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PROSTATE HEALTH AND SEXUAL WELLNESS

FREQUENCY OF SEXUAL ACTIVITY AND PROSTATIC HEALTH: FACT OR FAIRY TALE?

- Journal of urology 2003 Feb;61(2):348-53. doi: 10.1016/s0090-4295(02)02265-3.

Steven J Jacobsen 1, Debra J Jacobson, Daniel E Rohe, Cynthia J Girman, Rosebud O Roberts, Michael M Lieber

PROSTATITIS

EJACULATORY DISTURBANCES

PAINFUL

NO EFFECT ON ERECTIONS

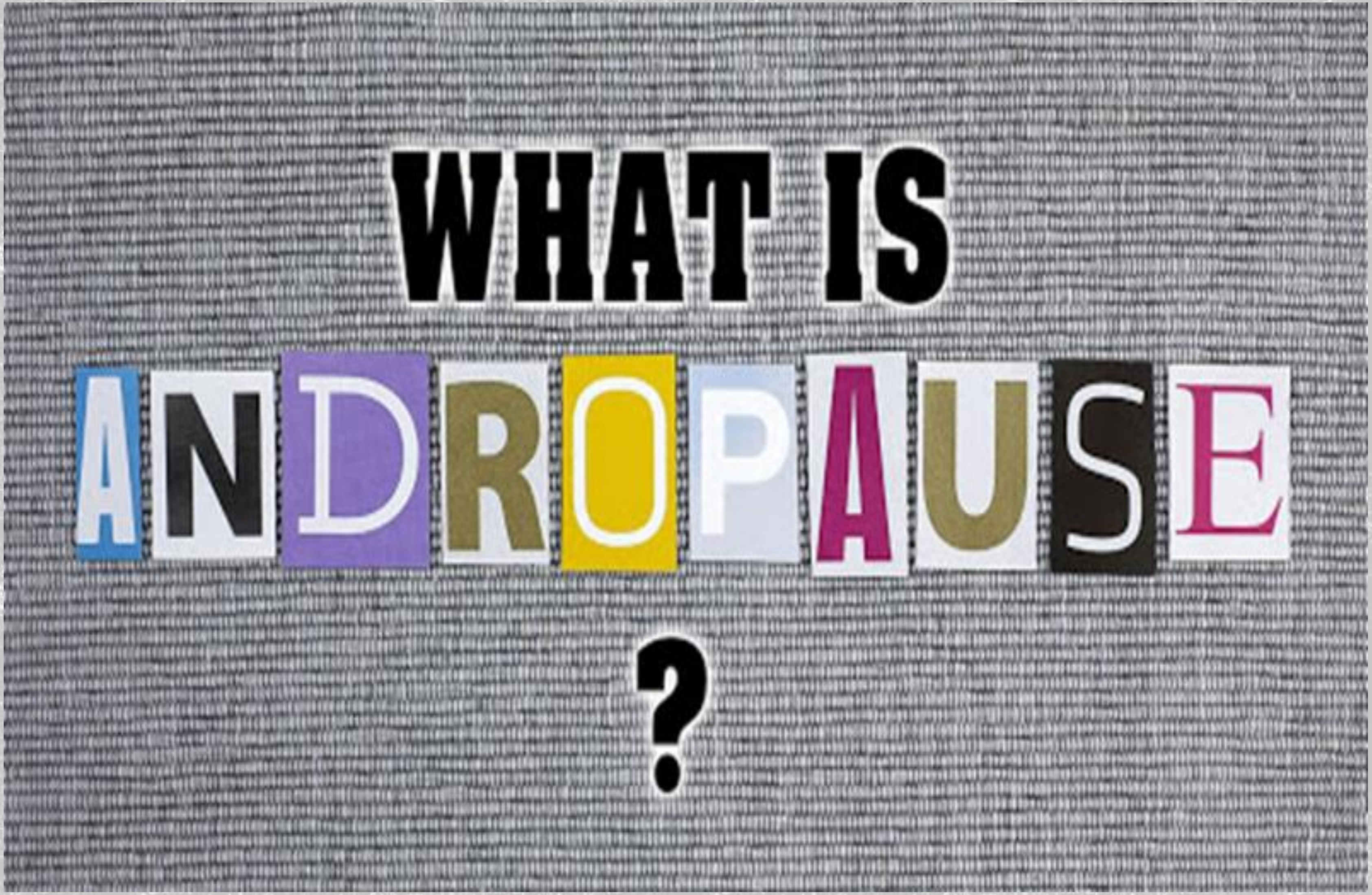
INCRAESE EJACULATIORY FREQUENCY = LESS PAIN

5 ALPHA REDUCTASE INHIBITORS

- DECREASE DHT
- ED
- LIBIDO
- DECREASE DHT

AGE + LUTS =

TROUBLING PROSTATE + ANDROPAUSE


WHAT IS
ANDROPAUSE
?

- **Andropause is the gradual but progressive decline in serum testosterone with aging.**
- **Andropause is sometimes referred to as "Male Menopause".**
- **Andropause is not simply "Male Menopause"**
