UNIVERSITÀ DEGLI STUDI DI BRESCIA

DIPARTIMENTO DI SCIENZE CLINICHE E SPERIMENTALI
ENDOCRINOLOGIA

Sessualità:
stress e ormoni per invecchiare bene

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siams
Società Italiana di Andrologia e Medicina della Sessualità

www.siams.info

La salute sessuale

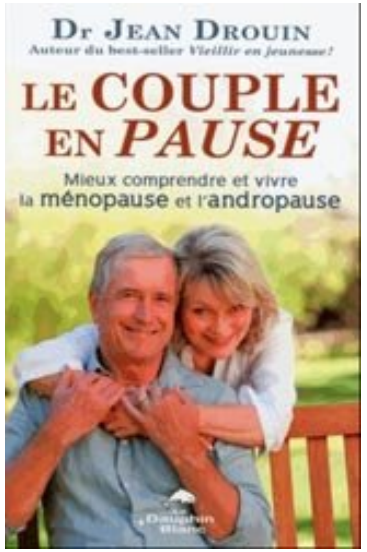
- **OMS**: la salute sessuale è uno stato di benessere fisico, emotivo, mentale e sociale che non significa solamente assenza di malattia, disfunzione o infermità, ma anche difesa e rispetto dei diritti sessuali di tutte le persone.

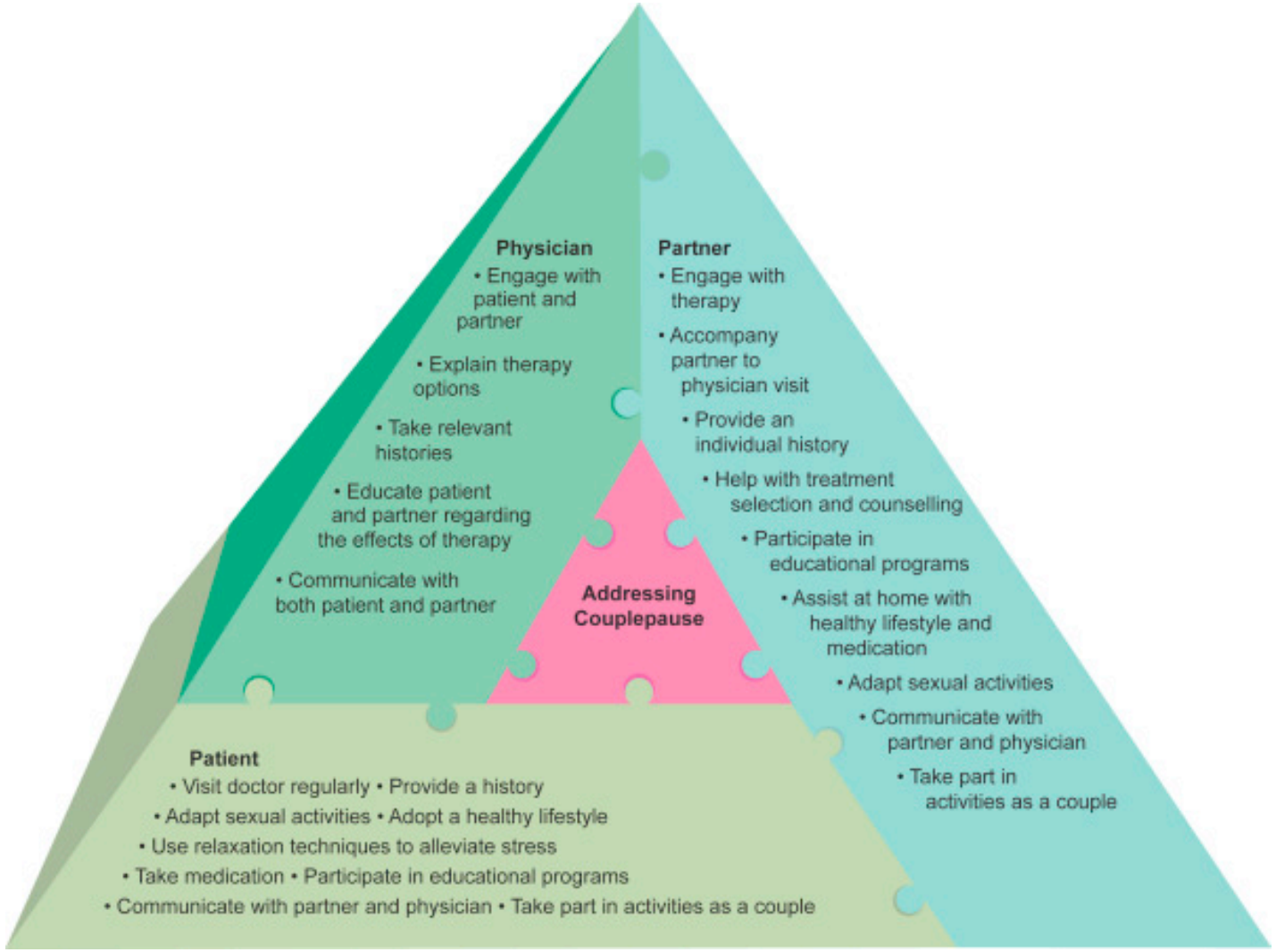
- La salute sessuale e le patologie della sessualità sono uniche in ambito medico, perché interessano non la salute del singolo individuo, ma la salute dell'entità "**coppia**".


MENOPAUSE & SEX:
How Menopause Affects Sexuality


AUGUST 18, 2014
TIME
Manopause?!
Aging, insecurity and the $2 billion testosterone industry
BY DAVID VON DREHLE
time.com

