

# Reversing Physical Aging

Textbook Volume 1: Head & Senses

## Detecting signs of hormone dysfunction on the face

Billions of hormones control the shape of the face and its texture and beauty. Physicians can evaluate a patient's health more effectively by searching for hormone-related physical signs. If hormones are lacking or are excessive, often these inadequacies show up with typical physical signs on the face. An example is the change in facial features that appears when growth hormone and IGF-1 levels drop with age by more than 20%. At that time, wrinkles start appearing on the forehead, and cheeks become less

toned and sag with two nasolabial folds, which extend from both sides of the nostrils to the corresponding angles of the mouth. These signs of aging result from muscle loss and skin thinning with the loss of elasticity. On the other hand, the aspect of the face is entirely different in the case of thyroid hormone excess or hyperthyroidism. The face looks thinner and hollow due to the loss of muscle, interstitial fluid (between cells), and intracellular materials as a consequence of excessive tissue

breakdown. In addition, abundant sweat appears on the forehead and cheeks due to excessive thyroid-induced heat production. The cheeks and forehead may appear reddish due to an important increase in blood flow. Furthermore, the face looks tense due to an overstimulation of the sympathetic nervous system. The adrenaline and noradrenaline produced by this type of nerve increase energy, but in excess, they make us nervous.

## How many hormones does the human body produce?

The average numbers of hormones produced by a healthy human body					
Hormone	Daily production for the body (young adult)			For each cell	
	mg/day	moles/day	molecules/day		molecules/day
Growth hormone	0.35 mg	0.000000016 mole	10 x 10 <sup>15</sup>	10 millions (106) of billions (109)/day	250 GH/day daily produced for each cell
Triiodothyronine	0.02 mg	0.000000031 mole	20x 10 <sup>15</sup>	20 millions of billions/day	500 T3
Thyroxine	0.1mg	0.000000131 mole	70x 10 <sup>15</sup>	70 millions of billions day	2000 T4
IGF-1 (adult)	1 mg	0.000000016 mole	8 x 10 <sup>16</sup>	80 millions of billions/day	2000 IGF-1
IGF-1 (adolescent, spurt growth)	3.5 mg	0.000000458 mole	33 x 10 <sup>16</sup>	330 millions of billions/day	7000 IGF-1
Cortisol (Female)	20 mg	0.000055 mole	33 x 10 <sup>18</sup>	33 billions of billions/day	800.000 cortisol
DHEA (Female)	20 mg	0.000069 mole	40 x 10 <sup>18</sup>	40 billions of billions/day	1.1 million DHEA
Cortisol (Male)	30 mg	0.000083 mole	50 x 10 <sup>18</sup>	50 billions of billions/day	1.35 million cortisol
DHEA (Male)	30 mg	0.000104 mole	60 x 10 <sup>18</sup>	60 billions of billions/day	1.6 million DHEA
FEMALES					
Estradiol (Luteal phase)	0.1 mg	0.000000367 mole	220 x 10 <sup>15</sup>	200 millions of billions/day	4000 estradiol
Progesterone (Follicular phase)*	1 mg	0.00000318 mole	19x 10 <sup>18</sup>	20 billions of billions/day	500,000 progesterone
Progesterone (Luteal phase)	30 mg	0.0000954 mole	600 x 10 <sup>18</sup>	600 billions of billions/day	15 millions progesterone
Testosterone	0.35 mg	0.00000125 mole	0.75 x 10 <sup>18</sup>	0.75 billions of billions/day	20,000 testosterone
MALES					
Estradiol	0.02 mg	0.000000073 mole	45 x 10 <sup>15</sup>	45 millions of billions/day	900 estradiol
Progesterone	1 mg	0.00000318 mole	19x 10 <sup>18</sup>	20 billions of billions/day	500,000 progesterone
Testosterone	7 mg	0.000024 mole	15 x 10 <sup>18</sup>	15 billions of billions/day	400,000 testosterone

\*Note: Daily, men produce as much progesterone as women daily do in the follicular phase

### Caution/Disclaimer:

Any content in this document for physicians, be it treatments, recommendations or other information, is to be considered as solely advisory, an aid for physicians to better treat their patients. The final responsibility remains in the hands of the medical practitioner, who meets, interviews, and examines the patient, and performs the necessary follow-up. For this reason, s/he knows best what is good or not for the patient. In no way can the author or editor be considered responsible or take responsibility for any adverse outcome that might be alleged or attributed to the application of any of the information that is contained in this book.

Chapter

# TWO Reversing the aging of the face & other facial disorders

## Regressing faces: Causes

### Growth hormone & IGF-1 deficiencies

**Growth hormone & IGF-1** deficiencies are the major causes of the loss of facial youthfulness.

Both deficiencies facilitate the appearance of **atrophy & droopiness**.