  - **Men are more dependent on testosterone than women**
  - **Decline is slow, not sudden**
  - **Symptoms are more subtle**
  - **Culturally and medically, Andropause is either brushed off as "mid-life-crisis" or ignored**

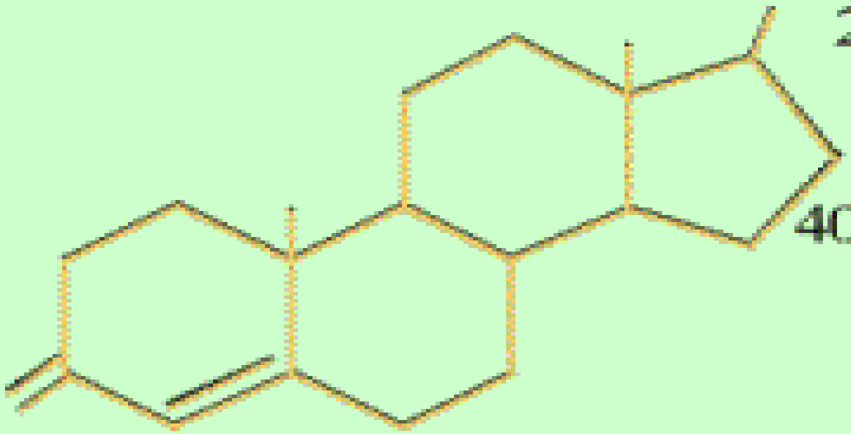
SYNONYMS

- **PADAM – Partial Androgen Deficiency of Aging Male**
- **ADAM - Androgen Deficiency of Aging Male**
- **MALE CLIMECTERIC**
- **VIROPAUSE**
- **RELATIVE HYPOGONADISM**
- **MANOPAUSE**
- **LOH – Late Onset Hypogonadism**

WHY IT OCCURS

- Similar to women, Andropause is related in part to fertility needs and virility
- However, unlike women, men are constantly producing new sperm throughout their adult lives
- With advancing age, the need for a high amount of androgens declines
- What makes andropause more complicated is the relationship of testosterone with sex hormone binding globulin, androgen receptors and estrogen

