# ERECTILE DYSFUNCTION: A GP'S GUIDE TO CLINICAL ASSESSMENT

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- **How common is erectile dysfunction?**
- **How should the GP assess these patients?**
- **What other complications or illnesses should the GP exclude in erectile dysfunction?**

- **Hoe algemeen is erektiele disfunksie?**
- **Hoe moet die algemenis pasiënte evalueer met erektiele disfunksie?**
- **Watter ander komplikasies en siektes moet die algemenis uitskakel in erektiele disfunksie?**

*(SA Fam Pract 2003;45(9): 38-41)*

## INTRODUCTION

Erectile dysfunction (ED) has been described as "the consistent or recurrent inability of a man to attain and/or maintain a penile erection sufficient for sexual performance".[1]

This definition allows ED to be distinguished from problems with libido, orgasm and ejaculation and provides a more accurate assessment of its prevalence. The true prevalence is difficult to determine and depends on the populations studied and the definitions and methods utilised.

Estimations are in the region of 140 million worldwide, with the pivotal Massachusetts Male Aging Study indicating that 52 % of men over the age of 40 have a degree of ED.[2] The majority of men with ED have mild (17 %) or moderate (25 %) ED. In this study, 1290 men were included. They were aged between 40 and 70 years old. The number of men with some degree of ED is expected to increase to more than 322 million worldwide by 2025.[3] Unfortunately, most men with ED (90 %) remain undiagnosed, because they do not seek treatment for a condition from which the overwhelming majority would benefit.

The Massachusetts Male Aging Study and other studies show a clear trend in the increasing prevalence of ED with age. The incidence and severity of ED increases with age.[2]

## PATHOPHYSIOLOGY

While peripheral vasculature is essential in producing an erection, the central nervous system is important for the control of this process. Penile erection relies on tumescence of the cavernous bodies, which are in turn dependent on the integration of complex neural mechanisms. Signals received by the brain and integrated into the sexual response may be fantasy, visual, tactile and olfactory or even auditory. The efferent response is mediated at the level of the hypothalamus.

The hypothalamus plays an essential role in the central control of penile erection. Two nuclei, the medial preoptic area and the paraventricular nucleus are involved. The medial preoptic area integrates signals from both central and peripheral sources. The paraventricular nucleus has direct neural connections with the spinal cord. Proerectile stimuli such as imagination and tactile and audiovisual stimuli are integrated and processed before resulting in erectile signals that travel down the spinal cord. These may include inhibitory stimuli such as depression, fear and anxiety.

Parasympathetic impulses (S2 - S4) provide the major excitatory stimuli to the penis, and initiate the vasodilation and relaxation of the smooth muscle of the erectile tissue. These efferent axons travel along the pelvic nerve to the cavernous nerves, after synapsing in the pelvic plexus, and then to the penis.

For erections to occur, several neurotransmitters are required in the central nervous system. These include dopamine, sertonin, norepinephrine, oytocin and nitric oxide.

Nitric oxide is an important neurotransmitter. Peripherally, it allows smooth muscle relaxation in the penile erectile tissue. Nitric oxide is released from nerve endings, activating guanylate cyclase. The result is smooth muscle relaxation and vasodilation.

## RISK FACTORS

The Massachusetts Male Aging Study showed that a very important risk factor for ED is age.[2] There are, however, many other important risk factors for ED such as smoking, cardiovascular disease, hyperlipidaemia, diabetes mellitus and drug side effects.[1]

Additional risk factors for ED include trauma, pelvic surgery, neurological disorders, hormonal disorders and excessive alcohol intake.[1]

Men with ED very frequently have other co-existing conditions of which hypertension, heart disease and diabetes are the most common. With this in mind, it is important to identify men with ED.

ED screening, therefore, may uncover previously undiagnosed underlying disease such as diabetes, hypertension, dyslipidaemia, cardiovascular disease and certain malignancies.

ED may be associated with anxiety, depression and decreased self-esteem, with negative effects on relationships.

ED is frequently underdiagnosed. There are a number of reasons for this. One reason is that patients often do not complain and secondly, much of the time doctors don't ask. Patients do not usually volunteer information, as they find erectile problems difficult to discuss. Approximately 90 % of men with ED do not seek treatment for this problem. It is therefore important that the doctor introduces the topic of ED.

