

LECTURE PRESENTATION

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# Hypogonadism and aging

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The Massachusetts Male Aging Study [1] shows that male hormones decrease with aging. This is due to some testicular and hypothalamic-pituitary defects. Impaired hypothalamic secretory reserve, resulting in a reduced and chaotic secretion of GnRH, reduced pituitary response to GnRH, resulting in an increased but irregular LH pulse frequency [2]

With aging, there is a 1.3% increase of sex hormone binding globulin (SHBG) levels per year [3]. SHBG binds strongly to testosterone, resulting in a reduction of bioavailable testosterone. The age-related reduction of testosterone seems genetically determined<sup>3</sup>. The Testosterone reduction plays many effects on body composition [4]. Testosterone also operates its effects on the penis leading to a reduction of smooth muscle cells/connective tissue rate, neuronal nitric oxide synthases, arterial influx/venoocclusion rate. Recently, three scientific societies published some recommendations for the investigation, treatment and monitoring of this kind of hypogonadism, that has been renamed Late Onset Hypogonadism [5]. These recommendations have been updated lately [6] and shared by two more scientific societies.

4. Grant GF, Parr T: **Decline of life's energy theory of ageing 2. Restoration of anabolic and regulatory processes** *Exp Opin Ther Patents* 2000, **10**(12):1885-98.
5. Nieschlag E, Swerdloff R, Behre HM, Gooren LJ, Kaufman JM, Legros JJ, Lunenfeld B, Morley JE, Schulman C, Wang C, Weidner W, Wu FC: **Investigation, treatment and monitoring of late-onset hypogonadism in males: ISA, ISSAM, and EAU recommendations.** *Int J Androl.* 2005, **28**(3):125-7.
6. Wang C, Nieschlag E, Swerdloff R, Behre HM, Hellstrom WJ, Gooren LJ, Kaufman JM, Legros JJ, Lunenfeld B, Morales A, Morley JE, Schulman C, Thompson IM, Weidner W, Wu FC: **ISA, ISSAM, EAU, EAA and ASA recommendations: investigation, treatment and monitoring of late-onset hypogonadism in males.** *Int J Impot Res.* 2009, **21**(1):1-8.

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## References

1. Feldman HA, Longcope C, Derby CA, Johannes CB, Araujo AB, Coviello AD, Bremner WJ, McKinlay JB: **Age trends in the level of serum testosterone and other hormones in middle-aged men: longitudinal results from the Massachusetts male aging study.** *J Clin Endocrinol Metab* 2002, **87**(2):589-98.
2. Veldhuis JD, Zwart A, Mulligan T, Iranmanesh A: **Muting of androgen negative feedback unveils impoverished gonadotropin-releasing hormone/luteinizing hormone secretory reactivity in healthy older men.** *J Clin Endocrinol Metab* 2001, **86**(2):529-35.
3. Krithivas K, Yurgalevitch SM, Mohr BA, Wilcox CJ, Batter SJ, Brown M, Longcope C, McKinlay JB, Kantoff PW: **Evidence that the CAG repeat in the androgen receptor gene is associated with the age-related decline in serum androgen levels in men.** *J Endocrinol* 1999, **162**(1):137-42.

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