ENDOGENOUS TESTOSTERONE BIOAVAILABILITY



Testosterone

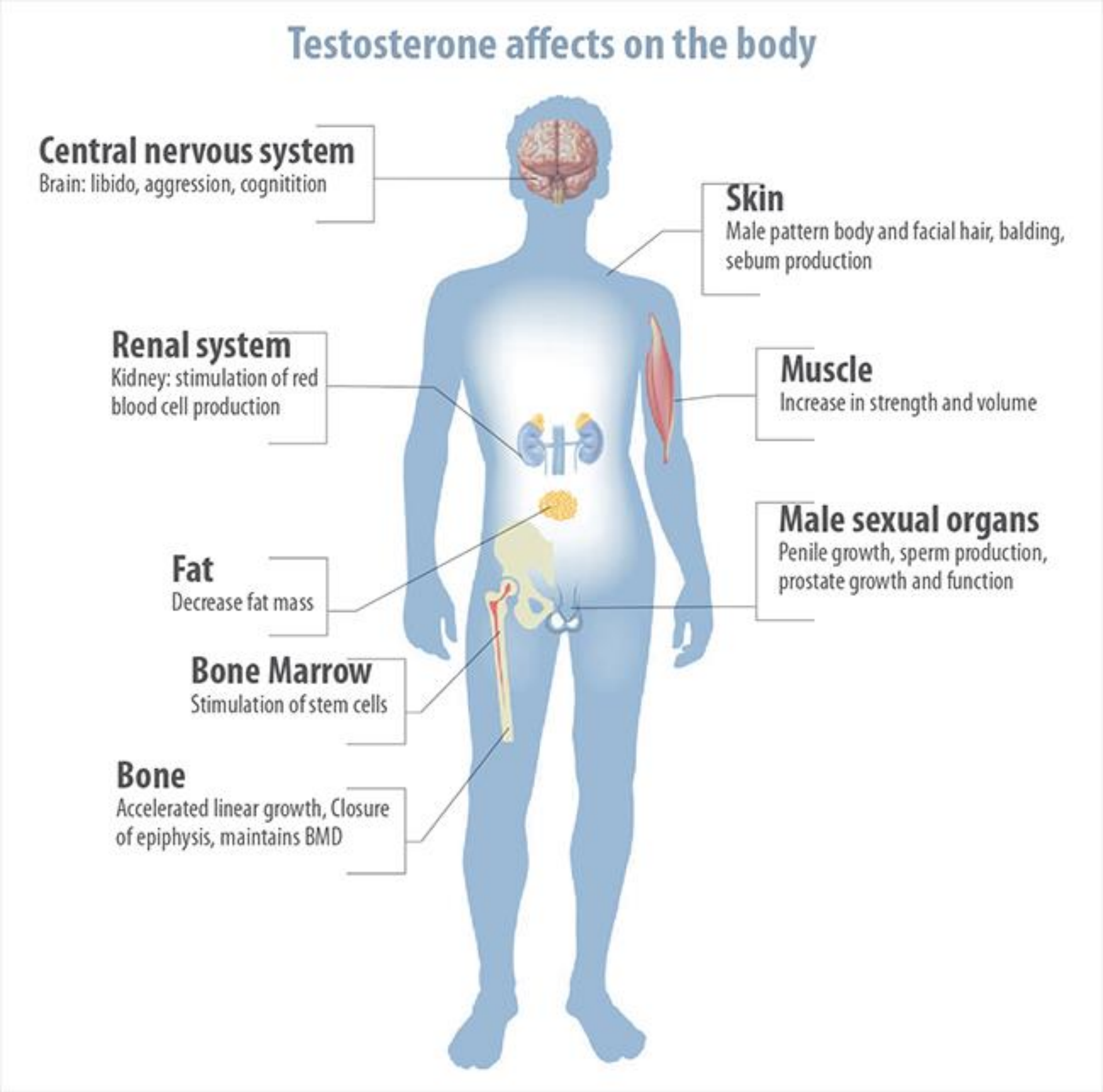
2% → Free

40-60% → Weak binding (to albumin)

→ Bioavailable Testosterone

50-60% → Strong binding (to SHBG)

→ Total Testosterone



Testosterone affects on the body
Central nervous system
Brain: libido, aggression, cognitition
Skin
Male pattern body and facial hair, balding, sebum production
Renal system
Kidney: stimulation of red blood cell production
Muscle
Increase in strength and volume
Male sexual organs
Penile growth, sperm production, prostate growth and function
Fat
Decrease fat mass
Bone Marrow
Stimulation of stem cells
Bone
Accelerated linear growth, Closure of epiphysis, maintains BMD

PHYSIOLOGICAL EFFECTS OF TESTOSTERONE

- **CNS – Libido, Energy, Spatial cognition, Well being, Memory.**
- **Larynx – Lower voice.**
- **Liver – Lower SHBG and HDL.**
- **Kidneys – Raises erythropoietin.**
- **Prostate – Increase size and secretion.**
- **Genitals – Development, Erection, Spermatogenesis.**

- **Bone – Increase bone mineral density.**
- **Muscle mass – Increase lean mass strength.**
- **Blood – Increase haematocrit (PCV).**
- **Adipose tissue – Increase lipolysis, decrease abdominal fat.**

