

SUNSHINE SHARING

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Pituitary Hormones

The following is a list of hormones produced by the pituitary gland and their major effects in the body

- **Growth Hormone (Somatotrophin)**—promotes protein synthesis, increases breakdown of fats for energy, increases bone growth, helps tissue repair, regulates growth.
- **Thyroid Stimulating Hormone (Thyrotropin)**—regulates the thyroid gland by stimulating production of thyroid hormones.
- **Adrenocorticotrophic Hormone (ACTH)**—stimulates adrenal cortex to produce cortisol and other stress management hormones.
- **Luteinizing Hormone (LH)**—stimulates reproductive glands to produce estrogen and testosterone.
- **Follicle Stimulating Hormone (FSH)**—stimulates estrogen production and ovulation.
- **Prolactin**—stimulates development of breast tissue and the secretion of milk.
- **Melanocyte Stimulating Hormone**—stimulates melanocytes in the skin to produce melanin for skin pigmentation, also stimulates sex drive.
- **Oxytocin**—stimulates uterine contractions during childbirth and production of breast milk.
- **Antidiuretic Hormone (ADH)**—inhibits the formation of urine by reducing the amount of water secreted by the kidneys.



Supporting the Fountain of Youth Balancing Pituitary Hormones to Prevent Aging and Improve Health

There are four major factors known to contribute to aging and the development of degenerative diseases. They are excess insulin production, excess cortisol production, excess blood glucose (high blood sugar), and free radical damage. These factors lead to increased body fat, decreased lean muscle mass, and increased inflammation—additional factors associated with aging and degenerative disease. In his book *The Anti-Aging Zone*, Barry Sears, Ph.D., explains these four aging factors are linked to hormonal miscommunication. In other words, as our hormones get increasingly out of balance, these symptoms develop, causing us to age and develop degenerative diseases.

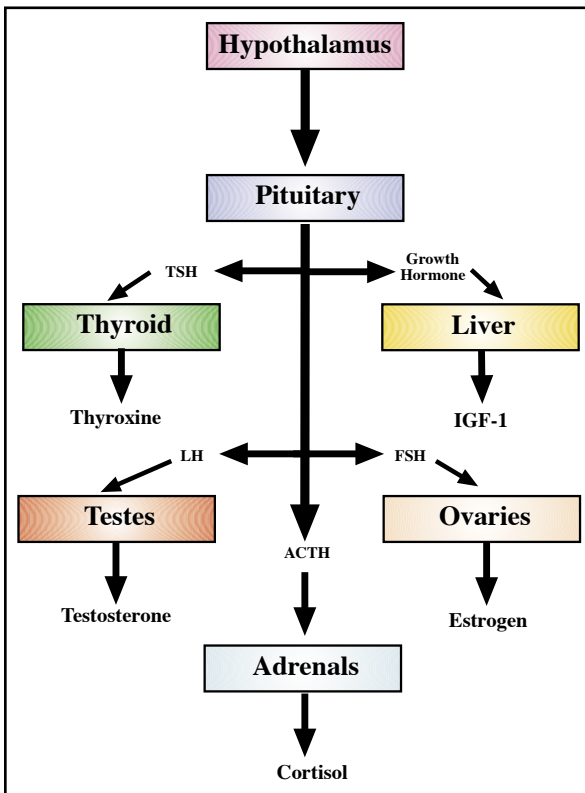
Science is confirming that hormonal imbalances are at the root of the aging process. As we grow older, levels of certain key hormones such as testosterone, estrogen, melatonin, DHEA and human growth hormone (HGH) decline. While it may seem tempting at first to buy into the idea that all we need to do is supplement these hormones and all will be well, the answer isn't quite that simple. Consider the problems science has uncovered with estrogen replacement therapy for postmenopausal women. The estrogen supplements once thought to perform miracles for aging women have now been shown to increase cancer risk.

The fact is, the decline in hormones and the hormonal miscommunication are symptoms of the deterioration of our health due to nutritional imbalances and other lifestyle factors. Hormones require nutrients for synthesis. Replacing hormones isn't going to supply these nutrients. Likewise, there is a growing list of environmental toxins known to disrupt endocrine function. Again, replacing hormones isn't going to get rid of these chemicals.

