Erectile Dysfunction Treatment: State of the Art Care in 2024

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UW Medicine

Case: a 56 year-old man now presenting after radical prostatectomy with ED poorly responsive to oral medications. He would like your advice on the use of Low Intensity Shock Wave therapy for ED.

The best initial approach to his care includes:

a. Review the importance of cardiovascular fitness in maintaining good sexual function

b. Provide explanation of the mechanisms of erection and the pharmacology of PDE-Is and provide Rx for a different PDE-I

c. Refer him to a Urologist who specializes in sexual medicine/surgery for further evaluation

d. Refer him for LISW treatment.

Objectives

Review a stepwise approach to successfully treating men with erectile dysfunction

1. The **problem** - what is erectile dysfunction and who suffers from it?
2. The **biology** - why does it occur?
3. The **solutions** - how do we achieve patient goals when oral medications fail?

The Problem

ED is a lonely disease. Educating men on disease prevalence helps to remove the stigma.

Erectile Dysfunction

What is ED?

- Definition: The persistent or repeated inability to obtain or sustain an erection sufficient for intercourse in at least 50% of attempts.[1]

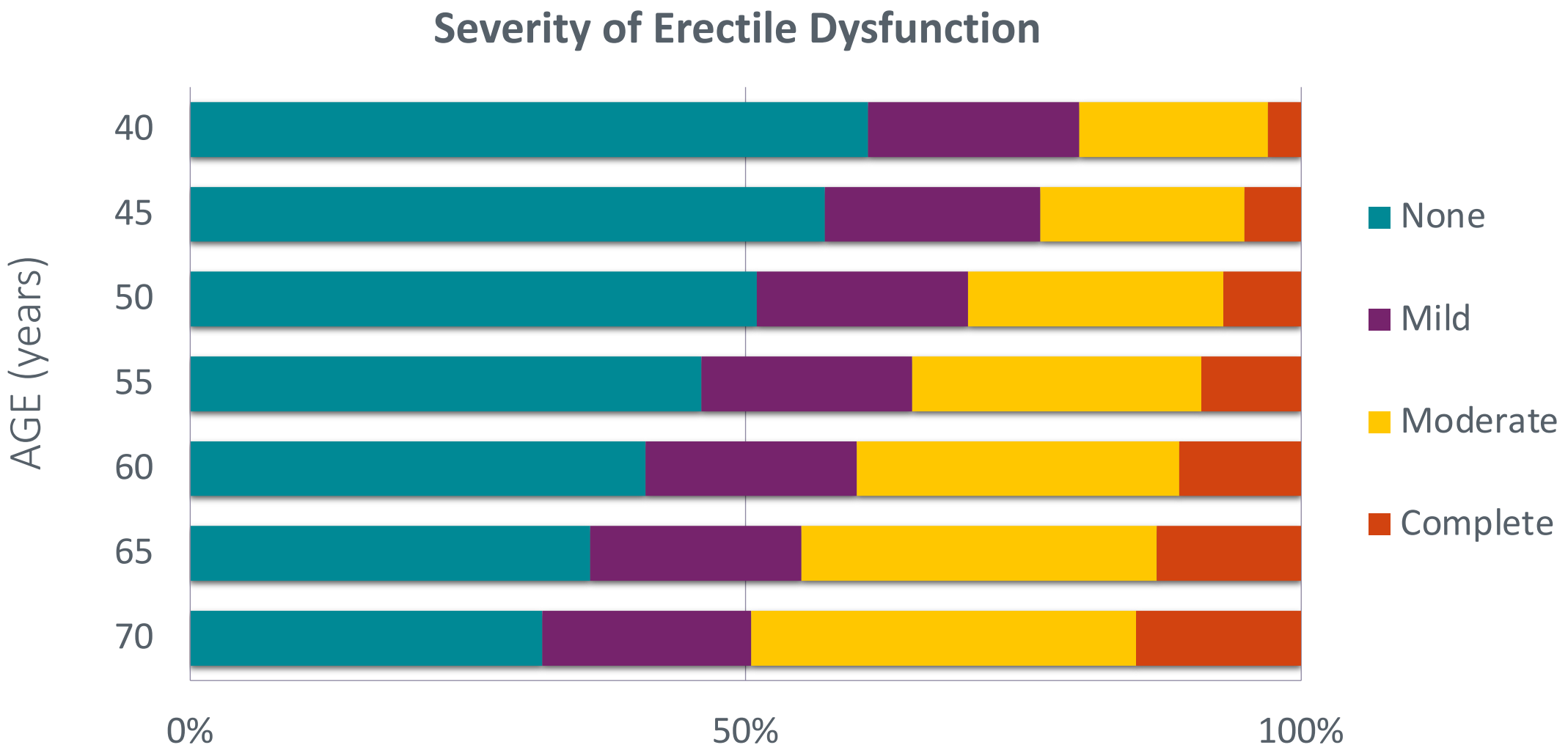
How common is it?