AETIOLOGY

Decreasing levels of bioavailable testosterone due to :

- **Decrease rate of production by testes.**
- **Reduction in size and weight of testes.**
- **Critical illness.**
- **Increased level of stress.**
- **Genetic and metabolic disorder.**

- **Obesity.**
- **Malnutrition.**
- **Chronic substance abuse.**
- **Physical stress (burn injury).**
- **Chronic illness (DM, CRF, HIV, COPD).**
- **Medications : (Corticosteroids, opiates, oestrogen, antioestrogen)**

SIGN AND SYMPTOMS

- **Reduced energy, Fatigue**
- **Decrease sense of well being.**
- **Decreased libido and erectile dysfunction.**
- **Changes in ejaculation.**
- **Decrease in strength and lean body mass.**
- **Increase in body fat.**
- **Hot flashes, sweating, insomnia, anxiety.**

- **Irritable mood, tiredness, lethargy.**
- **Lack of motivation, low mental energy.**
- **Depression, low self-esteem.**

HOW DO YOU DIAGNOSE TESTOSTERONE DEFICIENCY?

Signs and/or symptoms

A REPRODUCIBLY low measurements of serum testosterone or its biological active component.

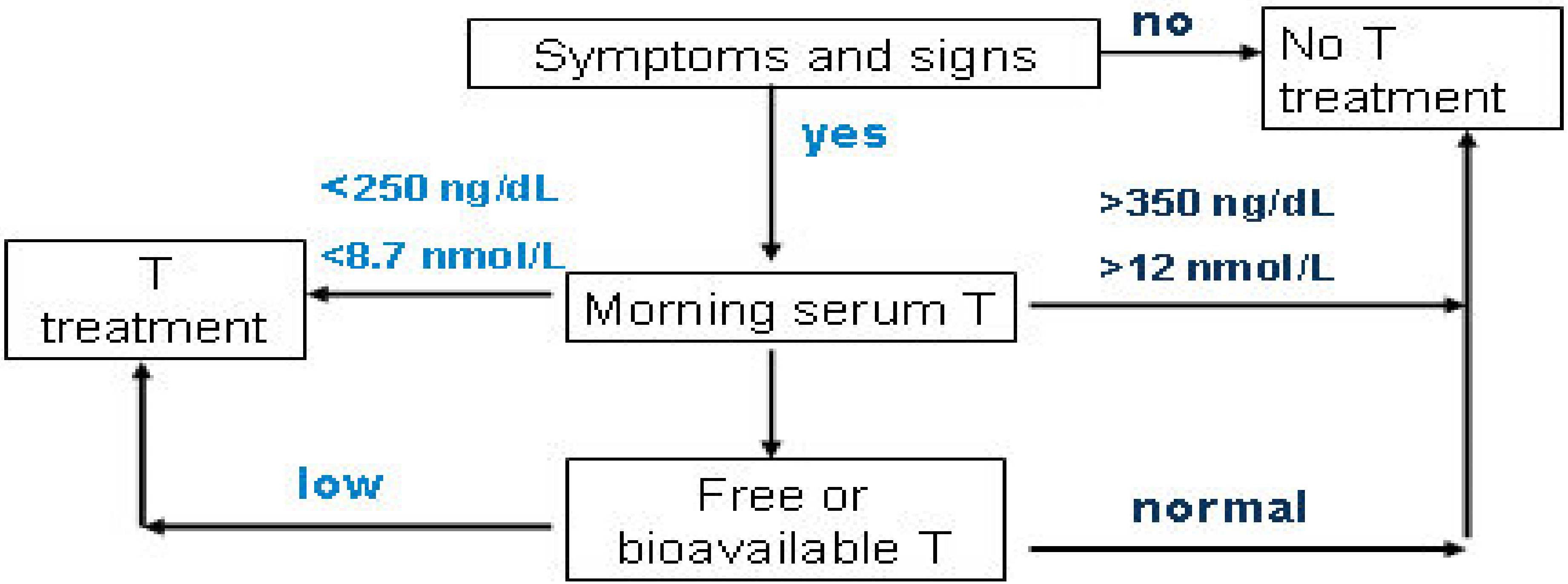
ANDROGEN DEFICIENCY : LABORATORY DIAGNOSIS

- **Draw blood for measurement of serum testosterone in the morning between 7 to 10 am.**
- **variation of serum testosterone occurs in younger men where the laboratory reference ranges are obtained.**
- **Clinicians need to know the reference range for the laboratory and the method they are using.**
- **Each laboratory should develop it's own reference range.**

