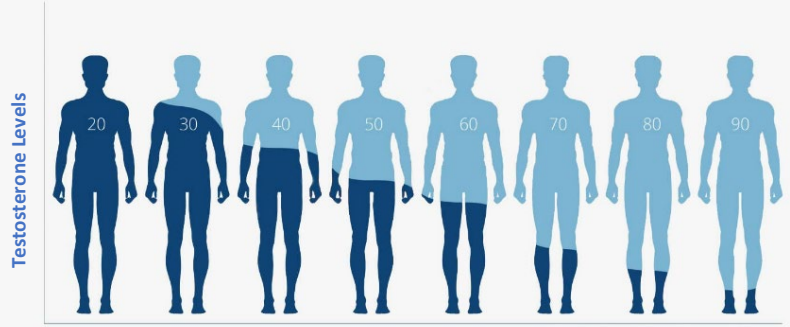


Testosterone production decreases with age

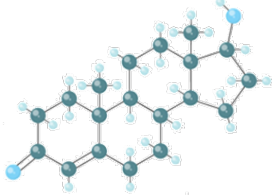
From the age of 40 there is an annual decrease of **0.4% in TT** and **1.3% in cFT**

About 20% of 60-80 years old men have testosterone levels below the desirable limit

TESTOSTERONE PRODUCTION WITH AGE



Age 20 to 90 years



DIAGNOSIS is based on **specific signs and symptoms** of androgen deficiency (table), consistently **low total testosterone levels**, and exclusion of other causes.

SPECIFIC SYMPTOMS ASSOCIATED WITH LATE-ONSET HYPOGONADISM (LOH)

	SEXUAL SYMPTOMS	FISICAL SYMPTOMS	PSICOLOGICAL SYMPTOMS
MORE SPECIFIC	<ul style="list-style-type: none"> - Reduced libido - Erectile dysfunction - Decreased spontaneous/ morning erections 	<ul style="list-style-type: none"> - Decreased activity - Difficulty walking over 1 km 	<ul style="list-style-type: none"> - Low mood/mood deflection - Decreased motivation - Fatigue
LESS SPECIFIC	<ul style="list-style-type: none"> - Reduced frequency of sexual intercourse - Reduced frequency of masturbation - Delayed ejaculation 	<ul style="list-style-type: none"> - Hot flushes - Decreased energy - Decreased physical strength 	<ul style="list-style-type: none"> - Alterations in concentration or mnemonic difficulties - Sleep disorders

RISK FACTORS ASSOCIATED WITH LATE-ONSET HYPOGONADISM

Age, obesity, malnutrition and **chronic diseases** (e.g. diabetes mellitus, chronic obstructive pulmonary disease, HIV, and **metabolic sd**)

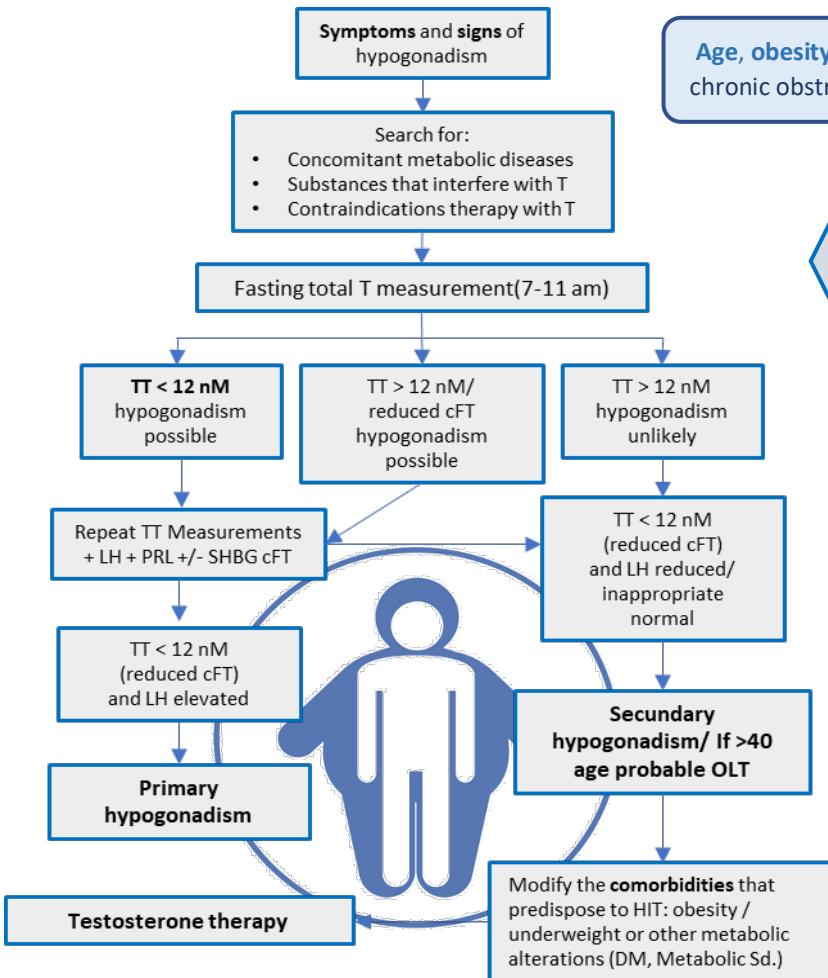
TREATMENT

Modification of **unhealthy lifestyle habits**
Weight loss
Correction and control of **comorbidities**

HORMONE REPLACEMENT THERAPY

FORMULATIONS: Oral, parenteral (im. implants), transdermal (patches, gels) mucosal (buccal, nasal)

DOSAGE: depending on the type of drug: every 8 hours, daily, 1-3 weeks up to 6 months (implants)



FOLLOW UP	Basal	3 m	6/12 m	Annually	18-24 m
Symptoms, blood pressure, waist circumference, DRE	X	X	X	X	
PSA	X	X	X	X	
Haematocrit (no >54%)	X	X	X	X	
Testosterone	X	X	X	X	
Lipid and glycemic profile	X		X	X	
Dual energy X-ray absorptiometry bone scan	X				X

References: A. Salonia et al. EAU-Guidelines-on-Sexual-and-Reproductive-Health-2020.

TT = total testosterone; cFT = calculated free testosterone; PRL = prolactin; SHBG = sex hormone-binding globulin; LH = luteinising hormone; LOH: Late onset hypogonadism