- ~1 in 5 American men ≥ 20 years old

Specific populations who need your attention:

Diabetes Cardiovascular Disease Pelvic Cancer

Population Data for ED



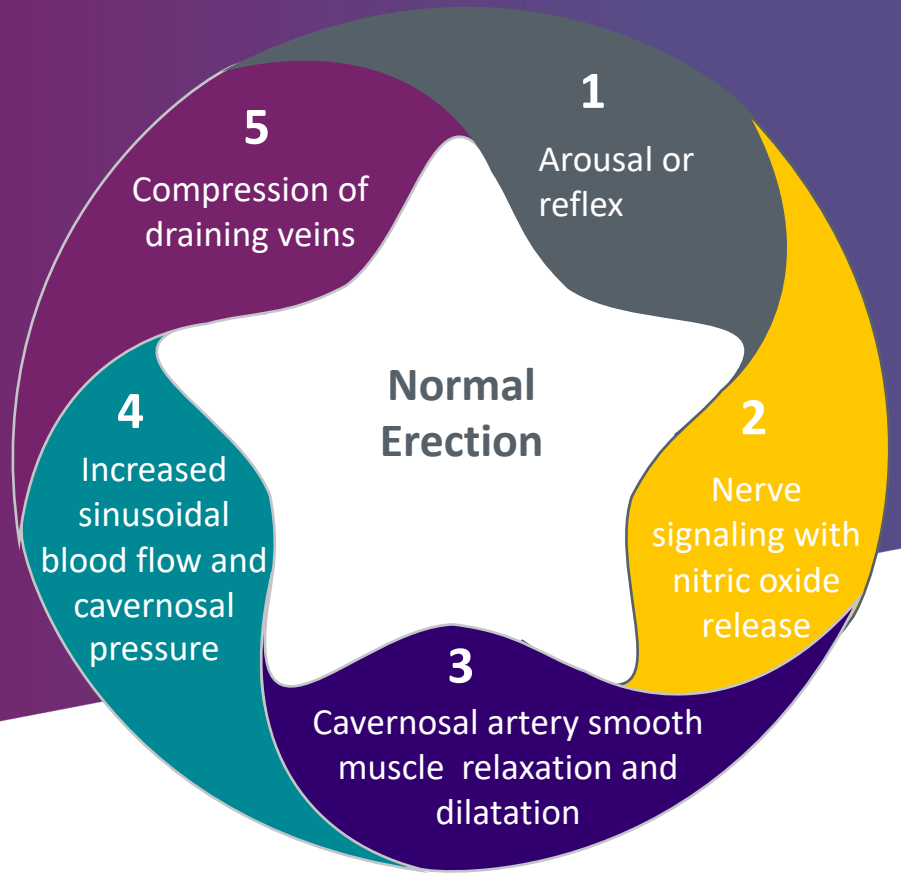
Facts About ED Bother and Severity

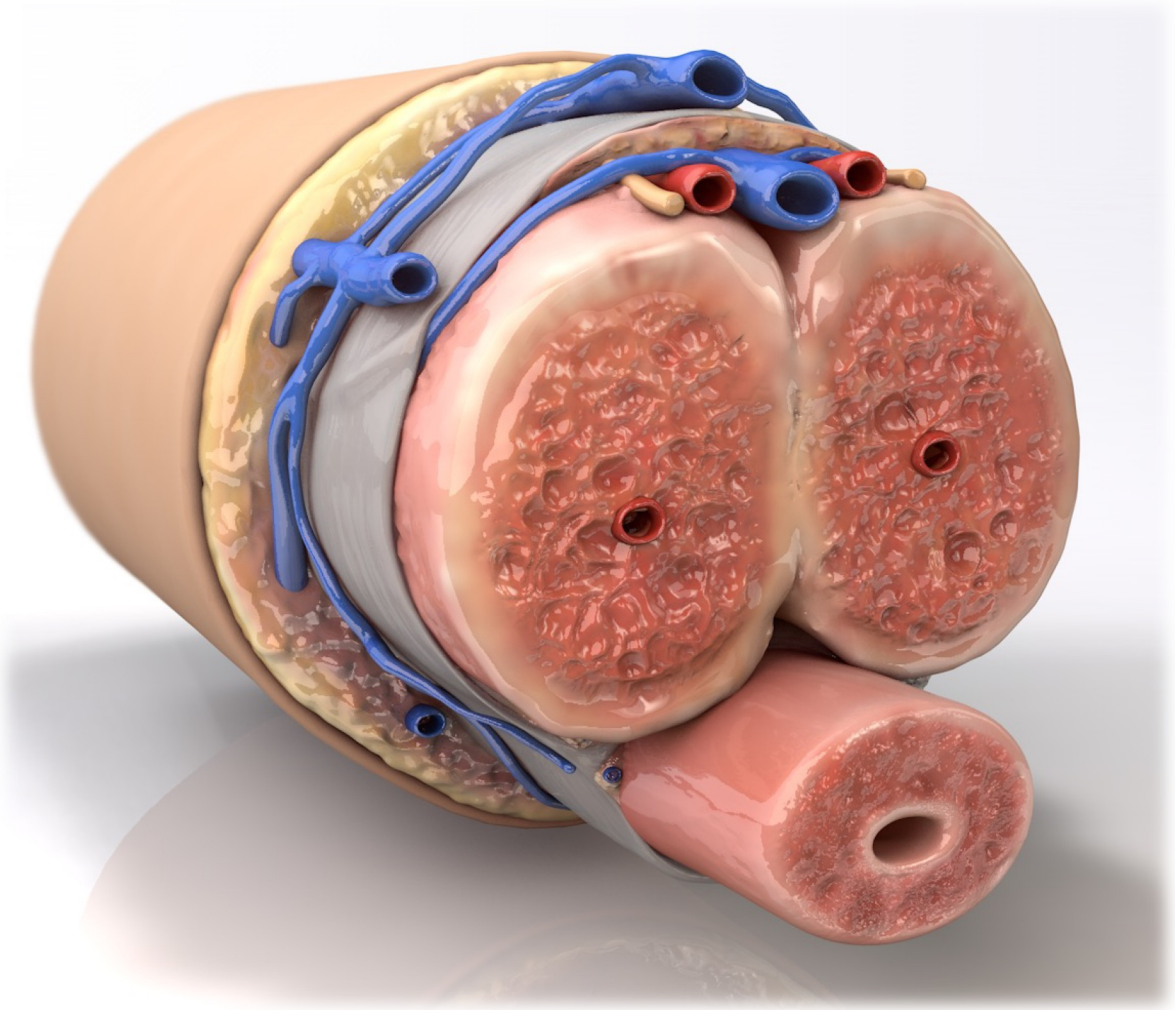
- 25% of men are bothered by their ED
- 20% seek treatment for ED
- 57% of all men with ED have moderate/severe ED
- 43% are insufficiently treated with oral medications

The Biology

Explaining the etiology of ED may help men to embrace healthier lifestyle choices and appropriate treatments

