References of Consensus 10 on the Application of hormone therapies to other medical specialties

Other medical specialties where hormone therapies can be useful:

1. General practise, Family medicine,
2. Cardiology:
3. Dermatology
4. Diabetology
5. Emergency medicine
6. Gastroenterology
7. Genetics
8. Geriatrics
9. Gynecology & Obstetrics
10. Infectious diseases, Allergy & Immunology, Otolaryngology
11. Internal medicine: see Gastroenterology, Diabetology, Oncology, Infectious diseases
12. Morphology/Aesthetical medicine
13. Neurology
14. Obesity management:
15. Oncology
16. Ophthalmology
17. Orthopaedics, Physical Medicine and Rehabilitation
18. Pediatrics: see Internal medicine, General practice, Infectious diseases
19. Plastic surgery: see Morphology medicine, Surgery
20. Psychiatry
21. Rheumatology
22. Sexology/Andrology
23. Surgery, Anesthesiology
24. Urology
Utility of corrective Thyroid hormone therapy:

Lower quality of life and fatigue: the association with lower thyroid hormone levels

Lower quality of life and fatigue: the improvement with thyroid treatment

Sleep disorders: the improvement with thyroid treatment

Hypercholesterolemia: the association with lower thyroid hormone levels

Hypercholesterolemia: the improvement with thyroid treatment

Arterial hypertension: the association with lower thyroid hormone levels

Arterial hypertension: the improvement with thyroid treatment

Utility of corrective Estrogen and progesterone therapy:
Quality of life and fatigue: the association with lower estrogen levels

Lower quality of life and fatigue: the improvement with estrogen treatment


58. Best NR, Rees MP, Barlow DH, Cowen PJ. Effect of estradiol implant on noradrenergic function and mood in menopausal subjects. Psychoneuroendocrinology. 1992;17(1):87-93


Vasomotor symptoms: Improvement with

Estradiol treatment


61. Tan D, Haines CJ, Limpaphayom KK, Holinka CF, Ausmanas MK. Relief of vasomotor symptoms and vaginal atrophy with three doses of conjugated estrogens and medroxyprogesterone acetate in


**Progesterone treatment**


**Sleep disorder: the association with lower estrogen levels**


**Sleep disorder: the improvement with estrogen treatment**


73. Schiff I, Regestein Q, Tulchinsky D, Ryan KJ. Effects of estrogens on sleep and psychological state of hypoestrogenic women. JAMA. 1979 Nov 30;242(22):2405-4


**Sleep disorder: the improvement with progesterone treatment**


**Hypercholesterolemia: the association with lower estrogen levels**


**Hypercholesterolemia: the improvement with**

**Estrogen treatment**


88. Harrison-Bernard LM, Schulman IH, Raji L. Postovariectomy hypertension is linked to increased renal AT1 receptor and salt sensitivity. Hypertension. 2003 Dec;42(6):1157-63


98. Manhem K, Ahlm H, Dellborg M, Milsom I. Acute effects of transdermal estrogen in postmenopausal women with coronary artery disease. Using a clinically relevant estrogen dose and concurrent antianginal therapy. Cardiology. 2000;94(2):86-90 (“resting diastolic blood pressure was significantly decreased due to estrogen”)
Utility of corrective Testosterone therapy:

Quality of life and fatigue in men: the association with lower testosterone


Lower quality of life and fatigue in men: the improvement with testosterone treatment


Sleep disorder in men: the improvement with testosterone treatment


Hypercholesterolemia in men: the association with lower testosterone levels


Hypercholesterolemia in men: the improvement with testosterone treatment


Arterial hypertension in men: the association with lower testosterone levels


Arterial hypertension in men: the improvement with testosterone treatment


Utility of corrective Hydrocortisone/Glucorticoid therapy:
Quality of life and fatigue: the association with lower cortisol levels


147. Tsopanakis C, Tsopanakis A. Stress hormonal factors, fatigue, and antioxidant responses to prolonged speed driving. Pharmacol Biochem Behav. 1998 Jul;60(3):747-51


**Lower quality of life and fatigue: the improvement with cortisol or other glucocorticoid treatments**


**Sleep disorder: the association with cortisol levels**


**Hypercholesterolemia: the improvement with glucocorticoid treatment**

173. Boers M, Nurmohamed MT, Doelman CJ, Lard LR, Verhoeven AC, Voskuyl AE, Huizinga TW, van de Stadt RJ, Dijkmans BA, van der Linden S. Influence of glucocorticoids and disease activity on total and high density lipoprotein cholesterol in patients with rheumatoid arthritis. Ann Rheum Dis. 2003 Sep;62(9):842-5 (glucocorticoids increase mildly the total cholesterol, but considerably more the HDL cholesterol, significantly lowering the atherogenic index)

**Hyperhomocystinemia: the improvement with glucocorticoid treatment**


**Utility of corrective DHEA therapy:**

**Lower quality of life and fatigue: the association with lower DHEA levels**


**Lower quality of life and fatigue: the improvement with DHEA treatment**


Sleep disorder: the improvement with DHEA treatment
Friess E, Trachsel L, Guldner J, Schier T, Steiger A, Holsboer F. DHEA administration increases rapid eye movement sleep and EEG power in the sigma frequency range. Am J Physiol. 1995 Jan;268(1 Pt 1):E107-13

Hypercholesterolemia: the association with lower DHEA levels

Hypercholesterolemia: the improvement with DHEA treatment

Arterial hypertension: the association with lower DHEA levels

Arterial hypertension: the improvement with DHEA treatment

Utility of corrective GH therapy:
Lower quality of life and fatigue: the association with lower GH and/or IGF-1 levels


Lower quality of life and fatigue: the improvement with GH and/or IGF-1 treatment


Sleep disorders: the association with lower GH and/or IGF-1 levels

220. Astrom C, Lindholm J. Growth hormone-deficient young adults have decreased deep sleep. Neuroendocrinology. 1990 Jan;51(1):82-4

Sleep disorders: the improvement with GH treatment


Hypercholesterolemia: the association with lower GH and/or IGF-1 levels


218. Laron Z. Consequences of not treating children with Laron syndrome (primary growth hormone insensitivity). J Pediatr Endocrinol Metab. 2001;14 Suppl 5:1243-8; discussion 1261-2


Hypercholesterolemia: the improvement with GH treatment


229. Olsovskova V, Siprova H, Beranek M, Sasova V. The influence of long-term growth hormone replacement therapy on body composition, bone tissue and some metabolic parameters in adults with growth hormone deficiency. Vnitr Lek. 2005 Dec;51(12):1356-64 ("a decrease of total and LDL cholesterol occurred already after a half of the year of the treatment (p < 0.05), changes were significant also in further four years. HDL cholesterol levels have had a progressive tendency, but they were not statistically significant")

Homocysteinemia: the improvement with GH treatment


Arterial hypertension: the association with lower GH and/or IGF-1 levels


Arterial hypertension: the improvement with GH treatment


Utility of corrective Melatonin therapy

Lower quality of life and fatigue: the association with lower melatonin levels


Lower quality of life and fatigue: the improvement with melatonin treatment


Sleep disorders: the association with lower melatonin levels


Sleep disorders: the improvement with melatonin treatment (for more references: cfr topics of discussion)


Hypercholesterolemia: the association with lower melatonin levels

Hypercholesterolemia: the improvement with melatonin treatment


Arterial hypertension: the association with lower melatonin levels


Arterial hypertension: the improvement with melatonin treatment


2. Cardiology

Utility of corrective Thyroid hormone therapy:

Hypercholesterolemia: the association with lower thyroid hormone levels

Hypercholesterolemia: the improvement with thyroid treatment

Atherosclerosis: the association with lower thyroid hormone levels

Atherosclerosis: the improvement with thyroid treatment

Arterial hypertension: the association with lower thyroid hormone levels

Arterial hypertension: the improvement with thyroid treatment

Coronary heart disease: the association with lower thyroid hormone levels

Coronary heart disease and other cardiac diseases: the improvement with thyroid treatment

Stroke and other cerebrovascular disorders: the association with lower thyroid hormone levels
25. Hu R. Changes in serum thyroid hormones in acute cerebrovascular apoplexy and their clinical significance. Zhonghua Shen Jing Jing Shen Ke Za Zhi. 1990 Apr;23(2):87-9, 126

Utility of corrective Estrogen and progesterone therapy: Hypercholesterolemia: the association with lower estrogen levels

Hypercholesterolemia: the improvement with

Estrogen treatment
hypercholesterolemic women: a randomized, placebo-controlled clinical trial. Metabolism. 2002 Nov;51(11):1463-70


**Progesterone treatment**


**Atherosclerosis: the association with lower estrogen levels**


**Atherosclerosis: the improvement with estrogen treatment**


**Arterial hypertension: the association with lower estrogen levels**

50. Harrison-Bernard LM, Schulman IH, Raji L. Postovariectomy hypertension is linked to increased renal AT1 receptor and salt sensitivity. Hypertension. 2003 Dec;42(6):1157-63


**Arterial hypertension: the improvement with estrogen treatment**


60. Manhem K, Ahlm H, Dellborg M, Milsom I. Acute effects of transdermal estradiol in postmenopausal women with coronary artery disease. Using a clinically relevant estrogen dose and concurrent antianginal therapy. Cardiology. 2000;94(2):86-90 ("resting diastolic blood pressure was significantly decreased due to estrogen")


**Cardiovascular disease: the association with lower estrogen levels**


**Coronary heart disease and other cardiac diseases: the improvement with estrogen treatment**


Stroke and other cerebrovascular disorders: the association with lower estrogen levels


Stroke: the improvement with estrogen treatment


Utility of corrective Testosterone therapy in men:

Hypercholesterolemia in men: the association with lower testosterone levels


Hypercholesterolemia in men: the improvement with testosterone treatment


Atherosclerosis in men: the association with lower testosterone levels


Atherosclerosis in men: the improvement with testosterone treatment


Arterial hypertension in men: the association with lower testosterone levels


Arterial hypertension in men: the improvement with testosterone treatment


Coronary heart disease in men: the association with lower testosterone levels


Coronary heart disease in men: the improvement with testosterone treatment


Peripheral vascular disease (including intermittent claudication) in men: the improvement with testosterone treatment

Stroke in men: the association with lower testosterone levels

Stroke in men: the improvement with testosterone treatment
123. Department of Neurology, Saint Louis University Hospital, Saint Louis, MO 63110, USA. pany@slu.edu

Utility of corrective Hydrocortisone/Glucorticoid therapy:

Hypercholesterolemia: the improvement with glucocorticoid treatment
124. Boers M, Nurmohamed MT, Doelman CJ, Lard LR, Verhoeven AC, Voskuyl AE, Huizinga TW, van de Stadt RJ, Dijkmans BA, van der Linden S. Influence of glucocorticoids and disease activity on total and high density lipoprotein cholesterol in patients with rheumatoid arthritis. Ann Rheum Dis. 2003 Sep;62(9):842-5 (glucocorticoids increase mildly the total cholesterol, but considerably more the HDL cholesterol, significantly lowering the atherogenic index)

Hyperhomocystinemia: the improvement with glucocorticoid treatment

Heart disease: the improvement with glucocorticoid treatment

Utility of corrective DHEA therapy:

