

Testosterone Therapy: Myths and Management

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Learning Objectives

- 1 Diagnosing testosterone deficiency according to current guidelines.
- 2 Identify appropriate candidates for therapy and select evidence-based treatment options.
- 3 Monitor patients safely and effectively.
- 4 Recognize complications and referral indications.

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The Rise of Testosterone Therapy

- Topics:
- Increased TRT prescribing over the last decade
 - Direct-to-consumer "Low T" marketing
 - Common misconceptions
 - Importance of evidence-based prescribing

Discussion point:
"Fatigue alone does not
equal hypogonadism."



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Symptoms of Testosterone Deficiency

01

Sexual Symptoms

- Reduced Libido
- Erectile Dysfunction
- Decreased Morning Erections

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Physical Symptoms

- Reduced Muscle Mass
- Increased Adiposity
- Reduced Bone Density

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Nonspecific Symptoms

- Fatigue
- Depressed Mood
- Poor Concentration

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Current Guideline definition of Hypogonadism

Diagnosis
requires both:

Symptoms/Signs

AND

Unequivocally low testosterone
on repeat testing.

Current AUA guidelines:

Total Testosterone Level: A serum total testosterone level of < 300 ng/dL is used as the standard cutoff to support the diagnosis.

Testing Requirements: The AUA mandates that the diagnosis requires two morning measurements taken on separate occasions (ideally between 7 a.m. and 10 a.m. when testosterone naturally peaks). (AUA, 2024)

Current AES guidelines:

Recommends making a diagnosis of hypogonadism only in men with symptoms and signs consistent with testosterone (T) deficiency and unequivocally and consistently low serum T concentrations on two separate, accurate assay tests to include total and free T. In men determined to have androgen deficiency, recommend additional diagnostic evaluation to ascertain the cause of androgen deficiency. Recommend against starting exogenous testosterone on those wanting to maintain fertility. (Endocrine Society, 2018)

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Proper Testosterone Testing

Morning testing

- 7-10 AM Preferred
- Fasting if possible

● Repeat measurement on separate day.

Avoid

- Acute illness
- Sleep deprivation
- Temporary stressors



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Total Testosterone VS Free Testosterone

When total testosterone is sufficient

- Most patients

When free testosterone is helpful

- Obesity
- Diabetes
- Aging
- Abnormal SHBG states

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Primary vs Secondary Hypogonadism

Laboratory workup:

Total testosterone

LH

FSH

Prolactin

High LH/FSH

→Primary hypogonadism

Low/Normal LH/FSH

→Secondary hypogonadism



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Additional Evaluation

Potential Causes

- Obesity
- OSA
- Medications
- Opioids
- Pituitary disease
- Hyperprolactinemia
- Chronic illness - HIV

Discussion

When to order pituitary MRI

When to refer endocrinology

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Appropriate Candidates

- ✓ Symptoms
- ✓ Two low testosterone levels
- ✓ Shared decision making
- ✓ Completed diagnostic evaluation



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Contraindications

Major guideline contraindications:

- Active prostate cancer
- Breast cancer
- Elevated hematocrit
- Recent MI or stroke
- Severe untreated OSA
- Uncontrolled heart failure
- Thrombophilia



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Fertility and TRT

Review:

HPG axis suppression
Reduced spermatogenesis
Testicular atrophy

Alternatives:

Clomiphene
hCG

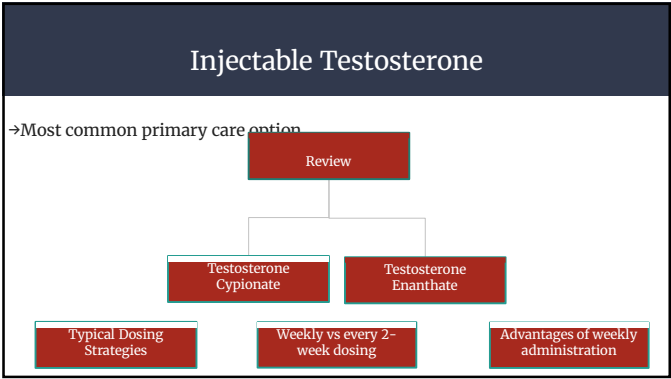
Considerations:

Sperm Count
Fertility Testing

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TRT Formulations Overview		
Formulation	Pros	Cons
Cypionate/Enanthate	Inexpensive	Peaks/troughs
Gel	Stable levels	Transfer risk
Patch	Stable	Skin irritation
Long-acting injectable	Convenient	Cost

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Target Testosterone Levels

Goal:

Restore
physiologic
testosterone
range

Not:

Supraphysiologic
bodybuilding
levels

Discuss: target ranges and timing of blood draws for different formulations

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Monitoring Schedule

Baseline:

- CBC
- PSA
- Testosterone
- CMP

3 Months

6 Months

12 Months

Annual thereafter



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Hematocrit Management

Discuss:

Testosterone-induced erythrocytosis
Hematocrit thresholds
Dose reduction
Blood donation
Formulation changes

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PSA & Prostate Monitoring

Discuss:

- Baseline PSA
- Shared decision making
- Referral thresholds

Endocrine Society recommendations include urology referral for significant PSA rise or abnormal prostate findings.

Testosterone therapy will increase risk of prostate cancer (Eisenberg, 2015)

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Cardiovascular Safety

Balanced evidence review:

What we know:

Current evidence does not clearly demonstrate major cardiovascular harm in appropriately selected patients.

What remains uncertain:

- Long-term risk
- High-risk populations

TRAVERSE Study
<https://www.nejm.org/doi/full/10.1056/NEJMoa2215025>

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Common Adverse Effects

- Acne
- Gynecomastia
- Edema
- Infertility
- Mood changes
- Elevated hematocrit

Management pearls



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Case #1



45-year-old male

- Fatigue
- BMI 36
- Testosterone 265 ng/dL

Audience poll:
"Would you start TRT today?"

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Case #2



38-year-old male

- Testosterone 220 ng/dL
- Wants future fertility

Audience discussion
Best next steps?

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Case #3



55-year-old on TRT

- Hematocrit 54%

What would you do?
Discuss management
algorithm.

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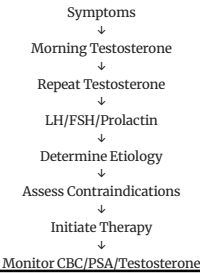
Top 10 Clinical Pearls

- 1. Symptoms plus low testosterone are required.
- 2. Confirm low testosterone.
- 3. Evaluate LH and FSH.
- 4. Identify reversible causes.
- 5. Discuss fertility before prescribing.
- 6. Use shared decision making.
- 7. Monitor hematocrit.
- 8. Monitor PSA appropriately.
- 9. Treat physiologic deficiency—not numbers alone.
- 10. Refer when findings suggest pituitary disease or complicated management.



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Testosterone Algorithm for Primary Care NPs



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References

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