

Secret Six

Hormones

Introduction

Never “for the sake of peace and quiet” deny your own experience or convictions.

Dag Hammarskjold

The hypothalamus, located in the brain, controls the release of hormones from various glands in the body (figure 1).

As we age the hypothalamus loses its ability to regulate these hormones. Thus the secretion of many of these hormones declines after age 30-35 and their effectiveness is also reduced due to the receptors downgrading.

One of the main reasons for the hypothalamus loss of regulation may be due to damage from cortisol. It is one of the few hormones known to increase with age.

We have known that chronic stress causes a raised cortisol level which damages the hypothalamus and other brain structures.

This is why I think a persons particular worldview is essential to their wellbeing and why it is so important to take nutraceuticals and pharmaceuticals to maintain brain health as this organ is truly the conductor of the entire neuro-endocrine sympathy played each day in our lives.

Hormones are the real “juice” of life. In my practice I am always astonished how men and women are revitalized in as little as 6-8 weeks after beginning hormonal replacement. Trust your experience and you will soon be convinced of the benefits of hormonal replacement therapy (HRT).

I will begin with an overview of a number of important hormones and end with the changes taking place in 40 million women (menopause) and 40

million men (andropause) in the US alone. 80 million (men and women) are also going through somatopause.

Once hormones are restored to their youthful levels (age 30-35) balance is reinstated and receptor site sensitivity improved a greater sense of wellbeing and vitality is felt by the client. This hormonal replacement therapy must be done under the supervision of a physician. Our longevity program follows a few simple rules:-

MAJOR ENDOCRINE (HORMONE) GLANDS OF THE BODY

Hypothalamus

Pituitary Gland
Human Growth Hormone

Pineal Gland
Thyroid Gland
Thyroid
Parathyroid Glands (4)

Thymus Gland
Thymus

Adrenal Gland (2)
DHEA
Pregnenolone
Pancreatic Islets

Ovaries (2 in females)
Estrogen-Progesterone

Testes (2 in male)
Testosterone

Figure One

- (1) Replace each hormone deficiency present.
- (2) Individualize all doses
- (3) Use only bioidentical hormones
- (4) Polytherapy is the treatment of choice.
- (5) Monitor the client frequently.

These guidelines ensure a safe and effective result so that we can slow, halt and even reverse many of the diseases of aging.

(1) **DHEA**

Dehydroepiandrosterone (pronounced dee-hi-dro-ep-i-an-dro-stair-own) or abbreviated to DHEA, is a steroid hormone produced naturally by the adrenal gland, and is the most abundant steroid found in the human blood stream.

Research indicates that DHEA has significant anti-obesity, anti-cancer, cognitive enhancement and anti-aging effects. DHEA levels naturally decline as we get older, and there is strong reason to think that DHEA supplements may extend life span and make us more youthful.

Figure above shows the position of the adrenal glands on top of the kidneys.

DHEA, Protection from Dementias?

DHEA protects brain cells from Alzheimer's disease and other degenerative conditions. Nerve degeneration's occur more rapidly under low DHEA conditions. Brain tissues contain, on average, 6.5 times more DHEA than any other body tissue.

Dr Eugene Roberts found that by adding low concentrations of DHEA to nerve cell tissue cultures, that the number of neurons and their ability to establish contacts increased and improved.

DHEA has improved long term memory ability in mice and has been linked to similar effects in humans. DHEA produces a typical dose dependent inverted curve that is typical of memory enhancing substances.

Alzheimer's Disease

DHEA is now being administered to Alzheimer patients in scientific studies, people with Alzheimer's disease have on average 48% less DHEA levels than their matched controls of the same age,

Unfortunately, it is not yet clear what to conclude from these results, as to whether Alzheimer's disease decreases DHEA supplies, or whether low DHEA concentrations are responsible for Alzheimer's disease.

DHEA, Protection from Aids?

The November 1991 issue of the Journal of Infectious Diseases reported that DHEA may be able to prevent HIV infected people from developing the full blown Aids. The study showed that people infected with

HIV don't suffer from immune system suppression, until their adrenal output of DHEA declines.

This Aids study was performed by the University of California in San Francisco, blood samples were drawn from HIV infected men and frozen. The samples were then tested for DHEA and the rate of the progression of Aids was monitored. The results showed an association between low blood levels of DHEA and the progression to "full blown" Aids.

Men with low levels of DHEA had double the risk of developing "full blown" Aids compared to men with normal DHEA levels.

The significance of these findings remain unclear, as to whether HIV attacks the adrenal gland in a way to reduce DHEA levels, or whether low levels of DHEA enhances the on-coming of full blown Aids. However, there is evidence to suggest that DHEA may be a shield against HIV progression.

DHEA is now being used by a great number of HIV infected people, because of its immune enhancement and anti-viral properties. Further evidence is provided by a report in Aids Research and Human Retroviruses. It points to the fact that maintained high levels of DHEA can inhibit the progression of HIV-1.

Figure above shows the average decline with age of blood DHEA levels for both men and women.

Forthcoming reports are likely to highly recommend the combination of DHEA and AZT. It appears that DHEA has a definite role in the treatment of aids, and DHEA test results will undoubtedly sponsor further research into other natural hormones. These kinds of reports attest to its powerful immune enhancing properties.

DHEA, the Youth Steroid?

Reports have indicated that DHEA levels normally start to decline after the age of 21, and that by the age of 40, DHEA levels are often 30% of what they were when we are in our twenties.

At present it is unclear why the adrenal gland reduces its output of DHEA as we age. But individuals, body builders in particular, are discovering the effects of DHEA supplements, and the reason why DHEA has been nick named the “youth steroid.”

The initial excitement was sparked by a 1988 medical report that was conducted under double blind placebo conditions (in other words nobody was aware of who was receiving DHEA or a placebo).

The scientists tested 1600 mg daily supplements of DHEA (or a “dummy” capsule), on 10 normal healthy individuals and everyone was instructed to continue their normal life styles. After 28 days the 5 receiving the placebo had no noticeable differences, however the 5 who had received 1600mg of DHEA daily had lost 31% of their body fat, and as their actual

weight hadn't changed, fat had been replaced by lean muscle. No side effects were noted.

Figure below shows the breakdown of DHEA into testosterone precursors. Note 7-keto DHEA does not convert to testosterone or its precursors.

Different Forms

DHEA was originally synthesized using a sulphate base, which is the most common form of DHEA circulating in blood. It now appears that this process (which is a much cheaper way of producing DHEA) could be less effective, as the body can utilize little of the DHEA itself.

DHEA in a pure micronized free base form is more effective, and is of the type used in the studies.

However, the simplest way to introduce any drug is to consume it in a sublingual or transdermal fashion. The only draw-back to the sublingual method is that absorption rate is high.

As is usual with both transdermal and sublingual products the substance will reach the bloodstream quickly and effectively and will place far less load upon the liver. DHEA creams appear to convert readily to a form of DHEA called 7-keto.

This process takes place within the skin and 7-keto DHEA is estimated to be 2 1/2 times more potent (mg/mg) than the other forms. This may help explain why transdermal DHEA products have in the past been preferred.

It also appears that 7-keto DHEA doesn't convert to androgens, this could have important factors for those persons who wish to avoid both testosterone and potential estrogen increases.

Precautions

The use of DHEA can still be considered somewhat experimental. However no serious side effects have been noted in short term use.

Some women have reported slight increases in facial hair, and livers in DHEA treated rats and mice have enlarged slightly. These affects may be due to the known fact that DHEA can convert to testosterone.

There is also "a risk" that testosterone can convert to the potent estrogen-estradiol.

7-keto DHEA is the form of DHEA that doesn't convert to testosterone and appears to have even more potent immune enhancing properties.

Dosages and Side Effects

DHEA is being used in the ranges of up to 1200mg per day with some reported cases of up to 2000mg daily. However, these kind of dosages should only be used in the cases of serious immune disorder syndromes such as HIV and under the guidance of a physician.

More recent evidence for those on long term anti-aging programs would recommend the use of a low dosage long term approach. Somewhere in the region of 25mg to 50mg daily (maximum 100mg) to mimic normal DHEA adrenal gland pulsate production is generally favoured. The use of more potent forms of DHEA, such as transdermal or sublingual forms could reduce this dosage significantly.

7-keto DHEA may be preferred in dosages of 12.5mg to 25mg daily. It is worth bearing in mind that the average pulsate production of DHEA from the adrenal gland is estimated to be 25mg per day. Whilst the loss from capsules or tablets is high due to destruction by stomach acids, it is worth bearing this in mind.