Couplepause

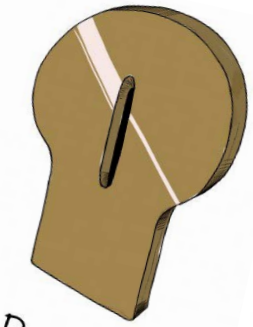





NON MI
CARICA IL
VIDEOO


A COSA SERVE E COME FUNZIONA
"PRENDITI UNA PAUSA" DI FACEBOOK

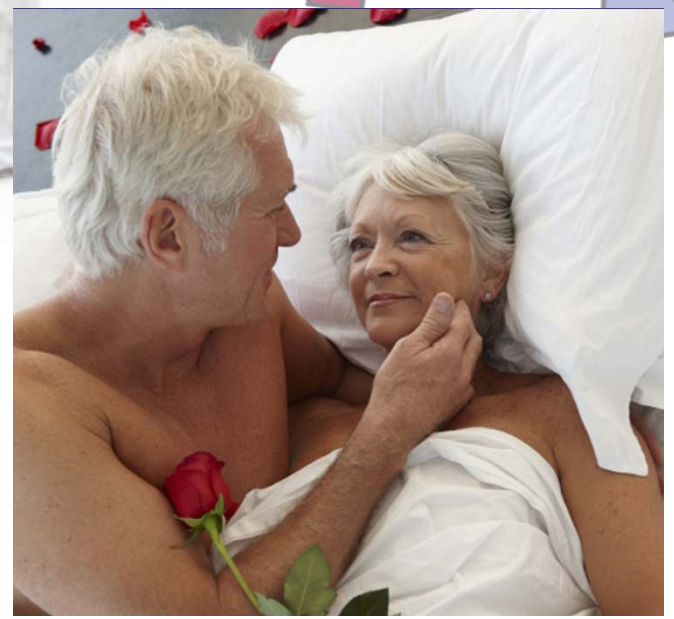
Hormones

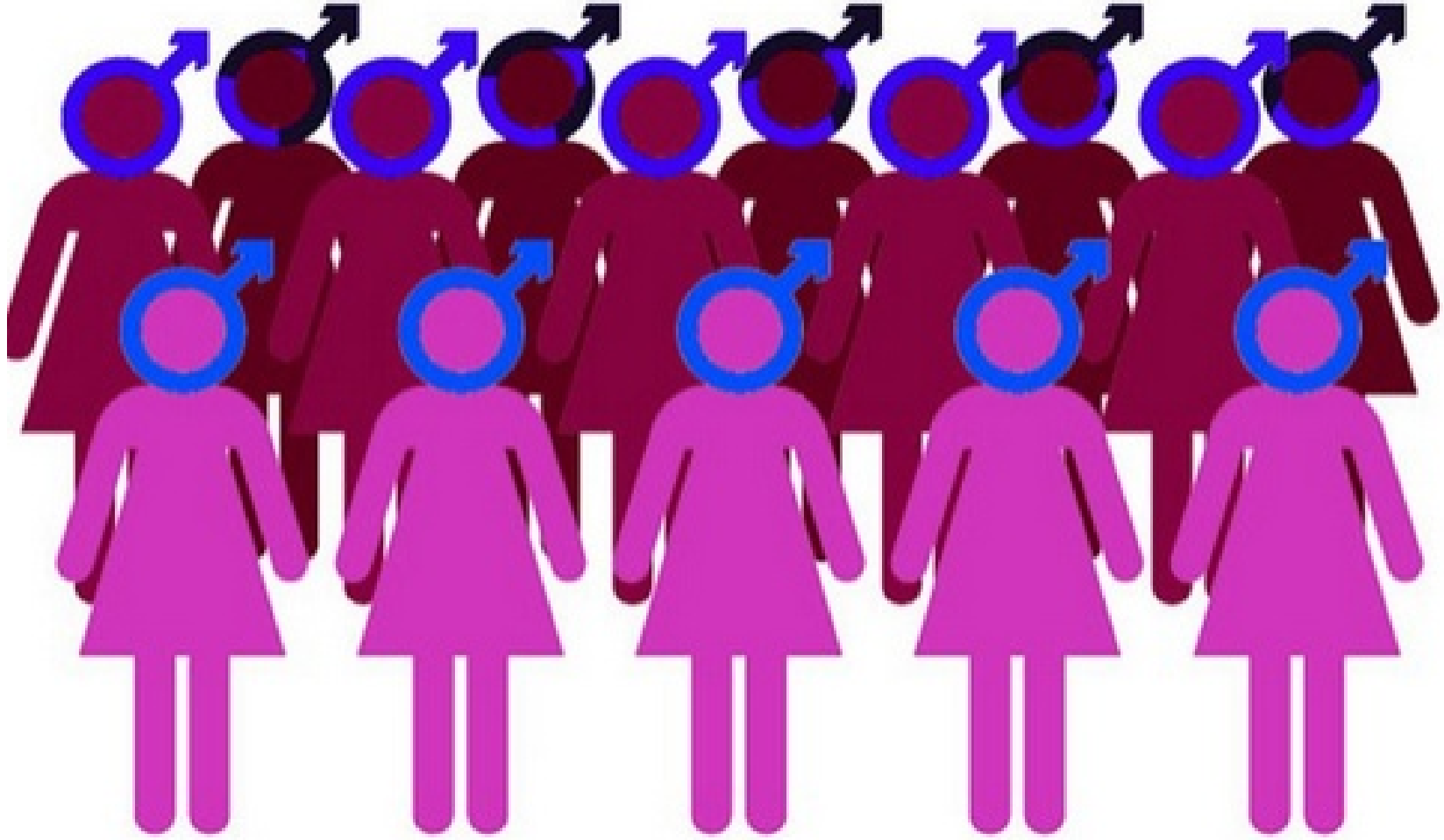


Receptors

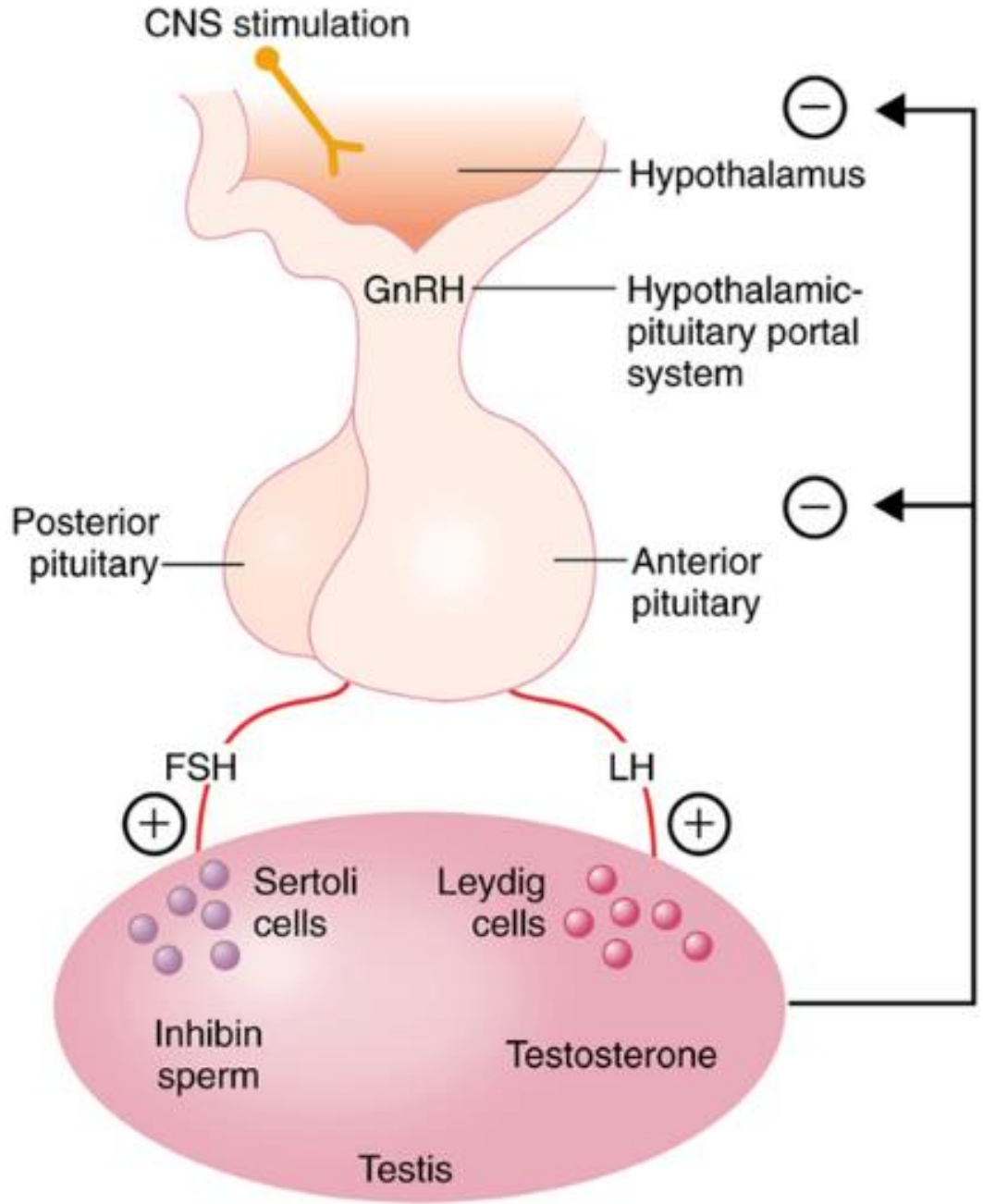
oestrogen
breasts grow, pubic hair grows, wide hips develop

