

Sexual function and dysfunction in men

Training Course in Sexual and Reproductive Health
Research

Geneva Foundation for Medical Education and Research
Geneva February 19th, 2009

Georges A. de Boccard, M.D.
Consultant Urologist F.E.B.U.
boccard@iprolink.ch



The physical pathways of a normal erection?

After erotical stimulation

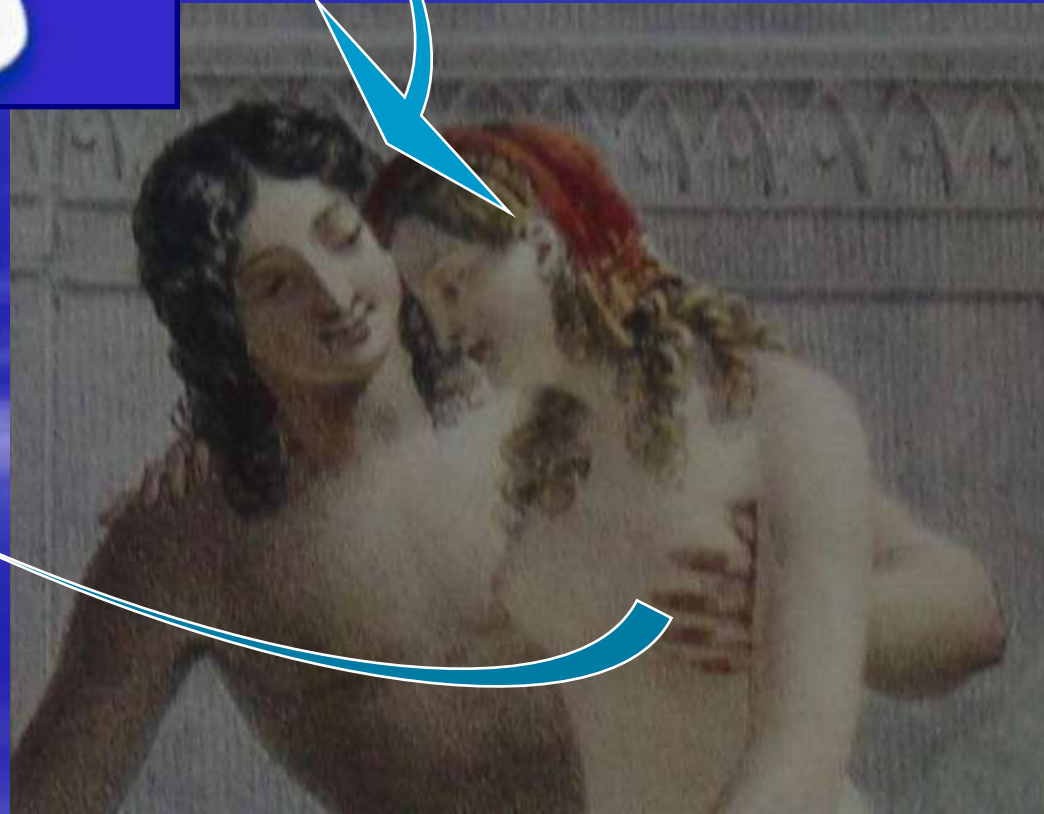
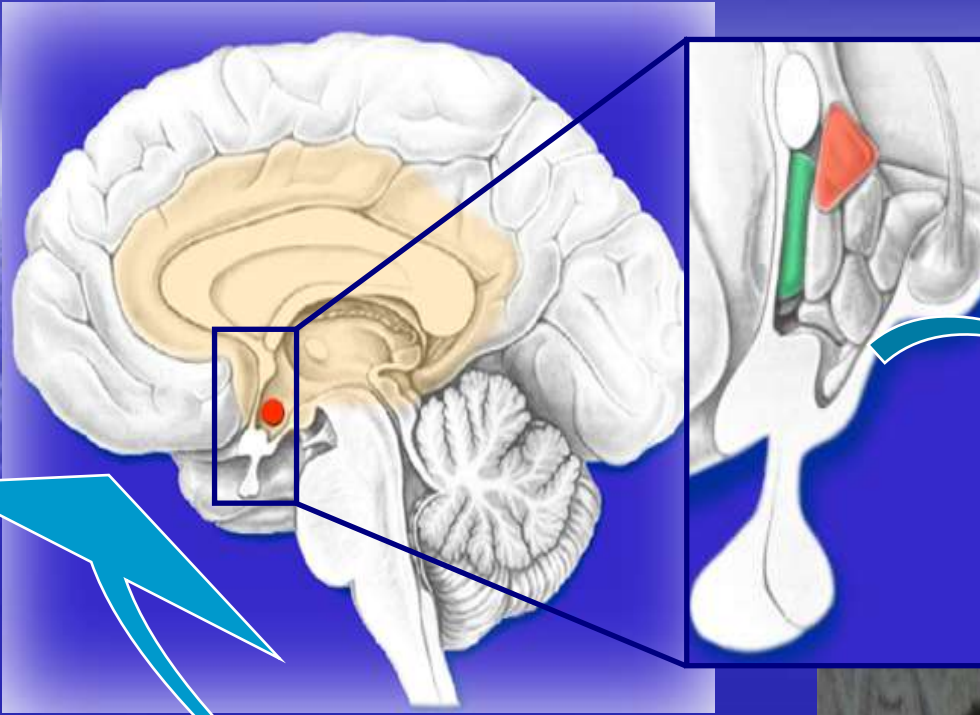
And physical stimulation

visual

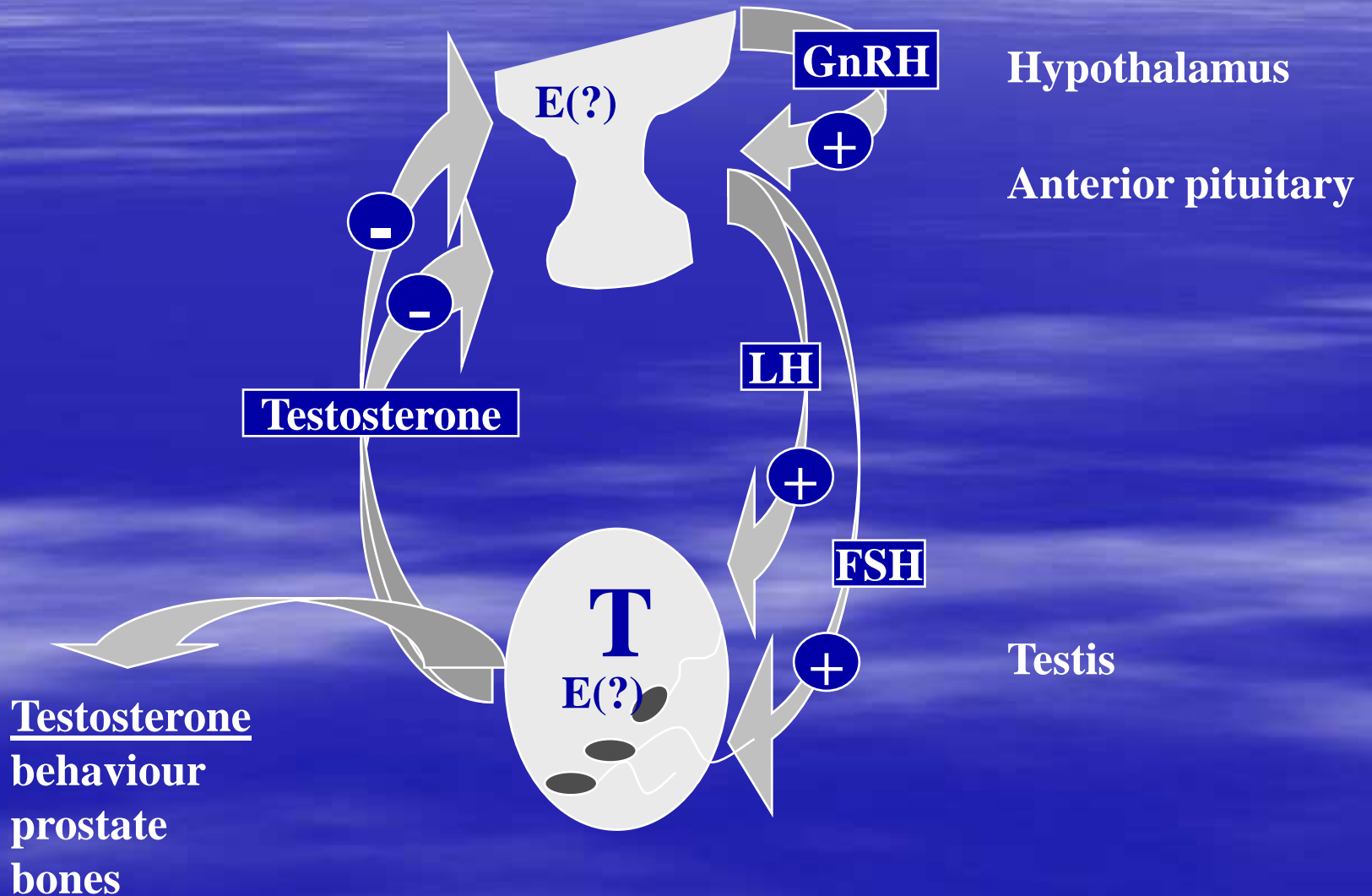
tactile

genital

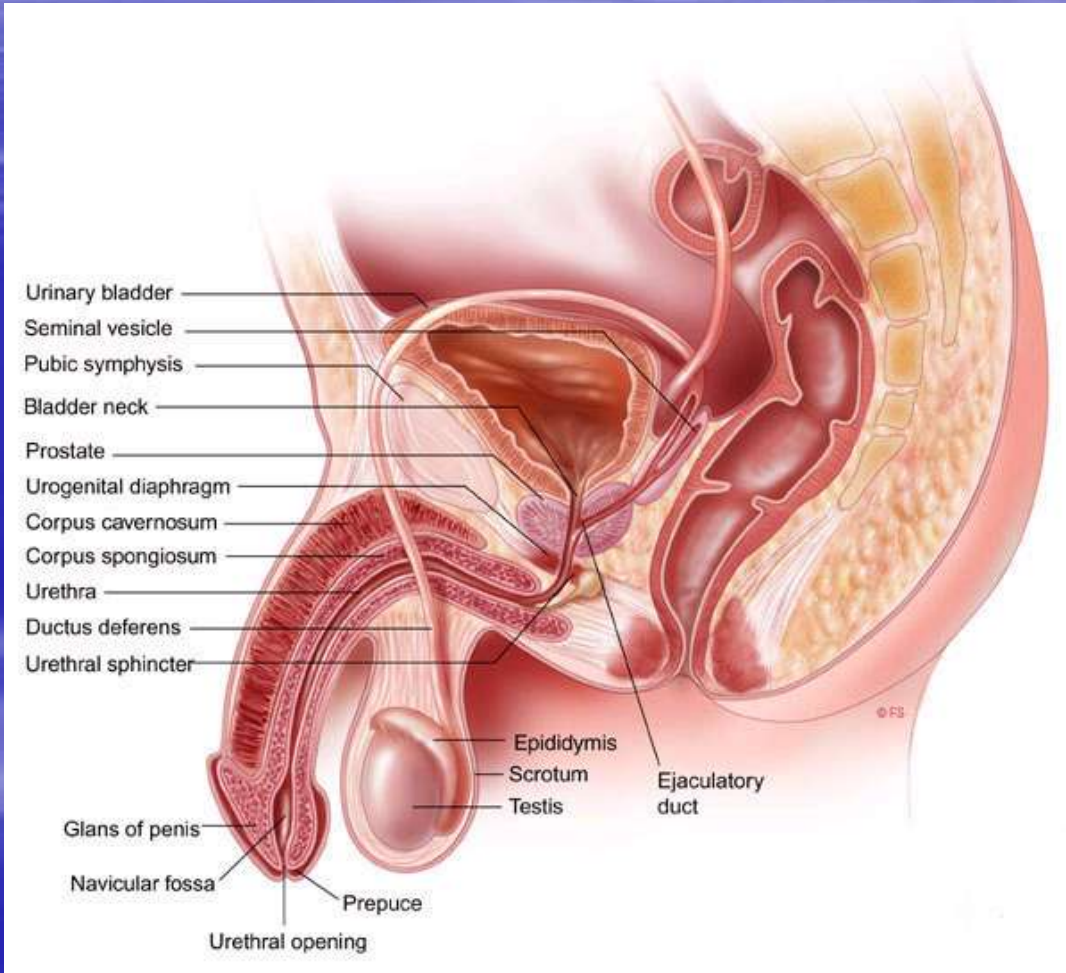
1. Anatomy and physiology of normal erection
2. Incidence of erectile dysfunctions
3. Causes of erectile dysfunctions
4. Diagnostic tools
5. Climax
6. Treatments