**Sagging eyelids & cheeks** is one of the consequences of a growth hormone and/or IGF-1 deficiency.

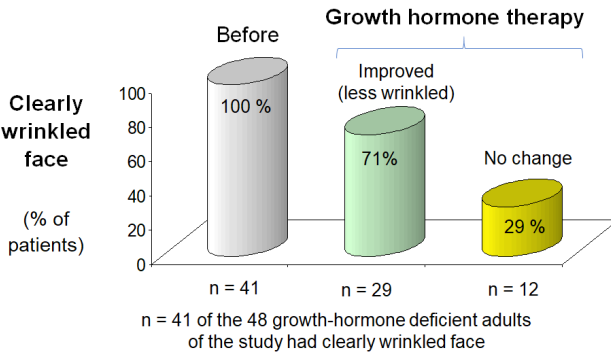
**How many patients benefit from a reversal of the aging face with systemic growth hormone or IGF-1 treatment?**

With growth hormone treatment alone, about two out of every three patients with an aging face and growth hormone deficiency develop a smoother, younger face. With IGF-1 therapy, statistics might be lower, based on my experience, to some degree due to IGF-1's weaker potential to improve skin and muscle elasticity compared with growth hormone.

In a study published in 1997 on my first 48 patients treated with growth hormone, 85% complained of having an aging face (clearly wrinkled face). Of this large number of mostly middle-aged adults with a wrinkled face and growth hormone deficiency (the diagnosis was based on a low serum IGF-1 level, psychological complaints, and physical signs of growth hormone deficiency), more than two-thirds declared that their faces were less wrinkled and younger after 2-6 months of growth hormone treatment (as shown in the graphic on the right).

### Growth hormone treatment clearly reduces wrinkled faces

Adults with growth hormone deficiency and clearly wrinkled face



Hertoghe T. Growth hormone therapy in aging adults. Anti-Aging Med Ther. 1997; 1:10-28

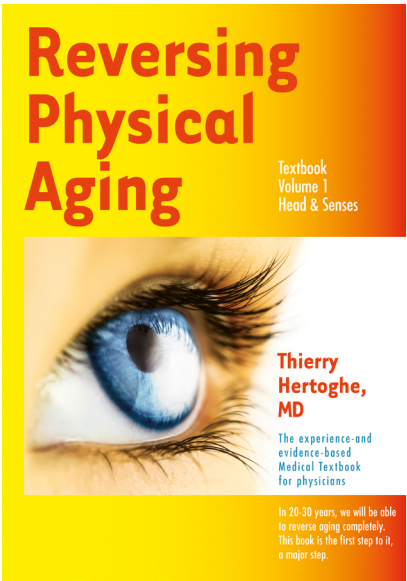
## Aging female & male faces

**What hormone deficiencies make one's face lose its sexually, attractive appearance?**



Three types of hormones – **estrogen**, **progesterone**, and **testosterone** - seem to interact with one another to make the face of a woman feminine, although one kind predominates, namely estrogen. **Estrogen** feminizes a woman's face by blocking the masculinizing effects of dihydrotestosterone and increasing the blood supply to the face. Women need almost permanently the presence of high levels of estrogen to oppose dihydrotestosterone because the dihydrotestosterone level in them remains relatively high throughout life (about one-third of that in men) and might otherwise cause mustache and beard growth. Two other types of hormones influence a woman's face: progesterone and testosterone. **Progesterone** blocks the estrogen-induced swelling of the face. Testosterone provides firmness to the face and takes out skin dryness. **Testosterone** does not increase facial hair by itself as long as it does not convert to dihydrotestosterone. Deficiencies in any of those three hormones – also testosterone – can make a woman's look older and sexually less attractive. Also deficits of peptides that can make the facial muscles firmer, can reduce sexual characteristics of the face by reducing muscle tone – although they decrease the sexuality of the face to a much lesser degree than sex hormone deficiencies do.

Two male hormones make a man's face look male: **testosterone**, which increases the firmness and color of the face, and **dihydrotestosterone**, which typically masculinizes the face. **Testosterone** toughens the face by thickening the face's skin, muscles and bones. It flushes the face by enhancing the flow of blood, enriched in red blood cells, to the face. **Dihydrotestosterone** makes the face look masculine by stimulating mustache and beard growth, enhancing the male aspect of the chin with two parallel bumps and increasing the abundance of hair in the inner part of the eyebrows close to the nose root. These masculine features develop proportional to the levels of (dihydro)testosterone. Deficiencies of both testosterone and dihydrotestosterone make the face of a man become less masculine. The loss of masculinity of the face takes time, years of progressively increasing male hormone deficiencies. By losing part of the male appearance of the face, a man may look older because his face is paler, less firm and hairy, and, therefore, possibly less sexually attractive. However, testosterone and dihydrotestosterone deficiencies do not contribute to the aging of the face as much as the declining growth hormone and IGF-1 levels do.



In this complete new textbook "Reversing Physical Aging", discover how to reset or reduce all aspects of physical aging of the **head** – hair, face – **and the 5 senses** – vision, hearing, smell, taste and touch. This **practical guide** is full of **ready-to-use information** for medical therapies that reverse each physical aging signs and assesses the efficiency of each treatment. **"Reversing physical aging" is the best way to make your patients healthier.**

The textbook has four main characteristics that make it invaluable to physicians: the **applicability of the therapies** (a practical guide on how to reverse almost any physical sign of aging), the **completeness of the topics**, the scientific evidence (extensive list of references), and the **abundance of innovative information** indispensable to the reverse-aging process. Most of the information is not found in any other book.

«A textbook full of innovative information on the reverse-aging process.»