ANATOMY AND PHYSIOLOGY OF ERECTION





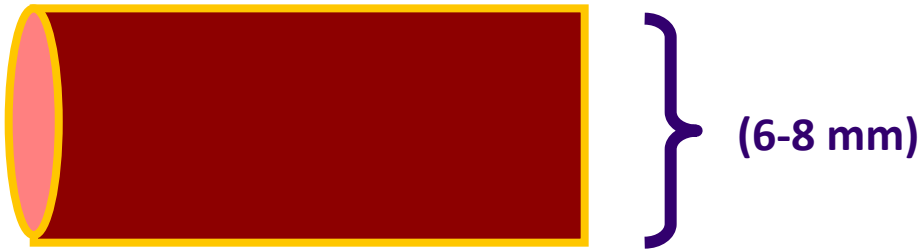
Arterial Diameter

Penile arteries

Coronary arteries

Carotid arteries

Femoral arteries



Key Risk Factors for ED

Diabetes

Coronary Artery Disease

Peripheral Vascular Disease

Hypertension

Dyslipidemia

Tobacco Smoking

Alcohol or Drug Abuse

Radical Pelvic Surgery

Pelvic Radiation

Trauma to the Pelvis or Spine

Depression or Stress

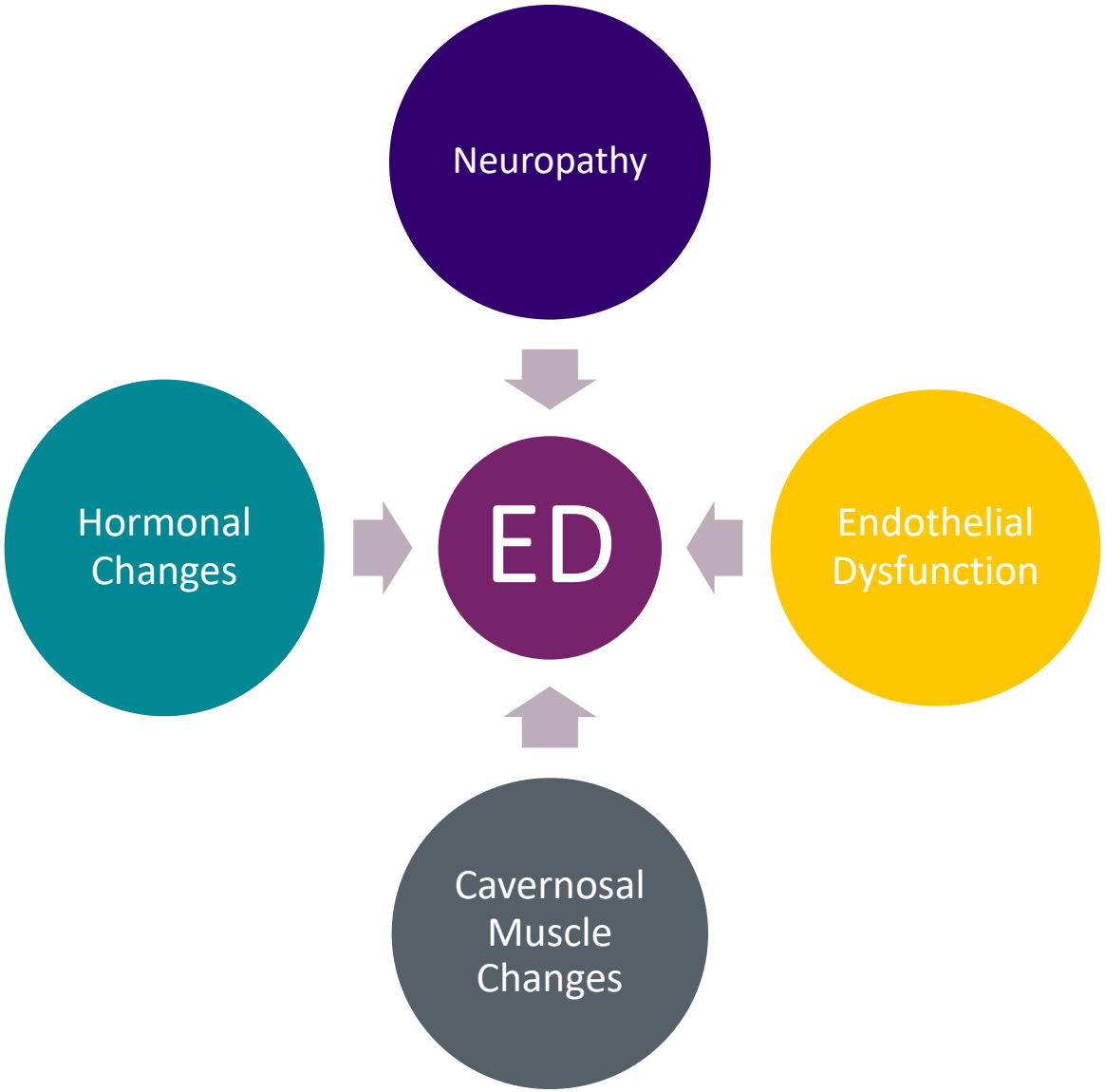