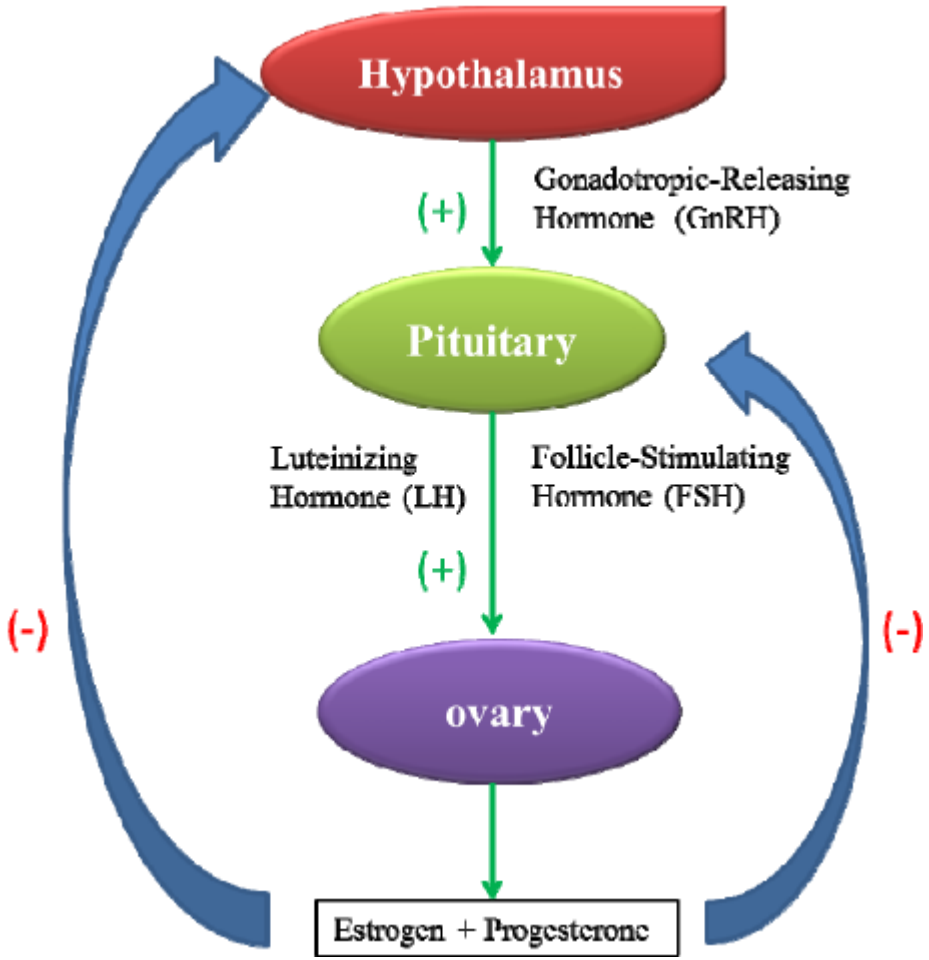
testosterone
body hair grows, voice breaks, muscle growth increases