In her biochemical blood analysis work, Kimberly Balas, ND, has discovered that the pituitary is frequently a primary cause of people's glandular imbalances. If we want better hormonal regulation, then we also need to look at ways to balance the pituitary gland, the master gland that regulates all the other glands. In this issue of *Sunshine Sharing*, we're going to explore how the pituitary gland controls and regulates hormone levels. We're also going to learn how to support this gland to improve glandular function. While this may not be a fountain of youth, it can help healing in a wide variety of health problems.

Look inside to learn more about this master controller of the glandular system called the pituitary and how to enhance its function.

The Pituitary: Master Controller of the Glandular System



in females. In contrast, the folliclestimulating hormone (FSH) causes production of estrogen in the ovaries to increase. ACTH, the adrenocorticotrophic hormone, stimulates the adrenal glands, while HGH, human growth hormone, stimulates the production of IGF-1 (insulin like growth factor) in organs like the liver.

Not pictured on the chart are four other hormones produced by the pituitary. *Prolactin* stimulates milk production after childbirth, the *melanocyte-stimulating hormone* controls skin pigmentation, the *antidiuretic hormone* (ADH) increases absorption of water into the blood by the kidneys, and *oxytocin* contracts the

uterus during childbirth. Oxytocin also stimulates milk production in nursing mothers. The major functions of these hormones are summarized on page 1.

This system also serves to prevent overproduction of hormones via feedback loops. We can think of the hypothalamus and pituitary as a kind of valve attached to a float in a tank. When levels of certain hormones get too low, the pituitary sends a message telling the target gland to produce more of that hormone. As the level of that hormone rises, it trips the shutoff valve and the pituitary stops signaling the gland. These feedback loops ensure that the level of hormones in the blood is kept in balance.

One can readily see why the pituitary is the master gland. One can also see why a poorly functioning pituitary would throw the entire endocrine system out of balance.

The pituitary is the body's master gland. Just as the conductor of a symphony orchestra cues the different instruments to play their parts at the right time, the pituitary supplies the cues that tell the other glands in the body when to secrete the hormones needed to keep the body functioning harmoniously.

The pituitary is also the bridge between the nervous system and the glandular system. It is attached to a part of the brain known as the hypothalamus. Our thought processes influence the hypothalamus, which secretes hormones which travel to the pituitary, triggering the pituitary to release other hormones.

The pituitary hormones travel through the bloodstream to stimulate their target glands and organs to secrete the major hormones that keep the body running smoothly. This is illustrated in the chart on this page.

As the chart shows, the thyroid stimulating hormone (TSH) released from the pituitary stimulates the production of the thyroid hormone thyroxine. The luteinizing hormone (LH) from the pituitary stimulates testosterone in males and progesterone

Growth Hormone and IGF-1

Perhaps you've seen or heard some of the media hype about human growth hormone and IGF-1 (insulin-like growth factor). Growth hormone itself suppresses the development of body fat and stimulates fat burning. It also triggers the production of IGF-1, a hormone which promotes tissue growth and repair. IGF-1 also helps with bone and muscle growth. Low levels of these hormones have been associated with all of the following:

- Reduced muscle tone (both strength and size)
- Lowered sex drive and potency
- Depression, memory loss, and emotional instability
- Increased total body fat
- Elevated LDL cholesterol and decreased HDL cholesterol
- Reduction in thyroid activity
- Thin skin and reduced capacity for sweating
- Decreased hair and nail growth

Deer antler velvet, a substance that has been used in Chinese medicine for thousands of years contains naturally occurring IGF-1. Some of the health benefits traditionally associated with deer antler velvet include:

- Increasing energy and general resistance to disease
- Strengthening bones and muscles, and improving wound healing
- Preventing male impotency and increasing sex drive
- Improving circulation and delaying senility

IGF-1 extracted from deer antler velvet is available as a supplement, and many people have reported beneficial effects from its use like those traditionally ascribed to deer antler velvet. Remember that IGF-1 will feedback the message to the pituitary to stop producing growth hormone, so it is probably wise to use this supplement for short periods and not continuously. Korean ginseng, astragalus, niacin, exercise and deep sleep are natural ways of increasing growth hormone and IGF-1.