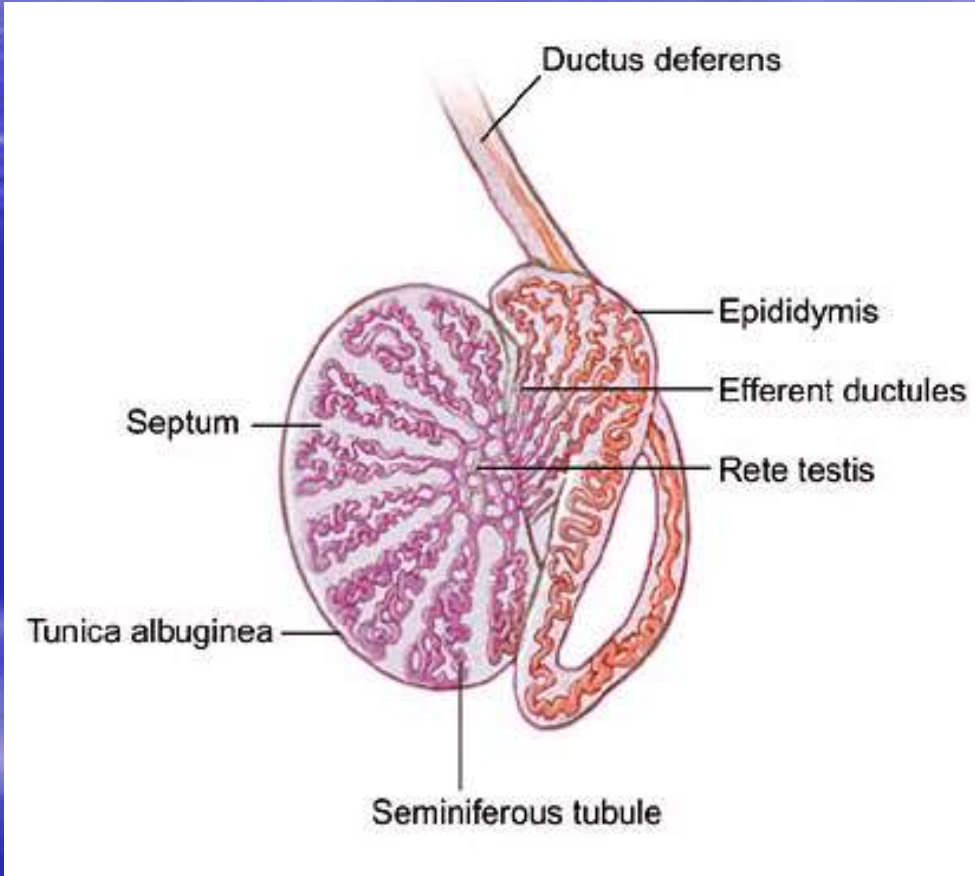
Pituitary & gonadic physiology



Anatomy



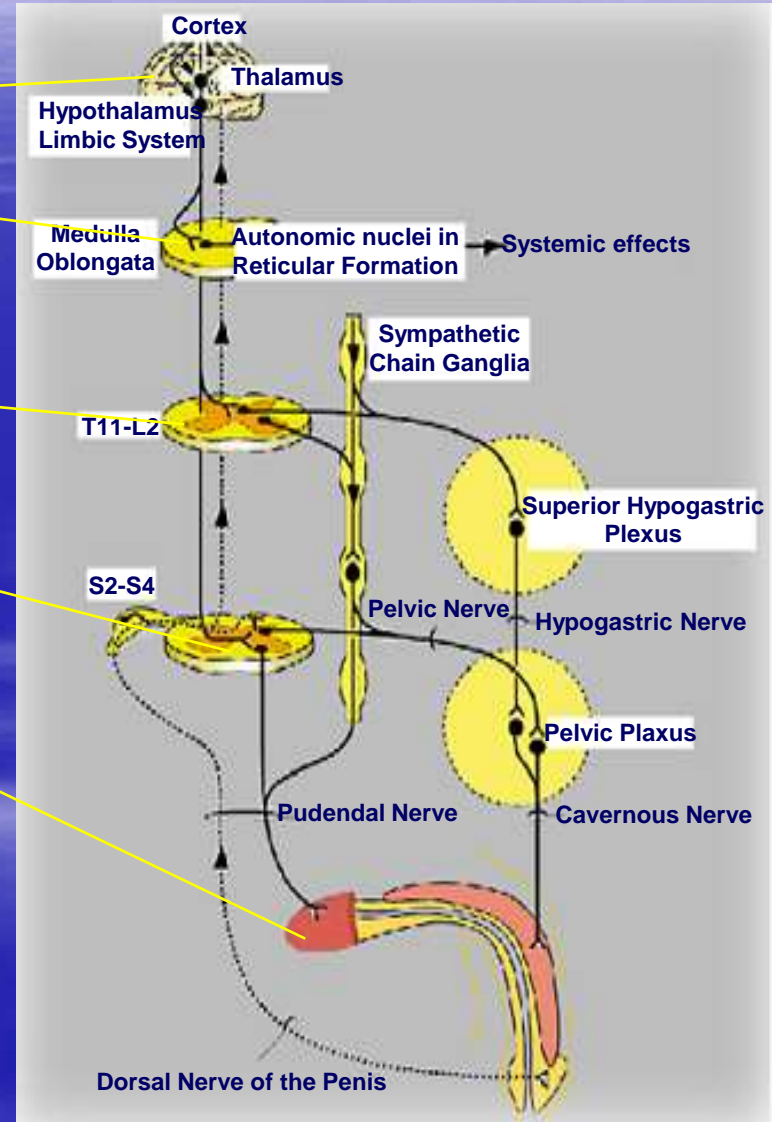
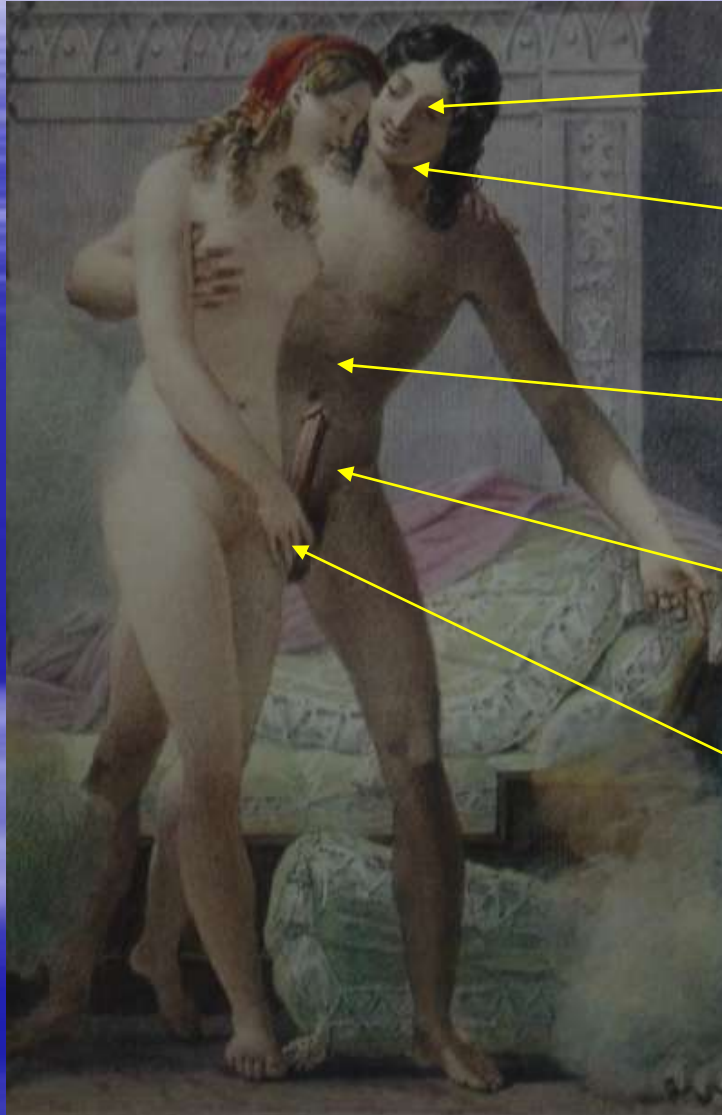
Anatomy