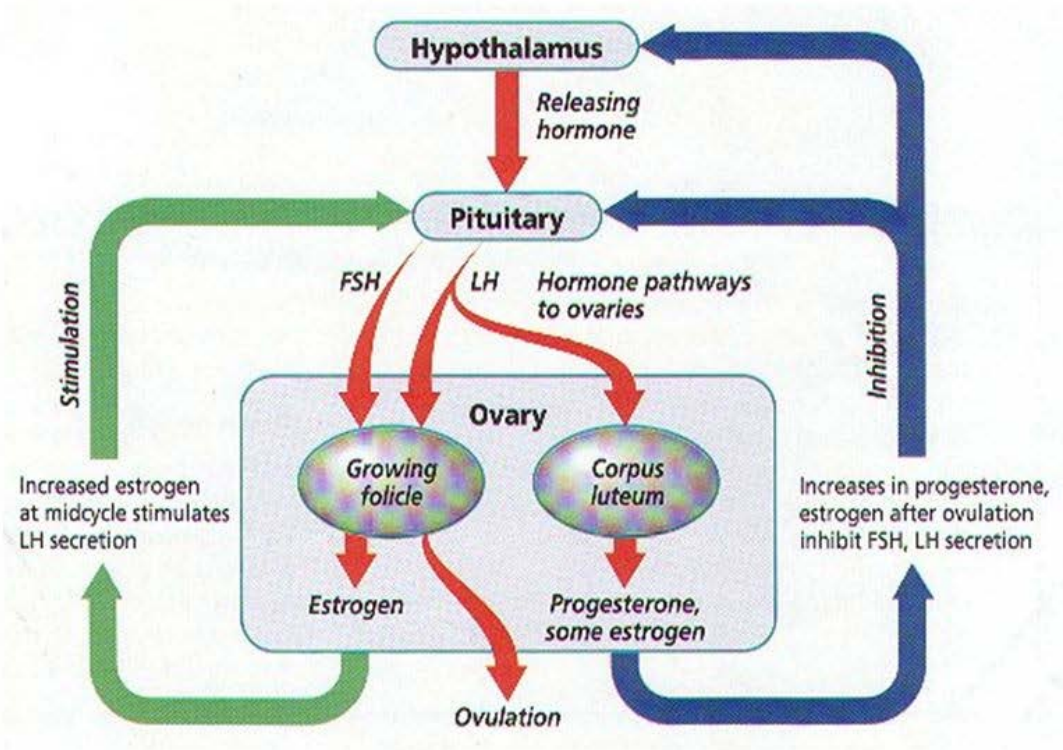


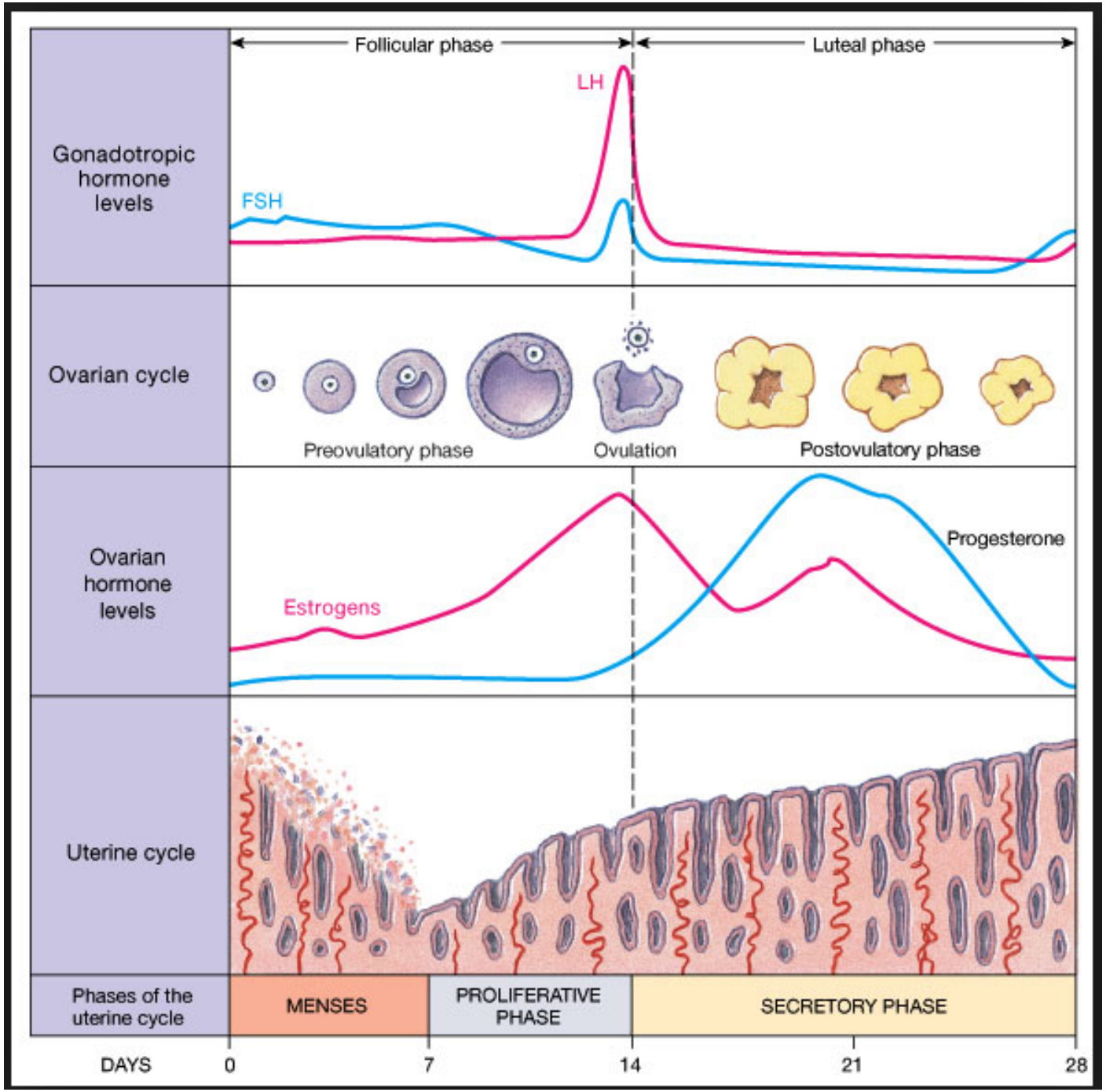
GENDER-DIFFERENCE


CNS stimulation
Hypothalamus
GnRH
Hypothalamic-pituitary portal system
Posterior pituitary
Anterior pituitary
FSH
LH
Sertoli cells
Leydig cells
Inhibin sperm
Testosterone
Testis