Assuming normal reference range for adult men is 300-1000 ng/dL (10.4-35nmol/L)

- **If serum total testosterone (T) > 350 ng/dL (12.2 nmol/L), patient is not hypo-gonadal,**
- **If serum total T between 250 to 350 ng/dL, repeat a morning serum total T level,**
- **If repeat serum total T <250 ng/dL (8.7 nmol/l), patient is likely to be hypo-gonadal; investigate other causes and treat.**

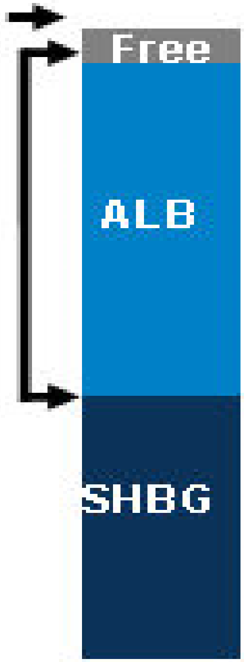
Diagnosis of the Right Patient for Testosterone Replacement



T Deficiency in Hypogonadal Men: Laboratory Diagnosis

Equilibrium dialysis or calculate free T

Direct measurement of SHBG-bound T or calculate bioavailable T



If repeat serum total T between 250 and 350 ng/dL:

- measure either serum-free T level by equilibrium dialysis or
- measure bioavailable T after ammonium sulfate precipitation of SHBG or
- measure serum SHBG and calculate free T or bioavailable T

MANAGEMENT

MANAGEMENT

- The most common treatment option includes making healthier lifestyle choices especially for people who are obese.
- This habit may increase your overall health.
  - Eat a healthy diet
  - Regular exercise
  - Get enough sleep
  - Reduce your stress
- refer to a psychiatrist who may prescribe antidepressants, behavioural therapy or both if you are experiencing depression.
- Hormonal Replacement Therapy

TESTOSTERONE REPLACEMENT THERAPY

Symptomatic Andropause is controlled by testosterone supplementation. It an be administered in oral, parenteral or transdermal forms.

1. **Oral :**
   - **Oral testosterone metabolized very rapidly by liver, not used currently for replacement.**
   - **Oral 17 alkylated androgens (e.g., methyltestosterone, fluoxymesterone) may have hepatic toxicity and cause reduction of HDL-cholesterol levels and increase in LDL-cholesterol levels.**

- **Buccal Testosterone Delivery System :**
  - **Buccal tablets applied to gum at 12-hour intervals and they swells and adheres to gums. Local irritation not reposted to be a problem.**

2. **Injectable :**
   a) **Testosterone enanthate and cypionate are administered at 200 mg/2 weeks or 100 mg/week.**
      - **Serum T levels rose to supra-physiologic levels from day 1 to 3 after injection.**
      - **Fluctuation in serum T levels may result in variations in mood, acne and oiliness of skin.**