Food for the Master Gland



To do its job properly, the pituitary needs nutrients. Pituitary hormones are amine hormones, which means they are based on amino acids as primary building blocks.

Specific minerals and vitamins are also needed to synthesize these hormones. If these nutrients are lacking the pituitary will not function properly and neither will the rest of the glandular system.

While many people are consuming protein in their diets, most of the protein they are consuming is devitalized protein—protein that has had its amino acids denatured by cooking at high temperatures. In clinical practice, herbs and foods high in vitalized protein have been found to strengthen the pituitary gland. These nutrients include **spirulina**, **SuperAlgae**, blue green algae, **bee pollen** and **Ultimate Green Zone**. These foods also seem to help balance and improve overall glandular function and health. Often they improve mental clarity as well, because neurotransmitters are also made from amino acids.

Herbs high in trace minerals are also helpful for balancing the pituitary gland. Many herbalists have successfully used **alfalfa** for a wide variety of pituitary related problems. The discovery that alfalfa aided the pituitary was made by LaDean Griffin, an herbalist and naturopath, who was searching for the answer to a serious pituitary condition in one of her children. She was able to stabilize her daughter's life-threatening pituitary disorder with 40 alfalfa tablets per day.

The combination **Herbal Trace Minerals** (formerly known as Three) is another pituitary balancing supplement. It combines alfalfa with two other mineral rich herbs, kelp and dandelion.

Maintaining good blood flow to the brain is also critical to the pituitary. The pituitary receives its blood supply

through the hypothalamus, the stalk of the brain which is also part of the glandular system. Walking helps pump more blood to the brain. In our sedentary society many people need a brisk walk each day to improve blood flow to the brain. **Ginkgo/Gotu Kola Concentrate with Bacopa** can improve blood flow to the brain and pituitary. Pressing the thumb against the roof of the mouth (the way a baby does when sucking his or her thumb) and using a pumping action will also stimulate the pituitary gland.

There are also specific remedies which help with specific pituitary hormones. Here are some examples:

Growth Hormone

As its name implies, growth hormone (somatotrophin) regulates tissue growth and repair. It promotes cell division and tissue repair. It aids protein synthesis, increases the breakdown of fat stores, decreases insulin secretion, and enhances the production of glycogen (the storage form of blood sugar in liver and muscle cells). Growth hormone aids bone growth. Since high insulin levels, high blood glucose levels, increased fat, and decreased muscle mass are all signs of aging, this hormone appears to help keep the body young.

Korean ginseng, **astragalus**, and **niacin** all help with the secretion of growth hormone. This may partially account for the reputation both ginseng and astragalus have in Chinese medicine as tonics for the elderly. Exercise and deep sleep also trigger the release of growth hormone.

Growth hormone stimulates the production of IGF-1. IGF-1 stimulates bone development, so it may be helpful in preventing or reversing osteoporosis. It also helps protein synthesis in the muscles, fat breakdown, and carbohydrate metabolism. IGF-1, derived from deer antler velvet is available as a sublingual spray. Clinical studies suggest it can help increase muscle mass, aid in weight loss, improve energy levels, improve mood and memory, improve skin tone and increase sexual potency. See sidebar, page 2, for more information.

Thyroid Stimulating Hormone (TSH)

TSH, also known as thyrotropin, stimulates the thyroid to produce thyroid hormones. **Target TS II** is a special supplement that increases production of the thyroid releasing hormone (TRH) by the hypothalamus which stimulates the pituitary to increase TSH. It contains zinc and manganese chelated (attached) to the three amino acids found in TRH (proline, histidine and glutamine).

In one study, it was demonstrated that manganese chelated to these amino acids traveled directly to the hypothalamus, while ordinary manganese did not. The study further showed weight gain in the rats fed ordinary manganese, but there was no weight gain in rats fed the amino acid chelate. Another study using pigs showed a reduction in body fat and an increase of muscle tone in pigs fed a manganese amino acid chelate.