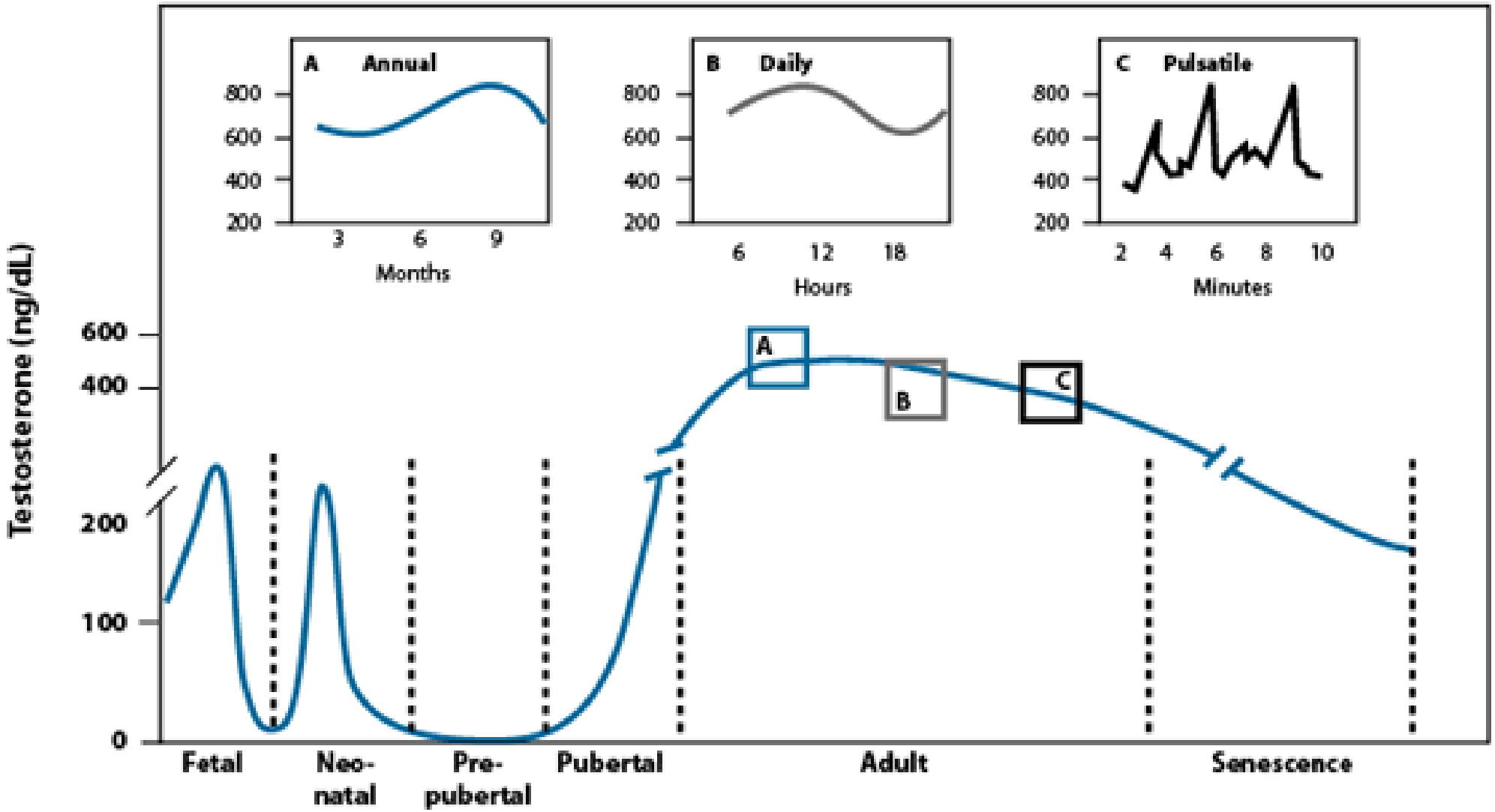


Hypothalamus Pituitary Ovary Axis



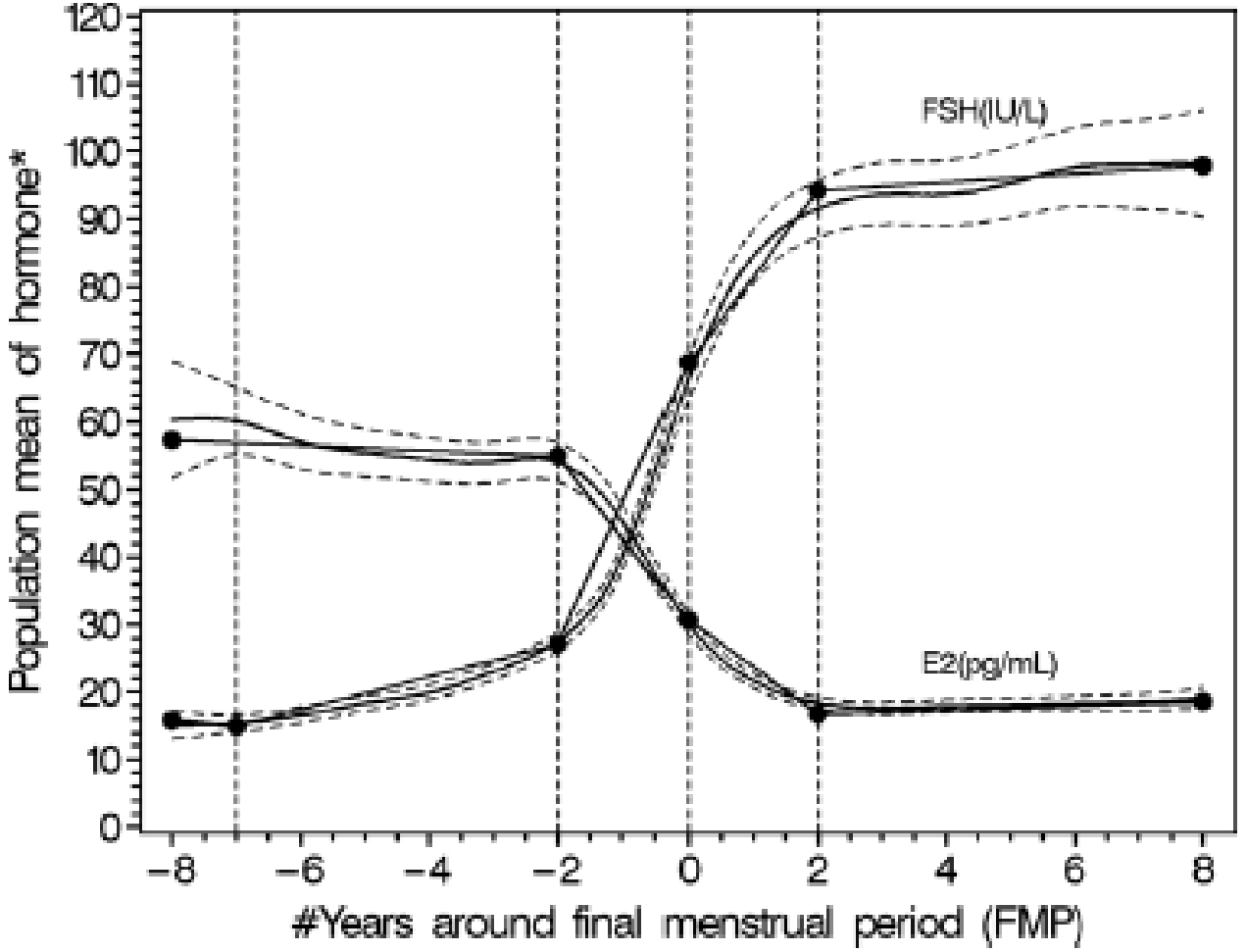

Follicular phase
Luteal phase
Gonadotropic hormone levels
LH
FSH
Ovarian cycle
Preovulatory phase
Ovulation
Postovulatory phase
Ovarian hormone levels
Progesterone
Estrogens
Uterine cycle
Phases of the uterine cycle
MENSES
PROLIFERATIVE PHASE
SECRETORY PHASE
DAYS
0
7
14
21
28