a) **T undecanoate :**

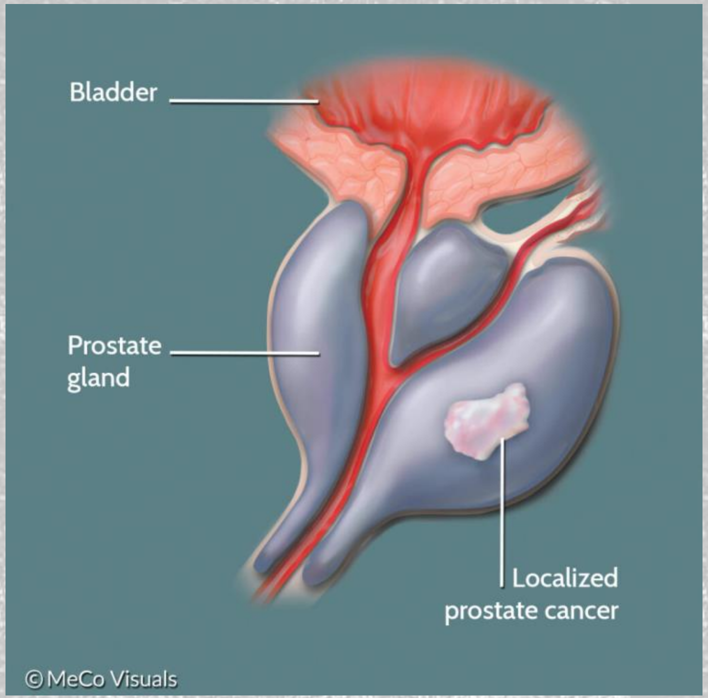
- **Intramuscular injections in tea seed oil available in China since 1995; administered as 500 mg every 4-6 weeks.**
- **Available in Europe as of late 2004; administered at 1000 mg in castor oil once every 12 weeks.**
- **Serum T levels within physiologic range after an initial peak.**
- **Studies are ongoing in U. S.**

3. **Testosterone Gel :**
   - **2.5 or 5g gel delivering approx. 2.5 or 5 mg testosterone; usual dose 5-10g per day.**
   - **Minimal skin irritability, no skin patch.**
   - **Flexibility of dosing.**
   - **Steady-state serum T levels.**
   - **Potential problem of transfer of T prevented by clothing or reduced by showering.**