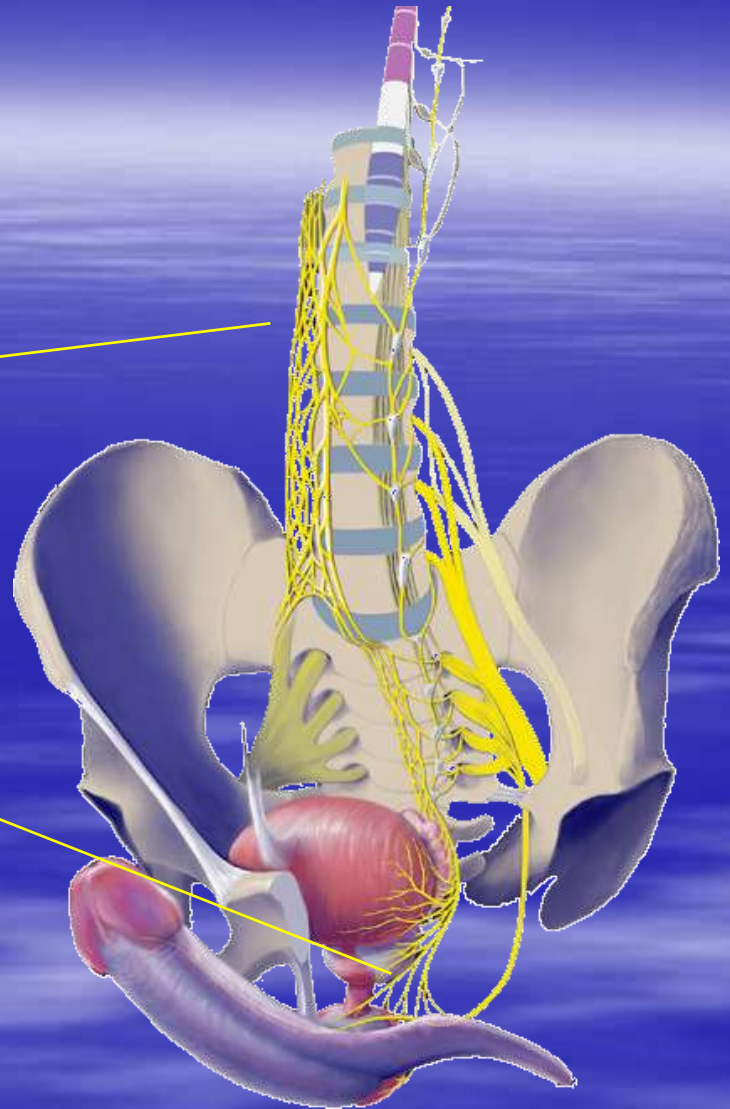
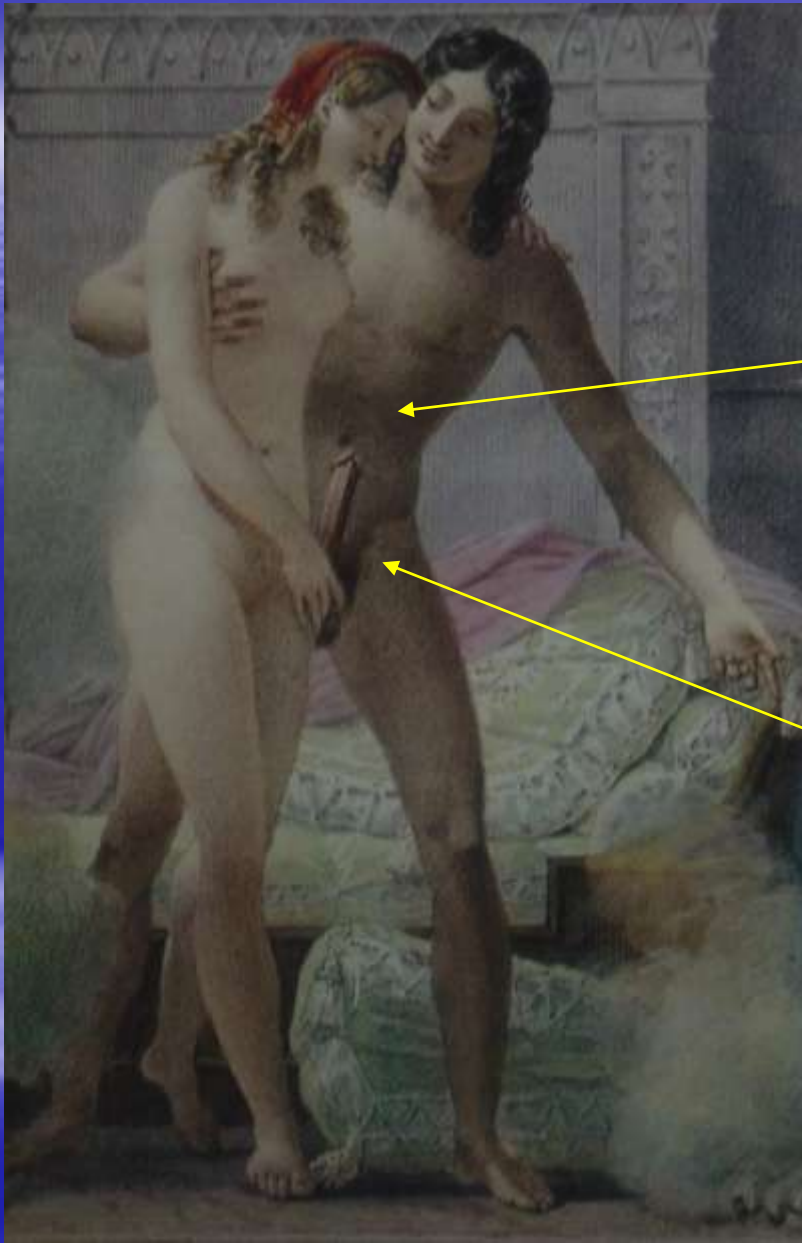


Neurophysiology

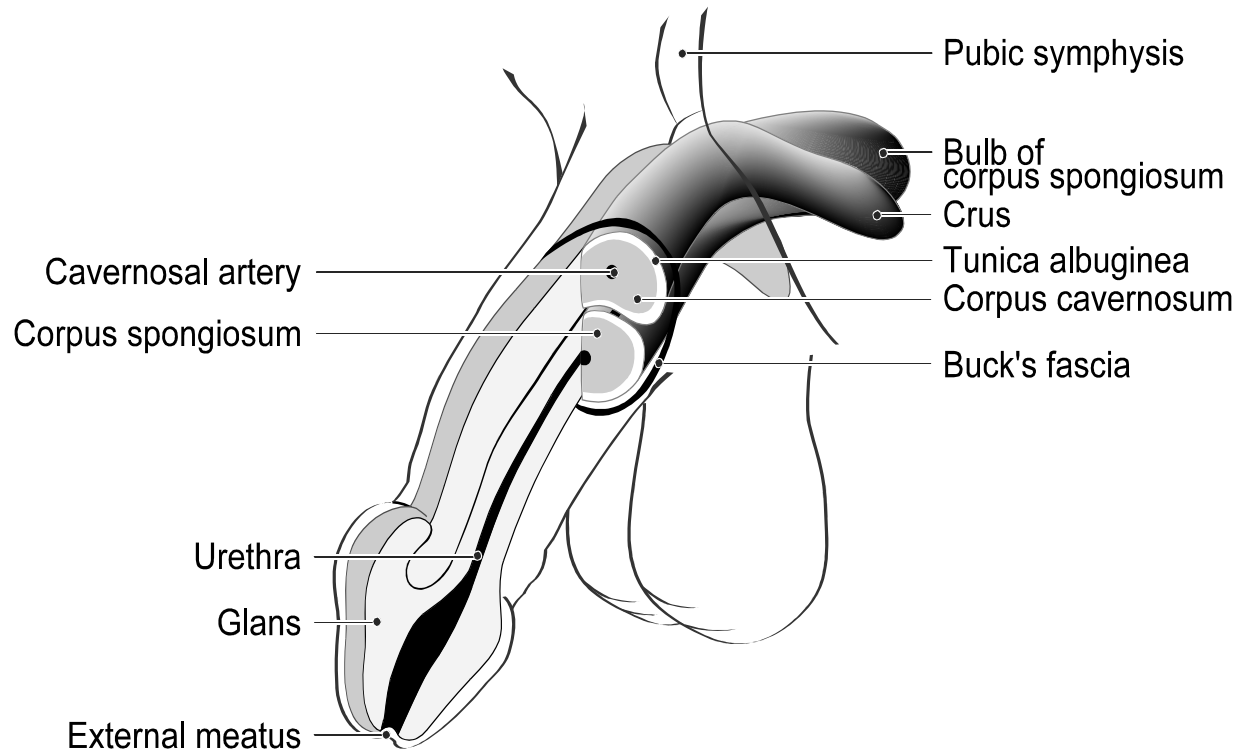
- **Cavernous nerves**
 - Parasympathetic nitrenergic
 - Sympathetic adrenergic
 - control of the blood flow (rigidity - flaccidity)
- **Pudendal nerves**
 - Sensitive (positive feed-back)
 - motors : contraction of perineal muscles (ischio- and bulbocavernous)