Andamento del testosterone

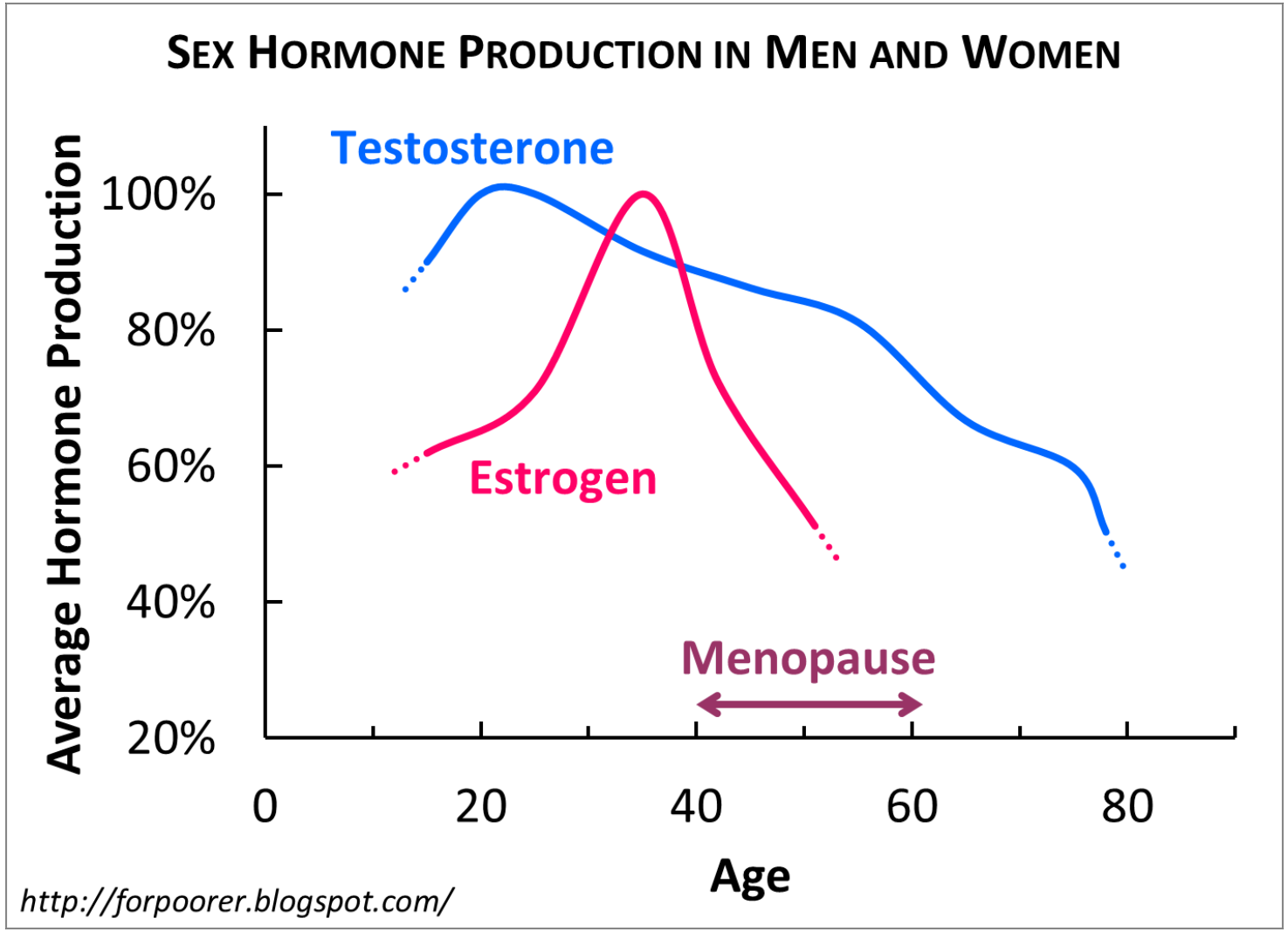


Early postmenopause stage

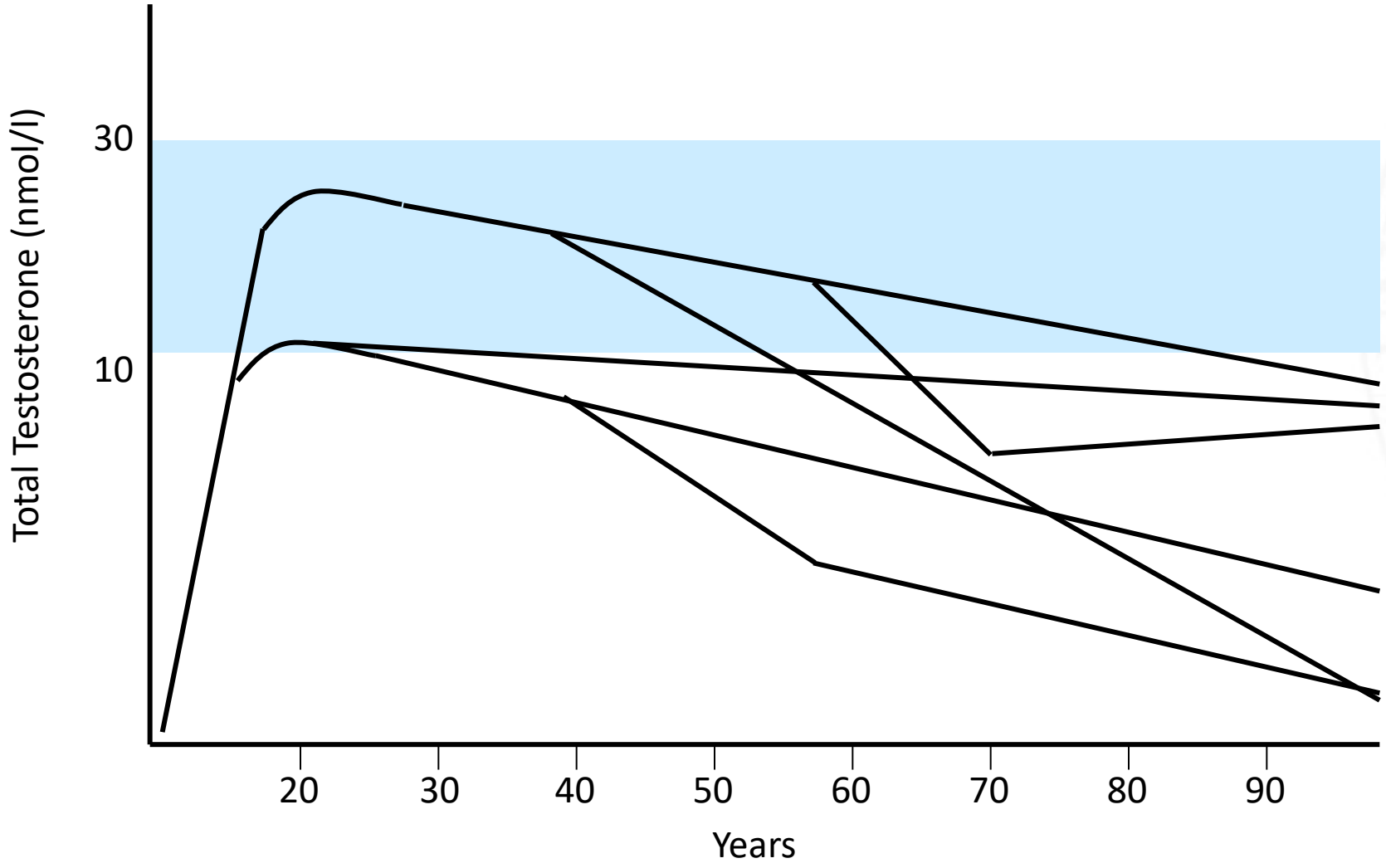
begins with final menstrual period (FMP); it is subdivided in 3 substages according to FSH and duration of amenorrhea