(2) **Melatonin**

Until fairly recently it was believed that the Pineal gland was to the brain, what tonsils are to the throat, a superfluous accessory. But the Pineal gland excretes the hormone Melatonin, and it is now known that Melatonin has an important role in regulating sleep, acts as an anti-depressant, is an anti-oxidant and may even help improve alertness. It also been shown to slow the aging process in animals.

With no noted side effects in clinical trial dosages, Melatonin is likely to become a very widely used nutritional supplement.

Seasonal Affective Disorder (SAD)

Psychiatrists have been baffled by increases in suicides, depression and anti-depressant drug prescriptions at certain times of the year; increases which usually start occurring around September until March.

Recent research by a British Psychiatrist suggests that the explanation may lie in magnetic storms, and scientists investigating the effect of changes in the environment and their effects on human behaviour, are concentrating studies on the Pineal gland. (The Pineal gland is a small collection of cells in the brain regulating the secretion of Melatonin.)

Each year, the earth is wracked by dozens of geomagnetic storms; (geomagnetic storms are sudden changes in the earth's magnetic field, caused by explosions of particles from the sun). Geomagnetic storms are most common around the end of March and the end of September, this fact prompted Dr. Ronald Kay of the West Bank Clinic in Falkirk Scotland, to investigate to see if the correlation was co-incidence or not.

Dr. Kay gathered the medical records' of patients admitted for depression to the Lothian Hospital, Scotland between 1976 and 1986.

Dr. Kay compared the number of admissions with records of geomagnetic storms, and found a striking correlation in the peaks of admissions of individuals suffering from psychotic depression and increases in geomagnetic storm activity. Some year's admissions at geomagnetic storm peaks were up by more than one third compared to the average admission.

Dr Kay is also concerned that electrical appliances could affect some individuals with depression, as 50 hertz electrical appliances have a similar effect as geomagnetic storms, causing small electromagnetic fields within the home or office.

Melatonin's Role for Treatment of SAD

The changing flow of Melatonin appears to control the daily cycle of wakefulness. The Pineal gland takes its cue from ambient light levels, while in the morning the sunlight causes the Melatonin level to fall again. If this cycle gets out of synch, it leads to SAD, (seasonal affected disorder), producing a depressed or run-down feeling.

Dr. Kay also found that changes in the earth's magnetic field can alter the Pineal gland's output of Melatonin.

Shift work, jet lag or any other major disturbances to sleep patterns can also cause fluctuations in Melatonin levels.

Conclusions

It appears that disturbances to the sleep pattern, or the effects of electromagnetic fields can influence the ebb and flow of Melatonin release by the Pineal gland. The effects of irregular Melatonin levels in human terms are tiredness and depression.

Melatonin has received a great deal of praise by anecdotal evidence; regular supplements appear to help prevent jet lag, improve alertness in the day by providing a good night's rest, as well as elevating depression caused by seasonal affected disorder.

People on shift work, or long distance aircraft travel, as well as those who may feel depressed without any particular reason, may well benefit from Melatonin supplements.

Dosages and Side Effects

Melatonin supplements have not shown any side effects at dosages in the few clinical tests that have been conducted. Anecdotal evidence supports this safety record, even at much higher dosages, beneficial results appear to differ greatly from individual to individual, we have heard of most individuals who need only 3mg to 9mg daily, and others who feel they need 12mg to 18mg daily, to achieve satisfactory results. It may be necessary for some experimentation, by building to higher dosages gradually over a period of time. Some individuals have become drowsy after an hour or so of taking Melatonin, (although in no way can Melatonin be considered to be a sleeping drug).

However it is recommended that Melatonin only be taken before bed-time because of their potential drowsy producing affect.

(3) **Pregnenolone**

Pregnenolone may be one of the most effective, broad ranged and yet one of the safest anti-aging therapies at our disposal today. With its decades of safe and efficacious clinical use, the scope of treatments have included, alleviating stress, improving and extending energy levels, reducing arthritic inflammations, enhancing memory and acting as an anti-depressant.

Figure above shows the production of pregnenolone from cholesterol and then the pathways for androgen and estrogen biosynthesis. Heavier arrows indicate the major pathways. Note that androstenediol converts directly to testosterone, whereas androstenedione converts to estrone and testosterone.

The Grandmother of Hormones

The reason that pregnenolone can have such different uses is because it is the first steroid derived from cholesterol. In fact it is the grandmother of all the steroids and neuro-steroids, it forms their basic material (it is a precursor). Without plentiful pregnenolone availability there is likely to be an “imbalance” of other steroids. For example estrogen, testosterone, progesterone and DHEA are all “sourced” from pregnenolone.

That age-old problem occurs with pregnenolone, as it does with most of the hormones. As we age the secretion/availability is diminished. In fact, levels of pregnenolone are estimated to be 60% less at age 75 than at age 35.

Therefore, it may well transpire that the lack of availability of pregnenolone could lead to a failure to convert to other necessary hormones, (for example the sex hormones). Thus this would lead to other-further on-going senescence, in a vicious spiraling age decline sequence. However, there is little evidence to suggest that pregnenolone supplementation leads to excessive increases in other hormones, for example- testosterone. It may be that pregnenolone assists by being available for adaptation, but doesn't force any conversion.

Some countries (Australia, Canada and Great Britain for example) have limited the availability of DHEA by scheduling it as a controlled substance. This is probably because a minute amount of DHEA converts to testosterone and therefore is "demanded" by body-builders, (governments have a simple equation; muscle building = ban). But, there is little evidence to suggest anything other than pregnenolone's ability to maintain "healthy" hormonal levels. In the case of a patient having increasing testosterone levels after pregnenolone supplements; then it's possible that the patient required naturally "higher" testosterone levels by the body's "original demand."

Osteo and Rheumatoid Arthritis

Back in the 1940's and 1950's, pregnenolone was a front line treatment for arthritis, particularly rheumatoid arthritis. Pregnenolone at the higher doses employed for treatment (200-300mg daily) exhibited anti-inflammatory properties when taken in periods over 1 to 5 weeks. Some

patients in the 1940's and 50's were utilizing 1 + gram doses daily for longer than 1 year and yet didn't exhibit any serious side effects. As such, it is generally considered that pregnenolone is the safest steroid yet discovered. Pregnenolone's anti-inflammatory use was demised by the introduction of Cortisone in the early 1950's.

Cortisone gives a rapid short-term improvement to the condition, but it is marred by considerable side effects, including immune system decline and even osteoporosis! Of course, cortisone and its cortico-derivatives are patentable drugs, whereas pregnenolone is an unpatentable natural sterone. Thus the pharmaceutical companies do not discuss the long-term benefits of pregnenolone and therefore it is not presented (promoted) to physicians.

Memory, Stress, Depression and the Brain

Perhaps one of the most remarkable aspects of pregnenolone is its affects on brain function. Some animal experiments have shown a direct correlation between the level of pregnenolone and cognitive ability. More pregnenolone- more ability, less pregnenolone – less ability! Whilst the presence of DHEA was discovered to be a major factor for the ability of brain neurons to connect, it has been shown that pregnenolone play's an even more important role than DHEA.

Pregnenolone may be up to 10 times more potent than DHEA for brain function abilities! The most reported cognitive benefits of pregnenolone are:

- (a) Improved mood-more well-being.
- (b) Enhanced alertness and greater vigilance.

- (c) Lessened depression.
- (d) Relaxing affects-lowered stress.

Once again pregnenolone's actions are very wide ranging. In the brain it is thought that pregnenolone interacts with many receptors. Scientific studies have shown pregnenolone's ability to;

- (a) Stimulate age-declining NMDA receptors.
- (b) Influence the availability of the key neurotransmitter acetylcholine.

The basis of pregnenolone's action on the brain is once again thought mainly to derive from its ability to serve as the pre-cursor for the formation of extensive range of neuro-steroids. The 1995 animal study by Drs. Flood, Morley and Roberts concluded; "Pregnenolone is the most potent memory enhancer yet reported."

Side Effects, Dosages and Contraindications

The paucity of side effects of pregnenolone at normal therapeutic doses is impressive. Some side effects that have been noted (normally in excess of 50mg daily) are;

- (a) Over-stimulation.
- (b) Insomnia
- (c) Tenseness and irritability.
- (d) Headache and nausea.
- (e) Hives-mild rashes.

There have been no reported serious contraindications that I have been made aware of. Pregnenolone, like DHEA may not be advisable for men with an existing prostate condition.