Hypercholesterolemia: the association with lower DHEA levels


Hypercholesterolemia: the improvement with DHEA treatment


Atherosclerosis: the association with lower DHEA levels


Atherosclerosis: the improvement with DHEA treatment


Arterial hypertension: the association with lower DHEA levels


**Arterial hypertension: the improvement with DHEA treatment**


**Cardiovascular disease: the association with lower DHEA levels**


**Coronary heart disease and other cardiac diseases: the improvement with DHEA treatment**


**Cerebrovascular disorders: the association with lower DHEA levels**


**Stroke: the improvement with DHEA treatment**


**Utility of corrective Growth hormone therapy**

**Hypercholesterolemia: the association with lower GH and/or IGF-1 levels**


**Hypercholesterolemia: the improvement with GH treatment**


171. Olszowska V, Siprowska B, Beranek M, Soska V. The influence of long-term growth hormone replacement therapy on body composition, bone tissue and some metabolic parameters in adults with growth hormone deficiency. Vnitr Lek. 2005 Dec;51(12):1356-64 ("a decrease of total and LDL cholesterol occurred already after a half of the year of the treatment (p < 0.05), changes were significant also in further four years. HDL cholesterol levels have had a progressive tendency, but they were not statistically significant")

**Homocysteinemia: the improvement with GH treatment**


**Atherosclerosis: the association with lower GH and/or IGF-1 levels**


**Atherosclerosis: the improvement with GH treatment**


**Arterial hypertension: the association with lower GH and/or IGF-1 levels**


**Arterial hypertension: the improvement with GH treatment**

Coronary heart disease: the association with lower GH and/or IGF-1 levels


Coronary heart disease: the improvement with GH treatment


Stroke and other cerebrovascular disorders: the association with GH and/or IGF-1 levels


Utility of corrective Melatonin therapy

Hypercholesterolemia: the association with lower melatonin levels


Hypercholesterolemia: the improvement with melatonin treatment


Atherosclerosis: the association with lower melatonin levels


Arterial hypertension: the association with lower melatonin levels


Arterial hypertension: the improvement with melatonin treatment


Cardiac disease: the association with lower melatonin levels


Coronary heart disease and other heart conditions: the improvement with melatonin treatment


Stroke and other cerebrovascular disorders: the association with lower melatonin levels


Stroke: the improvement with melatonin treatment

Utility of corrective Thyroid hormone therapy:

Dry and wet skin and other skin disturbances: the association with lower and higher levels of thyroid hormones

5. Werner & Ingbar’s, The Thyroid, 1996, Ed. LE Braverman & RV Utiger, Lippincott-Raven, New-York, p.737

Dry skin and other skin disturbances: the improvement with thyroid hormones

13. Safer JD, Crawford TM, Fraser LM, Hoa M, Ray S, Chen TC, Persons K, Holick MF. Thyroid hormone action on skin: diverging effects of topical versus intraperitoneal administration. Thyroid. 2003 Feb;13(2):159-65. Section of Endocrinology, Department of Medicine, Boston University School of Medicine, Boston, Massachusetts 02118, USA. jsafer@bu.edu

Utility of corrective Estrogen and progesterone therapy:

Dry and thin skin: the association with lower levels of estrogens


Dry skin and thin skin and mucosae: the improvement with female hormone replacement therapy


Utility of corrective Testosterone therapy:

Dry skin: the association with lower testosterone levels


Skin: the improvement with testosterone treatment


Utility of corrective Hydrocortisone/Glucocorticoid therapy:

Skin irritation and erythema: the improvement with hydrocortisone/glucocorticoid therapy

(Pretreatment with glucocorticoid cream reduces the skin irritation & erythema by testosterone patch)


**Keloids improvement with local glucocorticoid treatment**


**Hirsutism: the improvement with glucocorticoid treatment**


45. Wieland RG, Zorn E. Effect of chronic combined glucocorticoid and estrogen on serum androgens and androgen binding in hirsutism. Cutis. 1979 Apr;23(4):458-60


**Utility of corrective DHEA therapy:**

**Dry skin: the improvement with DHEA**


**Utility of corrective Growth hormone therapy**

**Skin wounds; Dry and thin skin: the improvement with growth hormone therapy**


**Utility of corrective Melatonin therapy**
Premature aging skin: the association with lower levels of melatonin


57. Abdel-Wanis ME, Kawahara N. Skeletal disorders associated with skin pigmentation: a role of melatonin? Med Hypotheses. 2003 Nov-Dec;61(5-6):640-2. Department of Orthopaedic Surgery, Faculty of Medicine, Kanazawa University, Kanazawa, Japan. wanis307@yahoo.com


Premature aging skin and other skin disorders: the association with lower levels of melatonin


62. Hipler UC, Fischer TW, Elsner P. HaCaT cell proliferation influenced by melatonin. Skin Pharmacol Appl Skin Physiol. 2003 Nov-Dec;16(6):379-85. Department of Dermatology and Allergology, Friedrich-Schiller-Universitat Jena, Jena, Germany. Christina.Hipler@med.uni-jena.de

63. Drobnik J, Dabrowski R. Pinealectomy-induced elevation of collagen content in the intact skin is suppressed by melatonin application. Cytobios. 1999;100(393):49-55. Department of Pathophysiology, Medical University of Lodz, Poland.


65. Pertsov SS, Abramov YV, Volodina TV, Rebrov LB. Biochemical indexes of the skin and blood melatonin concentration in rats during acute stress and treatment with exogenous melatonin. Bull Exp Biol Med. 2004 Apr;137(4):327-30 P. K. Anokhin Institute of Normal Physiology, Russian Academy of Medical Sciences; Research Center of Biomedical Technologies VILAR, Moscow.s.pertsov@mail.ru

66. Tunali T, Sener G, Yardar A, Emekli N. Melatonin reduces oxidative damage to skin and normalizes blood coagulation in a rat model of thermal injury. Life Sci. 2005 Jan 28;76(11):1259-65 Marmara University, Faculty of Dentistry, Department of Biochemistry, Guzelbahce, Buyukciftlik sok. No:6, 34365 Nisantasi-Istanbul-Turkey. tunali@marmara.edu.trT

67. Ryoo YW, Suh SI, Mun KC, Kim BC, Lee KS. The effects of the melatonin on ultraviolet-B irradiated cultured dermal fibroblasts. J Dermatol Sci. 2001 Nov;27(3):162-9. Department of Dermatology, School of Medicine, Keimyung University, Dong-San Dong 194, Choong-Gu, Taegu, South Korea. ryoo111@dsmc.or.kr

68. Fischer T, Bangha E, Elsner P, Kistler GS. Suppression of UV-induced erythema by topical treatment with melatonin. Influence of the application time point. Biol Signals Recept. 1999 Jan-Apr;8(1-2):132-5 Department of Dermatology, Friedrich-Schiller-University Jena, Jena, Germany. fischer@derma.uni-jena.de


Utility of corrective Thyroid hormone therapy:

Diabetes: The association with lower thyroid hormone levels

Diabetes: the improvement with thyroid treatment
84. Houssay BA. The thyroid and diabetes. Vitam Horm. 1946;4:188

Utility of corrective Estrogen and progesterone therapy:

Diabetes: the association with lower estrogen levels

Diabetes: the improvement with estrogen treatment


Utility of corrective Testosterone therapy:

Diabetes in men: the association with lower testosterone levels


Diabetes in men: the improvement with testosterone treatment


Utility of corrective Hydrocortisone/Glucocorticoid therapy:

Diabetes – glucose intolerance: the improvement with glucocorticoid treatment in patients with inflammatory disease


Diabetes – glucose intolerance: the improvement of eye pathologies with glucocorticoid treatment


Utility of corrective DHEA therapy:

Diabetes: the association with lower DHEA levels

Diabetes: the improvement with DHEA treatment

Utility of corrective Growth hormone therapy

Diabetes: the association with lower GH and/or IGF-1 levels

Diabetes: the improvement with GH treatment

Utility of corrective Melatonin therapy

Diabetes: the association with lower melatonin levels

Diabetes: the improvement with melatonin treatment

Andersson AK, Sandler S. Melatonin protects against streptozotocin, but not interleukin-1beta-induced damage of rodent pancreatic beta-cells. J Pineal Res. 2001 Apr;30(3):157-65


Abdel-Wahab MH, Abd-Allah AR. Possible protective effect of melatonin and/or desferrioxamine against streptozotocin-induced hyperglycaemia in mice. Pharmacol Res; 2000 May;41(5):533-7
Utility of corrective Thyroid hormone therapy:

Critical illness (worse disease and/or increased mortality): the association with lower and higher levels of thyroid hormones


4. Chinga-Alayo E, Villena J, Evans AT, Zimic M. Thyroid hormone levels improve the prediction of mortality among patients admitted to the intensive care unit. Intensive Care Med. 2005 Oct;31(10):1356-61 Department of Medicine, , John Stroger Jr. Hospital of Cook County, Rush Medical College, 1900 West Polk Street, Chicago, IL 60612, USA. erick_cpe@yahoo.com

5. Chinga-Alayo E, Villena J, Evans AT, Zimic M. Thyroid hormone levels improve the prediction of mortality among patients admitted to the intensive care unit. Intensive Care Med. 2005 Oct;31(10):1356-61 Department of Medicine, , John Stroger Jr. Hospital of Cook County, Rush Medical College, 1900 West Polk Street, Chicago, IL 60612, USA. erick_cpe@yahoo.com


8. Yildizdas D, Onenli-Mungan N, Yapicioglu H, Topaloglu AK, Sertdemir Y, Yuksel B. Thyroid hormone levels and their relationship to survival in children with bacterial sepsis and septic shock. J Pediatr Endocrinol Metab. 2004 Oct;17(10):1435-42. Pediatric Intensive Care Unit, Cukurova University, Adana, Turkey. rdy90@hotmail.com


Critical cardiac illness: the improvement with thyroid hormone therapy
15. Polikar R, Feld GK, Dittrich HC, Smith J, Nicod P. Effect of thyroid replacement therapy on the frequency of benign atrial and ventricular arrhythmias. J Am Coll Cardiol. 1989 Oct;14(4):999-1002 (Corrective thyroid therapy is safe in hypothyroid patients with common benign cardiac arrhythmias at the condition that thyroid treatment is started at low doses and then gradually and prudently increased to the adequate dose. The treatment does not trigger an increase in arrhythmia frequency except in rare patients with baseline atrial premature beats. It is, however, associated with an increase in basal, average and maximal heart rates)


17. Vanin LN, Smetnev AS, Sokolov SF, Kotova GA, Masenko VP. Thyroid function in patients with ventricular arrhythmia. Kardiologiia. 1989 Feb;29(2):64-7 (Thyroid therapy corrects the ventricular arrhythmia: “Thyroid therapy for hypothyroidism led to the disappearance of paroxysms of ventricular tachycardia and reduced the total number and grades of ventricular extra-systoles in patients with ventricular arrhythmias; moreover, sensitivity to antiarrhythmic agents developed to replace an earlier resistance”)

18. Zondek H. Myxedema Heart. Munch Med Wochenschr. 1918, 65: 1180-3 (Desiccated thyroid therapy improves cardiac failure refractory to digitalis in humans)


22. Facktor MA, Mayor GH, Nachreiner RF, D’Alecy LG. Thyroid hormone loss and replacement during resuscitation from cardiac arrest in dogs. Resuscitation. 1993 Oct;26(2):141-62 (Thyroid therapy reduced the lesions of experimental cardiac arrest in dogs)

23. Shigematsu H, Shatney CH. The effect of triiodothyronine (T3) and reverse triiodothyronine (rT3) on canine hemorrhagic shock. Nippon Geka Gakkai Zasshi. 1988 Oct;89(10):1587-93 (Thyroid therapy reduced the complications of hemorrhagic shock in dogs)

Utility of corrective Testosterone therapy:

Critical illness: the association with lower androgen levels


Critical illness: the improvement with androgen therapy
Utility of corrective Progesterone therapy:

Critical illness: the association with lower progesterone levels
31. Wright DW, Bauer ME, Hoffman SW, Stein DG. Serum progesterone levels correlate with decreased cerebral edema after traumatic brain injury in male rats. J Neurotrauma. 2001 Sep;18(9):901-9. Department of Emergency Medicine, Emory University School of Medicine, Atlanta, Georgia 30322, USA.