Functional neuroanatomy of erection

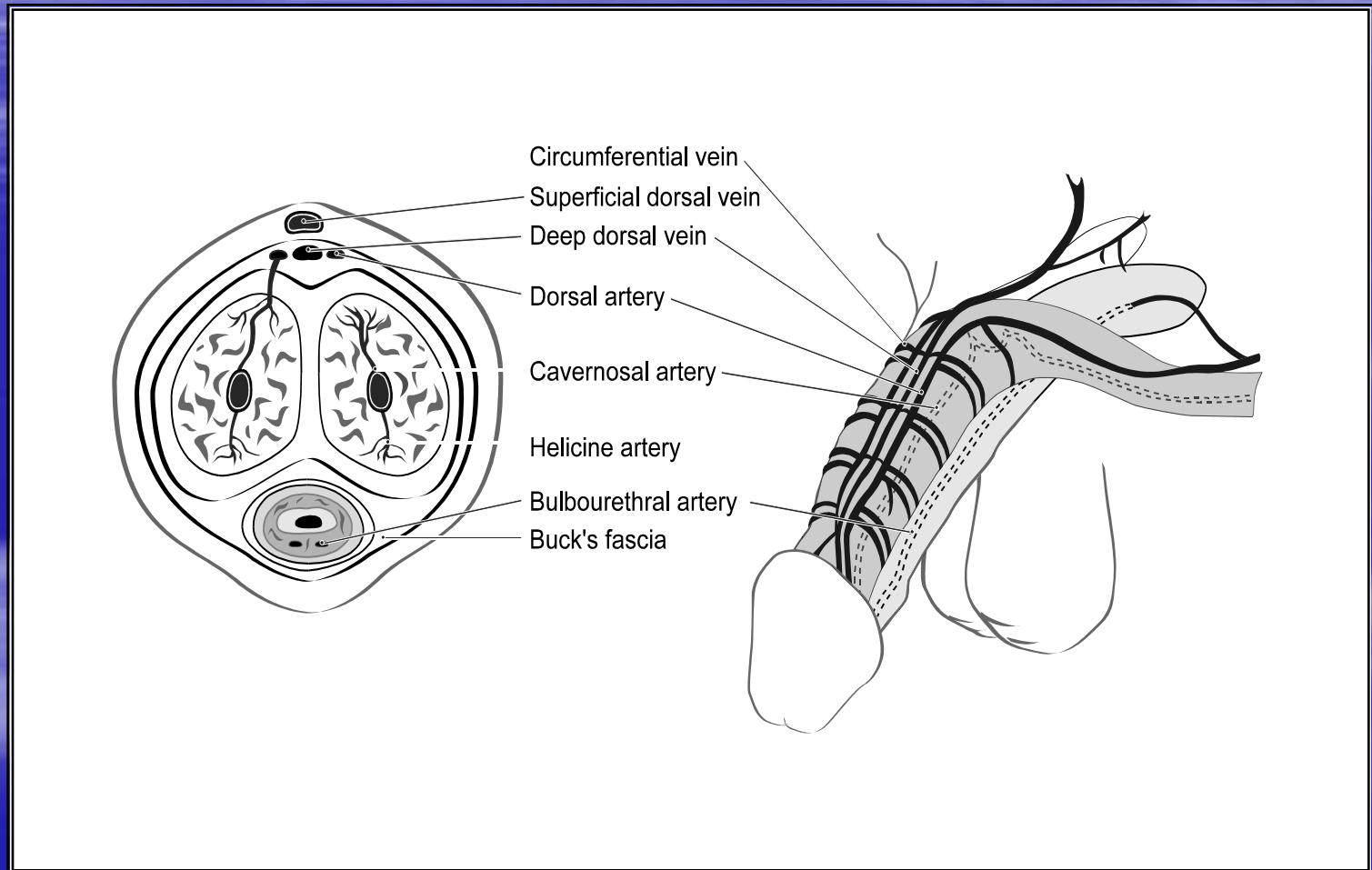




Penile anatomy



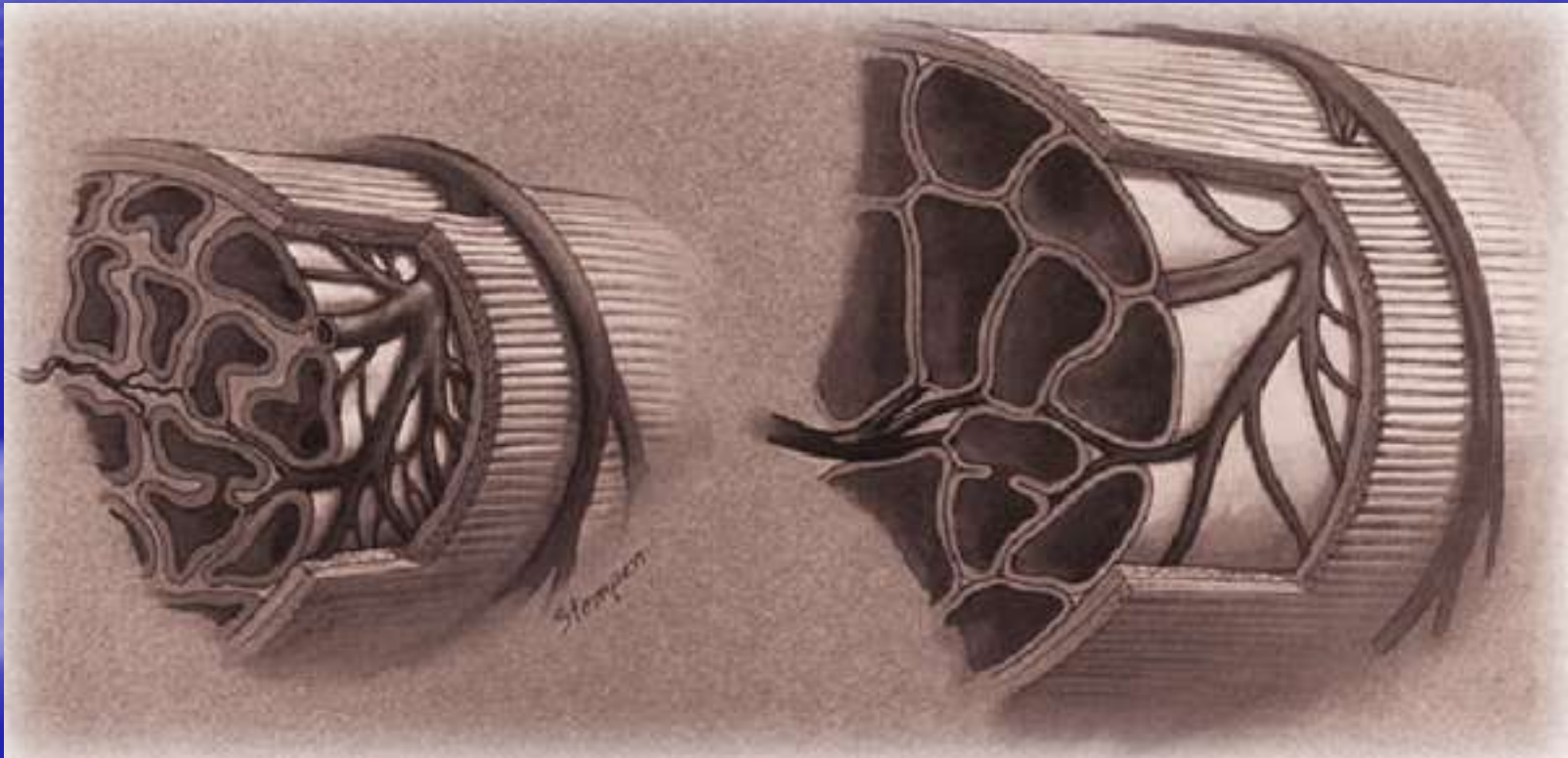
Vascularisation



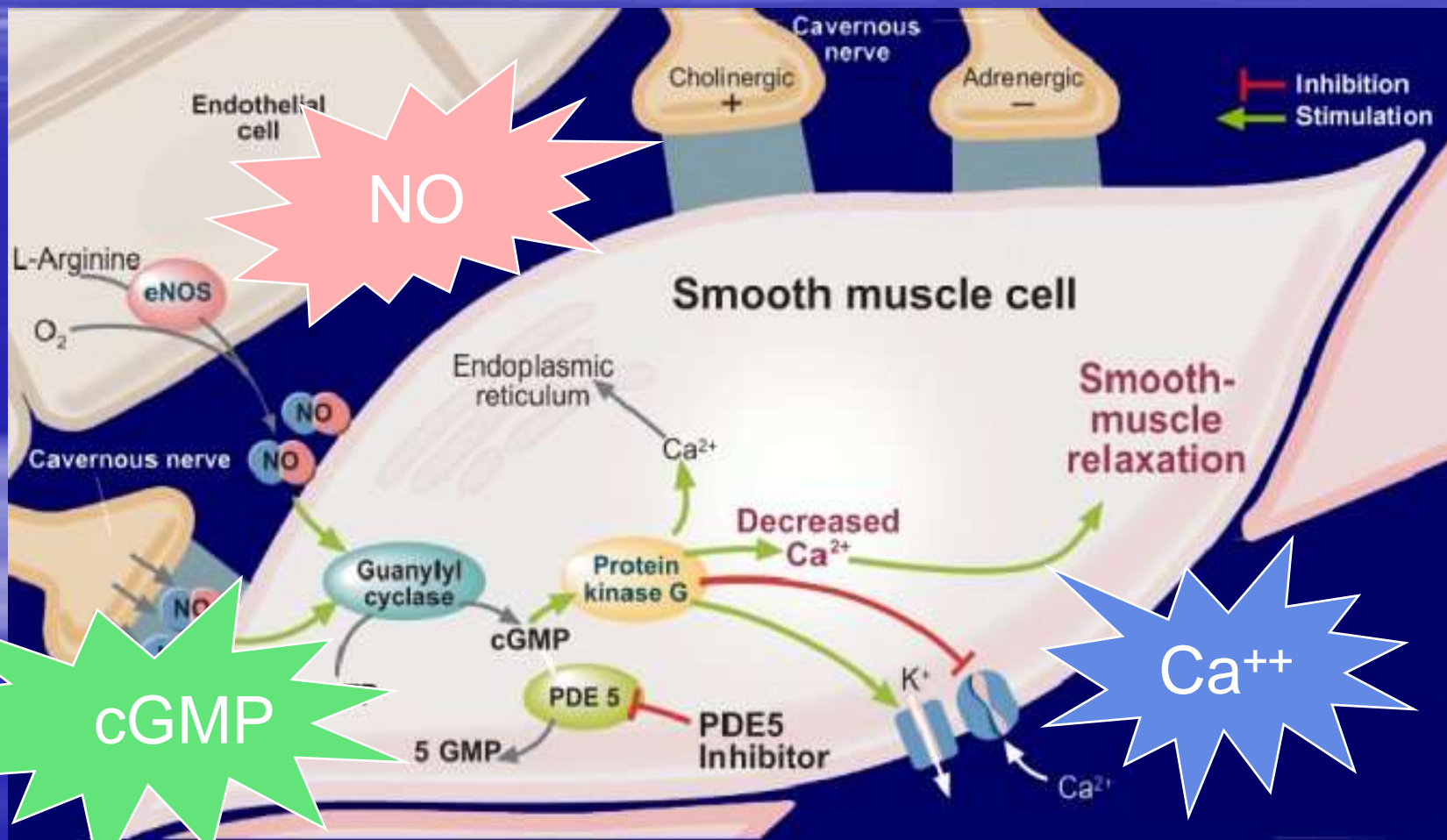
Anatomy of corpus cavernos

Flaccidity

Erection

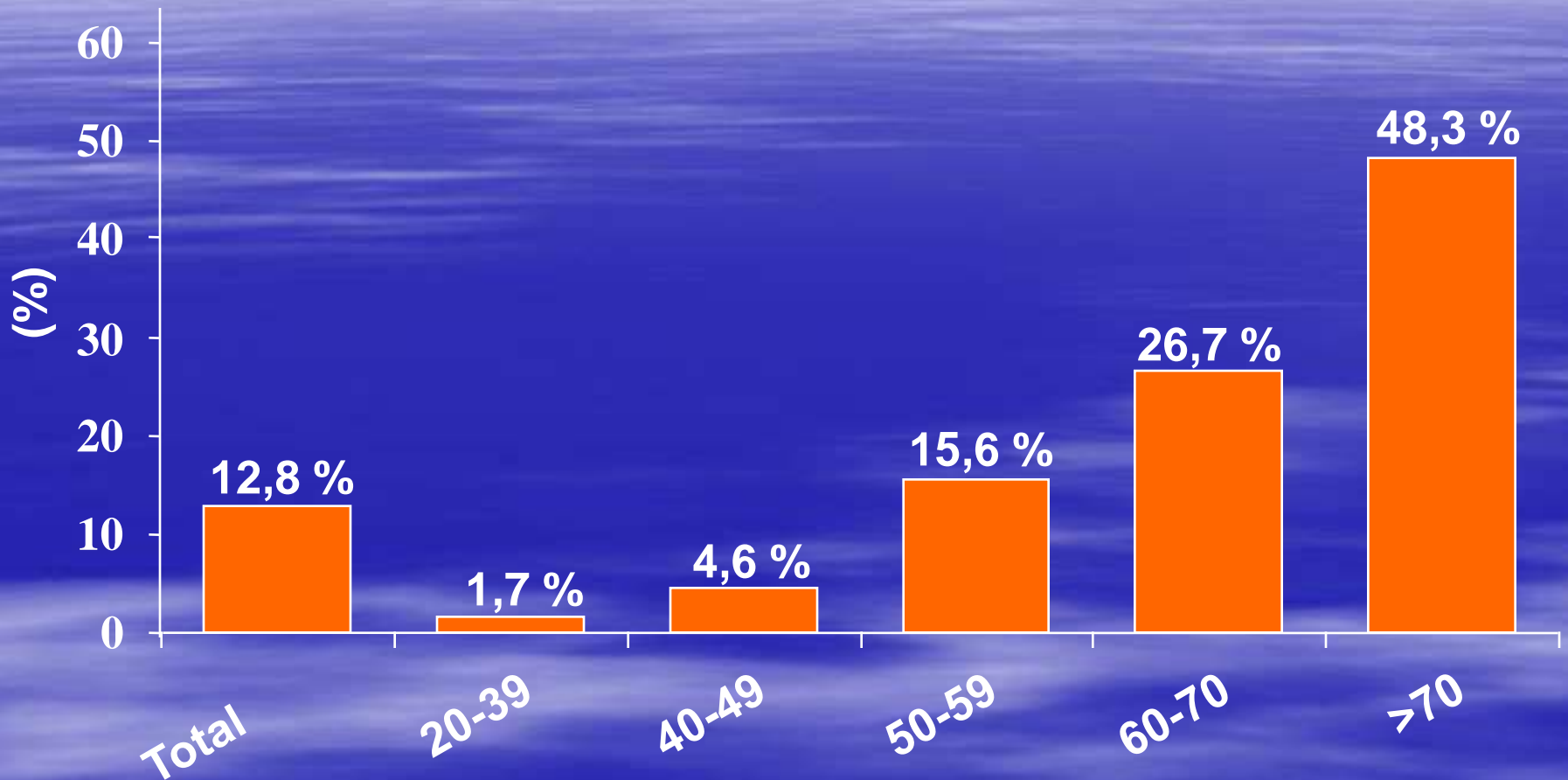


Erectile Physiology: NO - cGMP relaxation of the cavernous smooth muscle inducing erection



1. Anatomy and physiology of normal erection
2. Incidence of erectile dysfunction
3. Causes of erectile dysfunction
4. Diagnostic tools
5. Climax
6. Treatments