Whilst pregnenolone and DHEA have not been shown to cause a prostate condition, because of the mild (potential) testosterone increase, a patient with a prostate condition/ cancer, should only use pregnenolone supplements under a physician's guidance. Pregnenolone's long term/ high dose use has not been studied on pregnancy and therefore should be avoided. A combination therapy for persons already utilizing sex-hormone replacement should be advised to reduce their overall doses. However, anyone taking steroid hormones (or thyroid medication) should not try substituting pregnenolone for part or all of their steroid dosage unless supervised by a health professional. Those persons taking a multitude of prescription medicines should start on the lowest possible doses. As is quite common in this field, it is hypothesized that pregnenolone could have synergistic affects. This is likely for persons taking SSR1 anti-depressants such as Paxil®, Prozac® or Zoloft®. Overall doses are likely to be able to be reduced. Furthermore, the elderly are more susceptible to greater sensitivity (especially initially).

As a general guide, anti-aging protective doses are 5-10mg daily, cognitive enhancement and general well-being doses are around 25-50mg daily and higher doses of 100-300mg daily may be more effective in treating disorders such as arthritis.

Senile dementia patients are likely to require as much as 500mg daily. Doses should be divided between breakfast and lunch. Avoid use in the evening to avoid insomnia.

Conclusion

To my way of thinking, pregnenolone exhibits such a wide range of positive benefits with so few side effects, that it rates in the top-10 anti-aging medicines. Normal, otherwise healthy individuals can supplement low doses of pregnenolone, secure in the knowledge that they are receiving the benefits of-reduced stress, less depression, better memory, greater vigilance, more energy, greater perception and all the time slowing the aging process.

(4) **Thyroid Hormones**

One of the most common (but often undiagnosed) causes of a variety of seemingly unrelated symptoms, is that of underactive thyroid function, or hypothyroidism. Dr. Broda Barnes, a brilliant, intuitive physician and scientist, estimated that 40% of the adult population suffered from this condition.

Hypothyroidism-the Clinical Picture

Some of the most common symptoms caused by hypothyroidism include poor concentration, mental confusion, memory disturbances, cold hands and feet, overweight, difficult weight loss, menstrual problems, dry skin, thin hair and low energy levels. Other symptoms include migraine headaches, hypertension, depression, hypoglycemia, arteriosclerosis, diabetes, infertility, and even acne. In his book, Hypothyroidism: The Unsuspected illness, Dr. Barnes described over 47 symptoms that may be related to poor thyroid function (study A and B table).

Hypothyroidism – the Diagnostic Failures

Although many people exhibit symptoms of hypothyroidism, they usually don't receive treatment for this condition if they have normal blood test readings. Their physicians often tell them their symptoms are due to other causes or that their problem is "all in their head." Many patients are even referred to psychiatrists to treat their so-called "psychosomatic"

problems. However, when they are later given thyroid replacements therapy, they improve dramatically.

Hypothyroidism-a Better Way

In the 1940's Dr. Barnes realized that the blood tests were usually inaccurate. Consequently, he developed a simple test to confirm suspected low thyroid function using an ordinary thermometer.

He found that normal underarm or oral temperatures immediately upon awakening in the morning. (while still in bed) are in the range of 97.8 to 98.2 degrees Fahrenheit.

He believed that a temperature below 97.8 indicated hypothyroidism; and one above 98.2, hyperthyroidism (overactive thyroid).

Dr Barnes recommended that the underarm temperature taken immediately upon awakening be used to diagnose hypothyroidism. Unfortunately, even today's highly sophisticated tests are no more accurate than the tests used in Dr. Barnes' era.

Patients can take their temperature orally (as opposed to underarm), immediately upon awakening in the morning as a guide to diagnosis and treatment of hypothyroidism.

Occasionally, it is necessary to go to as much as 5 grains daily (which is full replacement therapy), to obtain complete relief of symptoms.

Dr. Dean believes it is not really necessary to perform periodic blood tests, as it is more important to treat the patient rather than treating the blood test. However, the blood tests are wise from a medical-legal perspective.

Treatment of subclinical hypothyroidism with natural thyroid hormone is very safe. There is little risk of excessive thyroid dosage if:

- (1) the patient feels well
- (1) the temperature remains below 98.2
- (2) the pulse is less than 75 beats per minute.
- (3) The thyroid function tests remain normal (note that most hypothyroid patients feel best with subnormal TSH levels).

Hypothyroidism – Why Natural Thyroid?

Synthroid is the most commonly-prescribed hormone for hypothyroidism, but it contains only one fraction of thyroid hormone-T4.

T4 is normally converted by the body into T3, (the principle active form). Many doctors believe that many hypothyroid patients are unable to efficiently perform this conversion. Natural thyroid, on the other hand, is a desiccated preparation of porcine thyroid, containing all thyroid hormone factors of T2, T3, and T4. I have found that it is very difficult to provide adequate thyroid supplementation with Synthroid without causing patients to become thyrotoxic.

On the other hand most patients who switch from Synthroid to natural thyroid, report that they feel much better with the natural product. The dramatic improvements that many patients have achieved on natural thyroid therapy often appear miraculous. For the physician it is very gratifying to hear a patient who has suffered for decades express how their lives have been totally turned around by a few cents worth of thyroid.

Unfortunately, most physicians have been bamboozled by the manufacturers of synthetic thyroid hormone (such as Synthroid) into thinking that the natural thyroid products are an inferior, non-standardized

drug. Nothing could be farther from the truth. Most patients who switch from Synthroid to natural thyroid, find that they feel much better when taking the natural product.

Physician's Risk of Thyroid Therapy

Unfortunately, many physicians are reluctant to prescribe thyroid for patients with normal blood tests because of the bias of the medical establishment against treating hypothyroidism using Dr. Barnes' protocol. In fact, a number of physicians have been censured by their medical boards, and some have even lost their licenses.

For anyone who has any of the hypothyroid-related symptoms listed above, we strongly recommend the books by Dr. Barnes or Dr. Stephen Langer for a more comprehensive discussion of this subject.

If you find that you are "reading about yourself", the chances are good that you may be hypothyroid, and would probably benefit by supplementation with a natural whole thyroid.

Signs and Symptoms of Thyroid Deficiency

	Study A	Study B
	% of 77 cases	% of 100 cases
Weakness	99	98
Dry skin	97	79
Coarse skin	97	70
Lethargy	91	85
Slow speech	91	56
Edema	90	86

Sensation of cold	89	95
Decreased sweating	89	68
Cold skin	83	80
Thick tongue	82	60
Edema of face	79	95
Coarseness of hair	76	75
Heart enlargement	68	**
Pallor of skin	67	50
Impaired memory	66	65
Constipation	61	54
Gain in weight	59	76
Loss of hair	57	41
Pallor of lips	57	50
Labored breathing	5	72
Swelling of feet	55	57
Hoarseness	2	74
Loss of appetite	45	40
Nervousness	35	51
Excessive menstruation	32	33
Deafness	30	40
Poor heart sounds	30	**
Pain over the heart	25	16
Changes in back eye	20	**
Painful menstruation	18	**
Loss of weight	13	9
Emotional instability	11	**
Choking sensation	9	**
Fineness of hair	9	**
Cyanosis	9	**
Difficulty in swallowing	3	**
Brittle nails	**	41
Depression	**	60
Muscle weakness	**	61
Muscle pain	**	36
Joint pain	**	29
Burning sensations	**	56
Heat intolerance	**	2
Slow mental activity	**	4
Slow movements	**	73

*From J.H. Means, L.H. DeGroot, and J.B. Stanbury, the thyroid and its Diseases, McGraw Hill, 1963, pp. 321-322. **Not reported found.

Natural Thyroid Trade Names

Currently the two main manufacturers of natural thyroids have the trade names of Armour and Thyroid R-X .

(5) **Thymic Hormones**

The importance of the regulatory function of the thymus gland in the immune system was recognised in the early 1960's; thymus gland removal in experimental animals resulted in a distinct and progressive depression of the immune system and usually resulted in the death of the animal from an uncontrollable infection. But when thymus tissue was re-implanted into such animals partial or complete recovery took place.

Further important insight was gained from experiments with thymectomised animals in which, instead of a new thymus implant, an infusion chamber was implanted which did not allow cells to pass through. When thymus tissue or a cell free thymus extract was placed in these chambers, the immune system function for the animals also improved.

This proved that water soluble thymic substances, not associated with intact thymic cells, can considerably influence immune defence.

Later research demonstrated that the thymus gland produced a family of specific immune-regulatory polypeptides, known collectively as thymic hormones.

It has also been shown that other organs (i.e. the spleen) also synthesize similar peptides. The precise mechanism of action of these thymic peptides has still not been fully elucidated. There is however, no doubt that the involution of the thymus gland, (which starts at puberty), is associated with a decrease in thymic function and a weakening of the immune defence system in elderly individuals. It has also been shown that thymectomy in older persons, accelerated in a lasting manner the age related decrease in the immune system (see figure opposite).

