

There are few known contraindications for TUV use. TUV should NOT be used during pregnancy, unless prescribed by a physician.

TUV should NOT be used by those with thymic tumours, myasthenia gravis, untreated hypothyroidism and those receiving immunosuppressive therapy- e.g. to prevent transplanted organ rejection.

Thym-Uvocal- conclusions

To conclude on a personal note; my wife and I have used Thym-Uvocal (TUV) off and on since 1993, and continuously since 1996.

Aside from the obvious immune benefits (no colds or flu, almost perfect allergy control), we have both noticed a unique effect from TUV that nothing else in our (rather massive) health/ anti-aging regimen can replace.

We both notice a distinct "vitalizing" and "joie de vivre" effect from oral TUV. I have been using various thymus extracts since the late 1970's, and I have never found any other thymus product to give this unique effect.

We have periodically stopped taking TUV until we noticed a drop in mood or energy, and upon resuming TUV we notice the uplift after taking just one or two doses! It's an extremely pronounced effect within 3-7 days.

Our personal experience with TUV very much confirms John Diamond's views on the thymus gland in his book Life Energy.

Thym-Uvocal is one of our core pro-health supplements.

Thymus- references

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5083 S. McCarran Blvd. Reno, NV 89502

Phone: (775) 824-0704 Fax: (775) 824-0217 Email

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