*Peyronie's Disease

ED and Diabetes

1. The worldwide prevalence of diabetes mellitus is expected to reach 366 million by 2030[7]

2. > 50% of men with diabetes have ED; typically occurring within 10 years of their diabetes diagnosis[8,9]

3. Diabetes causes irreversible damage to the nerves, blood vessels and smooth muscle function[7]



ED and Cardiac Disease

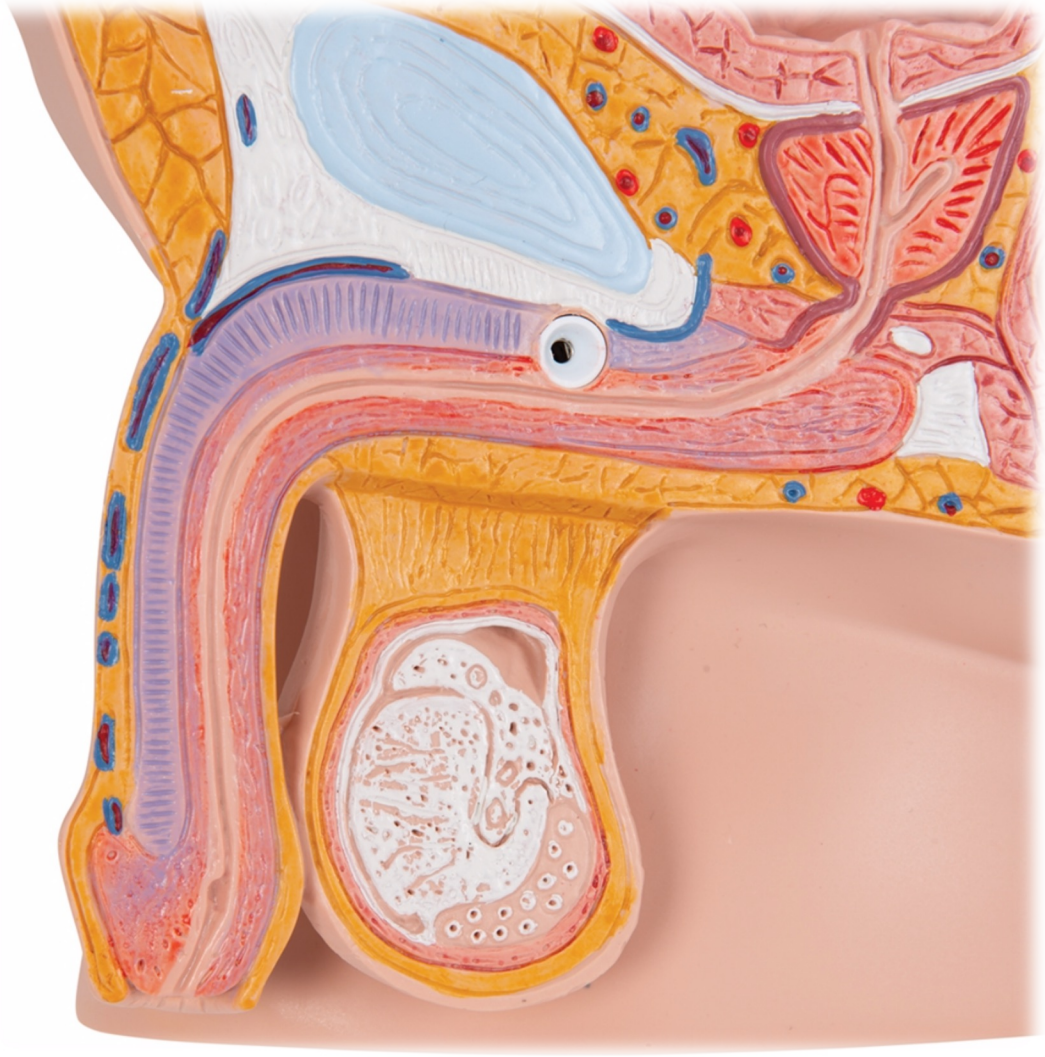
Men with incident ED have a 37% increase in risk for subsequent MI or angina