More recent research has demonstrated that the thymic hormones have a marked effect on the maturation and differentiation of T-cells. The great significance of the T-cell system for immune defence was also demonstrated.

While increasing age is associated with a generalized weakening of immune defence, the decrease in the function of the T-cell system appears to play the greatest role in the overall decrease in immune defence.

Thymic Hormones

It has not been shown that one can isolate a single thymic hormone with the whole complex of functions of the thymus gland.

It would rather appear that the single isolated molecules carry out single physiological functions (e.g. T-cell differentiation, but not other functions). For this reason, it is still considered appropriate to produce and administer a natural, complex mixture of extracted thymus hormones, capable of comprehensive modulation and stimulation of immune defences.

Thym-Uvocal

It has been shown that the German product named Thym-Uvocal is an effective thymus hormone agent. It is very well tolerated and has an impressive action in those disease states associated with impaired immune defences, including “old age.”

Figure above shows the relationship between the early decline of the thymus gland and the dramatic age related increase of diseases.

Immune System and Cancer

The main indications for Thym-Uvocal are to strengthen immune defences in patients with malignant disease. The immune system is partially or completely impaired in patients with malignant tumours, particularly if they are also being treated with cytostatic drugs and/or radiation.

Thym-Uvocal has been administered along with treatment and has reduced the side effects, no interactions have been reported. Many physician's have also reported improvement in the underlying disease, with regression of existing tumours, a delay in metastasis and longer remission times.

Positive effects of the underlying Cancer disease with Thym-Uvocal include:

- (a) Regression of an existing tumour.
- (b) Delayed metastasis
- (c) Prolonged Remission time.
- (d) Improvement in the quality of life.

Figure below shows the reduction of pain in minutes for patients with rheumatism and taking Thym-Uvocal . There is dramatic improvement in 6-weeks and a continuation of benefit up to 74-weeks later.

Rheumatism

In the area of rheumatic disease, Thym-Uvocal can bring about subjective and objective improvement. It is assumed that the combination of active substances has a positive immunomodulating effect on the autoimmune processes. Our attention here is focused upon patients who cannot tolerate the usual doses of nonsteroidal drugs used in rheumatism, or in whom such drugs no longer have the desired effect.

Administration of Thym-Uvocal can make it possible in many cases to decrease the effective dosage of nonsteroidal anti-inflammatories, and/ or prevent a switch to steroids. The possible improvements in rheumatism are:

- (a) Reduction in joint pain.
- (b) Reduction in morning stiffness.
- (c) Increase in locomotor activity.
- (d) Increase in mobility
- (e) Positive changes in laboratory findings.

Both specialists and general practitioners very often report astonishing objective improvement in their patients. This has included less disability, better mobility and reduced swelling of the joints.

Frequent reports include the ability of Thym-Uvocal administration to allow lower doses of nonsteroidal anti-inflammatories, and that long-term use has allowed them to wean rheumatism patients off steroids.

Disease

Immuno-incompetence can result from disease and vice versa. Some drugs can treat diseased but weaken immune defence systems at the same time. Physical and psychological stress can cause directly, or do the same indirectly by causing immuno-incompetence.

As was mentioned in the introduction, there's a close correlation between decreasing thymic activity, decreasing immuno-competence and increasing susceptibility to disease as we grow older.

One can see blood thymus factor levels decline after the age of 25, this helps explain why the elderly are the most important group for supplementation with thymus factors, such as Thym-Uvocal, and why the main indications of such supplementation are diseases of old age.

Because of the immune stimulation produced by Thym-Uvocal, it has been applied in a number of other indications which involve immuno-competence and difficult therapy approaches. Including:

- (a) Infections (virus infections, bacterial infections).
- (b) Internal medicine (allergies, states of exhaustion).
- (c) Aids

Figure above shows the reduction in the number of painful joints with patients suffering from rheumatism and using Thym-Uvocal . There is dramatic improvement within 6-weeks and a continuation of benefit up to 74-weeks later.

Skin

Not only is the skin one of the largest organs in the human body, it is also one of the most versatile. It protects the body against the influences of climate, environmental stress and germs. It acts as a temperature regulator and the many blood vessels embedded in the skin protect the body against both heat loss and overheating.

It is an important sensory organ. A dense network of nerves helps the body to feel heat, cold, pressure and pain. Healthy skin creates the best prerequisites for trouble free, optimum fulfilment of these tasks. However aging and external influences make the skin flabby and wrinkled, it loses elasticity and resilience.

The thymus gland plays an extremely important role in preserving the body's own defence mechanism, the immune system.

It produces a series of active substances, the main function of which is to control and activate defence cells, these are found in the skin and help prevent foreign bodies, such as bacteria from penetrating the body and causing disease. But the body is unable to produce enough of these important factors, at around 25 years of age the thymus begins to regress and the output of hormones diminishes.

Thym-Uvocal cares for the skin the natural way, helping it to remain young and healthy.

Thym-Uvocal activities skin metabolism, encourages cell growth and reinforces the resilience of the skin.

Dosages and Side Effects

Thym-Uvocal is a thymus factor pharmaceutical in Germany from bovine origin manufactured to the highest standards. In over 20-years of use there are no known contraindications and side effects are very rare. Side effects have been limited to itching, rash and prickliness and normally associated at the site of the injection.

Dosages are 1 or 2 capsules (240mg) 3 times a day, or cream applications as necessary. Intra-muscular Thym-Uvocal ampoules can also be administered according to the condition of the patient.

(6) **Menopause and HRT**

As a woman in midlife today you are part of a growing population of some forty million women. Having practised in internal medicine for more than 20 years I have some understanding of the changes that women go through during this time of their life. It would however be presumptuous of me to pretend that I fully understand this process in women. I am much more comfortable dealing with the forty million men who are going through the same mid-life changes as myself. I would however strongly encourage women who would like more information on this subject to read a colleague of mine's excellent book 'The Wisdom of Menopause' by Christiane Northrup M.D. Several of the tables that follow are from her book.

Menopausal symptoms usually occur between 45-55 years of age. This occurs as a direct result of the falling levels of female sex hormones estrogen, progesterone and testosterone. Symptoms appear chiefly as a result of the declining levels of estrogen and progesterone and are reflected by increased levels of FSH and L.H. – hormones that attempt to correct this deficiency.

Even though the symptoms of menopause can be removed with several non-hormonal remedies such as black cohosh, ginseng, licorice root, red clover, dong-quai, F.As etc. I believe that to eliminate the menopausal

signs of aging such as osteoporosis, degenerative heart disease, immune disorders, memory impairment etc. hormone replacement therapy (HRT) is essential.

Symptoms of Menopause

Estrogen Deficiency	Progesterone Deficiency	Testosterone Deficiency
<ul style="list-style-type: none"> • Hot flashes/night sweats. • Vaginal dryness/thinning • Mood swings • Headaches/mental fuzziness • Incontinence/urinary infections • Decrease sexual response 	<ul style="list-style-type: none"> Pre-menstrual migraine PMS like symptoms Irregular/excessive periods Anxiety and nervousness 	<ul style="list-style-type: none"> Decreased libido Decreased energy Impaired sexual function Thinning pubic hair Decreased wellbeing

One of the other important problems that shows up in women after the menopause is osteoporosis. Bone building is the result of a dynamic balance between osteoblasts (cells which increase bone density) and osteoclasts (cells that decrease bone density.)

Osteoblasts stimulated by	Osteoclasts stimulated by
<ul style="list-style-type: none"> • Progesterone • Estrogen • Testosterone • Isoflavones • SERM's • Vitamin D 	<ul style="list-style-type: none"> • Immune system disorders • Depression • Inactivity • Nutrient-poor diet • Steroid drugs • Nicotine

• Exercise	• Depleted hormones
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Commonly only 11 percent of women in the U.S. get adequate amounts of calcium every day – not to mention all the other nutrients that are needed to build healthy bone. Even with a good diet your daily supplement program should include magnesium, calcium, vitamin D, vitamin C, boron, zinc, manganese, copper and vitamin K. Remember there are many good sources of calcium besides dairy products.

Bioidentical Hormone Replacement

Although the choice of taking hormones is a personal one I encourage men and women to engage in a hormonal replacement program since in my experience clients do better physically, emotionally and mentally.