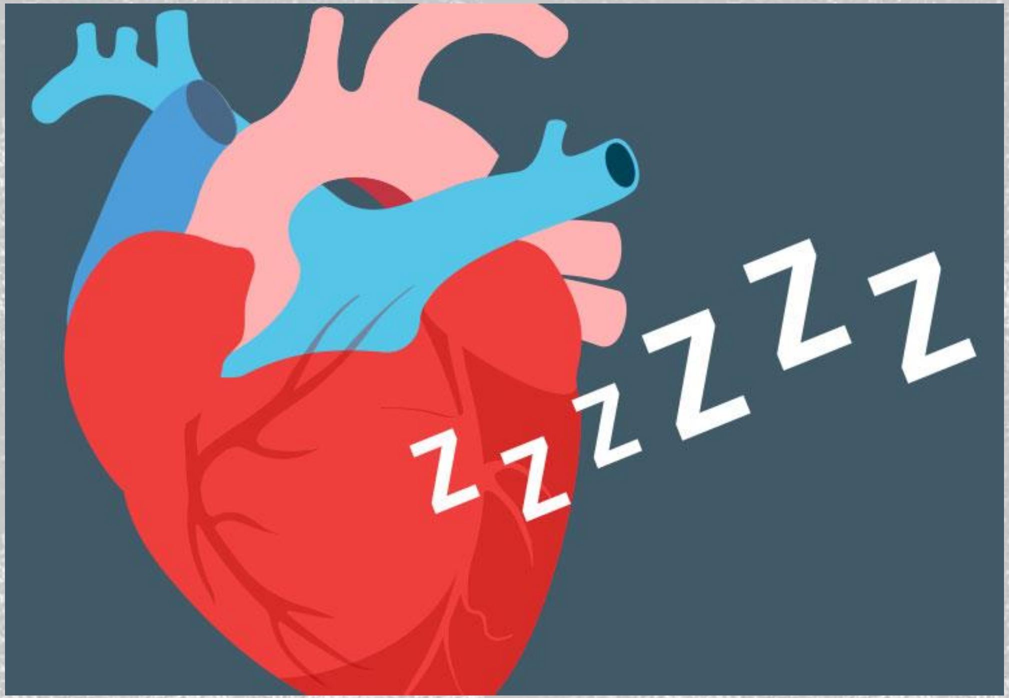
POSSIBLE RISKS OF TRT

Sleep apnea

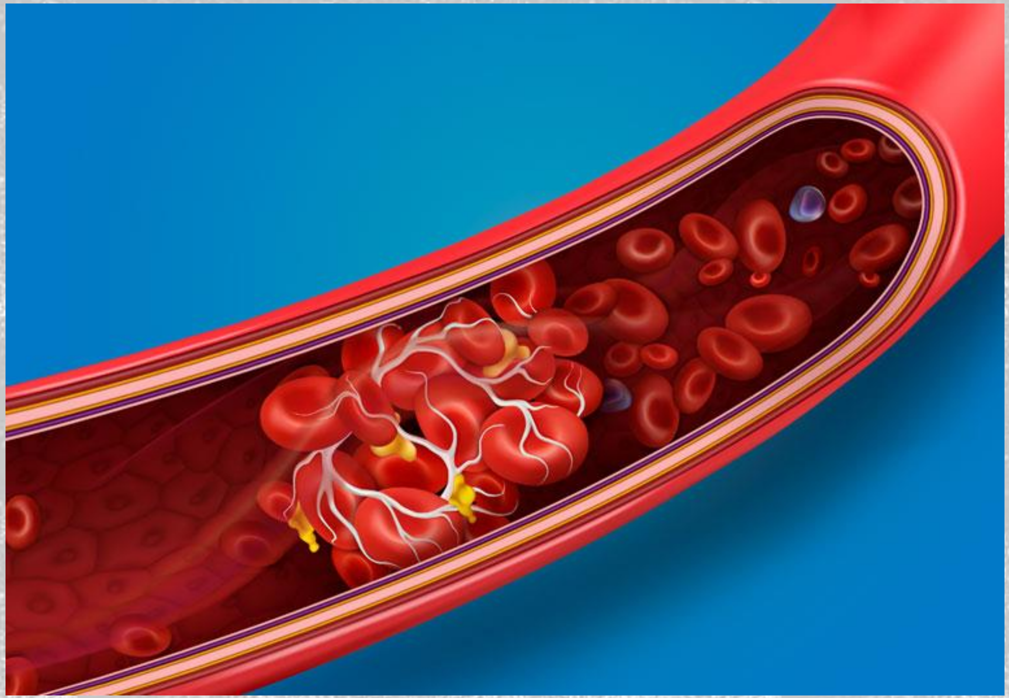
Stimulation of growth of prostate cancer



Increase risk for heart attack and stroke



Formation of blood clot in the veins



CONDITIONS IN WHICH TESTOSTERONE SHOULD NOT BE ADMINISTERED

Very high risk of serious adverse outcomes

- Metastatic prostate cancer
- Breast Cancer

Moderate to high risk of adverse outcomes

- Undiagnosed prostate nodule or induration
- Unexplained PSA elevation
- Erythrocytosis (hematocrit >50%)
- Severe lower urinary tract symptoms associated with benign prostatic hypertrophy as indicated by AUA/IPSS > 19
- Unstable severe congestive heart failure (class III or IV)

Bhasin, S. et al. J Clin Endocrinol Metab 2006;91:1995-2010

MONITORING OF TESTOSTERONE THERAPY

- Clinical response/adverse effects
  - After 3 months, then annually
- Testosterone levels
  - After 2- 3months
- Hematocrit
  - Baseline, 3 months, then annually
- Bone Mineral density
  - After 1-2 yrs in men with osteoporosis/fx

Bhasin, S. et al. J Clin Endocrinol Metab 2006;91:1995-2010

MONITORING OF TESTOSTERONE THERAPY

- DRE/PSA
  - Baseline, 3 months, then in accordance with guidelines
  - Urological consult if:
    - PSA > 4 ng/ml
    - Increase in PSA > 1.4 ng/dl within 12 months Rx
    - Abnormal DRE
    - Increase in IPSS prostate symptom score > 19

Bhasin, S. et al. J Clin Endocrinol Metab 2006;91:1995-2010

CONCLUSION

- THUS IT MAY BE STATED THAT THE MALE ANDROPAUSE DOES EXISTS. IT AFFECTS THE MEN OVER 40 YEARS OF AGE (SOMETIMES EARLIER)
- EARLY DIAGNOSIS AND HORMONE REPLACEMENT THERAPY CAN IMPROVE SYMPTOMS.
- TESTERONE REPLACEMENT THHERAPY MUST BE ALWAYS ADMINISTERED ONLY BY VERY RESPONSIBLE PHYSICIANS AND UNDER STRICT CASE SELECTION CRITERION AND SUPERVISION.


Thank You