Critical illness: the improvement with progesterone therapy
34. Djebaili M, Guo Q, Pettus EH, Hoffman SW, Stein DG. The neurosteroids progesterone and allopregnanolone reduce cell death, gliosis, and functional deficits after traumatic brain injury in rats. J Neurotrauma. 2005 Jan;22(1):106-18. Department of Emergency Medicine, Brain Research Laboratory, Emory University School of Medicine, Atlanta, Georgia 30322, USA.
36. Galani R, Hoffman SW, Stein DG. Effects of the duration of progesterone treatment on the resolution of cerebral edema induced by cortical contusions in rats. Restor Neurol Neurosci. 2001;18(4):161-6. Brain Research Laboratory, Department of Psychology and Department of Emergency Medicine, Emory University, Atlanta, Georgia 30322, USA.

Utility of corrective Estrogen and progesterone therapy:

Critical illness: the improvement with estrogen and progesterone therapy
37. Stein DG, Hoffman SW. Estrogen and progesterone as neuroprotective agents in the treatment of acute brain injuries. Pediatr Rehabil. 2003 Jan-Mar;6(1):13-22. Department of Emergency Medicine, Emory University, 1648 Pierce Drive, Room 261, Atlanta, GA 30322, USA. dstei04@emory.edu

Utility of corrective Insulin therapy:

Critical illness: the association with weaker insulin activity

Critical illness: improved survival with insulin treatment


Utility of corrective Hydrocortisone/Glucocorticoid therapy:

Critical illness, high morbidity and mortality: association with low cortisol levels and/or poor cortisol response to ACTH

42. Soule S. Addison's disease in Africa--a teaching hospital experience. Clin Endocrinol (Oxf) 1999 Jan;50(1):115-20 Department of Medicine, University of Cape Town, Cape Town, South Africa. ssoule@uctgsh1.uct.ac.za (12% patients with acute Addison's disease died within the first month after hospitalization was)

43. Werbel SS, Ober KP. Acute adrenal insufficiency. Endocrinol Metab Clin North Am 1993 Jun;22(2):303-28 Department of Internal Medicine, Bowman Gray School of Medicine, Wake Forest University, Winston-Salem, North Carolina (Acute adrenal insufficiency is associated with high morbidity and mortality if allowed to progress unrecognized)

44. de Graaf JS, Dullaart RP, Zwierstra RP. Complications after bilateral adrenalectomy for phaeochromocytoma in multiple endocrine neoplasia type 2--a plea to conserve adrenal function. Eur J Surg 1999 Sep;165(9):843-6 Department of Surgery, University Hospital, Groningen, The Netherlands. (After bilateral adrenalectomy, 1/22 patients with adrenalectomy & substitution therapy died of an unrecognised Addisonian crisis)


49. Rothwell PM, Udwadia ZF, Lawler PG. Cortisol response to corticotropin and survival in septic shock. Lancet. 1991 Mar 9;337(8741):582-3. Intensive Therapy Unit, South Cleveland Hospital, Middlesbrough, UK (Poor response to ACTH is associated with increased mortality)

50. Rydvall A, Brändström AK, Banga R, Asplund K, Bäcklund U, Stegmayr BG. Plasma cortisol is often decreased in patients treated in an intensive care unit. Intensive Care Med. 2000 May;26(5):545-51. Department of Anesthesia, University Hospital, Umeå, Sweden. (In 36% of patients p-cortisol was lower than 400 nmol/l and in 47% lower than 500 nmol/l. There was a significantly increased probability (P < 0.05) of cortisol being below 400 nmol/l in patients admitted due to trauma or cerebral disorder and in patients on ventilator therapy or on mannitol)


52. Rothwell PM, Udwadia ZF, Lawler PG. Cortisol response to corticotropin and survival in septic shock. Lancet. 1991 Mar 9;337(8741):582-3. Intensive Therapy Unit, South Cleveland Hospital, Middlesbrough, UK.


Critical illness: the improvement with hydrocortisone/glucocorticoid therapy


62. Millar KJ, Thigagaraj R, Laussen PC. Glucocorticoid Therapy for Hypotension in the Cardiac Intensive Care Unit. Pediatr Cardiol. 2007 Jun;28(3):176-182 Intensive Care Unit, Royal Children’s Hospital, Flemington Road, Parkville, Victoria, 3052, Australia, johnny.millar@rch.org.au.


Increased mortality with the use of glucocorticoids in septic shock (small % of the studies, apparently due to too late treatment (later than two days) and too low doses of glucocorticoids)


Utility of corrective Growth hormone therapy

Critical illness: the association with lower levels of growth hormone/and or IGF-1

67. Osenli-Mungan N, Yildizdas D, Yapicioglu H, Topaloglu AK, YÃ¼ksel B, Ozer G. Growth hormone and insulin-like growth factor 1 levels and their relation to survival in children with bacterial sepsis and septic shock. J Paediatr Child Health. 2004 Apr;40(4):221-6. Department of Pediatrics, Faculty of Medicine, Cukurova University, Adana, Turkey. rdy90@hotmail.com


Critical illness: the improvement with growth hormone therapy


76. Connolly CM, Barrow RE, Chinkes DL, Martinez JA, Herndon DN. Recombinant human growth hormone increases thyroid hormone-binding sites in recovering severely burned children. Shock. 2003 May;19(5):399-403. Department of Surgery, The University of Texas Medical Branch, Galveston, Texas 77550, USA.


NOTE: GH therapy to critically ill patients: doubled the mortality rate in two studies

85. Takala J, Ruokonen E, Webster NR, Nielsen MS, Zandstra DF, Vundelinckx G, Hinds CJ. Increased mortality associated with growth hormone treatment in critically ill adults. N Engl J Med. 1999 Sep 9;341(11):785-92 (Critics on the study: the doses used were too high doses: 10 to 70 times the normal dose in very weak persons; the control group had an abnormally lower mortality rate than predicted; combined to the high mortality rates of the treatment group, the average mortality rate was very similar to that of a historical cohort; GH treatment lowers cortisol levels, which are crucial to critically ill patients)

BUT: Studies where GH therapy lowered the levels of cortisol and its metabolites by 20 to 40 %, which is dangerous for critically-ill patients who desperately need cortisol for their survival


...and a study where patients who have poor responsive adrenals (poorly able to increase their cortisol production) and are in septic shock, die easier


... and studies where glucocorticoid treatments considerably increased survival of critically-ill patients

survival of HIV patient from pneumonia


survival from typhus

6. Gastroenterology

Utility of corrective Thyroid hormone therapy:

Digestive diseases: the association with lower levels of thyroid hormones and/or high levels of antithyroid antibodies, and its treatment with interferon


Interferon treatment of chronic hepatitis reduces thyroid function:


Hepatitis A: the improvement with thyroid hormone therapy


Utility of corrective Estrogen and progesterone therapy:

Digestive disease: prevention and improvement with female hormone replacement therapy

12. Crandall CJ. Estrogen replacement therapy and colon cancer: a clinical review. J Womens Health Gend Based Med. 1999 Nov;8(9):1155-66. Department of Internal Medicine, UCLA School of Medicine, USA.


**Utility of corrective Testosterone therapy:**

**Digestive disease: the association with lower androgen levels**


**Digestive disease: the improvement with androgen therapy**


**Utility of corrective Hydrocortisone/Glucocorticoid therapy:**

**Digestive disease: the improvement with hydrocortisone/glucocorticoid therapy**


22. Wang ZF, Liu C, Lu Y, Dong R, Xu J, Yu L, Yao YM, Liu QG, Pan CE. Dexamethasone and dextran 40 treatment of 32 patients with severe acute pancreatitis. World J Gastroenterol. 2004 May 1;10(9):1333-6. Department of Surgery, First Hospital, Xi'an Jiaotong University, Shaanxi Province, China. ziw3@pitt.edu

**Utility of corrective DHEA therapy:**

**Digestive disease: prevention with DHEA therapy**


**Utility of corrective Growth hormone therapy**

**Digestive disease: the association with lower levels of growth hormone /and or IGF-1**

25. Picardi A, Gentilucci UV, Zardi EM, Caccavo D, Petitti T, Manfrini S, Pozzilli P, Aeltra A. TNF-alpha and growth hormone resistance in patients with chronic liver disease. J Interferon Cytokine Res. 2003 May;23(5):229-35. Laboratory of Internal Medicine and Hepatology, Interdisciplinary Center for Biomedical Research (CIR), University Campus Bio-Medico, Rome, Italy. a.picardi@unicampus.it


42. Aarhus, Denmark. tei@dadlnet.dk


7. Genetics

Thyroid-related gene polymorphisms

**Poor gene polymorphisms:** poor thyroid gene polymorphisms may increase the risk of age-related diseases, and thyroid dysfunction may increase the risk of phenotypic expression of other unfavourable gene polymorphisms


Estrogen-related gene polymorphisms

**Poor gene polymorphisms:** Poor estrogens and progesterone gene polymorphisms may increase the risk of age-related diseases


Glucocorticoid-related gene polymorphisms
14. **Poor gene polymorphisms**: Poor glucocorticoid gene polymorphisms may increase the risk of age-related diseases

15. van Rossum EF, Lamberts SW. Polymorphisms in the glucocorticoid receptor gene and their associations with metabolic parameters and body composition. Recent Prog Horm Res. 2004;59:333-57


**DHEA-related gene polymorphisms**

18. **Poor gene polymorphisms**: a poor gene polymorphism may be associated with lower DHEA levels


**Growth hormone-related gene polymorphisms and -teleomerase activity**

20. **Poor gene polymorphism**: Poor GH gene polymorphisms may increase the risk of age-related diseases


22. **Progressive telomere shortening**: GHRH may stimulate telomerase

8. Geriatrics

Utility of corrective Thyroid hormone therapy:

**Longevity: the association with thyroid hormone**

Utility of corrective Estrogen and progesterone therapy:

**Longevity: the association with higher progesterone levels**

**Longevity: the improvement with estrogen treatment**

Utility of corrective Testosterone therapy in men:

**Longevity in men: the association with testosterone levels**

**Longevity in men: improvement of survival with testosterone treatment**

Utility of corrective Testosterone therapy in women:

**Longevity in women: the association with lower testosterone levels**
Utility of corrective Hydrocortisone/Glucocorticoid therapy:

Longevity: the association with cortisol levels


Longevity: the improvement with cortisol or other glucocorticoid treatments


Utility of corrective DHEA therapy:

Longevity: the association with DHEA levels


Utility of corrective Growth hormone therapy

Longevity: the association with GH and/or IGF-1 levels


Longevity: the improvement with GH treatment


Utility of corrective Melatonin therapy

Longevity: persistence of a circadian rhythm of melatonin in longevios persons


Longevity: the improvement with melatonin treatment


Utility of corrective Thyroid hormone therapy:

Infertility: the association with lower thyroid hormone levels


Infertility: the improvement with thyroid hormone therapy


3. Chopra IJ, Baber K. Treatment of primary hypothyroidism during pregnancy: is there an increase in thyroid dose requirement in pregnancy? Metabolism. 2003 Jan;52(1):122-8. Division of Endocrinology, Diabetes and Hypertension, Department of Medicine, University of California, Los Angeles, Center for Health Sciences, Los Angeles, CA 90095-7073, USA.