I agree with Christiane Northups M.D. feeling about Bioidentical Hormones being superior to synthetic hormones in women. As Dr Northup writes:- In contrast to Premarin and Provera, the hormones that I recommend are exactly the same as those found in the female body. Though they are synthesized in the lab from hormone precursors found in soybeans or yams, their molecular structure is designed to be an exact match of the hormones found in the human body. Hence we call them bioidentical – a term that is far more precise than natural, which can be used in confusing and ambiguous ways – e.g., Premarin is said by some people to be a “natural” product because it is made from horse urine. As Dr. Joel Hargrove, a pioneer in the use of bioidentical hormones and the medical

director of the Menopause Center at Vanderbilt University Medical Center in Tennessee, says “Premarin is a natural hormone if your native food is hay.”

The four main questions that must be answered for a client are:-

- (1) How will HRT help me?
- (2) How will HRT hurt me?
- (3) Is it right for me?
- (4) How do I take it?

Benefits that are supported by strong scientific research include relief from menopausal symptoms such as hot flashes, prevention of osteoporosis, cardioprotective effects, relief of urogenital atrophy and decreased urinary incontinence. Other benefits include improvement of emotional lability and depression, improved sense of wellbeing, increased dermal and total skin thickness, improved verbal memory skills, and decreased risk of colon cancer.

There have been some reports of a possible risk of an increase in breast and endometrial cancer in some women although this might well be related to the type of HRT received.

After many years of prescribing “unopposed estrogen” (estrogen with no accompanying hormones) physicians finally discovered that the risk of developing endometrial cancer due to estrogen replacement can be reduced by also replacing missing progesterone. Progesterone can block or “oppose” estrogen causing tendencies. There is no evidence that bioidentical estrogens cause breast cancer.

Bioidentical Estrogen & Progesterone

No auto mechanic in his right mind would replace worn parts on a Mercedes with new parts made from a Chevy. Unfortunately many physicians (and pharmaceutical companies) seem to have less common sense than the average auto-mechanic when it comes to treating menopausal women!

The “estrogen” replacement most doctors prescribe today for menopausal and premenopausal women is a pill known generically as conjugated equine estrogens (CEE. The best known of CEE is premarin®.)

Studies suggest that in many women, premarin® does help reduce symptoms of menopause, including hot flashes, vaginal thinning, memory loss and urinary incontinence. It also appears to reduce the risk of developing postmenopausal cardiovascular disease (the leading killer of women) and osteoporosis (the crippling progressive bone weakness). It also

may help to prevent a significant proportion of Alzheimer's disease and senile dementia.

Premarin® is Horse Estrogen from Horse Urine!

See what's wrong with CEE? Take a close look at the names. Notice the word "equine?" Yes, that equine! premarin® is horse estrogen! It is derived from the urine of pregnant mares, hence its name.

Premarin® works great in female horses just as Chevy parts work great in Chevys. But replacing human estrogens with horse estrogens may be asking for trouble, and here's why.

For the last several million years, the human female reproductive system has been running quite well on three separate estrogens; estriol, estrone and estradiol, which occur in an approximation of 90%; 3%; 7%. Compare that with premarin®, which consists of estrone (75-80%), equilin (6-15%), estradiol and two other equine estrogens (5-19%).

Notice that, in addition to having larger proportions of estrone and estradiol, premarin® also contains equilin and two other forms of estrogen found exclusively in horses.

The female human body contains all the enzymes and cofactors it needs to process estriol, estrone and estradiol when they occur in their natural human proportions. On the other hand, it has none of the enzymes and cofactors required to metabolize equilin and the other horse estrogens,

nor does it have enough of these important substances to deal with the excessively large amounts of estrone and estradiol found in premarin® (or in the 100% estradiol “patch”). A horse, of course, is well equipped to handle CEE. The difference in reproductive hormones is just one of many differences between horse and humans.

It should come as no surprise then, that the presence of premarin® in the human body induces a hormonal imbalance that can have important adverse consequences.

To physicians who prescribe premarin®, this hormonal imbalance doesn't seem to carry much weight. After all, the drug works doesn't it? But, as two leading reproductive physiologists point out, when women take premarin®:- “Levels (of equilin) can remain elevated for 13 weeks or more post treatment due to storage and slow release from adipose (fat) tissue.”

As a result, premarin® produces “estrogenic effects” which are much more potent and longer lasting than those produced by natural human estrogens.

This explains why so many women feel “unnatural” on premarin®, why premarin® causes so many side effects and discomforts which are indicated on the manufactures box as follows:

Breast tenderness

Headaches

Leg cramps

Gallstones

Worsened uterine fibroid & endometriosis

Vaginal bleeding

High blood pressure

Blood clots

Nausea & vomiting
Fluid retention
Impaired Glucose tolerance
Increased risk of endometrial cancer
Increased risk of breast cancer

It even explains why premarin® has been associated with a significant risk of breast and endometrial cancer, because one of the primary effects of equilin, estradiol and estrone is to promote the growth of tissue in the endometrial (uterine) lining and also in the breast. This growth is important for preparing the premenopausal body for pregnancy and lactation, but if some of that tissue becomes cancerous or precancerous, look out!

According to premarin's official labeling, taking it for a year (without also taking progesterone), increases a woman's risk of endometrial cancer by as much as 14%.

Most conventional physicians, not to mention the self-serving pharmaceutical industry, are quick to rationalize cancer and other risks of horse estrogens. Every treatment has its risks, they point out, but the risk of a postmenopausal woman dying of a heart attack or stroke if she doesn't take premarin® are far greater than her risk of dying from cancer or an osteoporosis related fracture if she does.

Why Not Use Human Hormones for Humans?

What about human hormones? Wouldn't it make sense to replace human estrogens with human estrogens? Mercedes parts with Mercedes parts? Of course, it does! The real question is why has no one thought of this before?

This realization occurred in 1982. All ob-gyn textbooks discussed the naturally occurring human estrogens estriol, estrone and estradiol but completely neglected to recommend their use for treating menopausal symptoms, inexplicably recommending horse estrogens instead!

The approximate circulating levels of the three estrogens were checked in human females. This information was used to design a combination estrogen replacement regimen that closely matched the natural conditions found in premenopausal women. The result is “triple-estrogen”. A combination of natural estriol, estrone and estradiol using molecules identical in structure to those produced in the human body in as close to natural quantities and proportions as could be calculated.

Triple estrogen was formulated by a compounding pharmacist- Ed Thorp of Kripps Pharmacy, Vancouver BC, and the rest is history. In the 20 years since triple estrogen was first prescribed, thousands of other progressive physicians and their grateful patients have found that it works as well as, or better than conventional ERT regimens. While producing far fewer unwanted side effects.

Estriol, the Missing-in-Action Hormone

You may have noticed that one estrogen, estriol, is completely absent from premarin® and other forms of conventional estrogen replacement regimens, although it comprises as much as 80-90% of triple estrogen. This is not an insignificant omission.

Most conventional physicians and pharmaceutical researchers have long dismissed estriol as a weak and unimportant estrogen. They have

considered it to be primarily a metabolite of estradiol and estrone, which are far more potent in producing estrogenic effects, such as inducing endometrial tissue growth. “Why go through all the trouble of putting estriol into a pill if you don’t really need it?” seems to be their reasoning. Well potency isn’t everything. In fact, estriol is vitally important precisely because it is a weak estrogen.

A number of studies, published over four decades, have demonstrated that estriol’s unique and perhaps most important role, may be to oppose the growth of cancer, including cancer promoted by its more potent cousins, estrone and estradiol. We’ll discuss more about this in a moment.

Estriol plays more than just a defensive role though. European physicians have been more open to the potential benefits of estriol in menopausal women than those in the US. As a result, most of the clinical research evaluating estriol has been conducted in Europe.

Figure above shows the average age-related estrogen decline for women.

In general, these studies show that menopausal women who use natural estriol to replace their natural estrogen experience a reduction in typical menopausal symptoms like, hot flashes and thinning of the vaginal tissue (vaginal atrophy)

In one of the major trials, 22 practicing gynecologists from 11 large hospitals in Germany treated 911 premenopausal women with estriol and evaluated them regularly for 5 years. They found estriol to be “very effective” against common menopausal symptoms and “well-tolerated” with no significant side effect.”

A Swedish study evaluated 40 postmenopausal women with urinary incontinence (leaky bladders) for up to 10 years. The researchers found that estriol treatment resulted in significant improvement in 75% of the women, including eight whose ability to regulate urination completely returned to normal.

The same Swedish study found that symptoms of vaginal atrophy disappeared in 79% of the women after just 4 months of estriol treatment. After 12 months, all but one woman were symptom free.

Built in Cancer Protection

There is no doubt that reasonable doses of horse estrogens and 100% estradiol patches and creams stimulate excessive proliferation of endometrial cells, a precursor to endometrial cancer.