Sex hormones in males and females

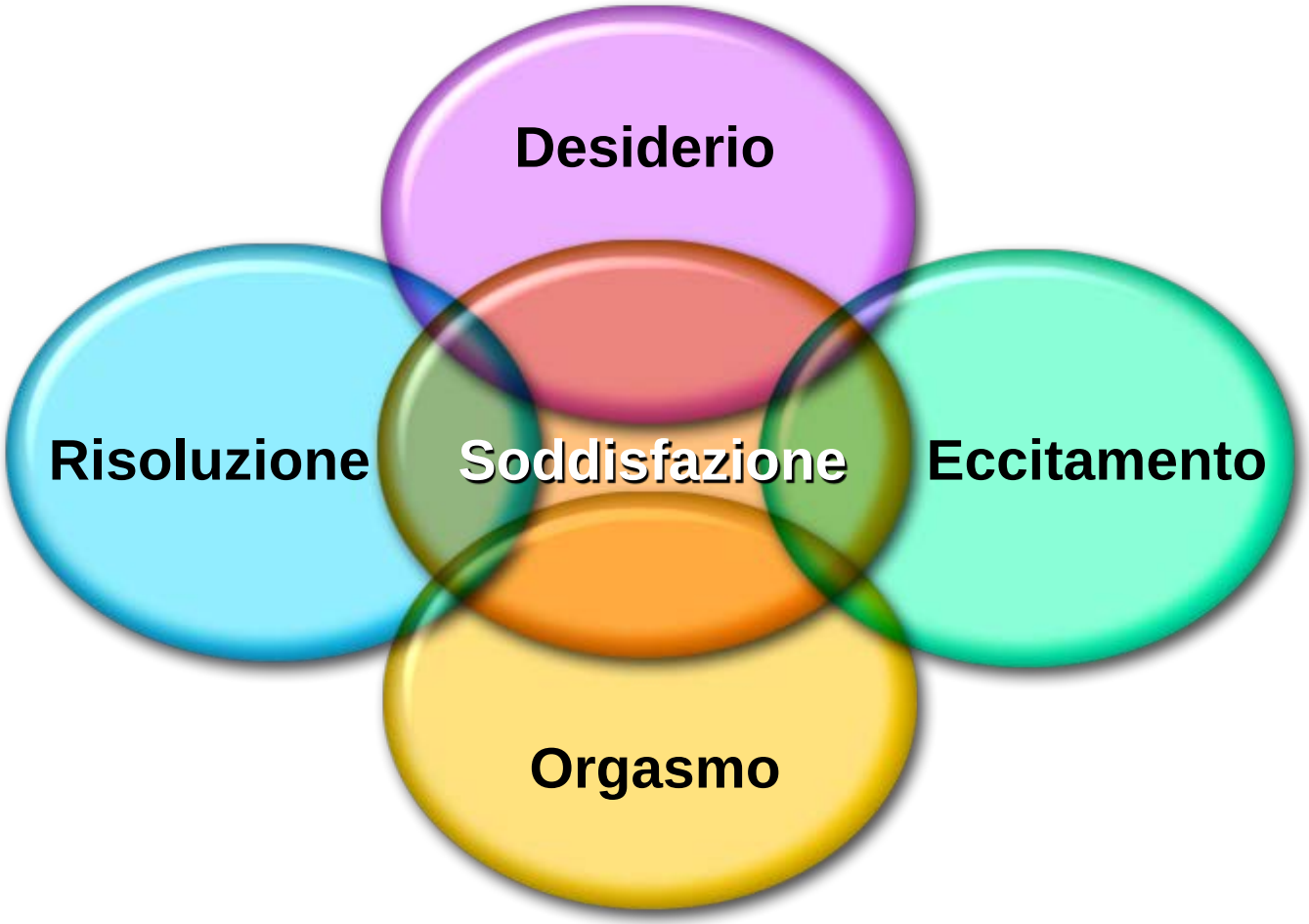


Non è sempre lineare…

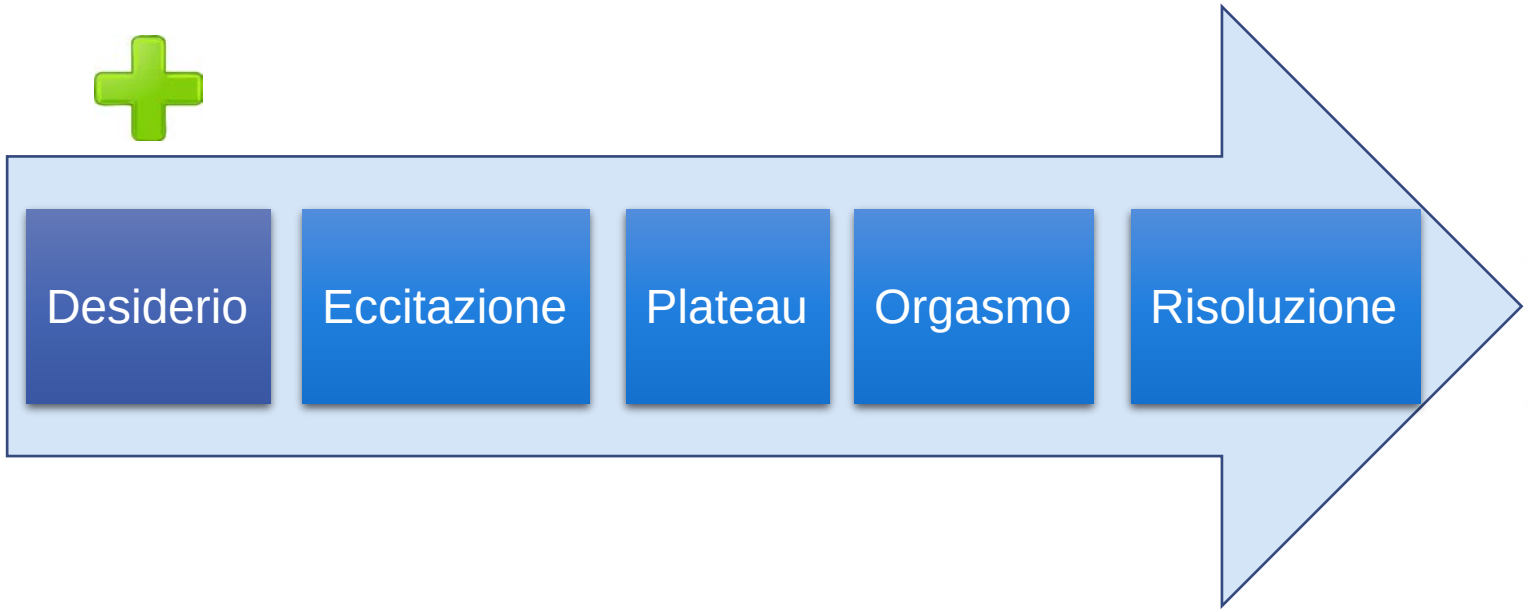


Modello circolare della funzione sessuale