15. Maruo T, Katayama K, Barnea ER, Mochizuki M. A role for thyroid hormone in the induction of ovulation and corpus luteum function. Horm Res. 1992;37 Suppl 1:12-8. Department of Obstetrics and Gynecology, Kobe University School of Medicine, Japan (Serum levels of total 3,5,3'-triiodothyronine (T3) and total thyroxine (T4) as well as free T3 and T4 were significantly lower in patients with weight loss amenorrhea compared to normal cycling women. Although no ovulation was induced by clomiphene therapy when the serum T3 levels were less than 80 ng/dl, the rate of ovulation induced by clomiphene increased in parallel with the augmentation of serum T3 levels)

Menstruation disturbances: the association with lower thyroid hormone levels and their improvement with thyroid therapy


Treatments with oral estrogens reduce serum free thyroid hormones, in particular serum free T3, and thus thyroid activity


Utility of corrective Estrogen and progesterone therapy:

Estrogen, progesterone and psychic well-being

Quality of life and fatigue: the association with lower estrogen levels


Lower quality of life and fatigue: the improvement with estrogen treatment


49. Best NR, Rees MP, Barlow DH, Cowen PJ. Effect of estradiol implant on noradrenergic function and mood in menopausal subjects. Psychoneuroendocrinology. 1992;17(1):87-93

Vasomotor symptoms: Improvement with
**Estradiol treatment**


**Progesterone treatment**


**Depression: the association with lower estrogen levels**


**Depression: the improvement with estrogen treatment**


68. Best NR, Rees MP, Barlow DH, Cowen PJ. Effect of estradiol implant on noradrenergic function and mood in menopausal subjects. Psychoneuroendocrinology. 1992;17(1):87-93


**Loss of sexual drive, sensitivity and potency: the association with lower estrogen levels**


**Loss of sexual drive and potency: The efficacy of female hormone treatments**


**Estrogen, progesterone and physical appearance/body composition**

**Hirsutism: the improvement with estrogen treatment**


**Estrogen, progesterone and age-related diseases**

**Hypercholesterolemia: the association with lower estrogen levels**


**Hypercholesterolemia: the improvement with estrogen treatment**


**Progesterone treatment**


**Arterial hypertension: the association with lower estrogen levels**

99. Harrison-Bernard LM, Schulman IH, Raji L. Postovariectomy hypertension is linked to increased renal AT1 receptor and salt sensitivity. Hypertension. 2003 Dec;42(6):1157-63


**Arterial hypertension: the improvement with estrogen treatment**


109. Manhem K, Ahlm H, Dellborg M, Milsom I. Acute effects of transdermal estrogen in postmenopausal women with coronary artery disease. Using a clinically relevant estrogen dose and concurrent antianginal therapy. Cardiology. 2000;94(2):86-90 (“resting diastolic blood pressure was significantly decreased due to estrogen”)


Obesity: the association with lower estrogen levels

112. Tchernof A, Poehlman ET, Despres JP. Body fat distribution, the menopause transition, and hormone replacement therapy. Diabetes Metab. 2000 Feb;26(1):12-20


Obesity: the improvement with estrogen treatment

114. Sorensen MB, Rosenfalck AM, Hojgaard L, Ottesen B. Obesity and sarcopenia after menopause are reversed by sex hormone replacement therapy. Obes Res. 2001 Oct;9(10):622-6

115. Tofovic SP, Dubey RK, Jackson EK. 2-Hydroxyestradiol attenuates the development of obesity, the metabolic syndrome, and vascular and renal dysfunction in obese ZSF1 rats. J Pharmacol Exp Ther. 2001 Dec;299(3):973-7


Diabetes: the association with lower estrogen levels


Osteoporosis: the association with lower estrogen levels

Estrogen levels


123. Khosla S, Riggs BL, Robb RA, Camp JJ, Achenbach SJ, Oberg AL, Rouleau PA, Melton LJ 3rd. Relationship of volumetric bone density and structural parameters at different skeletal sites to sex steroid levels in women. J Clin Endocrinol Metab. 2005 Sep;90(9):5096-103

124. Tremolieres FA, Pouilles JM, Ribot C. Withdrawal of hormone replacement therapy is associated with significant vertebral bone loss in postmenopausal women Osteoporos Int. 2001;12(5):385-90


Estrogens and androgen levels


Osteoporosis: the improvement with

Estrogen and progestin treatment
130. Sorensen MB, Rosenfalck AM, Hojgaard L, Ottesen B. Obesity and sarcopenia after menopause are reversed by sex hormone replacement therapy. Obes Res. 2001 Oct;9(10):622-6

Transdermal, intranasal or implant estradiol treatment
143. Evans SF, Davie MW. Low and conventional dose transdermal oestradiol are equally effective at preventing bone loss in spine and femur at all post-menopausal ages. Clin Endocrinol (Oxf). 1996 Jan;44(1):79-84

Progestin (including progesterone) treatment


Hip fractures: the association with lower estrogen levels


Hip fractures: the prevention with estrogen-progestin use


Cancer: the association with

Lower estrogen levels


Lower progesterone levels


**Cancer: protection with estrogen treatment?**


**Studies with reduced breast cancer risk in women with the intake of progesterone or one of its’ derivatives**


176. Wingo PA, Layde PM, Lee NC, Rubin G, Ory HW. The risk of breast cancer in postmenopausal women who have used estrogen replacement therapy. JAMA. 1987 Jan 9; 257(2): 209-15


**Studies where estrogen therapy increased the lifespan in women with familial risk of breast cancer**


**Studies of estrogen treatment of women with previous breast cancer: increased longevity/survival and reduced recurrence**


**Studies where the use of female hormone replacement therapy reduced the recurrence of breast cancer**


Utility of corrective Testosterone therapy in women:

Lower quality of life and fatigue in women: the association with lower testosterone levels


Quality of life in women: the improvement with testosterone treatment


Vasomotor symptoms in women: the improvement with testosterone treatment


Depression in women: the association with lower testosterone levels


Depression in women: the improvement with testosterone treatment

**Negative symptoms in women: the association with lower serum testosterone levels**

208. Goyal RO, Sagar R, Ammini AC, Khurana ML, Alias AG. Negative correlation between negative symptoms of schizophrenia and testosterone levels Ann N Y Acad Sci. 2004 Dec;1032:291-4

**Love in women: the association with higher testosterone in women**


**Loss of sexual drive, sexual gratification, intercourse frequency in women: the association with lower testosterone levels**


**Sexuality decline in women: the improvement with testosterone treatment**


**Osteoporosis and osteopenia in women: the association with lower testosterone levels**


Osteoporosis and osteopenia in women: the improvement with testosterone treatment


Height loss and hip fractures in women: the association with lower testosterone levels


Obesity in women: the improvement with testosterone treatment


Cancer in women: the association with lower testosterone levels


Cancer: the improvement with testosterone treatment?


Treatments with oral estrogens reduce free and total testosterone, DHT, and thus androgen activities


Utility of corrective Hydrocortisone/Glucocorticoid therapy:

Loss of fertility in women: the improvement with glucocorticoid treatment


Hirsutism: the improvement with glucocorticoid treatment


256. Wieland RG, Zorn E. Effect of chronic combined glucocorticoid and estrogen on serum androgens and androgen binding in hirsutism. Cutis. 1979 Apr;23(4):458-60


Treatments with oral estrogens reduce cortisol levels, and thus glucocorticoid activities


Utility of corrective DHEA hormone therapy:

Depression: the association with lower DHEA levels


Depression: the improvement with DHEA treatment


Loss of sexual drive, sensitivity and potency: the association with lower DHEA levels


Hypercholesterolemia: the association with lower DHEA levels


Hypercholesterolemia: the improvement with DHEA treatment


Arterial hypertension: the association with lower DHEA levels


Osteoporosis: the association with lower DHEA levels


**Osteoporosis: the improvement with DHEA treatment**


**Treatment with oral estrogens reduce DHEA**


**Utility of corrective Growth hormone therapy:**

**Infertility in women: the association with low growth hormone levels**

290. Spiliotis BE. Growth hormone insufficiency and its impact on ovarian function. Ann N Y Acad Sci. 2003 Nov;997:77-84. Pediatric Endocrine Unit, Department of Pediatrics, University of Patras School of Medicine, 26500 Rion, Patras, Greece TK 26500. aspili@lee.gr (GH-insufficient states disrupt ovarian function, causing problems in sexual maturation, the menstrual cycle, and the reproductive ability of the female)


**Fertility in women: the improvement with growth hormone treatment**

292. Wu MY, Chen HF, Ho HN, Chen SU, Chao KH, Huang SC, Lee TY, Yang YS. The value of human growth hormone as an adjuvant for ovarian stimulation in a human in vitro fertilization program. J Obstet Gynaecol Res. 1996 Oct;22(5):443-50. Department of Obstetrics and Gynecology, College of Medicine, Hospital National Taiwan University, Taipei, Republic of China (the GH cycles had better performance in terms of the number of oocytes fertilized and the pregnancy rate)

293. Volpe A, Artini PG, Barreca A, Minuto F, Coukos G, Genazzani AR. Effects of growth hormone administration in addition to gonadotrophins in normally ovulating women and polycystic ovary syndrome (PCO) patients. Hum Reprod. 1992 Nov;7(10):1347-52. Department of Obstetrics and Gynaecology, University of Cagliari, Italy. (Growth hormone supplementation enhanced the ovarian response to gonadotrophins, and significantly increased follicular fluid IGF-I)


Treatments with oral estrogens reduce serum IGF-1 levels and thus GH metabolic activity


301. Janssen YJ, Helmerhorst F, Frolich M, Roelfsema F. A switch from oral (2 mg/day) to transdermal (50 µg/day) 17beta-estradiol therapy increases serum insulin-like growth factor-I levels in recombinant human growth hormone (GH)-substituted women with GH deficiency. J Clin Endocrinol Metab. 2000 Jan;85(1):464-7


Utility of corrective Melatonin therapy:

Perimenopause: the association with low melatonin levels


Perimenopause: the improvement with melatonin therapy

309. Bellipanni G, Di Marzo F, Blasi F, Di Marzo A. Effects of melatonin in perimenopausal and menopausal women: our personal experience. Ann N Y Acad Sci. 2005 Dec;1057:393-402. Menopause Center, Madonna della Grazie Health Institute, Via Salvo D'Acquisto 67, 00049 Velletri (Rome), Italy. giuliobellipanni@yahoo.it


Birth-control through very high dose melatonin

Pregnancy: the possible improvement with melatonin therapy


316. Okatani Y, Wakatsuki A, Shinohara K, Taniguchi K, Fukaya T. Melatonin protects against oxidative mitochondrial damage induced in rat placenta by ischemia and reperfusion. J Pineal Res 2001 Sep;31(2):173-8 Department of Obstetrics and Gynecology, Kochi Medical School, Japan. okataniy@med.kochi-ms.ac.jp


Treatments with oral estrogens reduce the excretion of melatonin metabolites and thus melatonin activity

Utility of corrective Thyroid hormone therapy:

**Immune deficiency:** thyroid hormones stimulate the immune system

**Low thyroid hormone levels are associated with immune deficiency**


**Thyroid treatment improves the immune defences**


Utility of corrective Estrogen and progesterone therapy:

**Estrogens: estrogens stimulate the immune system**

17. de Ruiz CS, Rey MR, de Ruiz Holgado AP, Nader-Macias ME. Experimental administration of estradiol on the colonization of lactobacillus fermentum and escherichia coli in the urogenital tract of mice. Biol Pharm Bull. 2001 Feb;24(2):127-34


**Progesterone: progesterone may improve immune resistance in certain conditions**


**Utility of corrective Testosterone therapy:**

**Immune deficiency:** Testosterone and dihydrotestosterone may improve the immune resistance in certain conditions

**Testosterone**


**Dihydrotestosterone**


**Utility of corrective Hydrocortisone/Glucocorticoid therapy:**

**Immune deficiency:** cortisol may stimulate the immune system


**Excessive inflammation:** glucocorticoid treatment may reduce inflammation and fibrosis
Utility of corrective DHEA therapy:

Immune deficiency:

Immune deficiency: the association with lower DHEA levels


42. Christeff N, Nunez EA, Gougeon ML. Changes in cortisol/DHEA ratio in HIV-infected men are related to immunological and metabolic perturbations leading to malnutrition and lipodystrophy. Ann NY Acad Sci 2000;917:962-70


44. Ferrando SJ, Rabkin JG, Poretsky L. Dehydroepiandrosterone sulfate (DHEAS) and testosterone: relation to HIV illness stage and progression over one year. J Acquir Immune Defic Syndr. 1999;22(2):146-54


Immune deficiency: the improvement with DHEA treatment


61. Yang JY, Schwartz A, Henderson EE. Inhibition of HIV-1 latency reactivation by dehydroepiandrosterone (DHEA) and an analog of DHEA. AIDS Res Hum Retroviruses. 1993;9(9):747-54


71. Carr DJ. Increased levels of IFN-gamma in the trigeminal ganglion correlate with protection against HSV-1-induced encephalitis following subcutaneous administration with androstenediol. J Neuroimmunol. 1998;89(1-2):160-7


73. Garg M, Bondada S. Reversal of age-associated decline in immune response to Pnu-immune vaccine by supplementation with the steroid hormone DHEA. Infect Immun. 1993 May;61(5):2238-41

75. Danenberg HD, Ben-Yehuda A, Zakay-Rones Z, Friedman G. Dehydroepiandrosterone (DHEA) treatment reverses the impaired immune response of old mice to influenza vaccination and protects from influenza infection. Vaccine 1995;13(15):1445-8

Utility of corrective Growth hormone therapy:

Infections and lower immunity: the association with low growth hormone/IGF-1 levels


Infections and lower immunity: The improvement with GH treatment


Utility of corrective Melatonin therapy:

Melatonin stimulates the immune system


Infections and low immunity: the association with low melatonin levels


Excessive fibrosis: association with low melatonin levels


Infections and low immunity: the improvement with melatonin treatment
118. Vijayalaxmi, Reiter RJ, Herman TS, Meltz ML. Melatonin reduces gamma radiation-induced primary DNA damage in human blood lymphocytes. Mutat Res 1998 Feb 2;397(2):203-8


123. Lissoni P. Modulation of anticancer cytokines IL-2 and IL-12 by melatonin and the other pineal indoles 5-methoxytryptamine and 5-methoxytryptophol in the treatment of human neoplasms. Ann N Y Acad Sci 2000;917:560-7


11. Internal medicine:
see Gastroenterology, Diabetology, Oncology, Infectious Disease
Util"ity of corrective Thyroid hormone therapy:

**Obesity: the association with lower thyroid hormone levels**


**Obesity: the improvement with thyroid treatment**


12. Moore R, Grant AM, Howard AN, Mills IH. Treatment of obesity with triiodothyronine and a very low caloric liquid formula diet. Lancet 1980 Feb. 2;223-6

**Utility of corrective Estrogen and progesterone therapy:**

**Hirsutism: the improvement with estrogen treatment**


Sarcopenia: association with low estradiol and estrone levels


Sarcopenia: the improvement with estradiol treatment


Lean body mass: the improvement with estradiol (as well transdermal as oral) treatment


Obesity: the association with lower estrogen levels


Obesity: the improvement with estrogen treatment

27. Sorensen MB, Rosenfalck AM, Hojgaard L, Ottesen B. Obesity and sarcopenia after menopause are reversed by sex hormone replacement therapy. Obes Res. 2001 Oct;9(10):622-6
28. Tofovic SP, Dubey RK, Jackson EK. 2-Hydroxyestradiol attenuates the development of obesity, the metabolic syndrome, and vascular and renal dysfunction in obese ZSF1 rats. J Pharmacol Exp Ther. 2001 Dec;299(3):973-7

Utility of corrective Testosterone therapy in men:

31. Sarcopenia in men: the association with low testosterone levels

Reduced muscle strength development with exercise in men: the association with low testosterone levels


Sarcopenia in men: the improvement with testosterone treatment


Lean body mass in men: the association with lower testosterone levels


Lean body mass in men: the improvement with testosterone treatment


Obesity in men: the association with lower testosterone levels


Obesity in men: the improvement with testosterone treatment


52. Marin P. Testosterone and regional fat distribution. Obes Res. 1995 Nov;3 Suppl 4:609-12S


Utility of corrective Hydrocortisone/Glucocorticoid therapy:

Hirsutism: the improvement with glucocorticoid treatment

57. Wieland RG, Zorn E. Effect of chronic combined glucocorticoid and estrogen on serum androgens and androgen binding in hirsutism. Cutsis. 1979 Apr;23(4):458-60

Skin disorders: the improvement with glucocorticoid treatment

Utility of corrective DHEA therapy:

Obesity: the association with lower DHEA levels

Obesity: the improvement with DHEA treatment

Utility of corrective Growth hormone therapy:

Lean body mass: the association with lower GH and/or IGF-1 levels

Lean body mass: the improvement with GH treatment


Physical appearance, body morphology improvement with GH treatment

Obesity: the association with lower GH and/or IGF-1 levels

Obesity: the improvement with GH treatment


Utility of corrective Melatonin therapy:

**Obesity: the association with lower melatonin levels**


**Obesity: the improvement with melatonin treatment**


Utility of corrective Thyroid hormone therapy:

Memory loss and Alzheimer’s disease: the association with lower thyroid hormone levels
1. Nakanishi T. Consideration on serum triiodothyronine (T3), thyroxine (T4) concentration and T3/T4 ratio in the patients of senile dementia - is it possible to prevent cerebro-vascular dementia? Igaku Kenkyu. 1990 Feb;60(2):18-25

Memory loss and Alzheimer’s disease: the improvement with thyroid treatment

Stroke and other cerebrovascular disorders: the association with lower thyroid hormone levels
12. Hu R. Changes in serum thyroid hormones in acute cerebrovascular apoplexy and their clinical significance. Zhonghua Shen Jing Jing Shen Ke Za Zhi. 1990 Apr;23(2):87-9, 126

Utility of corrective Estrogen and progesterone therapy:

Memory loss and Alzheimer’s disease: the association with lower estrogen levels

Memory loss and Alzheimer’s disease: the improvement with
**Estrogen treatment**


**Estrogen and progestogen treatment**


**Utility of corrective Estrogen and progesterone therapy:**

**Memory loss and Alzheimer's disease levels in men: the association with lower testosterone**


**Memory loss and Alzheimer's disease in men: the improvement with testosterone treatment**


**Stroke and other cerebrovascular disorders: the association with lower estrogen levels**


**Stroke: the improvement with estrogen treatment**


**Utility of corrective Testosterone therapy in men:**

**Memory loss and Alzheimer's disease levels in men: the association with lower testosterone**


44. Tan RS, Pu SJ. The andropause and memory loss: is there a link between androgen decline and dementia in the aging male? Asian J Androl. 2001 Sep;3(3):169-74


**Memory loss and Alzheimer's disease in men: the improvement with testosterone treatment**


53. Stroke in men: the association with lower testosterone levels


56. Stroke in men: the improvement with testosterone treatment

57. Department of Neurology, Saint Louis University Hospital, Saint Louis, MO 63110, USA. pany@slu.edu

Utility of corrective Hydrocortisone/Glucocorticoid therapy:

58. Memory improvement for stressful events or avoidance reactions with glucocorticoid treatment


Anecdotal report on dementia reversed with glucocorticoid treatment


Neurodegenerative diseases: the improvement with glucocorticoid treatment


65. Moreira MA, Lana-Peixoto MA, Callegaro D, Haussen SR, Gama PD, Gabbai AA, Rocha FC, Lino AM; The BCTRIMS expanded consensus on treatment of multiple sclerosis: II. The evidences for the use of glucocorticoids and immunomodulatory treatments. Arq Neuropsiquiatr. 2002 Sep;60(3-B):875-80


Utility of corrective DHEA therapy:

Memory loss and Alzheimer’s disease: the association with lower DHEA levels


Memory loss: the improvement with DHEA treatment


Cerebrovascular disorders: the association with lower DHEA levels

Stroke: the improvement with DHEA treatment

Utility of corrective Pregnenolone therapy:

Memory loss and Alzheimer's disease: the association with lower pregnenolone levels
75. Baulieu EE. The decrease in the hippocampus of the neurosteroid pregnenolone sulfate is involved in memory deficit in the aged animal. C R Acad Sci III. 1998 Feb-Mar;321(2-3):223-7

Memory loss: the improvement with pregnenolone treatment
84. Pallares M, Darnaudery M, Day J, Le Moal M, Mayo W. The neurosteroid pregnenolone sulfate infused into the nucleus basalis increases both acetylcholine release in the frontal cortex or amygdala and spatial memory. Neuroscience. 1998 Dec 8;78(3):551-8
85. Meziane H, Mathis C, Paul SM, Ungerer A. The neurosteroid pregnenolone sulfate reduces learning deficits induced by scopolamine and has promnesic effects in mice performing an appetitive learning task. Psychopharmacology (Berl). 1996 Aug;126(4):323-30
87. Flood JF, Morley JE, Roberts E. Pregnenolone sulfate enhances post-training memory processes when injected in very low doses into limbic system structures: the amygdala is by far the most sensitive. Proc Natl Acad Sci USA. 1995 Nov 7;92(23):10806-10

89. Flood JF, Morley JE, Roberts E. Memory-enhancing effects in male mice of pregnenolone and steroids metabolically derived from it. Proc Natl Acad Sci USA. 1992 Mar 1;89(5):1567-71


Attention deficit: the improvement with pregnenolone


Utility of corrective Growth hormone therapy:

Memory loss and Alzheimer's disease: the association with lower GH and/or IGF-1 levels


Memory loss and Alzheimer's disease: the improvement with GH treatment


Stroke and other cerebrovascular disorders: the association with GH and/or IGF-1 levels


Utility of corrective Melatonin therapy:

Memory loss and Alzheimer's disease: the association with lower melatonin levels


Memory loss and Alzheimer's disease: the improvement with melatonin treatment

**Stroke and other cerebrovascular disorders: the association with lower melatonin levels**


**Stroke: the improvement with melatonin treatment**

14. Obesity management

**Utility of corrective Thyroid hormone therapy:**

**Obesity: the association with lower thyroid hormone levels**


**Obesity: the improvement with thyroid treatment**


12. Moore R, Grant AM, Howard AN, Mills IH. Treatment of obesity with triiodothyronine and a very low calorie liquid formula diet. Lancet 1980 Feb. 2;223-6

**Utility of corrective Estrogen and progesterone therapy:**

**Obesity: the association with lower estrogen and progesterone levels**


**Obesity: the improvement with estrogen and progesterone treatment**

15. Sorensen MB, Rosenfalck AM, Hojgaard L, Ottesen B. Obesity and sarcopenia after menopause are reversed by sex hormone replacement therapy. Obes Res. 2001 Oct;9(10):622-6

16. Tofovic SP, Dubey RK, Jackson EK. 2-Hydroxyestradiol attenuates the development of obesity, the metabolic syndrome, and vascular and renal dysfunction in obese ZSF1 rats. J Pharmacol Exp Ther. 2001 Dec;299(3):973-7


Utility of corrective Testosterone therapy in men:

**Obesity in men: the association with lower testosterone levels**

**Obesity in men: the improvement with testosterone treatment**

Utility of corrective DHEA therapy:

**Obesity: the association with lower DHEA levels**

**Obesity: the improvement with DHEA treatment**

Utility of corrective Growth hormone therapy:

**Obesity: the association with lower GH and/or IGF-1 levels**


Obesity: the improvement with GH treatment


**Utility of corrective Melatonin therapy:**

**Obesity: the association with lower melatonin levels**


**Obesity: the improvement with melatonin treatment**


Utility of corrective Thyroid hormone therapy:

Cancer: the association with lower thyroid hormone levels


Cancer: the improvement with thyroid treatment?