It is to reduce this risk that any woman taking these drugs must also take natural progesterone substitute (or progesterone like the Provera). This is in stark contrast to estriol, which appears to actually antagonize the proliferate effects of estrone and estradiol, while having far less tendency to stimulate endometrial proliferation, itself.

Estriol apparently accomplishes its protective role by binding to estrogenic receptors in the uterine lining and possibly the breast. Unlike the more potent estrogens though, it does not stimulate growth nearly as much. At the same time, receptors' covered by estriol are shielded from more carcinogenic estrone and estradiol.

This is thought to be the same mechanism by which other weak estrogens, such as those found in soy products, protect against cancer. In laboratory animal studies totaling more than 500 rat-years, estriol has been shown to be the most protective estrogen ever tested against cancers of the breast induced by several potent carcinogenic agents, including radiation.

There is important evidence dating back to the 1960's suggesting that estriol may protect against breast cancer as well. At that time, Henry Lemon, MD, who was head of the division of gynecologic oncology at the University of Nebraska College of Medicine, hypothesized that some women who develop breast cancer have too little estriol relative to estradiol and estrone circulating in their bodies.

To test this hypothesis, Dr. Lemon ran a preliminary study in which he employed a urinary estrogen quotient (EQ), which was simply a measure of the ratio of estriol to the total of estradiol and estrogen in the urine over a

24-hour period. The higher the quotient, the more estriol there is relative to estradiol and estrone (see figure below).

$$\frac{\text{Estriol (mcg/ 24 hr)}}{\text{Estradiol + Estrone (mcg/ 24 hr)}} = \text{EQ}$$

In a small study of 34 women with no signs of breast cancer, Dr. Lemon found the EQ to be a median of 1.3 before menopause and 1.2 after menopause. Only 21% of the women had an EQ<1.0 (i.e. estriol was less than estradiol and estrone combined). For 26 women with breast cancer, however, the picture was quite different. Their median EQ was 0.5 before menopause and 0.8 after menopause; 62% of these women had an EQ<1.0.

Thus, the women with breast cancer seemed to be making substantially less estriol relative to the other cancer.

Figure above shows women with breast cancer have a reduced urinary estrogen quotient (EQ), less estriol relative to estrone and estradiol. Results of a study by John Lee, MD.

Clearly, much more research, including large-scale, long-term human trials are needed to answer the many unanswered questions regarding

estriol's role in cancer. In the meantime, there can be little doubt that an estrogen replacement regimen that includes the three human estrogens in triple estrogen, (estriol, estrone and estradiol) in identical-to-natural proportions is a superior choice for premenopausal and postmenopausal women. Especially when compared with the horse estrogens and 100% estradiol patches and creams the pharmaceutical industry promotes.

This sentiment was echoed in a 1978 editorial in the Journal of the American Medical Association titled; "Estriol, the forgotten estrogen?" in which Alvin H. Follingstad, MD, bemoaned the lack of large clinical trials on estriol that would earn it an FDA stamp of approval. "Do we as clinicians have to wait the years necessary for the completion of these trials before estriol becomes available to us?" he asked. "I think not, enough presumptive and scientific evidence has been accumulated that we may say that orally administered estriol is safer than estrone and estradiol."

Two decades later, we are still waiting for those clinical trials, and what Dr. Follingstad said then is even truer today. There's nothing to be gained by waiting. If a woman is concerned about her risk of cancer from estrogen replacement (and who isn't?), then the logical choice is an estrogen formula containing a majority of estriol, in other words, triple estrogen. Especially when you consider both modern scientific research and hundreds of thousands of years of human experience producing and metabolizing estrogens.

Natural hormone formulations like triple estrogen are normally available in the US only from compounding pharmacies with a physician's prescription; they cannot be found at standard pharmacies. You can also order triple estrogen cream from [Eternity Medicine.com](http://EternityMedicine.com).

The Business of Menopause

If triple estrogen is so much better than Premarin , why have so few people heard about it? The answer to this question can be summed up in one word, patentability. Premarin is patentable, and hence, can be sold exclusively only by its manufacturer and licencees, whereas triple estrogen is a natural product, like vitamin C, and can be sold by anyone.

Patentability has made Ppremarin a huge moneymaker for its manufacturer, Wyeth-Ayerst pharmaceuticals. For nearly 30 years, it has been at or near the top of the drug best seller list. In just the first half of 1997, pharmacists filled 22.1 million prescriptions for Premarin , amounting to revenues of \$388.2 million in the United states alone! Add in the rest of the world's women, and you get a sense of the high stakes involved in the business of menopause. These enormous financial resources have provided Wyeth-Ayerst the muscle to practically corner the estrogen market. Through advertising, sponsorship of clinical trials and conferences, free samples and other common marketing techniques, they have created an atmosphere in which physicians virtually equate estrogen replacement with Premarin .

What Makes a Hormone Natural (Bioidentical)?

The word “natural” gets thrown around a lot in discussions of hormone replacement therapy. Premarin , for example, is widely considered to be a “natural hormone. “So is the estradiol in the estrogen “patch” and “cream” products. Triple estrogen is also considered to be a “natural” estrogen product. Are they are natural? Does it really matter? The answers depends on how you define “natural.”

Triple estrogen consists of three separate estrogens: estriol, estrone and estradiol, all of which are derived from a plant, the wild yam (*dioscoreacomposita*).

How can a hormone that got its start in a vegetable be considered “natural” in the human body? The wild yam is rich in “precursor” molecules that can be easily converted by biochemists into estrogens and other steroid hormones. The molecular structure of these hormones is indistinguishable from that of the “natural” hormones produced in the human body and as a result, they function exactly like those the body produces, especially when used in their natural proportions.

Premarin is Natural for Horses but Not Humans!

Premarin is widely considered by physicians to be a “natural” hormone product, because it is derived from horse urine and is not synthesized in a laboratory. But is it really natural? Certainly, it’s natural in horses. But when placed in the human body, the hormones in Premarin are as foreign as any synthetic drug, because the body lacks the enzymes and cofactors to metabolize them safely.

What about estrogen “patch” and “cream” products? These are composed of 100% estradiol, the most potent and most carcinogenic of all the estrogens. The estradiol is derived from the same source as the estradiol in triple estrogen, the wild yam, so in that sense, these products can be considered “natural.”

However, because they are 100% estradiol, with no estrone and most importantly, no estriol, these products must be considered unnatural once inside the human body.

The human physiology is designed to work with three forms of estrogen: estriol, estradiol and estrone, in a ratio of about 90:7:3. Exposing the body to 100% estradiol creates an unbalanced, and therefore, unnatural and potentially dangerous situation.

Figure above shows average age-related progesterone decline for women.

Natural Progesterone Protects against Cancer, Heart Disease and Osteoporosis

Women who replace estrogen also need to replace progesterone. This may seem obvious to anyone who has studied human reproductive physiology, because estrogen and progesterone are closely linked in the normal menstrual cycle.

Each month, as estrogen levels rise, progesterone levels fall, and vice versa. Unfortunately, it wasn't always so obvious to physicians and pharmaceutical companies.

In early days of ERT, tens of thousands of women developed endometrial cancer as a result of taking Premarin in the absence of progesterone. In the absence of progesterone, the estrogen, in Premarin can cause excessive proliferation of endometrial tissue, which, in an alarming number of instances, can turn malignant.

Progesterone largely prevents this excessive growth. But conventional medicine being what it is, most physicians do not prescribe natural progesterone for their menopausal patients. Instead, they prescribe a synthetic progesterone-like drug, or "progestin," called Provera (medroxyprogesterone), or one of its clones. Synthetic progestins are not the same thing as progesterone. Thanks to the pharmaceutical industry's promotional abilities, few physicians ever make that distinction.

Women who take Provera pay a high price for the protection it affords against Premarin induced endometrial cancer.

That price includes an increased risk of cardiovascular disease (CVD), because progestins strip away most of the protection against CVD that they gain from estrogen replacement. Since this protection is one of the main reasons they take Premarin in the first place, and Provera causes a long list of unpleasant side effects. These include breast tenderness, weight gain, depression, and breakthrough bleeding, to name just a few. You have to wonder whether they wouldn't be better off not taking anything!

Natural progesterone, which comes from the same source as the natural estrogens in triple estrogen, is a completely different story. Because it is structurally and functionally identical to the progesterone the body produces, replacing missing progesterone with natural progesterone puts back the same hormone the body is accustomed to. When used properly, natural (bioidentical) progesterone affords the same protection against CVD. This was most clearly demonstrated in a large scale federal government sponsored clinical trial, known as PEPI (Postmenopausal Estrogen Progestin Interventions).