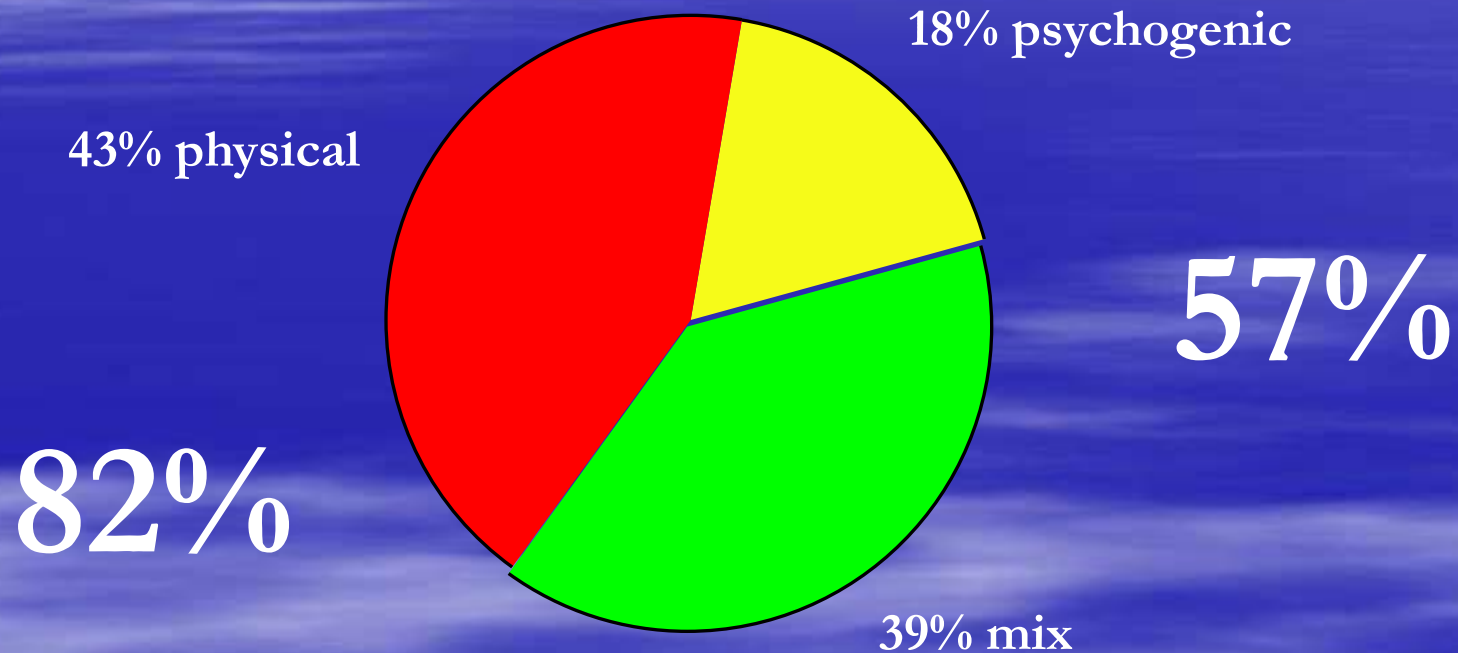
Incidence of erectile dysfunction in Europe



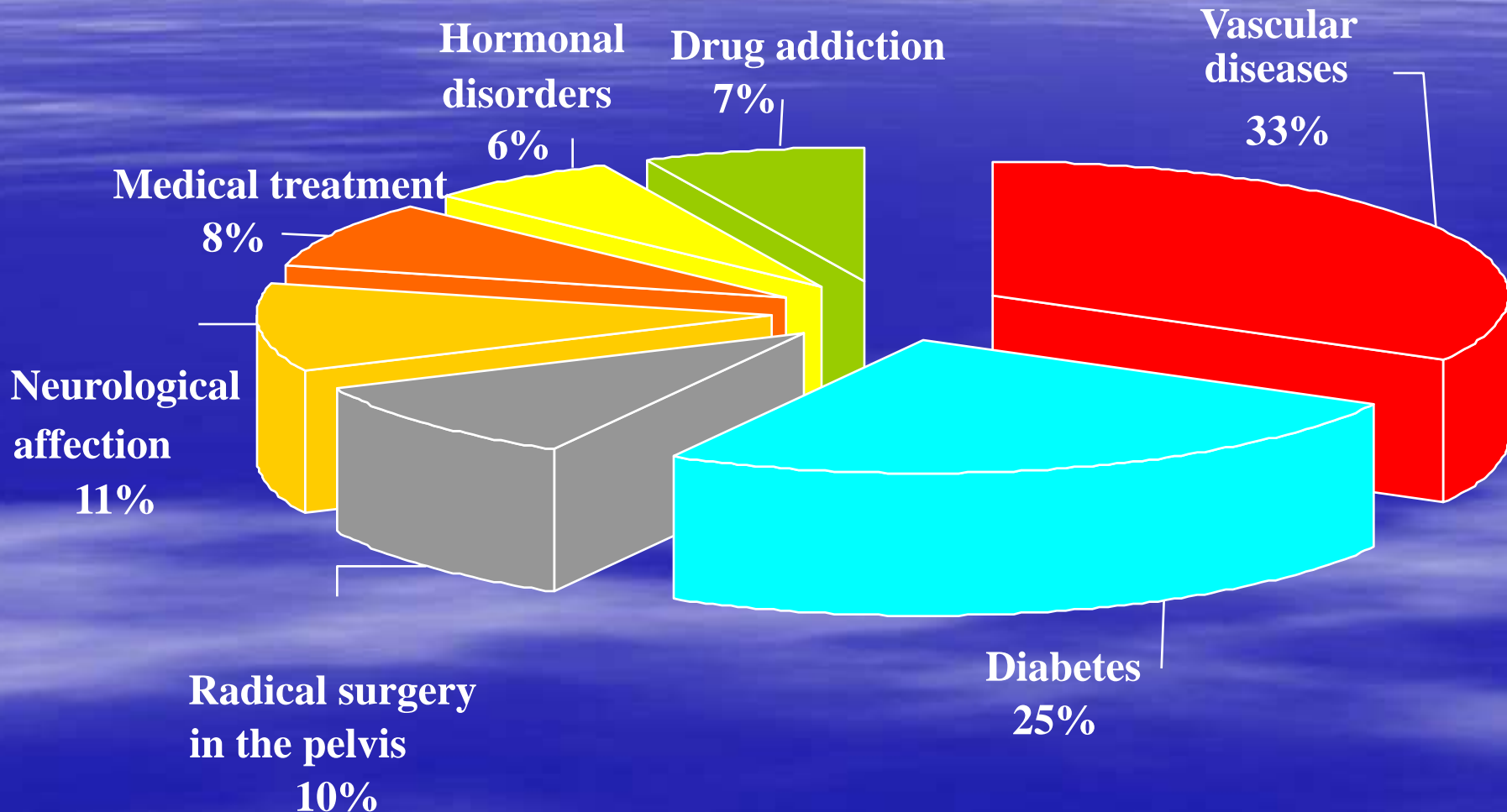
S.I.M.G. Epidemiologic Study, 1997

1. Anatomy and physiology of normal erection
2. Incidence of erectile dysfunctions
3. **Causes of erectile dysfunctions**
4. Diagnostic tools
5. Climax
6. Treatments

Causes of erectile dysfunctions



Causes of erectile dysfunctions



Causes of erectile dysfunctions

Role of the vascular endothelium

Any condition that induces a lack of NO production from the vascular endothelium may be a cause of erectile dysfunction.

Since NO secretion is centrally modulated (brain), any relational disturbance will negatively affect the corpus cavernous, the same way as a vascular or neurological disorder.



Hormones and aging



Pituitary

GH ↓



IGF-1 ↓

Somatopause

LH / FSH ↓



E₂ / T ↓

Menopause / Androclysis



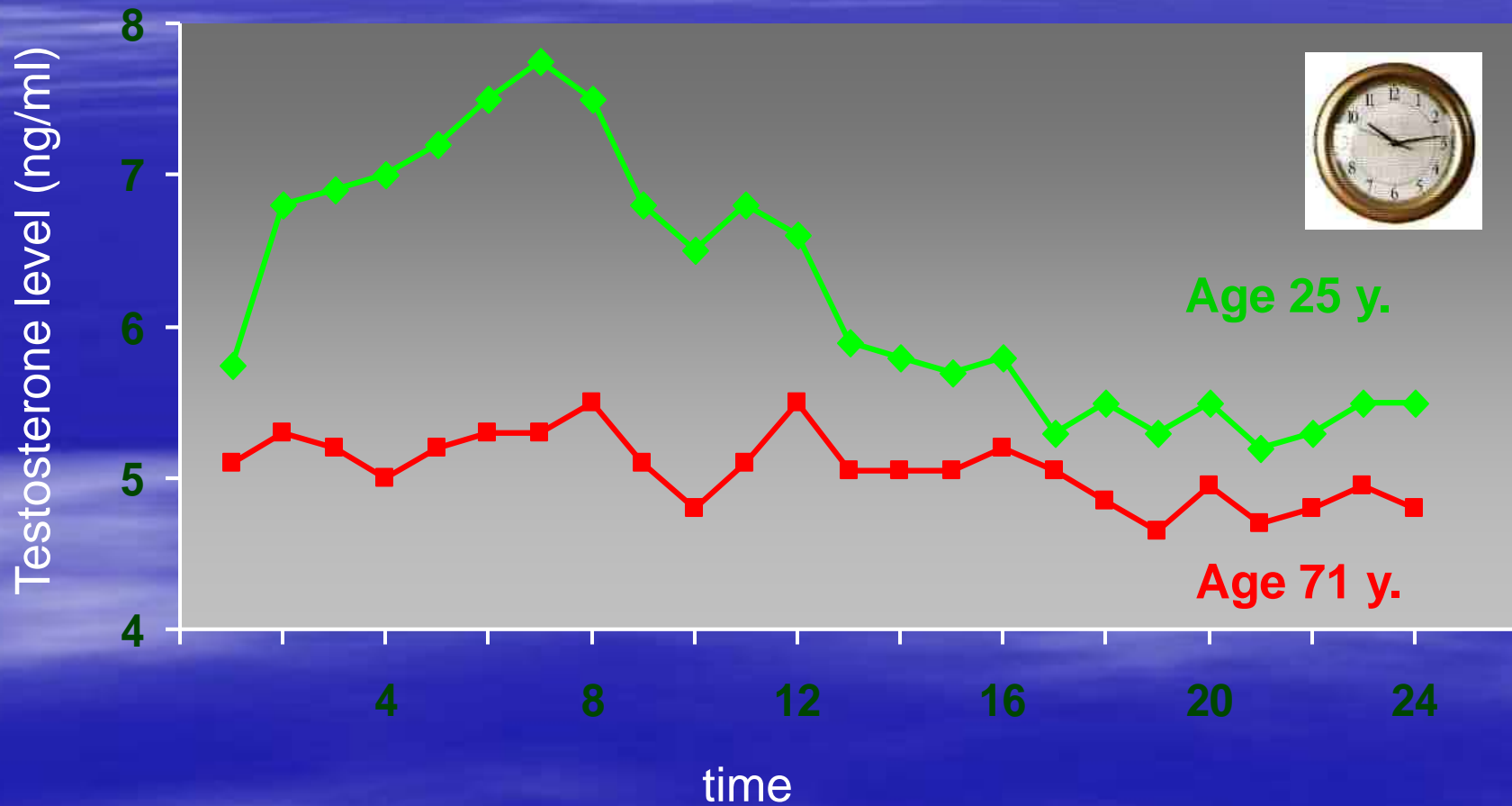
ACTH =



DHEA ↓

Adrenopause

Day-night testosterone levels



Penile curvature

- Peyronie's disease
 - 6% of male population
 - Unknown etiology
 - Related with Dupuytren
 - Uncertain evolution
 - Uncertain treatment
 - Corticoid
 - Verapamil
 - Surgery
 - Collagenase (Xiaflex^R)



1. Anatomy and physiology of normal erection
2. Incidence of erectile dysfunctions
3. Causes of erectile dysfunctions
4. **Diagnostic tools**
5. Climax
6. Treatments

Diagnostic tools

Special investigations

**Duplex sonography
with pharmacostimulation**

Intra cavernous injection test

Lab. Blood and hormonal status

Physical examination

History

History

- Onset, nature, duration
- Rigidity, shape of the penis
- External factors (relational, psych. or prof. stress)
- Associated diseases
- Former therapies
- Expectations regarding the treatment

Physical examination

- General condition
- Blood pressure, pulsations
- External genitals
- Inflammatory diseases (teeth)
- DRE
- Neurological evaluation

Lab tests

- Fasting glycaemia (HbA1c)
- Lipidic profile
- Blood formula
- Liver enzymes
- Hormones
 - Testosterone (free)
 - (PRL – TSH – T4)
- PSA
 - % free PSA
- Urine