Utility of corrective Estrogen and progesterone therapy:

Cancer: the association with

8. Lower estrogen levels

Lower progesterone levels

Cancer: protection with estrogen treatment?


Studies with reduced breast cancer risk in women with the intake of progesterone or one of its’ derivatives


27. Wingo PA, Layde PM, Lee NC, Rubin G, Ory HW. The risk of breast cancer in postmenopausal women who have used estrogen replacement therapy. JAMA. 1987 Jan 9; 257(2): 209-15


Studies where estrogen therapy increased the lifespan in women with familial risk of breast cancer


Studies of estrogen treatment of women with previous breast cancer: increased longevity/survival and reduced recurrence


Studies where the use of female hormone replacement therapy reduced the recurrence of breast cancer


**Utility of corrective Testosterone therapy in men:**

**Cancer in men: the association with lower testosterone levels**


**Cancer mortality in men: increased risk if low testosterone levels**


**Cancer in men: the protection with testosterone or dihydrotestosterone treatment?**


**Utility of corrective Hydrocortisone/Glucorticoid therapy:**

**Cancer: the improvement with glucocorticoids**


**Cancer: palliative help from glucocorticoid treatment**
Utility of corrective DHEA therapy:

Cancer: the association with lower DHEA levels

Cancer: the improvement with DHEA treatment?

Breast cancer: the improvement with DHEA in presence of estradiol in vitro and in vivo?

Utility of corrective Growth hormone therapy:

Cancer: the association with lower GH and/or IGF-1 levels


111. Emerman JT, Leahy M, Gout PW, Bruchovsky N. Elevated growth hormone levels in sera from breast cancer patients. Horm Metab Res. 1985 Aug;17(8):421-4


Cancer: opposed by GH treatment?

GH LEVELS: Studies where positive associations between higher serum GH and/or IGF-1 levels and an increased risk of prostate or breast cancer

Studies where a higher serum IGF-1 and/or high IGF-I to IGFBP-3 molar ratio was found associated with an increased risk of prostate cancer (critics: the increased IGF-1 may be due to local production of IGF-1 by the tumour and may thus be a marker, and not a cause of cancer, or a bias due to nutritional fators - see further)


Studies where a higher serum GH was found associated with an increased risk of breast cancer (critic: based on the measurement of the daytime serum GH level, which is not representative of GH 24-hour secretion)

111. Emerman JT, Leahy M, Gout PW, Bruchovsky N. Elevated growth hormone levels in sera from breast cancer patients. Horm Metab Res. 1985 Aug;17(8):421-4

Studies where a higher serum IGF-1 or IGF-1/IGF-BP-3 ratio is found associated with an increased risk of breast cancer, in particular in women with ≥ 19 CA repeats in IGF-1 gene


A study where a higher serum IGF-1 / IGF-BP-3 was found associated with an increased colon cancer risk (the colon cancer risk was 4 times increased only for subjects in the upper tertile of IGF-1 and lower tertile of IGF-BP-3; for other tertiles or a combination of tertiles there was: no significant association)


In acromegaly, the incidence of and/or mortality from digestive cancer is increased


Critics: in acromegaly the GH production is 10 to 100 times the normal production, 10 to 300 times the daily doses used in GH therapy. The pituitary GH-secreting tumor in the sella turcica crushes down the production of other pituitary hormones such as ACTH, LH, FSH, TSH, creating a polyhormonal deficit: hypothyroidism, hypogonadism, hypocorticism, ... endocrine conditions that increase the risk of glucose intolerance and diabetes. These conditions are not found in corrective GH treatment of GH deficiency.

117. van den Berg G, Frolich M, Veldhuis JD, Roelfsema F. Growth hormone secretion in recently operated acromegalic patients. J Clin Endocrinol Metab. 1994 Dec;79(6):1706-15 ("Patients with active acromegaly ...secretion rate per 24 h was 25 x greater in female acromegalics & 100 x greater in male acromegalics than that in the controls")

118. Lambert RP, Jackson IM. Investigation of hypothalamic-pituitary disease. Clin Endocrinol Metab. 1983 Nov;12(3):509-34 ("In patients with large macroadenomas pituitary hormone deficiencies are almost invariable with GH and FSH/LH being the most commonly affected, followed by TSH and ACTH in that order")


Possible bias in the studies with increased prostate and breast cancer risk:

Bias 1: The diagnosis of cancer may be more rapidly made in patients with high IGF-1 because they may undergo more intensive scrutiny: As raised IGF-1 may cause tissue hyperplasia, including increase in size of prostate and breast tissue, the existence of these bigger tissues and possibly of the symptoms they may cause, may lead to more intensive scrutiny, from increased rate of PSA, CEA or C1.25 measurements, to ultrasound and RX examinations, prostate or breast biopsies, and thus an increased rate of detection of very slow, asymptomatic prostate or breast cancers that would have remained undiagnosed or diagnosed much later in patients with low IGF-1. Such higher rate of cancer detection may be particularly the case for prostate cancer, where the number of detected prostate cancer cases is very low compared to the total number of cases found at autopsy, and premenopausal breast cancer patients who were diagnosed within the 2 years after the first blood sample.


Higher levels of IGF-1 or GH or acromegaly have been associated with benign prostatic hyperplasia, but not necessarily with prostate cancer


GH and IGF-1 treatment of primates can increase breast hyperplasia, not specifically breast cancer

Bias 2: After adjustment for prostate volume, no longer significant associations between serum IGF-I and prostate cancer risk may persist (Serum IGF-I is not useful for diagnosis of prostate cancer, but a marker of benign prostatic hyperplasia and enlargement)


Bias 3: Serum IGF-I may actually be a surrogate marker of nutritional factors that may increase the cancer risk such as meat and milk intake (persons who eat a lot of protein, especially red meat, have higher IGF-1 levels and an increased cancer risk)


Link between meat, milk and/or protein intake, and prostate or breast cancer


Red meat and milk intake are correlated with high IGF-1


Bias 4: The increases of serum IGF-1 may be produced by the malignant tumour and constitute a consequence and not a cause as suggested in some animal studies.


Bias 5: The variability of serum IGF-1 makes that if two weeks after the initial blood test another measurement of IGF-1 was done, the results of the studies would have been different (about 40% of participants of the study would have switched from one quartile to the other)

measured twice, two weeks apart, individual differences range from -36.25 to +38.24%, while the mean value for the group of 84 shows high correlation between the two IGF-Is ($r=0.922$; $p<0.0001$) and varies much less (mean 120 at first visit) versus 115; $p=0.03$) in normal volunteers between the ages of 50 and 90 years. When considered in quartiles, IGF-I changed from one quartile to another in 34/84 (40.5%) of the volunteers. When the group was divided in halves, tertiles, quartiles, or quintiles there was an increasing number of subjects who changed from one subdivision to another as the number of gradations increased. These results suggest that the predictive outcomes of earlier studies that used single IGF-I samples for analysis of risk ratios according to tertiles, quartiles, or quintiles could have been different if a second IGF-I was used to establish the risk ratio.

Utility of corrective Melatonin therapy:

Cancer: the association with lower melatonin levels

**Low 24-hour mean levels of melatonin in cancer patients**


**Low night-time melatonin levels in cancer patients**


166. Feychtling M, Osterlund B, Ahlbom A. Reduced cancer incidence among the blind. Epidemiology. 1998 Sep;9(5):490-4

Cancer: increased levels of melatonin in certain cancers and its explanations

Higher daytime levels of melatonin in cancer patients (critic: the nighttime and 24-hour levels of melatonin are the ones that matter the most, not the daytime, as melatonin is six times more produced at night)


Higher daytime melatonin in cancer patients, but patients with the worse prognosis (Lissoni, 1987), low receptor status (Lissoni, 1990), faster tumor proliferation rates (Lissoni, 1990), presence of metastases, disease progression (versus stable disease or remission, etc.) have the lowest level of melatonin


Cancer: protective effects of melatonin treatment?


177. Lissoni P. Is there a role for melatonin in supportive care? Support Care Cancer. 2002 Mar;10(2):110-6


Utility of corrective Thyroid hormone therapy:

Eye problems: the association with lower levels of thyroid hormones

Retinal developmental abnormalities: prevented with thyroid hormone therapy

Utility of corrective Estrogen and Progesterone therapy:

Dry skin and age-related macular degeneration: the improvement with female hormone therapy
9. Wenderlein JM, Hensinger E. Hormone therapy for ophthalmoprophylaxis. Klin Monatsbl Augenheilkd. 2003 Oct;220(10):704-9. Universitätsfrauenklinik Ulm. (Exogenous estrogen use also appeared to be protective from soft indistinct drusen (OR = 0.5) and increased retinal pigment (OR = 0.6), but power was limited in the assessment of its association with advanced AMD)
immunoreactive synaptic connections. Invest Ophthalmol Vis Sci. 2003 Jul;44(7):3155-62. University of North Texas Health Science Center at Fort Worth, Department of Pharmacology and Neuroscience, Fort Worth, Texas 76107-2699, USA.


Utility of corrective Progesterone therapy:

Nervous eyes: the improvement with progesterone therapy
14. van Broekhoven F, Bäckström T, Verkes RJ. Oral progesterone decreases saccadic eye velocity and increases sedation in women. Psychoneuroendocrinology. 2006 Nov;31(10):1190-9 Department of Psychiatry, Unit for Clinical Psychopharmacology and Neuropsychiatry, Radboud University Nijmegen Medical Centre, P.O. Box 9101, 6500 HB Nijmegen, The Netherlands. f.vanbroekhoven@psy.umcn.nl

Utility of corrective Testosterone and DHEA therapy:

Dry eyes: the association with lower levels of androgen
15. Tamer C, Oksuz H, Sogut S. Androgen status of the nonautoimmune dry eye subtypes. Ophthalmic Res. 2006;38(5):280-6 Department of Ophthalmology, Mustafa Kemal University Medical Faculty, Antakya, Turkey. cengavertamer@yahoo.ca

Dry eyes: the improvement with androgen therapy

Utility of corrective Hydrocortisone/Glucocorticoid therapy:

Inflamed eyes: the improvement with glucocorticoid therapy
20. Struck HG, Barisdzovich A. Comparison of 0.1% dexamethasone phosphate eye gel (Dexagel) and 1% prednisolone acetate eye suspension in the treatment of post-operative inflammation after cataract surgery. Graefes Arch Clin Exp Ophthalmol. 2001 Oct;239(10):737-42. Department of Ophthalmology, Martin-Luther-University Halle-Wittenberg, Halle/Saale, Germany. hans-gert.struck@medizin.uni-halle.de

Utility of corrective Growth hormone therapy:

Eye sight problems: the association with lower levels of growth hormone /and or IGF-1
22. Bellastella A, Parlato F, Sinisi AA. Blindness impairs plasma growth hormone response to L-dopa but not to arginine. J Clin Endocrinol Metab. 1990 Apr;70(4):856-8. Institute of Endocrinology, First Faculty of Medicine, University of Naples, Italy.