In the PEPI trial, 875 postmenopausal women were randomly placed in one of four treatment groups.

- (A) Placebo
- (B) Estrogen (i.e. Premarin) only
- (C) Premarin and Provera or
- (D) Premarin and natural progesterone (oral).

The relevant measure was the level of HDL-cholesterol, which is known as the “good” cholesterol, since it protects against CVD. The results clearly demonstrated that when Provera was added to Premarin, HDL levels dropped to nearly baseline.

The figure opposite shows natural progesterone provides superior protection (higher HDL-cholesterol levels) compared with Provera . Results of the PEPI trial.

By contrast, when natural progesterone was added to Premarin , there was no significant loss of HDL-based CVD protection.

If this weren't enough to recommend natural progesterone, there's also the protection it provides against osteoporosis. This ability has been clearly shown by the work of John R. Lee, MD.

Osteoporosis is the bone thinning disease that commonly occurs following menopause . It appears to be due to a loss of both estrogen and progesterone. Replacing estrogen will usually help slow or even halt bone that has already been lost.

Dr. Lee took regular bone mineral density measurements of 62 postmenopausal women who were taking Premarin plus

progesterone, (in a cream base), or progesterone alone for a period of at least 3 months. The women also took calcium supplements and maintained a diet and lifestyle designed to minimize bone loss.

He found that natural progesterone replacement resulted in a remarkable increase in bone mineral density. Some of Dr. Lee's patients increased the density of their lumbar vertebrae by 20-25% in the first year! Over the 3 years of the study, the mean increase in bone mineral density was 15.4%.

Figure above shows that progesterone restores bone loss in osteoporosis. Results of a study by John R. Lee, MD.

According to other studies, including PEPI, a 4-5% decrease in bone density would have been expected in women not using natural progesterone.

Not surprisingly, Provera appears to provide no protection against osteoporosis and definitely does not enhance bone growth.

As Jonathan Wright, MD stated at the 2000 Monte Carlo Anti-Aging Conference; “Us physicians don’t have to be rocket scientists. All the work has already been done for us, we just have to copy nature.”

(7) **Andropause and Testosterone**

A typical American male loses about 20 pounds of muscle, 15% of his bone mass and nearly 2 inches in height between the age of 40 and 70. After age 40 the testicles begin to shrink so that many males have impotence in their latter years.

In 1889 Dr Charles Brown Sequard the famous neurologist gave himself crushed animal testicles and claimed to become stronger, had more stamina and better memory. I do not believe that andropause is only related to a decline in testosterone levels as testosterone levels by themselves do not always equate to increased sexual prowess. Other hormones like growth, thyroid hormone and DHEA are also very important in andropause. Sexual

decline may also be related to a decrease in neurotransmitters in the brain.

Certain medications can also aggravate the brain neurotransmission.

Here is a simple test for males. How do you score?

Do you have:-	YES	NO
1. Decrease in sex drive	<input type="checkbox"/>	<input type="checkbox"/>
2. Erection less strong	<input type="checkbox"/>	<input type="checkbox"/>
3. Lack of energy	<input type="checkbox"/>	<input type="checkbox"/>
4. Decrease in strength and/or endurance	<input type="checkbox"/>	<input type="checkbox"/>
5. Lost height	<input type="checkbox"/>	<input type="checkbox"/>
6. Decreased “enjoyment of life”	<input type="checkbox"/>	<input type="checkbox"/>
7. Sad and/or grumpy	<input type="checkbox"/>	<input type="checkbox"/>
8. Deterioration in sports ability	<input type="checkbox"/>	<input type="checkbox"/>
9. Falling asleep after dinner	<input type="checkbox"/>	<input type="checkbox"/>
10. Decreased work performance	<input type="checkbox"/>	<input type="checkbox"/>

Men with both numbers one and two or any four are candidates for possible hormone replacement therapy.

There are more than forty million men in the USA suffering from low levels of testosterone. But the vast majority of them don't even know it! As the tremendous popularity of viagra suggests, many of these men are experiencing symptoms of male sexual dysfunction.

Others find themselves fighting more subtle battles against obesity, diabetes, fatigue, depression and insomnia-common symptoms of low testosterone that most doctors overlook and attribute to the natural process of aging or stress.

Why is modern medicine missing the low testosterone mark?

Standard Laboratory Tests Have Failed

Medical science has determined that while a man's total (protein-bound) testosterone levels remain relatively stable over time, his bio-available (free) levels gradually decline at an alarming rate of two percent each year beginning at age thirty. This means that a man in his sixties is functioning with only about forty percent of the testosterone he had in his twenties.

However, when standard laboratory tests are performed, most men typically have only their total levels of testosterone evaluated. Their more important bio-available levels go unchecked.

To make matters worse, most physicians require a diagnosis of hypogonadism. (a medical term used to classify total testosterone levels that

fall below a specified laboratory limit) prior to prescribing any testosterone replacement medication. As a result, millions of American men who are suffering from symptoms of low testosterone are walking around undiagnosed and untreated.

Detection: A Necessary first Step

When it comes to treating and eliminating the symptoms of low testosterone, detecting the problem is a fundamental first step. Are your testosterone levels low? Here is a second simple test which can alert you to andropause.

1. Are you over the age of 35?
2. Do you have poor muscle tone?
3. Are you prone to weight gain, particularly around the midsection?
4. Do you frequently feel weak and tired without any apparent reason?
5. Is your recovery from exercise slow?
6. Do you have a low sex drive or symptoms of sexual dysfunction?
7. Do you feel depressed, irritable or unmotivated?
8. Do you have difficulty coping with stress?
9. Do you smoke cigarettes, drink alcohol regularly or take prescription medicines?
10. Have you recently been diagnosed with diabetes?

If you answered “yes” to any of these ten questions, chances are your testosterone levels are less than optimal. How can you know?

In addition to being more convenient and less costly than standard laboratory serum tests, recent medical research has proven salivary hormone testing to be far more accurate when it comes to measuring bio-available testosterone and a number of other key, male hormones.

Benefits of Testosterone

- Improves mood and overall sense of well-being
- Enhances muscle mass and strength
- Enhances sex drive and function
- Improves memory, concentration and visual activity
- Improves cardiac health and blood pressure
- Reduces cholesterol, blood sugar
- Increases tolerance for stress
- Increases bone strength

- Improves overall energy

Produced in the testes, testosterone is the end result of a series of biochemical steps that all start and fundamentally depend on cholesterol through a series of prehormones → progesterone. →

DHEA → androstenedione → androstenediol.

Application of Testosterone

I have had the best results using a testosterone cream formulated by a compounding pharmacy and advise my clients to apply it to their inner thighs each night on going to bed.

*Testosterone cream has an important role in many women as well. It is prudent to measure PSA levels when on HRT. A hematocrit and HDL-cholesterol should also be monitored.

(8) **Somatopause and Growth Hormone**

Growth hormone therapy was until recently considered as a useful therapy only in children, suffering from growth hormone deficiency.

The importance of growth hormone becomes clear when we look at growth hormone deficiency adults, like the dwarfs of the Spanish royal

courts, in the paintings of Velazquez. On the other hand the world's tallest man in the Guinness book of records shows what happens with growth hormone excess.

Not only is growth hormone necessary to make children grow into adults but growth hormone must be maintained at good levels to provide adequate functioning of adult tissues and organs.

It was Dr Daniel Rudmans article in the NEJM on July 5 1990 that really aroused the medical communities interest in growth hormone. He studied 21 healthy men who had low Igf-1 levels. Twelve of these men received growth hormone injections over a six month period which produced remarkable results. Rudman showed that the signs of aging and those of growth hormone deficiency were nearly identical and that by providing growth hormone to these men one achieved improvement in these functions (see table 1). Growth hormone has a wide range of potent effects on tissues like muscle, bones, liver, nervous system, adipose tissue etc. This broad spectrum of favourable effects helps us understand how different symptoms of growth hormone deficiency appears in adults.

**GROWTH HORMONE DEFICIENCY AND AGING
LEAD TO A SIMILAR DECLINE OF MAIN STRUCTURES**

AND PHYSIOLOGIC FUNCTIONS

This intriguing similarity between growth hormone deficiency and aging outlined by the late Dr. Rudman became even more interesting when Rudman and others showed how growth hormone performs generally the opposite, namely improving (back again) those declining structures and physiologic functions.

