

**ERECTILE DYSFUCTION” MECHANISM, CAUSES AND  
TREATMENT: A REVIEW****Bankar Kunal<sup>1\*</sup>, Bhoite Preeti<sup>2</sup>, Bhos Shraddha<sup>3</sup> and Ashok Dalimbe<sup>4</sup>**

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**ABSTRACT**

Erectile dysfunction mechanism, causes and treatment reviewed. Erectile dysfunction is inability of man to maintain penis erection during sexual intercourse. It is quite common in middle age and older men's. Erectile dysfunction can be physical or psychological. Causes for ED is less production of testosterone, stress, anxiety, smoking, alcohol. Some drugs regular consumption can also cause ED. Drugs like antiparkinson, analgesics, diuretics, cytotoxic agent or antipsychotics. Age factor is important in ED cause around 70% of men can get the ED after age of 70. Different treatments are available for ED like oral medicines (Viagra, Vardenafil, Avanafil, Tadalafil), Penis pumps, Penile implants, Sex therapy or psychological counselling, Exercise, Alprostadil urethral suppository, Testosterone

replacement, Alprostadil self-injection. Psychosocial erectile dysfunction is temporary but physical ED needs surgery which can bring some complications. Viagra is commonly used oral medicine for erectile dysfunction or to enhance sexual performance.

**KEYWORDS:** Erectile dysfunction, Antipsychotics, Corpus cavernosum.

**INTRODUCTION**

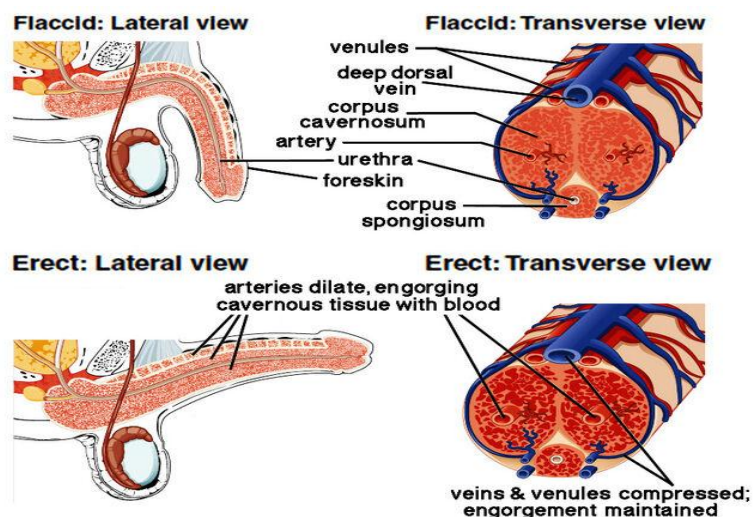
Erectile dysfunction is common among middle age and older men. Around 150 million worldwide have some percentage of ED. Endocrinal and psychic factors are responsible for ED. For achieving erection- psychological, neurological coordination is required. Causes for ED can be different, like neurological, psychogenic, drug induce, hormonal and drug induce. In erectile dysfunction smooth muscle of corpus cavernosum instead relaxing they

congrats. Oral medicine (Viagra) which use used for Ed, dilates the penile muscles. Viagra can give 6 hour erection.

### What is erection?

- At the time, when blood vessels of the corpora cavernosa opens, blood comes in the cavernosus arteries to fill them. The blood gets trapped under high pressure which causes erection.
- Erection start with stimulation. physical or emotional stimulations start to stimulate penis. Then impulses form brain and spinal cord relaxes the muscles of corpus cavernosum which allows blood to fill in the arteries open spaces. because of the bloods pressure in the arteries penis expands and create erection.