In a study of 500 men, 68 % were afraid that physicians would be embarrassed if they talked about ED, and 71 % believed doctors would dismiss concerns about sexual problems.[4]

Patients in general wait more than 5 years after the onset of ED symptoms to visit a physician.[5] Eight out of ten men said they would have liked their physician to initiate a discussion on ED during routine visits.[6]

An Australian study of men who had complete ED found that 90 % had problems for more than one year and 46 % had had problems for more than five years, and only 11.6 % had received treatment.

A limited awareness of ED and current availability of treatment options is prevalent.

A decline in sexual function is often considered to be a natural part of the aging process and therefore many older men with ED do not seek medical help.

Patients must be educated that the cause of ED is usually multifactorial in origin. The incidence of ED increases with the presence of concomitant conditions. Patients must be made aware that ED is a medically treatable disease and currently there are therapies available to treat nearly all patients with ED.

Physicians also need education, as there may be a lack of awareness of ED and available treatments and a reluctance to broach the subject.

Discomfort about the subject is often a reason why patients do not complain. 70 % of patients were embarrassed, 25 % believed it was a normal part of aging and 5 % did not think it was important.[8]

A number of reasons exist why doctors do not ask about ED. There may be a lack of education, treating diseases such as hypertension and diabetes may be perceived as important, or there may simply be a lack of time or a feeling of discomfort about the subject.

It is very important to educate patients regarding ED. ED might herald other serious diseases, such as coronary artery disease.

There is a frequent association of sexual and medical problems especially in the aging male. Modification of risk factors such as over-weight, smoking, alcohol consumption and lack of exercise may help in many cases.

## DIAGNOSIS AND EVALUATION

There are four important aspects in the diagnosis and evaluation of a patient with ED.

**They are:**

1. Medical, sexual and psychosocial history
2. Physical examination
3. Laboratory tests
4. Optional or specialized tests.[1]

57 % of men who underwent bypass surgery had ED prior to the operation. 64 % of men hospitalised for myocardial infarction had ED prior to admission.[10]

**Medical and Sexual History Assessment 1**

| | |
|---|---|
| Erectile insufficiency | Pelvic/perineal/penile trauma and surgery |
| Altered sexual desire | Medication |
| Ejaculation | Recreational drug use |
| Orgasm | Pelvic radiotherapy |
| Sexually induced genital pain | Neurological disease |
| Partner sexual function | Endocrine disease |
| Lifestyle factors | Psychiatric illness |
| Smoking | Current psychological state |
| Chronic medical illness | |

According to the First International Consultation on ED,[1] the following are "Highly Recommended Evaluation and Tests":

**History:**
- Medical
- Sexual
- Psychosocial
- Erectile dysfunction questionnaires

**Physical Examination:**
- Body habits (secondary sexual characteristics)
- Focus on cardiovascular, neurological and genitourinary systems

**Recommended Laboratory Tests:**
- Fasting glucose or glycosylated Hb
- Lipid profile
- Testosterone

**Optional Diagnostic Tests:**
- Psychological and/or psychiatric consultation
- Laboratory:
  - Serum prolactin
  - LH
  - TSH
  - FBC
  - Urinalysis

E.D. and cardiovascular disease share common risk factors. ED can also be a sign of underlying cardiovascular disease.

Two thirds of men with hypertension have ED to some degree, and more than half of men with ED have dyslipidaemia.

In a study by Pritzker, 56 % of men with ED were found to have a positive stress test. 40 % of men with ED had significant coronary occlusions.[9]

Atherosclerosis, smoking, diabetes and hypertension lead to oxidative stress and endothelial dysfunction, and then ED.

**What doctors need to know about ED and cardiovascular disease:**

- E.D. and cardiovascular disease share common risk factors
- Cardiovascular disease is a risk factor for ED
- ED can be a sign of underlying cardiovascular disease

**Conclusion:**

ED is highly prevalent.
ED incidence increases with age.
ED is under-recognised.
ED is currently significantly undertreated.

**REFERENCES:**


1. 1st International Consultation on Erectile Dysfunction. Paris, July 1999
2. Feldman HA, et al Journal Urol. 1994; 151: 54 – 61
3. Aytac I A, et al. BJU Int. 1999; 84: 50 – 56
4. Marwick C. Jama 1999; 281: 2173 – 2174
5. Baldwin KC (J. Urol. 2000; 163(Suppl): 243 Abstract 1080
6. Chew KE et al. Int. Journal Impotent Res. 2000
7. Diamond SM, et al. J. Urol. 2001; 165 (Suppl. 5). Abstract 1120
8. Pritzker MR Circulation 1999; 110 (Suppl. 18): 1.711
9. Zusman Rm. Am J. Cardiol 1999; 83 (S.A.): 1C – 2C