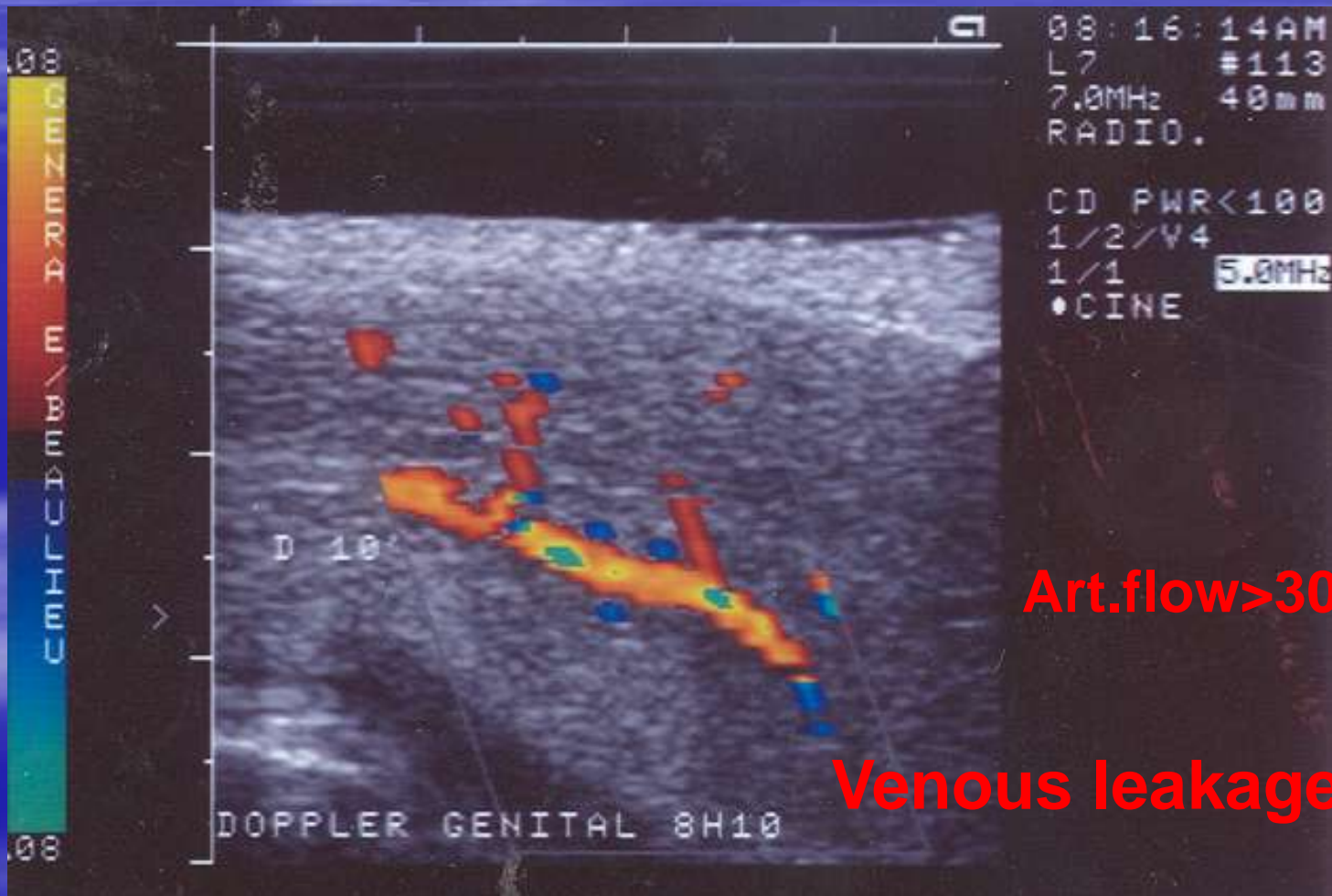
Specific tests

- **Duplex sonography + intracavernosal prostaglandin**

- Nocturnal Penile tumescence test
- Vascular imaging
- Neurological testing

Duplex sonography

PGE1 injection



Art.flow > 30cm/s

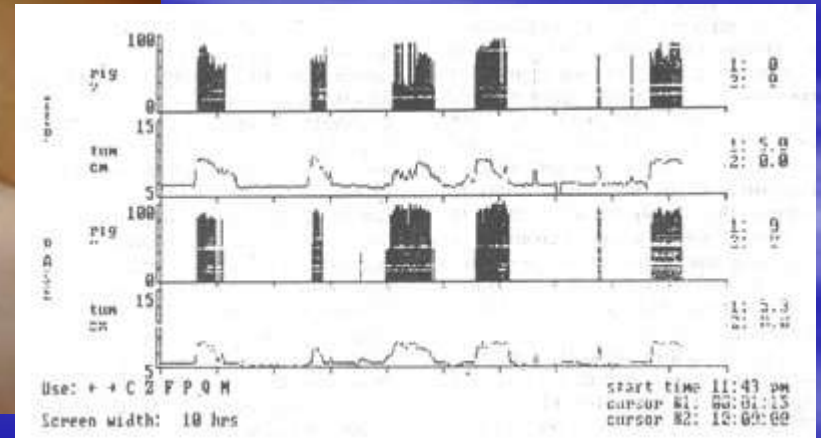
Venous leakage

NPT



REM sleep phases

History



Vascular radiology

arteriography



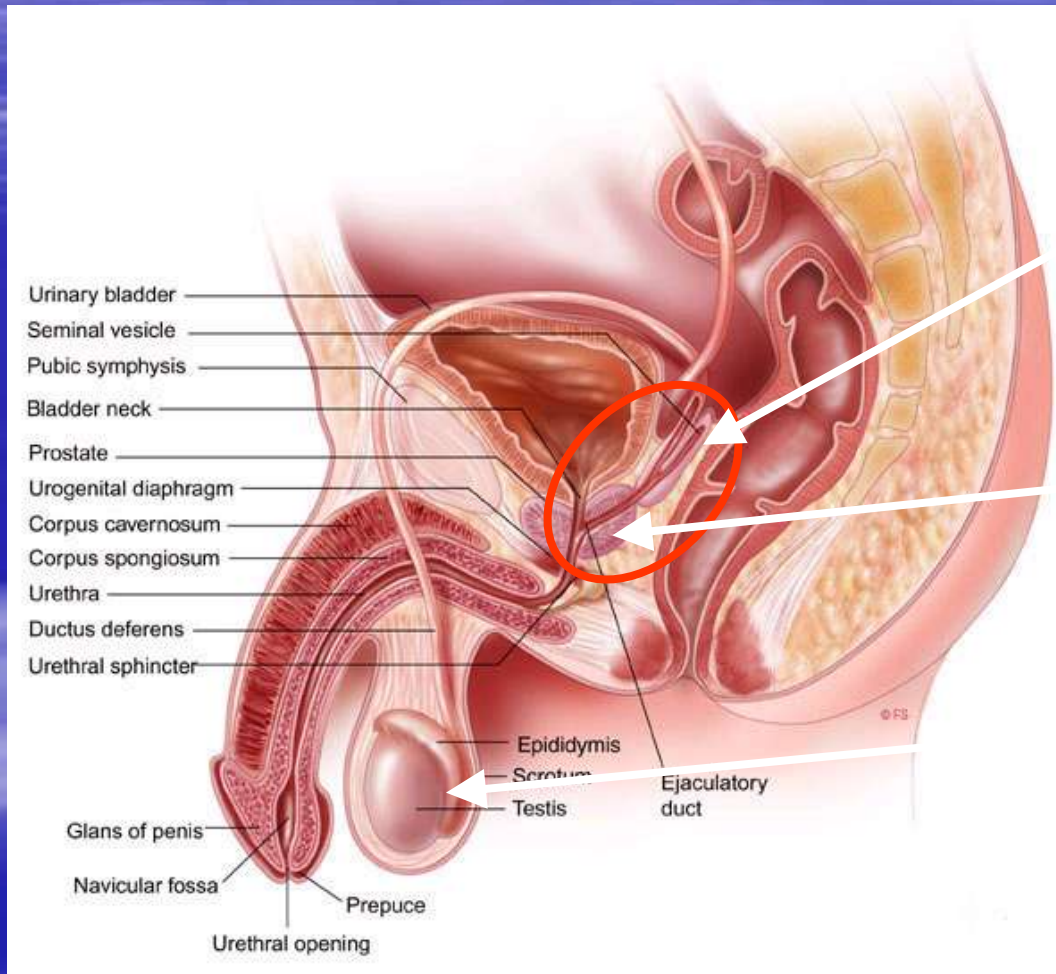
cavernosography



Anxiety / fibrosis

1. Anatomy and physiology of normal erection
2. Incidence of erectile dysfunctions
3. Causes of erectile dysfunctions
4. Diagnostic tools
5. Climax
6. Treatments

Sperm production Anatomy

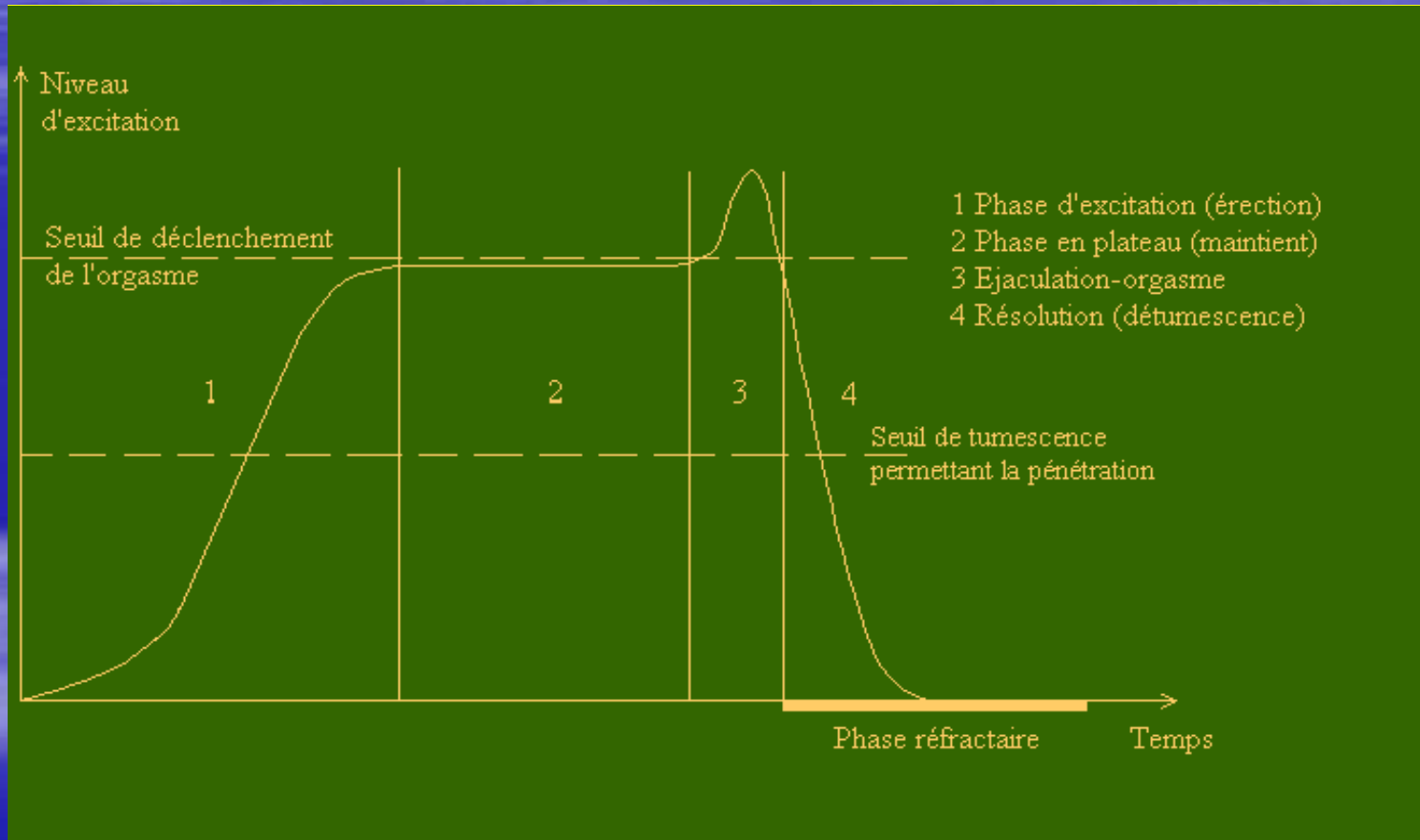


2/3 seminals

1/3 prostate

One drop from testis

Male excitation curve



Neuroanatomy

Cavernous nerve

Parasympathetic (nitrous)