Target TS II combines these special mineral chelates with a base of herbs used traditionally to feed the thyroid. This makes a powerful supplement for increasing thyroid function in cases of low thyroid. It is also a supplement that can help reduce excess body fat—another aging factor influenced by hormonal imbalances.

Adrenocorticotrophic Hormone (ACTH)

ACTH stimulates the adrenal cortex to produce stress management hormones such as cortisol. This hormone is produced under the direction of the hypothalamus, which releases CRH (corticotropin-releasing hormone) when the brain perceives a stressful situation. It doesn't matter whether the stress is real or imagined, the result is the same. CRH stimulates ACTH which stimulates the adrenals.

As mentioned on page 1, high cortisol levels are one of the four major imbalances that contribute to rapid aging. In fact, it is this particular hormonal process that causes people under intense pressures to age prematurely. So, this is one hormonal system we do not want to encourage if we want to stay healthy.

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Food for the Master Gland

Continued from page 3

Fortunately, there is a class of herbs that inhibit the formation of CRH in the hypothalamus and ACTH in the pituitary. These herbs are called adaptagens. **Eleuthero root**, schizandra, **Korean ginseng**, **American ginseng**, and **maca** are all herbs possessing adaptagenic properties. Herbal formulas that act as adaptagens include **Suma Combination**, **Nervous Fatigue Formula**, and **Chinese Mineral Chi Tonic**. All of these formulas help reduce the level of stress hormones produced by the adrenals.

Meditation and relaxation techniques will also calm production of stress hormones. Regular exercise will help us "burn off" excess stress hormones.

Luteinizing Hormone (LH) and Follicle Stimulating Hormone (FSH)

The levels of sex hormones such as estrogen, progesterone, and testosterone also decline with age. Progesterone and testosterone are hormones produced by the sex glands in response to stimulation by the luteinizing hormone. FSH stimulates estrogen and the maturation of the follicle in the ovary. Both LH and FSH are stimulated by the gonadotropin-releasing hormone (GnRH) produced by the hypothalamus.

There is a feedback loop. As levels of sex hormones rise, GnRH is inhibited, which reduces production of LH and FSH by the pituitary. Birth control pills and estrogen replacement therapy enter into these feedback loops and suppress production of these hormones from the hypothalamus and pituitary.

There are herbs which inhibit and herbs which enhance these hormones. For teenagers, whose hormones are often raging out of control, chaste tree, found in **Wild Yam/Chaste Tree** combination, appears to inhibit FSH, keeping hormone levels more subdued. This can help to balance periods, relieve teenage acne, and calm excessive sex drives.

On the other hand, **sarsaparilla** appears to enhance both LH and FSH, increasing output of sex hormones. It is likely that **damiana** and **maca** also have this effect. All of these herbs have been taken to help slow or reverse the effects of aging and improve sexual drive and function.

While there is no magic pill that will keep us young forever, it is possible to use certain herbs and nutrients to balance the pituitary hormones and slow down or reverse the hormonal miscommunication at the root of aging. Used in conjunction with a properly balanced diet, meditation and relaxation, positive attitudes, and regular exercise, these herbs can help us keep our glands balanced and stay feeling younger longer.

Sources

For more information about the pituitary, hormones, or IGF-1 talk to the person who gave you this newsletter. His or her name should appear below. You can also consult some of the sources listed below for additional information.

- The Anti-Aging Zone* by Barry Sears
- Activating the Healing Response* by Steven Horne
- Biochemical Blood Analysis* by Kimberly Balas
- Minerals: Right on Target* by Steven N. Harvey
- Living Longer and Loving It: How to Prevent, Stop and Reverse the Aging Process* by Alex Duarte

Important Notice

The information in *Sunshine Sharing* is for educational purposes only and should not be used to diagnose and treat diseases. If you have a health problem, we recommend you consult a competent health practitioner before embarking on any course of treatment.

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Managing Editor/Writer: Steven Horne
Associate Editor/Writer: Frances Townsend

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