Relative Risk =1.4 (95%CI 1.1-1.8)

Thompson IM, et al. Erectile Dysfunction and Subsequent Cardiovascular Disease. JAMA 294(23): 2996-02, 2005

Post Prostate Cancer Treatment ED Mechanisms

1. Nerve damage
2. Vascular damage
3. Structural
4. Psychogenic



The Solutions

For ~50% of men, oral medications are insufficient to treat ED. Education about other treatments provides hope and may help to maintain engagement in healthcare and foster healthy behaviors

ED Treatment: Goal-Based

American Urological Association Guidelines:
consider all treatment options as a valid first-line therapy

Modifiable Factors:
Lifestyle changes, Disease management, Medication change

Oral Agents, Counseling, Education	Intra-penile Therapies	Surgery
Counseling	Vacuum device	Penile Implant
Oral medications	Suppositories	
Education	Injections	

Type 5 Selective Phosphodiesterase Inhibitors

Sildenafil (Viagra), Tadalafil (Cialis), Vardenafil (Levitra), Avanafil (Stendra)

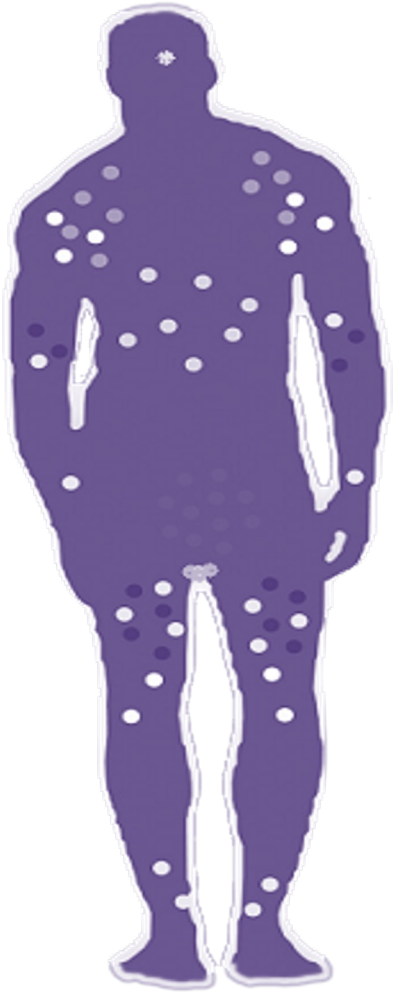
Advantages

- On-demand use
- Simple to prescribe
- Simple for patients to use

Limitations

- Limited effectiveness
- Limitations on spontaneity
- Systemic side effects

PDE Iso-enzymes in the Male Body

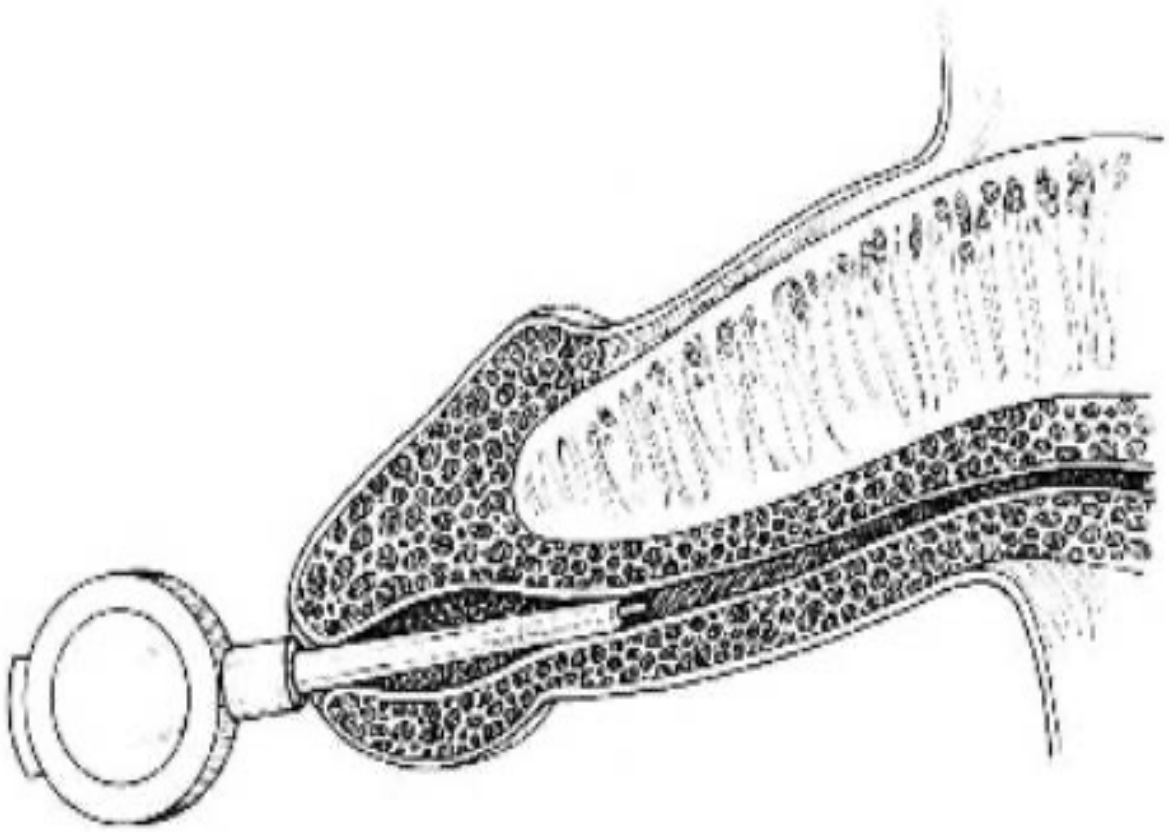


- PDE 1 Heart, lung, brain, vascular smooth muscle
- PDE 2 Adrenal cortex, brain, heart, olfactory
- PDE 3 Pancreas, smooth muscle, platelets, heart, fat
- PDE 4 Brain, lung, lymphocytes
- PDE 5 Corpus cavernosum
- PDE 6 Retina
- PDE 7 Skeletal muscle, lymphocytes
- PDE 8 Testis, eye, liver, skeletal muscle, heart
- PDE 9 Kidney
- PDE 10 Testis, brain
- PDE 11 Testis, skeletal muscle, prostate, kidney

Side Effect Profile of PDE5 Inhibitors

Adverse Event	Sildenafil[1] 25–100 mg	Vardenafil[2] 10, 20 mg	Tadalafil[3] 2.5–20 mg* †
Headache	13.4%	17%, 18%	14%
Flushing	13.1%	10%, 12%	4%
Dyspepsia	5.0%	3%, 5%	10%
Visual Changes	4.4%	0%, 2%	0%
Muscle Ache	0.9%	0%, 0%	12%