Eye sight problems: the improvement or worsening with growth hormone therapy
Utility of corrective Melatonin therapy:

Age-related macular degeneration: the improvement with melatonin therapy


Utility of corrective Estrogen and progesterone therapy:

Sarcopenia: association with low estradiol and estrone levels

Sarcopenia: the improvement with estradiol treatment

Lean body mass: the improvement with estradiol (as well transdermal as oral) treatment

Rheumatism: the association with lower estrogen levels

Rheumatism: the improvement with estrogen treatment

Osteoporosis: the association with lower estrogen levels

Estrogen levels
15. Khosla S, Riggs BL, Robb RA, Camp JJ, Achenbach SJ, Oberg AL, Rouleau PA, Melton LJ 3rd. Relationship of volumetric bone density and structural parameters at different skeletal sites to sex steroid levels in women. J Clin Endocrinol Metab. 2005 Sep;90(9):5096-103

16. Tremollieres FA, Pouillies JM, Ribot C. Withdrawal of hormone replacement therapy is associated with significant vertebral bone loss in postmenopausal women Osteoporos Int. 2001;12(5):385-90


**Estrogens and androgen levels**


**Osteoporosis: the improvement with**

**Estrogen and progestin treatment**


**Transdermal, intranasal or implant estradiol treatment**


35. Evans SF, Davie MW. Low and conventional dose transdermal oestradiol are equally effective at preventing bone loss in spine and femur at all post-menopausal ages. Clin Endocrinol (Oxf). 1996 Jan;44(1):79-84

**Progestin (including progesterone) treatment**

**Hip fractures: the association with lower estrogen levels**

**Utility of corrective Testosterone therapy:**

**Sarcopenia in men: the association with low testosterone levels**

**Reduced muscle strength development with exercise in men: the association with low testosterone levels**

**Sarcopenia in men: the improvement with testosterone treatment**


**Lean body mass in men: the association with lower testosterone levels**


**Lean body mass in men: the improvement with testosterone treatment**


**Rheumatism in men: the association with lower testosterone levels**


73. Masi AT. Incidence of rheumatoid arthritis: do the observed age–sex interaction patterns support a role of androgen-anabolic steroid deficiency in its pathogenesis? Br J Rheumatol. 1994;33:697–70


Rheumatism in men: the improvement with testosterone treatment

Osteoporosis in men: the association with

Lower estrogens and androgen levels


Lower testosterone levels


Osteoporosis in men: the improvement with testosterone treatment


Hip fractures in men: the association with lower testosterone levels


Utility of corrective Calcitonin therapy:

Osteoporosis and osteopenia: the association with lower calcitonin levels


95. Cappelli C, Cottarelli C, Cumetti D, Agosti B, Gandossi E, Rizzoni D, Agabiti Rosei E. Bone density and mineral metabolism in calcitonin-deficiency patients. Minerva Endocrinol. 2004 Mar;29(1):1-10 (Calcitonin was undetectable in thyroidectomized patients, while the mean value was 7.1±/−3.2 pg/ml in the control group. At bone ultrasonography 50% of patients showed osteopenia, while only 1 subject showed osteopenia in the control group.)


102. Chuchalin AG, Baranova IA, Berova MM. An intranasal method of administration of calcitonin to steroid-dependent patients with bronchial asthma. Klin Med (Mosk.). 1991 Sep;69(9):24-6


Vertebral fractures: the improvement with calcitonin treatment

times less in incidence of vertebral fractures, and a 60% reduction in the number of new fractures, while the group receiving only calcium had a 45% increase)

Paget's disease: the improvement with calcitonin treatment

Hyperparathyroidism: the improvement with calcitonin treatment

Pain (vertebral fractures, Paget's disease, metastatic bone disease): the improvement with calcitonin treatment
117. Sasaki F, Uchino J, Hata Y, Sato Y, Konno T, Okuno T, Ohira S, Taguchi K, Fuzisawa J, Oku T. Clinical study of eel calcitonin for relief of pain from metastatic bone lesions. Gan To Kagaku Ryoho. 1991 Mar;18(3):437-42 (“CT was effective on 55.6% of patients to reduce severe bone pain but did not decrease the amount of analgesics in most patients”)

Possible utility of corrective Thyroid hormone and glucocorticoid therapy:

Osteoporosis: the improvement with thyroid treatment

Bone density in rheumatoid disease: Reduced loss with glucocorticoid treatment
Utility of corrective DHEA therapy:

**Osteoporosis: the association with lower DHEA levels**


**Utility of corrective Growth hormone therapy:**


Sarcopenia: the association with lower GH and/or IGF-1 levels


Sarcopenia: the improvement with GH treatment


Lean body mass: the association with lower GH and/or IGF-1 levels


Lean body mass: the improvement with GH treatment


Osteoporosis: the association with lower GH and/or IGF-1 levels


Osteoporosis: the improvement with GH treatment


Utility of corrective Melatonin therapy:

Osteoporosis: the association with lower melatonin levels


Osteoporosis: the improvement with melatonin treatment


18. Pediatrics: see Internal medicine, General practice, Infectious disease

19. Plastic surgery: see Morphology medicine, surgery
Utility of corrective Thyroid hormone therapy:

Depression: the association with lower thyroid hormone levels
5. Howland RH. Thyroid dysfunction in refractory depression: implications for pathophysiology and treatment. J Clin Endocrinol Metab. 1993 Sep;54(2):47-54
10. Joffe RT, Marriott M. Thyroid hormone levels and recurrence of major depression. Am J Psychiatry. 2000 Oct;157(10):1689-91 ("the time to recurrence of major depression was inversely related to T3 levels but not to T4 levels")

Depression: the improvement with thyroid treatment

Anxiety: the association with lower thyroid hormone levels


25. Landen M, Baghaei F, Rosmond R, Holm G, Bjorntorp P, Eriksson E. Dyslipidemia and high waist-hip ratio in women with self-reported social anxiety. Psychoneuroendocrinology. 2004 Sep;29(8):1037-46 (Serum levels of free thyroxin (14+/2 vs. 16+/4, P=0.04) were lower in subjects confirming social anxiety)

Anxiety: the improvement with thyroid treatment


27. Venero C, Guadano-Ferraz A, Herrero AI, Nordstrom K, Manzano J, de Escobar GM, Bernal J, Vennstrom B. Anxiety, memory impairment, and locomotor dysfunction caused by a mutant thyroid hormone receptor alpha1 can be ameliorated by T3 treatment. Genes Dev. 2005 Sep 15;19(18):2152-63

Utility of corrective Estrogen and Progesterone therapy:

Depression: the association with lower estrogen levels


Depression: the improvement with estrogen treatment


35. Best NR, Rees MP, Barlow DH, Cowen PJ. Effect of estradiol implant on noradrenergic function and mood in menopausal subjects. Psychoneuroendocrinology. 1992;17(1):87-93


Anxiety: the association with lower progesterone levels
42. Abraham GE. Nutritional factors in the etiology of the premenstrual tension syndromes. J Reprod Med. 1983 Jul;28(7):446-64

Anxiety: the improvement with

Estrogen and progestogen treatment:

Estrogen treatment
44. Best NR, Rees MP, Barlow DH, Cowen PJ. Effect of estradiol implant on noradrenergic function and mood in menopausal subjects. Psychoneuroendocrinology. 1992;17(1):87-93

Progesterone treatment:
52. Bitran D, Purdy RH, Kellogg CK. Anxiolytic effect of progesterone is associated with increases in cortical allospregnanolone and GABAA receptor function. Pharmacol Biochem Behav. 1993 Jun;45(2):423-8

Sleep disorder: the association with lower estrogen levels

Sleep disorder: the improvement with estrogen treatment
56. Schiff I, Regenstein Q, Tulchinsky D, Ryan KJ. Effects of estrogens on sleep and psychological state of hypogonadal women. JAMA. 1979 Nov 30;242(22):2405-4
Sleep disorder: the improvement with progesterone treatment


Utility of corrective Testosterone therapy in men:

Depression in men: the association with lower testosterone levels

60. Werner AA. The male climacteric JAMA. 1946; 132 (4):188-94

Depression in men: the improvement with testosterone treatment


Anxiety in men: the association with lower testosterone levels

76. Werner AA. The male climacteric JAMA. 1946;132(4):188-94

Anxiety in men: the improvement with testosterone treatment


Sleep disorder in men: the improvement with testosterone treatment
Utility of corrective Hydrocortisone/Glucorticoid therapy:

Depression lower glucocorticoid receptor levels and a circadian rhythm with lower fluctuations of serum cortisol
82. Yerevanian BI, Woolf PD, Iker HP. Plasma ACTH levels in depression before and after recovery: relationship to the dexamethasone suppression test. Psychiatry Res. 1983 Nov;10(3):175-81

Depression: the improvement with cortisol or other glucocorticoid treatments

Anxiety: the association with lower cortisol levels or a flatter cortisol circadian rhythm

Anxiety: the improvement with cortisol or other glucocorticoid treatment

Sleep disorder: the association with cortisol levels

Utility of corrective DHEA therapy:

Depression: the association with lower DHEA levels


Depression: the improvement with DHEA treatment


Anxiety: the association with lower DHEA levels


Anxiety: the improvement with DHEA treatment


Sleep disorder: the improvement with DHEA treatment

112. Friess E, Trachsel L, Guldner J, Schier T, Steiger A, Holsboer F. DHEA administration increases rapid eye movement sleep and EEG power in the sigma frequency range. Am J Physiol. 1995 Jan;268(1 Pt 1):E107-13

Utility of corrective Growth hormone therapy:
Depression: the association with lower GH and/or IGF-1 levels

116. Jarrett DB, Miewald JM, Kupfer DJ. Recurrent depression is associated with a persistent reduction in sleep-related growth hormone secretion. Arch Gen Psychiatry. 1990 Feb;47(2):113-8


121. Dinan TG, Barry S. Responses of growth hormone to desipramine in endogenous and non-endogenous depression. Br J Psychiatry. 1990 May;156:680-4


Depression: the improvement with GH treatment


Anxiety: the association with lower GH and/or IGF-1 levels

128. Tancer ME, Stein MB, Uhde TW. Growth hormone response to intravenous clonidine in social phobia: comparison to patients with panic disorder and healthy volunteers. Biol Psychiatry. 1993 Nov 1;34(9):591-5


Anxiety: the improvement with GH treatment


Utility of corrective Melatonin therapy:

Depression: the association with lower melatonin levels


Depression: the improvement with melatonin treatment


Anxiety: the association with lower melatonin levels


Anxiety: the improvement with melatonin treatment


Sleep disorders: the association with lower melatonin levels


Sleep disorder: the improvement with melatonin treatment


21. Rheumatology

Utility of corrective Thyroid hormone therapy:

**Rheumatism: the association with lower thyroid hormone levels**

**Rheumatism: the improvement with thyroid treatment**

**Osteoporosis: the improvement with thyroid treatment**

Utility of corrective Estrogen and Progesterone therapy:

**Rheumatism: the association with lower estrogen levels**

**Rheumatism: the improvement with estrogen treatment**

**Osteoporosis: the association with lower estrogen levels**

*Estrogen levels*
17. Khosla S, Riggs BL, Robb RA, Camp JJ, Achenbach SJ, Oberg AL, Rouleau PA, Melton LJ 3rd. Relationship of volumetric bone density and structural parameters at different skeletal sites to sex steroid levels in women. J Clin Endocrinol Metab. 2005 Sep;90(9):5096-103

**Estrogens and androgen levels**


**Osteoporosis: the improvement with**

**Estrogen and progestin treatment**


**Transdermal, intranasal or implant estradiol treatment**


37. Evans SF, Davie MW. Low and conventional dose transdermal oestradiol are equally effective at preventing bone loss in spine and femur at all post-menopausal ages. Clin Endocrinol (Oxf). 1996 Jan;44(1):79-84