Function	Change w/Age	Growth Hormone Deficiency	Growth Hormone Treatment
Muscle mass	Decreases	Decreases	Increases
Muscle strength	Decreases	Decreases	Increases
Cardiac index	Decreases	Decreases	Increases
Bone mass	Decreases	Decreases	Increases
Bone density	Decreases	Decreases	Increases
Mandible size	Decreases	Decreases	Increases
Maximal breathing capacity	Decreases	Not known	Increases
Kidney size	Decreases	Decreases	Not known
Renal blood flow	Decreases	Decreases	Increases
Glomerular filtration rate	Decreases	Decreases	Increases
Liver size	Decreases	Decreases	Not known
Adipose mass	Increases	Increases	Decreases
Spleen size	Decreases	Decreases	Not known

Figure one

Daily Production of Growth Hormone Declines with Age

The maximum daily production of growth hormone peaks in late puberty and begins to decline at about 20. Each decade after this time shows a clear decline in GH as can be seen in figure (2). Obese men seem to

produce lower values than lean men. A great part of the effects of GH are mediated by insulin like growth factor 1 (Igf-1). This hormone declines with age (as do most of the other major hormones in the human).

Optimum blood Igf-1 values seem to be situated between the values of adults 20-30 years old. Replacing GH in those people with physical signs and complaints appears to act as a potent rejuvenation therapy.

Igf-1

Growth Hormone Therapy

In a study of 48 adults by Dr. Thierry Hertoghe the following physical signs in order of frequency were reported by patients to be improved after just two months of GH therapy with an average dose of .75 IU per day.

1. Sagging cheeks (→ get tenser) (75.5%)
2. Wrinkled face (→ less wrinkled) (71%)
3. Pouches under the eyes (→ less visible) (65.8%)
4. Loose skin folds under the chin (→ tighten) (62.5%)
5. Sagging body silhouette (→ straightens up) (62.5%)
6. Dropping triceps (→ tightens) (60.7%)
7. Bagging inner side of the triceps (→ tightens) (60.7%)
8. Floppy belly (→ flattens) (48%)
9. Less muscled shoulders (→ muscles back) (44%)
10. Less muscled buttocks (→ muscles back) (42.3%)
11. Meagre, wrinkled buttocks (→ muscles back) 41.6%)
12. Fatty cushions above the knees (→ decrease) (41.2%)
13. Thinned skin (→ thickens) (34.5%)
14. Obesity (→ decreases) (33.3%)
15. Thin hair (→ thickens) (28.1%)
16. Thin lips (→ thicken) (25%)
17. Gingival retraction (→ less important) (20%)
18. Thinned jawbones (→ thickens) (9.5%)

The following also shows the frequency of improvement of psychological symptoms after two months of GH treatment (average dose 0,75 I.U. a day) in the 48 patients mentioned previously:

1. Permanent fatigue (→ decreases or disappears) (86.8%)
2. Easy exhaustion when physically busy (→ recovery is clearly better)(86.04%)
3. Poor resistance to stress (→ improves) (83.7%)
4. Depression (→ fades away)(82.7%)

5. Low resistance when staying up after midnight (→ improves) (82.5%)
6. Low self-esteem (→ improves) (79.2%)
7. Sense of powerlessness (→ on the contrary, subject gets a sense of empowerment) (77.8%)
8. Poor sociability (→ person opens up again to others) (77.8%)
9. Anxiety (→ decreases greatly) (73.5%)
10. Insufficient aggressiveness (→ subjects get firmer) (73.1%)
11. Inappropriate hyper-emotionality (→ calms down greatly) (71.4%)
12. Sharp verbal retorts (→ speech softens) (71%)

Thus not only does GH improve those physical parameters of aging but also improves psychological wellbeing. Anxiety, depression, insomnia and fatigue all improve. Indirect evidence suggests that growth hormone therapy started at the right time, when we are aging, can also prolong our lives. For example, adults deficient in GH double their mortality from cardiovascular disease compared to normal people. I have found that by age 50 most adults become sensitive to the benefits of GH. The more an adult advances in age, the more this person benefits from GH supplementation.

What Dose of GH Should a Person Take

- (1) Monotherapy – Here treatment consists only of GH: in this case the dose of GH varies between .5 – 2 IU/day.
- (2) Polytherapy – In this case GH is combined with other hormone replacement therapy including melatonin, sex, thyroid hormones etc. In this mixed form of therapy (my preference) we can provide a lower dose of GH (.05 – 1 IU/day). Not only do we see a synergistic effect of hormones but more rejuvenation and greater safety. Treatment is best provided daily just before bedtime which helps mimick the right time surge of GH.

Good nutrition (especially protein) – decreasing coffee, nicotine and alcohol, regular exercise and sleep will also improve GH levels.

Risks of GH Therapy

The most frequent problems are retention of fluid like feet swelling and carpal-tunnel syndrome and rarely joint pains. If this occurs the client should decrease the daily dose of G.H.

High blood sugar and increased risk of cancer should not occur with use of physiological doses of GH. Infact studies show that the immune system is greatly improved with GH.

GH deficiency is being accepted more and more as a distinct medical condition like menopause and andropause, syndromes which result from the lack of sexual hormones in women and men respectively.

More astute physicians are now recognizing the intermediate degrees of GH deficiency which result as we slowly age before extreme somatopausal states are reached in the very aged. GH therapy is providing these people with a new sense of wellbeing and youth.

HORMONES, BY THE NUMBERS

ESTROGEN

PROGESTERONE

	<u>Reference Ranges</u>	<u>ng/ml</u>	<u>pmol/l</u>
<u>Female</u>			
Prepubertal	12 to 57	-	-
Follicular phase	29 to 525	0.3-0.8	0.9-2.3
Luteal Phase	126 to 478	4-20	11.6-58
Postmenopausal	23 to 103	-	-
<u>Male</u>			
Prepubertal	12 to 55	n/a	n/a
Adult	38 to 139	n/a	n/a

TESTOSTERONE

<u>Males Age</u>	<u>Range</u>	<u>Males Age</u>	<u>Range</u>
20-30	280-1205	60-70	120-870
30-40	350-1010	70-80	38-850
40-50	255-1025	80-90	28-390
50-60	255-950		

DHEA-S (Dehydroepiandrosterone-sulphate)

<u>Age</u>	<u>Male</u>	<u>Female</u>
30-39	1.0-7.0	0.5-4.1
40-49	0.9-5.7	0.4-3.5
50-59	0.6-4.1	0.3-2.7
60-69	0.4-3.2	0.2-1.8
70-79	0.3-2.6	0.1-0.9

IGF-1 Serum (Somatomedin-C)

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>
2 Mo-5 Yrs	17-248	17-248	16-24 Yrs	182-780	182-780
6- 8 Yrs	88-474	88-474	25-39 Yrs	114-492	114-492
9-11 Yrs	110-596	117-771	40-54 Yrs	90-360	90-360
12-15 Yrs	202-957	261-1096	>55 Yrs	71-290	71-290

Insulin-Like Growth Factor Binding Protein-3 (IGFBP3)

<u>Age</u>	<u>Units</u>	<u>Age</u>	<u>Units</u>
3-35	1.29-4.06	50-55	1.31-2.52
35-40	1.50-3.44	55-60	1.53-2.43
40-45	1.33-3.58	60-70	1.40-3.22
45-50	1.44-2.75		

The Basic HRT Program

Women	Men
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<p style="text-align: center;"><u>Melatonin</u></p> <p>40-50 years 1 mg at bedtime 50-70 years 2 mg at bedtime 70 years + 3 mg at bedtime</p> <p><u>*Thyroid</u> ½ - 1 gr armour thyroid (if temperature less 97.8)</p> <p><u>DHEA</u> 25 mg in a.m.</p> <p style="text-align: center;"><u>Pregnenolone</u></p> <p>100 mg (micronized) in a.m.</p> <p><u>Thymus Extract</u> Thym-Uvocal</p> <p><u>* Estrogen/Progesterone</u> (measure FSH/LH)</p> <p><u>*Testosterone</u> (measure free testosterone)</p> <p><u>*Growth Hormone</u> (measure Igp-1)</p>	<p style="text-align: center;"><u>Melatonin</u></p> <p>40 50 years 1 mg at bedtime 50-70 years 2 mg at bedtime 70 years + 3 mg at bedtime</p> <p><u>*Thyroid</u> ½ - 1 gr Armour thyroid (if temperature less 97.8)</p> <p><u>DHEA</u> 250 mg in a.m.</p> <p style="text-align: center;"><u>Pregnenolone</u></p> <p>100 mg (micronized) in a.m.</p> <p><u>Thymus Extract</u> Thym-Uvocal</p> <p><u>* Testosterone</u> (measure free testosterone) (measure PSA)</p> <p><u>*Growth Hormone</u> (measure Igf-1)</p>
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*** Note:** These hormones should be measured and HRT needs to be individualized under the supervision of a medical doctor.

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