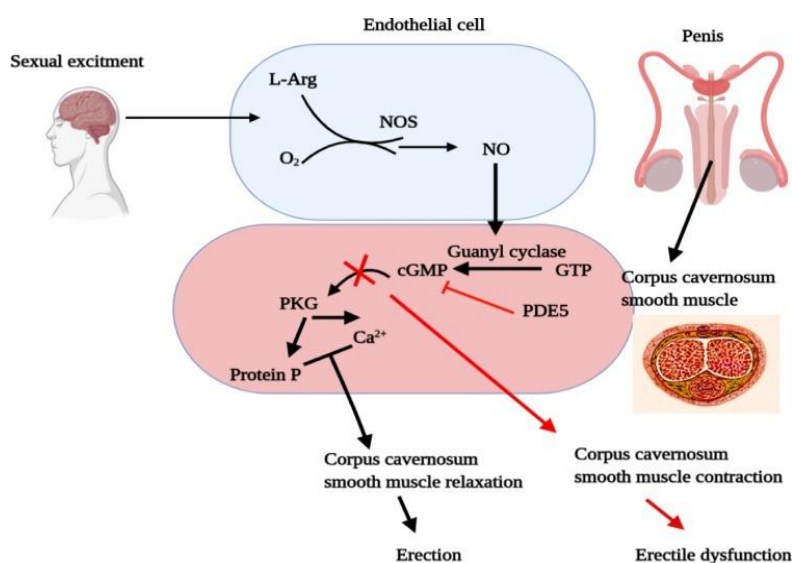
### Erection physiology



### Erectile dysfunction

- Erectile dysfunction is inability of man to maintain penis erection for sexual performance. Erectile dysfunction is also known as impotence.
- Erectile dysfunction is common in middle age men and older men. Around 150 million people worldwide have some percentage of ED and that number can be double in 2025.
- Endocrinal and psychic factors play important role in causing erectile dysfunction.
- After the stimulation, parasympathetic nerve fibers in cavernosal spaces releases acetylcholine form their nerve endings. Acetylcholine bind to muscarinic receptors on endothelial cells which activates the nitric oxide synthase.

- Nitric oxide synthase converts the amino acid arginine to citrulline and nitric oxide. Then nitric acid diffuses in smooth muscles of corpus cavernosum and activates guanyl cyclase which converts GTP molecule to cGMP this leads to fall in intracellular level of calcium causing the smooth muscles to relax and fill the blood in the open spaces of corpus cavernosum. in erectile dysfunction smooth muscles contracts and blood didn't enter the open spaces of corpus cavernosa, result of that pressure does not increases in arteries and erection of penis doesn't happen.



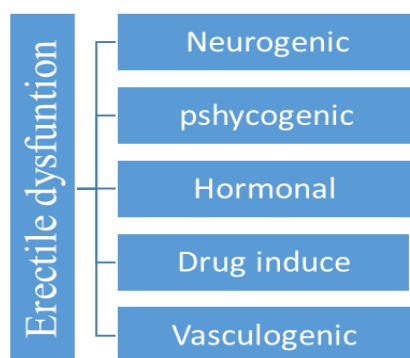
### Causes of erectile dysfunction

Erectile dysfunction causes can be physical or psychological. This can be find out by morning erection or masterbuation. If penis erect normally during this situation means cause is not physical. Factors such as mental stress, obesity, performance pressure, depression can affects the erection. Psychological erectile dysfunction is often temporary. Physical erectile dysfunction might need treatment.

### Causes and Factors of erectile dysfunction

Causes	Factors
Less blood flow in the penis	High cholesterol; smoking; diabetes
Diseases which affect the nerves going to the penis	a stroke, Parkinson's disease
Injury to the penis nerves	spinal injury, fractured pelvis
Side-effect of medicines	beta blockers, diuretics
Hormones	Less production of hormone testosterone
Mental health	Stress, depression, anxiety.