Intraurethral and topical Alprostadil



Advantages

- No needles/injections
- No systemic side effects

Limitations

- Limited effectiveness
- High cost

Intracavernosal Injection

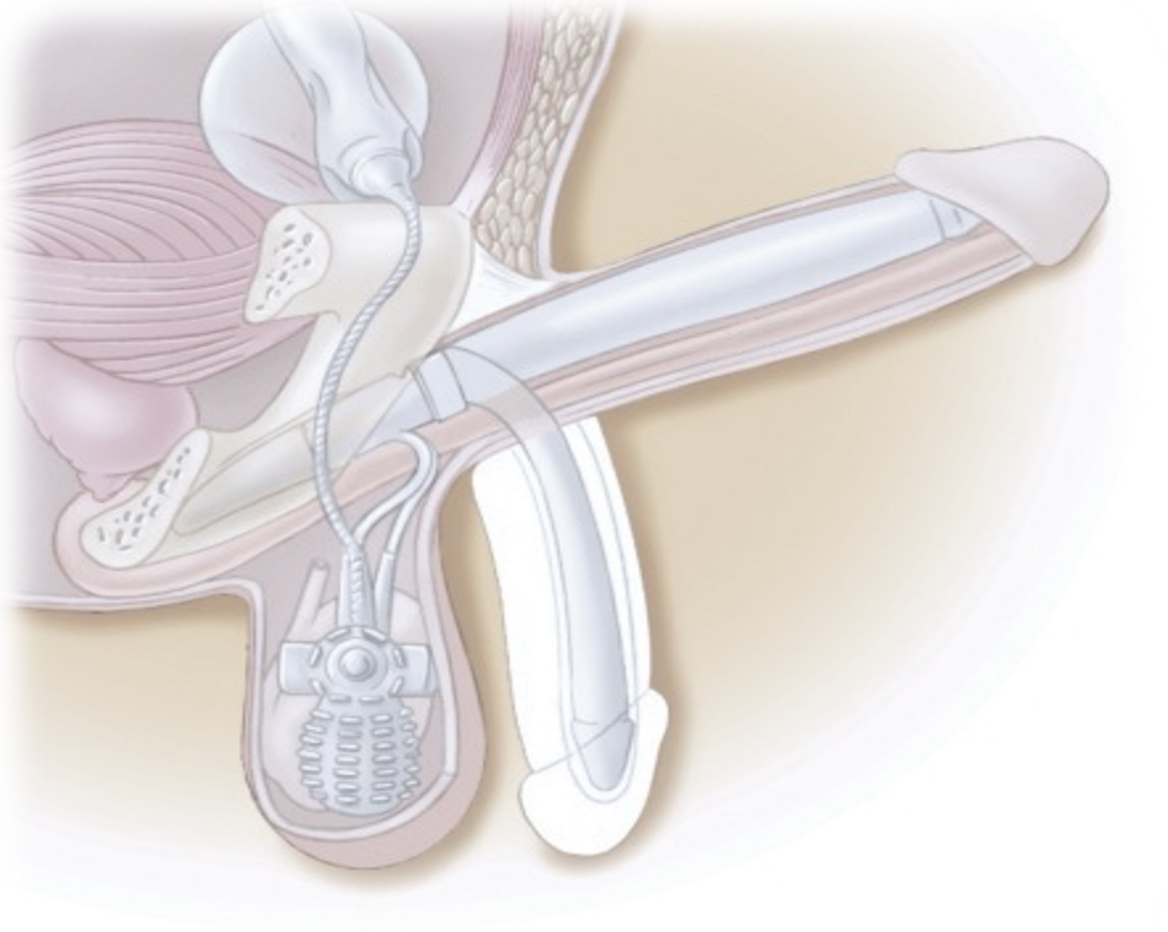
Advantages

- Effective in many
- Emulates natural erection

Limitations

- Lack of spontaneity
- Variable effectiveness
- Pain in some
- Priapism
- A lot of work

Penile Implant



Advantages

- Spontaneity
- Highly effective and reliable
- High satisfaction for both patient and partner
- No impact on appearance/sensation

Limitations

- Requires surgery (surgical risk)
- Implant longevity ~10 years


Boston Scientific
Boston Scientific

Vacuum Erection Device

Advantages

- On demand use
- No systemic side effects

Limitations

- Unnatural erection
- Poor penile perfusion due do constriction band
- Numbness/pain during use

OTHER TREATMENTS FOR ERECTILE DYSFUNCTION

- Shock wave therapy (e.g. “Gainswave”)
- PRP injection to the penis (“P-Shot”)

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Take home message

① Erectile function can be restored with the right treatment

② Don’t neglect general health

③ Seize the motivational moment…

④ Consider referring to a specialist as soon as you are out of your comfort zone or if advanced treatments aren’t in your toolbox

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Your Questions

Thank you

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