Progestin (including progesterone) treatment


Utility of corrective Testosterone therapy in men:

Rheumatism in men: the association with lower testosterone levels


53. Masi AT. Incidence of rheumatoid arthritis: do the observed age–sex interaction patterns support a role of androgen-anabolic steroid deficiency in its pathogenesis? Br J Rheumatol. 1994;33:697–70


Rheumatism in men: the improvement with testosterone treatment

Osteoporosis in men: the association with
Lower estrogens and androgen levels


Lower testosterone levels


Osteoporosis in men: the improvement with testosterone treatment


Utility of corrective Hydrocortisone/Glucorticoid therapy:

Rheumatism: the association with lower serum cortisol levels


Rheumatism: the improvement with cortisol or other glucocorticoid treatments


Bone density in rheumatoid disease: Reduced loss with glucocorticoid treatment


Utility of corrective DHEA therapy:

Rheumatism: the association with lower DHEA levels


Rheumatism: the improvement with DHEA treatment


Osteoporosis: the association with lower DHEA levels


96. Fingerova H, Matlochova J. Reduced serum dehydroepiandrosterone levels in postmenopausal osteoporosis. Ceska Gynekol. 1998;63(2):139-46


Osteoporosis: the improvement with DHEA treatment


Utility of corrective Growth hormone therapy:

Rheumatism: the association with lower GH and/or IGF-1 levels


Rheumatism: the improvement with GH treatment


Osteoporosis: the association with lower GH and/or IGF-1 levels
Osteoporosis: the improvement with GH treatment


Osteoporosis: the improvement with GH treatment


Utility of corrective Melatonin therapy

Fibromyalgia: the association with lower melatonin levels


Fibromyalgia: the improvement with melatonin treatment


Osteoporosis: the association with lower melatonin levels


Osteoporosis: the improvement with melatonin treatment

Utility of corrective Thyroid hormone therapy:

Infertility: the association with lower thyroid hormone levels


Infertility: the improvement with thyroid hormone therapy

wolfgang.raber@gmx.at (Never achieving basal TSH <2.5 IU/l or TRH-stimulated TSH <20 mIU/l with T4 therapeutics resulted in lower conception rates (P < 0.05).)

5. Chopra IJ, Baber K. Treatment of primary hypothyroidism during pregnancy: is there an increase in thyroid dose requirement in pregnancy? Metabolism. 2003 Jan;52(1):122-8. Division of Endocrinology, Diabetes and Hypertension, Department of Medicine, University of California, Los Angeles, Center for Health Sciences, Los Angeles, CA 90095-7073, USA.


16. Maruo T, Katayama K, Barnea ER, Mochizuki M. A role for thyroid hormone in the induction of ovulation and corpus luteum function. Horm Res. 1992;37 Suppl 1:12-8. Department of Obstetrics and Gynecology, Kobe University School of Medicine, Japan (Serum levels of total 3,5,3'-triiodothyronine (T3) and total thyroxine (T4) as well as free T3 and T4 were significantly lower in patients with weight loss amenorrhea compared to normal cycling women. Although no ovulation was induced by clomiphene therapy when the serum T3 levels were less than 80 ng/dl, the rate of ovulation induced by clomiphene increased in parallel with the augmentation of serum T3 levels).

Infertility: the association with lower thyroid hormone levels in men

Utility of corrective Estrogen and Progesterone therapy:
19. Loss of sexual drive, sensitivity and potency: the association with lower estrogen levels

Loss of sexual drive, sensitivity and potency: The efficacy of female hormone treatments

Utility of corrective Testosterone therapy:
Loss of sexual drive, sensitivity and/or potency in men: the association with lower testosterone levels

Loss of sexual drive, sensitivity and/or potency in men: the improvement with testosterone treatment

Loss of fertility in men: the improvement with androgen treatment

Utility of corrective Hydrocortisone/Glucocorticoid therapy:


Utility of corrective DHEA therapy:


Loss of sexual drive, sensitivity and potency: the association with lower DHEA levels


Loss of sexual drive, sensitivity and potency: the improvement with DHEA treatment


Utility of corrective Progesterone therapy in men:

Hot flashes in men: the improvement with progestogen treatment


Sleep disorder: the improvement with progesterone treatment


Atherosclerosis in men: the protective effect of progesterone treatment

Vasodilatation of arteries: increased with progesterone treatment


Diabetes in men: improvement of arterial alterations with progesterone


Rheumatism in men: the association with lower progesterone levels


Kidney impairment in men: progesterone treatment improves renal excretion of urinary sodium


Hair loss in men: progesterone treatment inhibits the conversion of testosterone to the balding hormone DHT in human hair follicles


Loss of fertility in men: progesterone treatment stimulates hypermotility of spermatozoids and fertility of the human sperm


Synthetically derived progestogens in men may act as a male contraceptive


Progestogen treatment may induce more subjective remissions of short duration in men with hormone-resistant prostate cancer

**Utility of corrective Growth hormone therapy:**

**Loss of sexual drive, sensitivity and/or potency: the association with lower GH and/or IGF-1 levels**


**Loss of sexual potency: the improvement with GH treatment**


**Infertility in women: the association with low growth hormone levels**

72. Spiliotis BE. Growth hormone insufficiency and its impact on ovarian function. Ann N Y Acad Sci. 2003 Nov;997:77-84. Pediatric Endocrine Unit, Department of Pediatrics, University of Patras School of Medicine, 26500 Rion, Patras, Greece TK 26500. asplil@tee.gr (GH-insufficient states disrupt ovarian function, causing problems in sexual maturation, the menstrual cycle, and the reproductive ability of the female)


**Fertility in women: the improvement with growth hormone treatment**

74. Wu MY, Chen HF, Ho HN, Chen SU, Chao KH, Huang SC, Lee TY, Yang YS. The value of human growth hormone as an adjuvant for ovarian stimulation in a human in vitro fertilization program. J Obstet Gynaecol Res. 1996 Oct;22(5):443-50. Department of Obstetrics and Gynecology, College of Medicine, Hospital National Taiwan University, Taipei, Republic of China (the GH cycles had better performance in terms of the number of oocytes fertilized and the pregnancy rate)

75. Volpe A, Artini PG, Barreca A, Minuto F, Coukos G, Genazzani AR. Effects of growth hormone administration in addition to gonadotrophins in normally ovulating women and polycystic ovary syndrome (PCO) patients. Hum Reprod. 1992 Nov;7(10):1347-52. Department of Obstetrics and Gynaecology, University of Cagliari, Italy (Growth hormone supplementation enhanced the ovarian response to gonadotrophins, and significantly increased follicular fluid IGF-I)


Infertility in men: the association with low growth hormone levels

81. Shimonovitz S, Zacut D, Ben Chetrit A, Ron M. Growth hormone status in patients with maturation arrest of spermatogenesis. Hum Reprod. 1993 Jun;8(6):919-21. Department of Obstetrics/Gynaecology, Hadassah University Hospital, Mt Scopus, Jerusalem, Israel. (10 patients (91%) in the azoospermic group had non-reactive, pathological GH responses at clonidine test while none of the control group had a pathological response)

Fertility in men: the improvement with growth hormone treatment


83. Carani C, Granata AR, De Rosa M, Garau C, Zarrilli S, Paesano L, Colao A, Marrama P, Lombardi G. The effect of chronic treatment with GH on gonadal function in men with isolated GH deficiency. Eur J Endocrinol. 1999 Mar;140(3):224-30. Department of Endocrinology, University of Modena, Italy. (testosterone levels showed a significant increase after 6 and 12 months of GH treatment, seminal plasma volume was significantly increased after 12 months of GH treatment (2.9 vs 1.7 ml).)

Utility of corrective Thyroid hormone therapy:

Cardiac surgery: the improvement with thyroid hormone therapy

7. Novitzky D, Cooper DK, Chaffin JS, Greer AE, DeBault LE, Zuhdi N.

Utility of corrective Estrogen and Progesterone therapy:

Pre- or postsurgery: the improvement with female hormone replacement therapy


Utility of corrective Testosterone therapy:
Surgery lowers testosterone levels: the association with lower androgen levels


Surgery outcome: the improvement with androgen therapy


Utility of corrective Hydrocortisone/Glucocorticoid therapy:

Post operative inflammation: the improvement with glucocorticoid therapy


22. Struck HG, Barislovich A. Comparison of 0.1% dexamethasone phosphate eye gel (Dexagel) and 1% prednisolone acetate eye suspension in the treatment of post-operative inflammation after cataract surgery. Graefes Arch Clin Exp Ophthalmol. 2001 Oct;239(10):737-42. Department of Ophthalmology, Martin-Luther-University Halle-Wittenberg, Halle/Saale, Germany. hans-gert.struck@medizin.uni-halle.de


Utility of corrective DHEA therapy:

Postoperative period the association with lower levels of DHEA


Post operative immune deficiency: the improvement with DHEA therapy

Utility of corrective Growth hormone therapy:

Postoperative period with lower levels of growth hormone


Postoperative recovery: the improvement with growth hormone therapy


32. Christensen H, Oxlund H. Growth hormone increases the collagen deposition rate and breaking strength of left colonic anastomoses in rats. Surgery. 1994;116(3):550-6. Department of Connective Tissue Biology, University of Aarhus, Denmark (GH increases the breaking strength of colonic anastomoses through a stimulation of the collagen deposition rate of the anastomotic segment in left colonic anastomoses in rats)


Utility of corrective Melatonin therapy:

Postoperative recovery: the improvement with melatonin therapy

24. Urology

Utility of corrective Thyroid hormone therapy

Dry skin and other skin disturbances: the improvement with thyroid hormone therapy


Utility of corrective Estrogen therapy:

Urological problems: the association with low levels of estrogens and/or estrogen receptors


Urinary tract infections and other urological problems: the improvement with estrogen therapy


12. Environmental Health, Kitakyushu 807-8555, Japan (worse cystitis in ovariectomized rats, improved by estrogen therapy)


Utility of corrective Testosterone therapy:

Kidney stones: the association with lower testosterone levels


Urinary problems: the improvement with testosterone therapy


Utility of corrective Hydrocortisone/Glucocorticoid therapy:

Cystitis: the association with lower levels of cortisol

19. Lutgendorf SK, Kreder KJ, Rothrock NE, Hoffman A, Kirschbaum C, Sternberg EM, Zimmerman MB, Ratliff TL. Diurnal cortisol variations and symptoms in patients with interstitial cystitis. J Urol. 2002 Mar;167(3):1338-43. Department of Psychology, University of Iowa, Iowa City, Iowa, USA. (Patients with morning cortisol less than 12.5 nmol./l. were 12.8 times more likely to report high urinary urgency than those with values above this cutoff)

Cystitis, prostatitis: the improvement with glucocorticoid therapy


22. Bates S, Talbot M. Short course oral prednisolone therapy in chronic abacterial prostatitis and prostatodynia: case reports of three responders and one non-responder. Sex Transm Infect. 2000 Oct;76(5):398-9. Department of Genito-Urinary Medicine, Royal Hallamshire Hospital, Glossop Road, Sheffield S10 2JF, UK. Sylvia.bates@csuh.nhs.uk

Utility of corrective Progesterone therapy in men:

Prostate hypertrophy/adenoma: the association of a low progesterone level and a high estradiol


Prostate hypertrophy/adenoma: progesterone/progestogen treatments reduce the prostate volume
27. Flickinger CJ. The influence of progestin and androgen on the fine structure of the male reproductive tract of the rat. II. Epididymis and sex accessory glands. Anat Rec. 1977 Apr;187(4):431-62

Prostate cancer: prevention and improvement with progesterone?


Metastatic lesions from prostate cancer lesions express no progesterone receptors