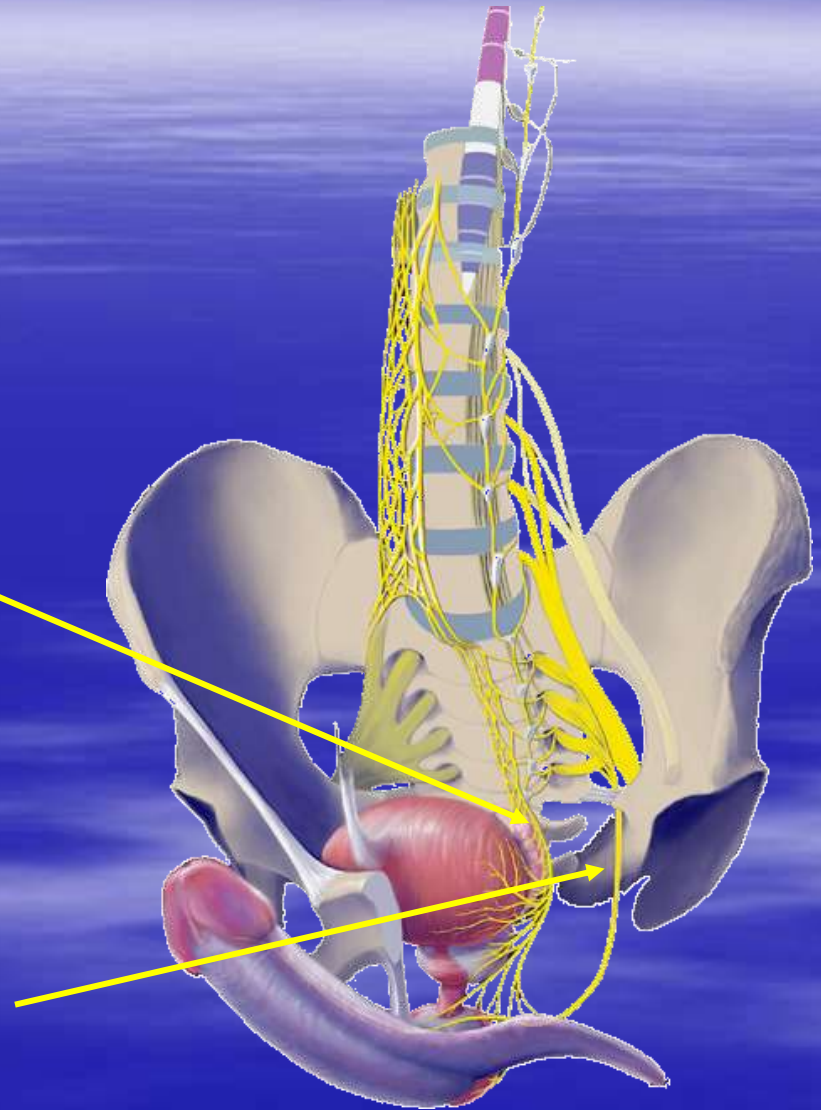
Sympathetic (adrenergic)

Trigger of ejaculation

Pudendal nerve

Sensitive: positive feed-back

Effective : contraction bulbo-cavernous muscles



Ejaculatory process

- Filling of ejaculatory ducts
- Prostatic contraction
- Urethral filling
- Bulbo cavernosal saccades



After climax

- Persisting adrenergic tonus
- Penile retraction
- Latency variation depending upon
 - Age
 - Stimulation

1. Anatomy and physiology of normal erection
2. Incidence of erectile dysfunctions
3. Causes of erectile dysfunctions
4. Diagnostic tools
5. **Treatments**

Hormonal treatment

- Testosterone injection
- Testosterone oral
- Testosterone transdermal



Testosterone gel

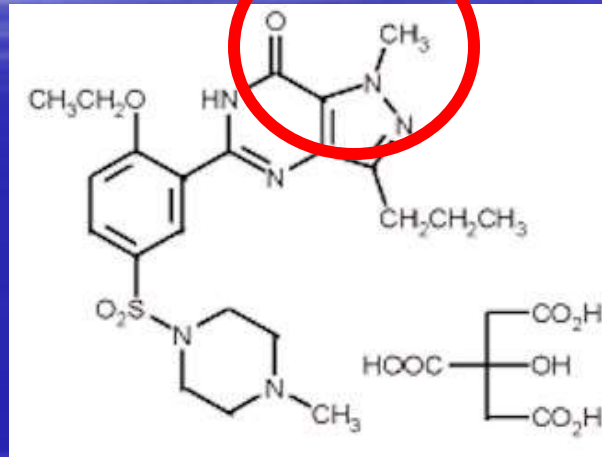
testosterone enanthate



testosterone undecanoate

PDE5 inhibitors

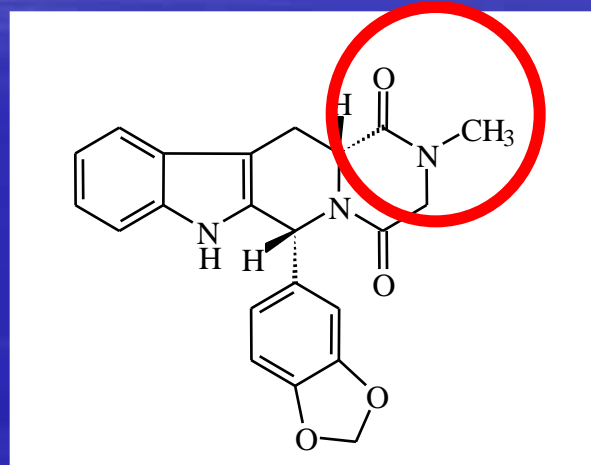
Sildenafil



Viagra[®]

Pfizer

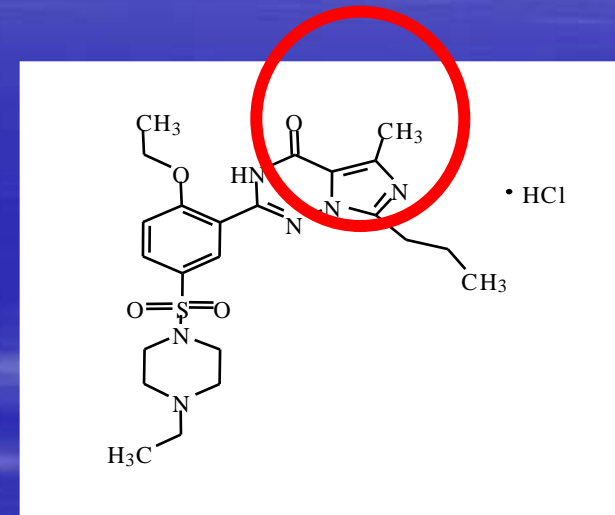
Tadalafil



Cialis[®]

Lilly-Icos

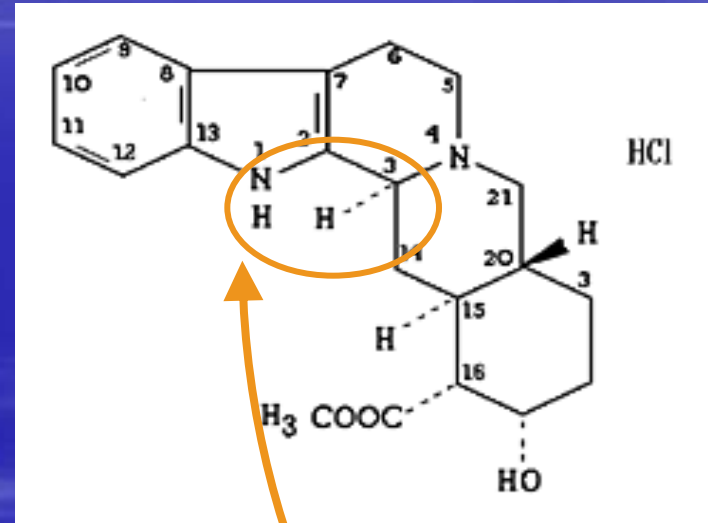
Vardenafil



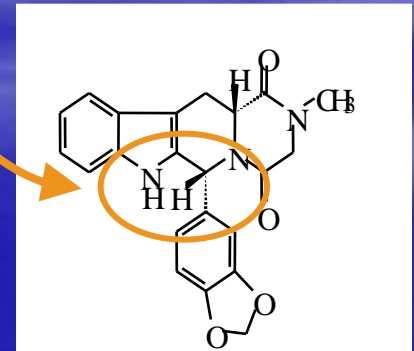
Levitra[®]

GSK-Bayer

Yohimbini



Tadalafil (Cialis)



MACA (Lepidium Meyenii)



Gonzales G. & al. 2002. Effect of *Lepidium Meyenii* (MACA) on sexual desire and its absent relationship with serum testosterone levels in adult healthy men. *Andrology* 34, 367-372.

PDE5 inhibitors, what dosage?

- Occasional treatment
 - 1 tabl. 30 to 60 min before planned intercourse
- Long term treatment
 - Tadalafil (Cialis): 1-2 x 10 or 20 mg per week during 2-8 weeks
 - Vardenafil (Levitra): 2-3x 5 or 10 mg per week during 2-8 weeks
 - Sildenafil (Viagra): 2-3x 25 or 50 mg per week during 2-8 weeks

PDE5 inhibitors, tips

- It is important to separate the intake of the pill from the intercourse in order to avoid a medically generated performance anxiety.
- The medication shall not necessarily induce a rigid erection.
- It should facilitate an erection following a normal love process.