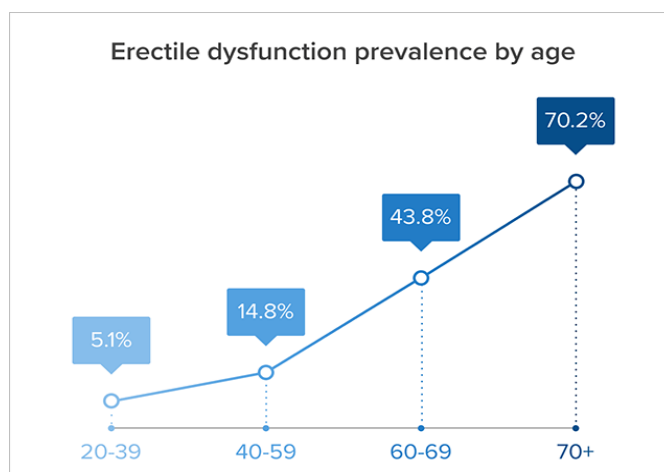
### Category of erectile dysfunction



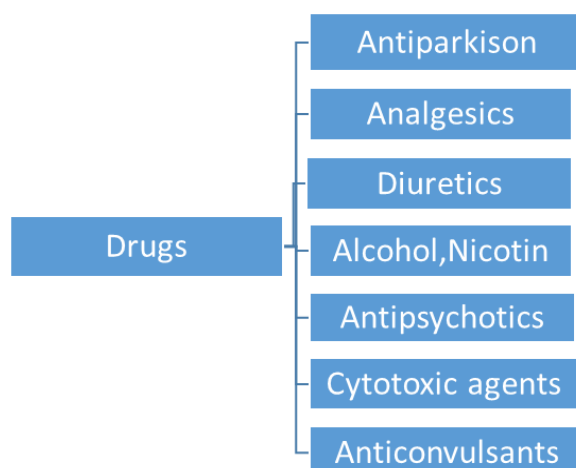
### The age factor

Study shows that with age erectile dysfunction can be common. In 2003 study shows that ED is common in older men's.

Around 70.2% men can have ED after the age of 70 year. in the early days of life it is quite rare. Causes for erectile dysfunction are different in young men, middle age men and older men. In young men 90% erectile dysfunction is because of Psychological factors, in middle age men it is because of personal or professional stress. Older men causes are mostly physical.



Endothelial cells functioning is important for the erection. Damage to this cells can affect the erection. hypertension, diabetes mellitus, atherosclerosis, and hyperlipidemia can be risk factor for endothelial erectile dysfunctioning. All this diseases are more common in older men which can eventually lead to Ed.

**Drugs causing erectile dysfunction**

Diuretics decreases the fluid in the body which can lead to erectile dysfunction.

**Treatment**

Depend upon severity of ED, different treatments are used. Many treatment options are available, doctors take decision after seeing patient medical condition.

- **Oral medications**

Medications used in the this treatment are,

1. Sildenafil (Viagra)
2. Vardenafil (Levitra)
3. Avanafil (Stendra)
4. Tadalafil (Adcirca)

This medicines increases the effect of the nitric oxide which relaxes the smooth muscles of corpus cavernous and erection happens. Taking these tablets will not directly produce erection, they just amplifies the signal for normal erection.

- **Penis pumps**

It is also called as vacuum erection device. it is hallow tube, the tube is placed over penis, after that the pump is used to suck out the air inside the tube, which creates a vacuum that pulls blood into your penis. Pump have tension ring, after erection occurs that ring slip to base of your penis. Ring holds the blood and because of that erection last long, you can remove the ring after sexual intercourse. Penis pump is good treatment which does not have many side effects.

- **Penile implants**

This treatment includes the surgical placing of the devices into both sides of penis. In this implantation there are two types of the rods, inflatable or malleable. Inflatable rods allow you to control when and how long you have an erection. The malleable device keeps your penis in erection but bendable.

Penile implant is usually not a first treatment for ED because implantation is a surgical process which can bring some complications. If a patient has any urinary tract infection, penile implant is not recommended.

- **Sex therapy or psychological counselling**

If the cause for the erectile dysfunction is personal stress, performance pressure, anxiety, depression or relationship tension, then the patient should visit a psychologist or counselor.

- **Exercise**

Exercise moderate to vigorous aerobic activity, which can improve erectile dysfunction.

- **Other medications**

1. Alprostadil urethral suppository.
2. Testosterone replacement.
3. Alprostadil self-injection

### **The pharmacological development**

In the early nineties, a scientist of the Pfizer company was working on a new drug named UK-92480 for angina. During the time of human trials of this drug, men experienced unusual side-effects 'erection'. That drug's role is to dilate coronary blood, but instead of that, penises became dilated. After this incident, senior scientist of Pfizer, Chris Wayman, investigated this by testing the drug on penile tissue samples of erectile dysfunction men, and the result was quite dramatic. In 1998, drug administration approved this drug 'Viagra'. Viagra's chemical name is sildenafil citrate. Before Viagra, no oral medicines were available for ED. The effect of Viagra can last long for hours. In the first ten years of time, Viagra's sales were more than 1 billion. Now days' young men are also using this blue pill to increase their sexual performance. One Swedish study shows that regular consumption of erectile dysfunction drugs can cause long-term risk of heart attacks and also has significant side-effects including heartburn, headaches, flushed skin, in some

cases hearing loss. Scientist also working on woman version of this drug to enhance woman's drive for sex but most of the Attempts are failed.

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