PDE5 inhibitors: warning

- Simultaneous treatments with NO donors (nitro-glycerine etc) that will induce a possibly dangerous hypotension
- Contra indication to sexual activity
- Cardiovascular diseases like
 - Recent myocardial infarction or angina
 - Stroke
 - Arrhythmia, uncontrolled hypertension

Muse

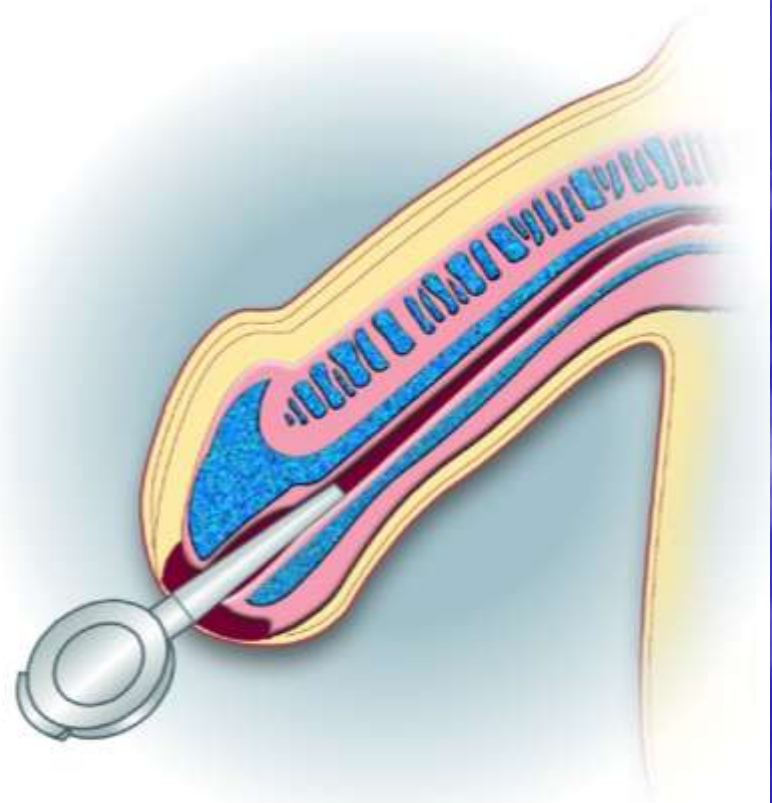
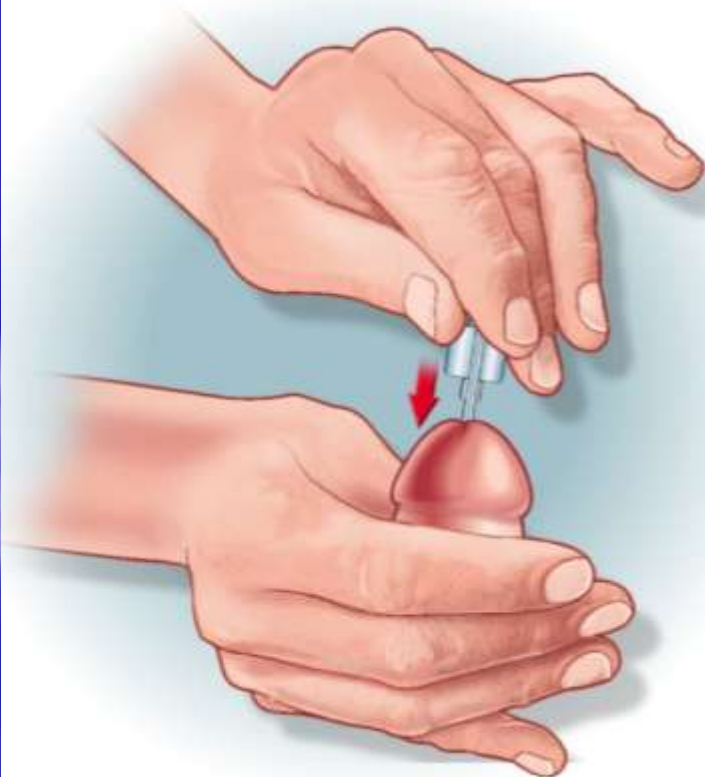
Alprostadil



MUSE

Alprostatil

MUSE (= Medical Urethral System for Erection):



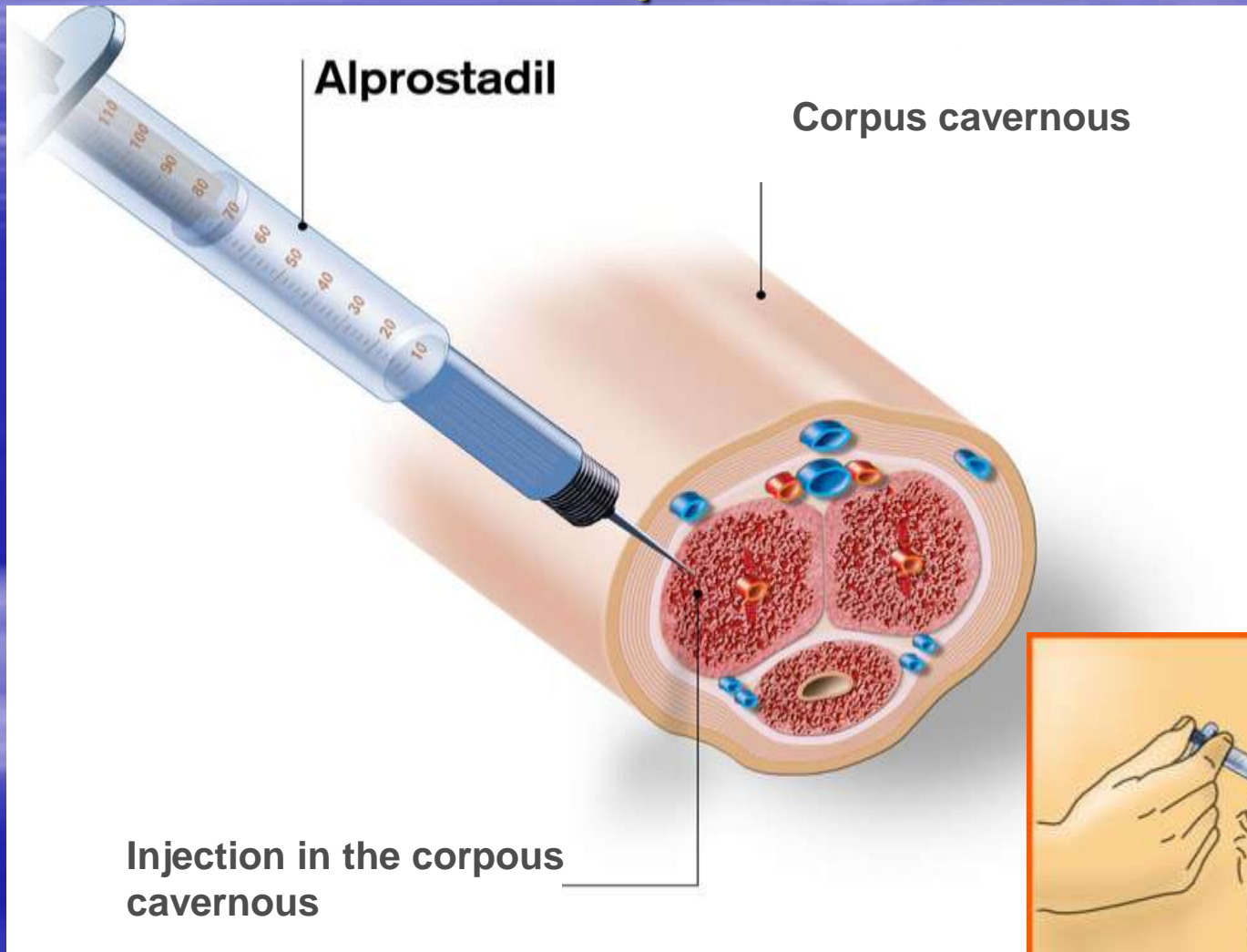
Caverject

Alprostatil



Caverject

Alprostadil



Semi rigid implant Acuform (Mentor)

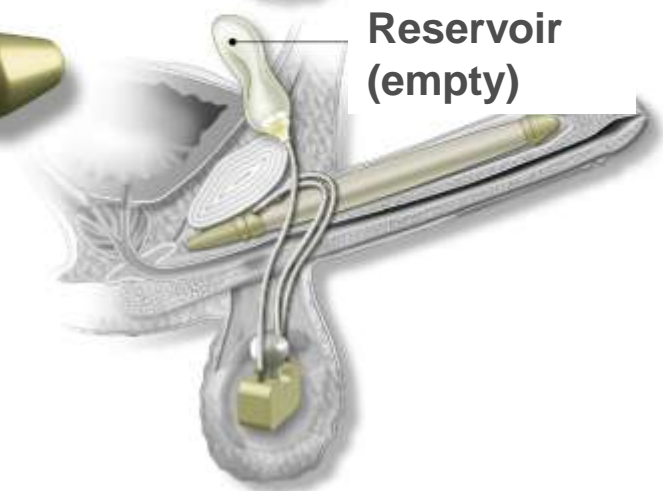
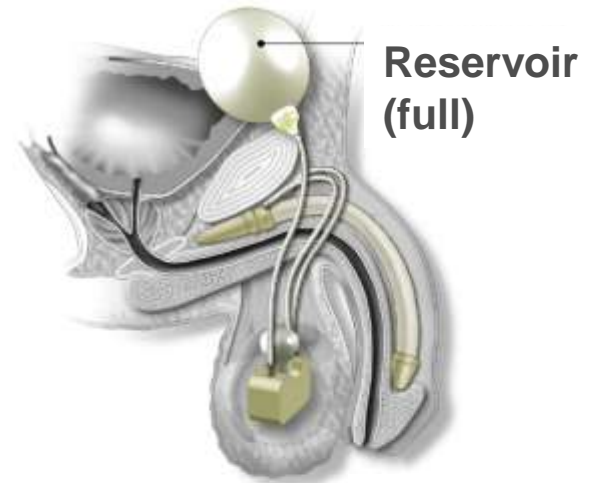
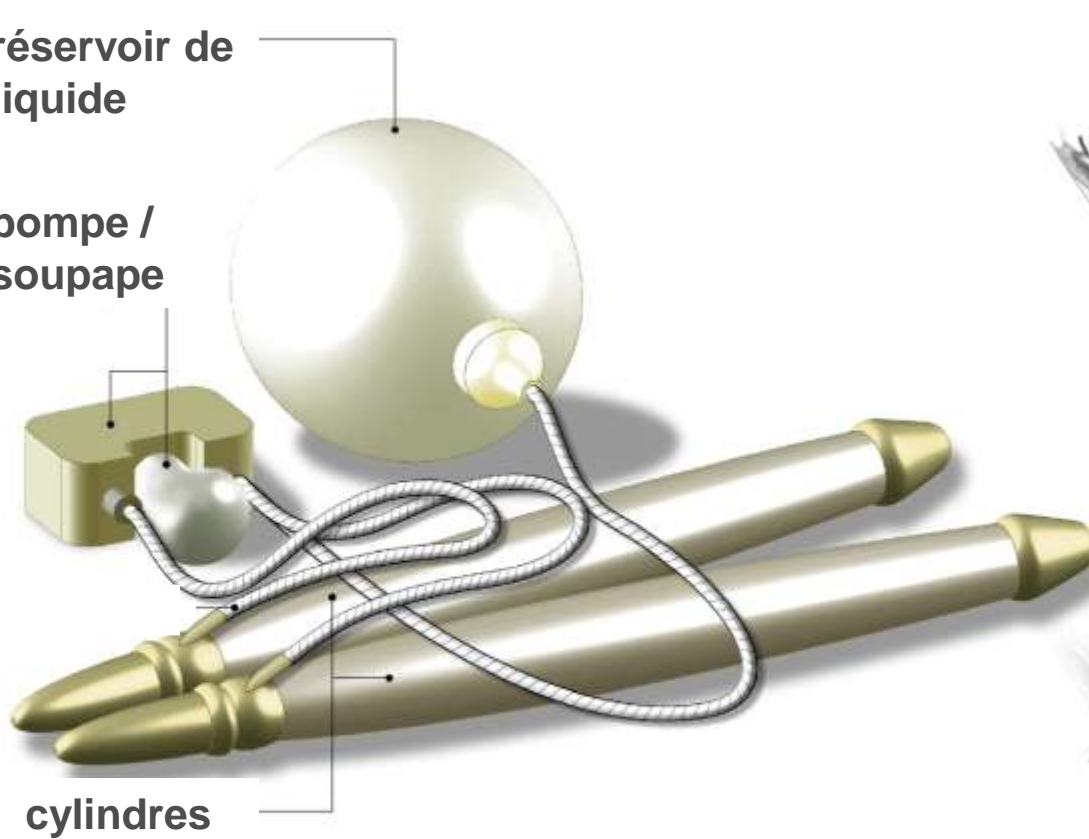


Inflatable implant (AMS 700)

réservoir de
liquide

pompe /
soupape

cylindres



What's in a man's mind



*Georges A. de Boccard, M.D.
Consultant Urologist F.E.B.U.
boccard@iprolink.ch
February 19th, 2009*