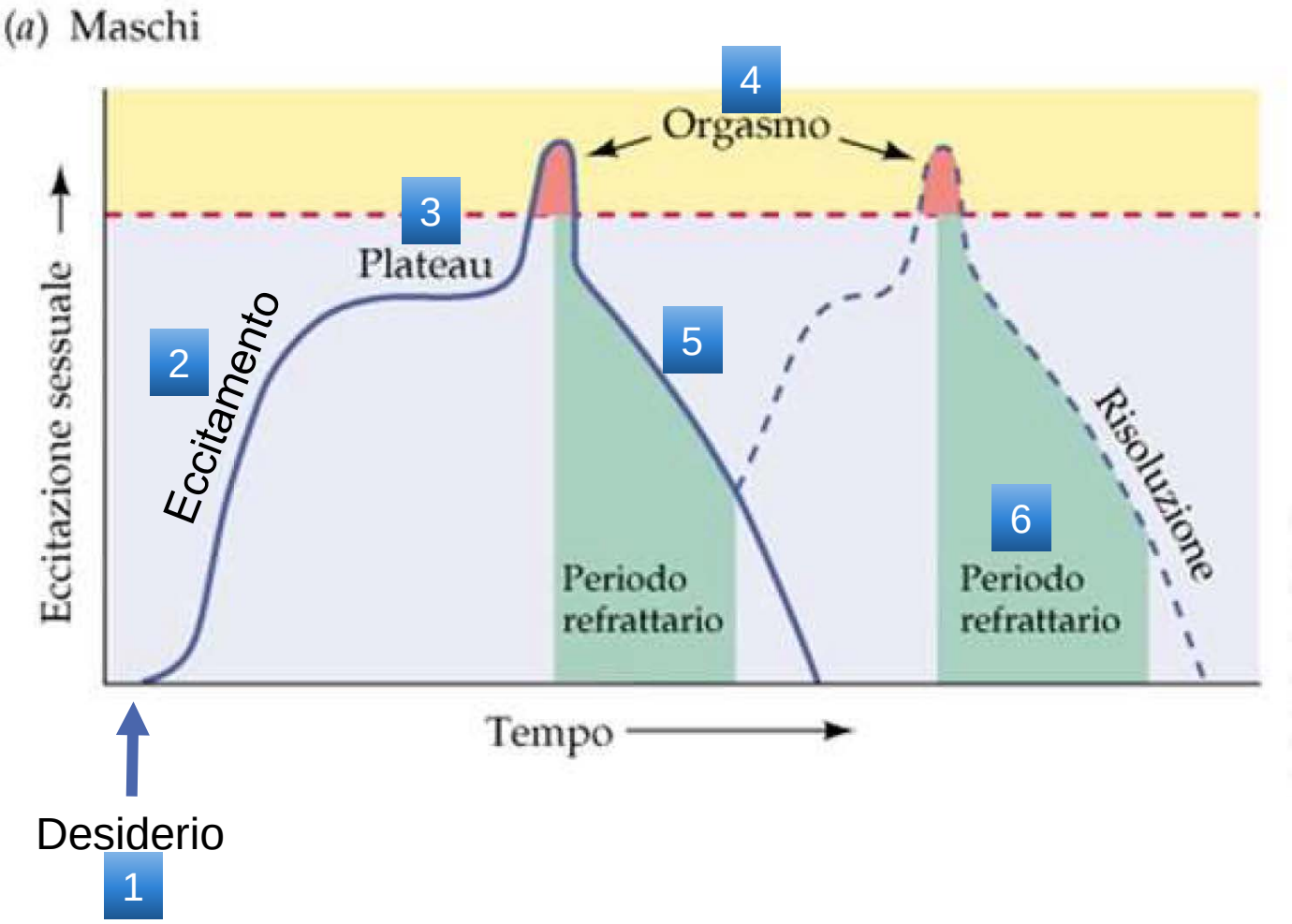
Le componenti della salute sessuale



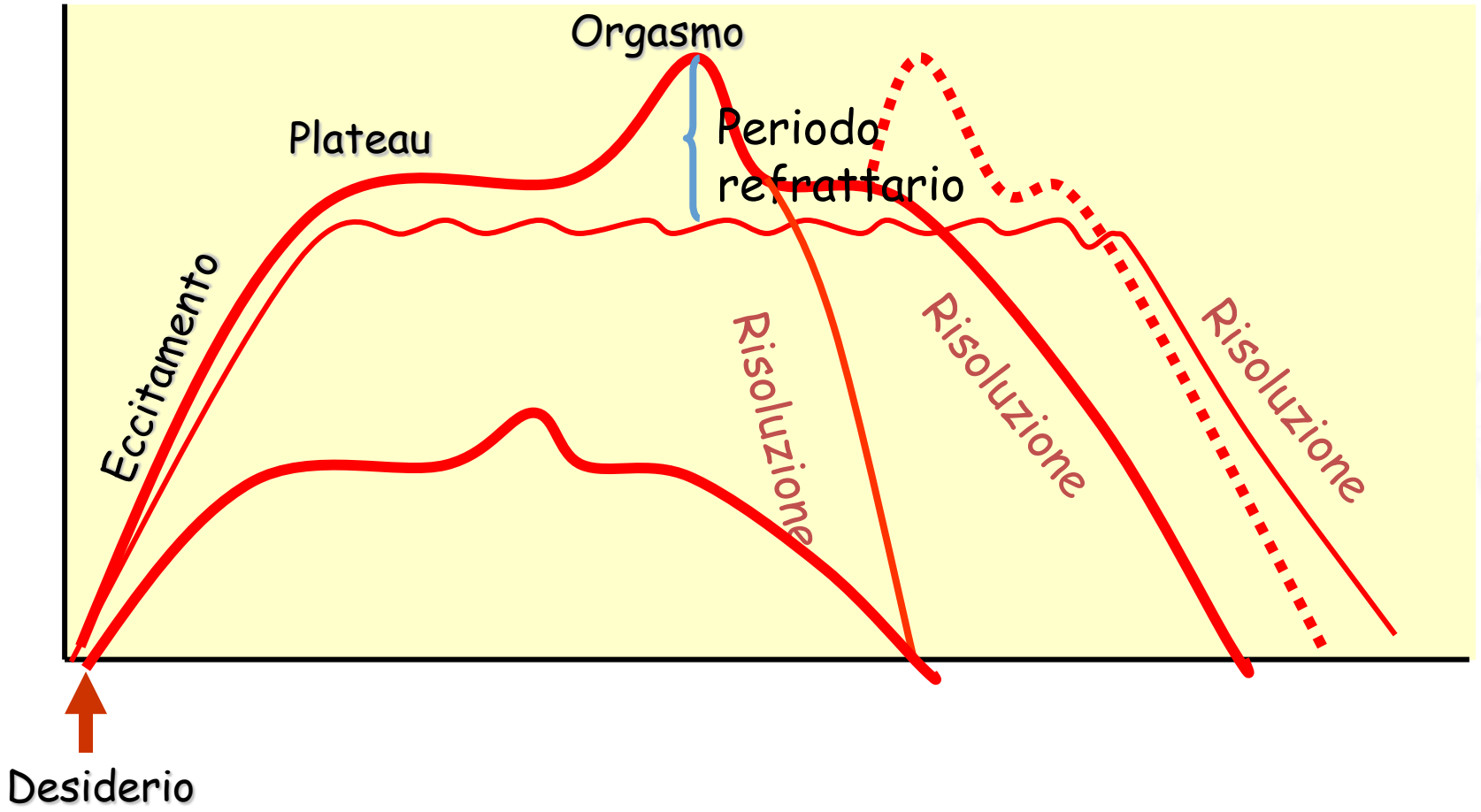
La risposta sessuale



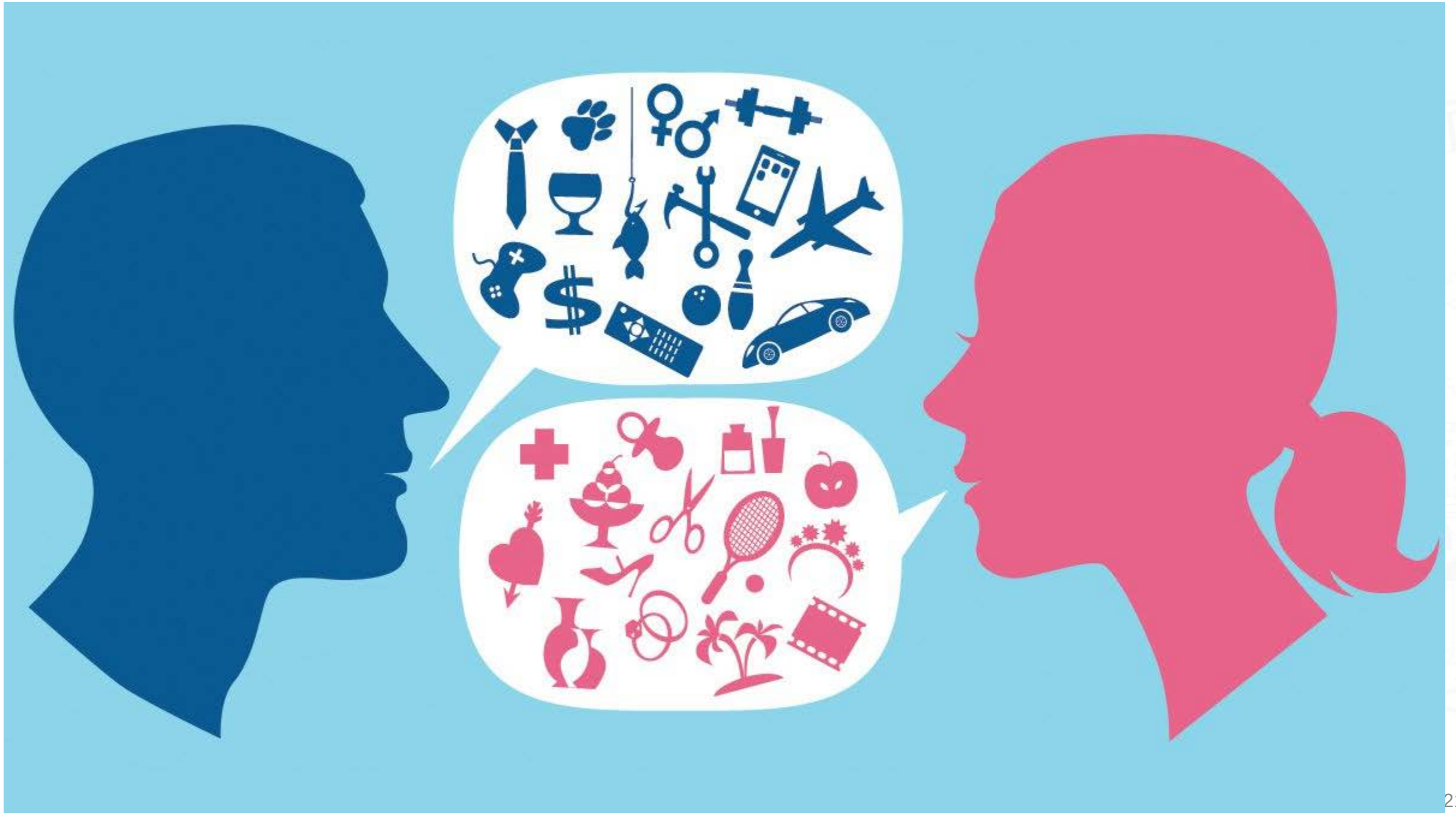
Il ciclo della risposta sessuale

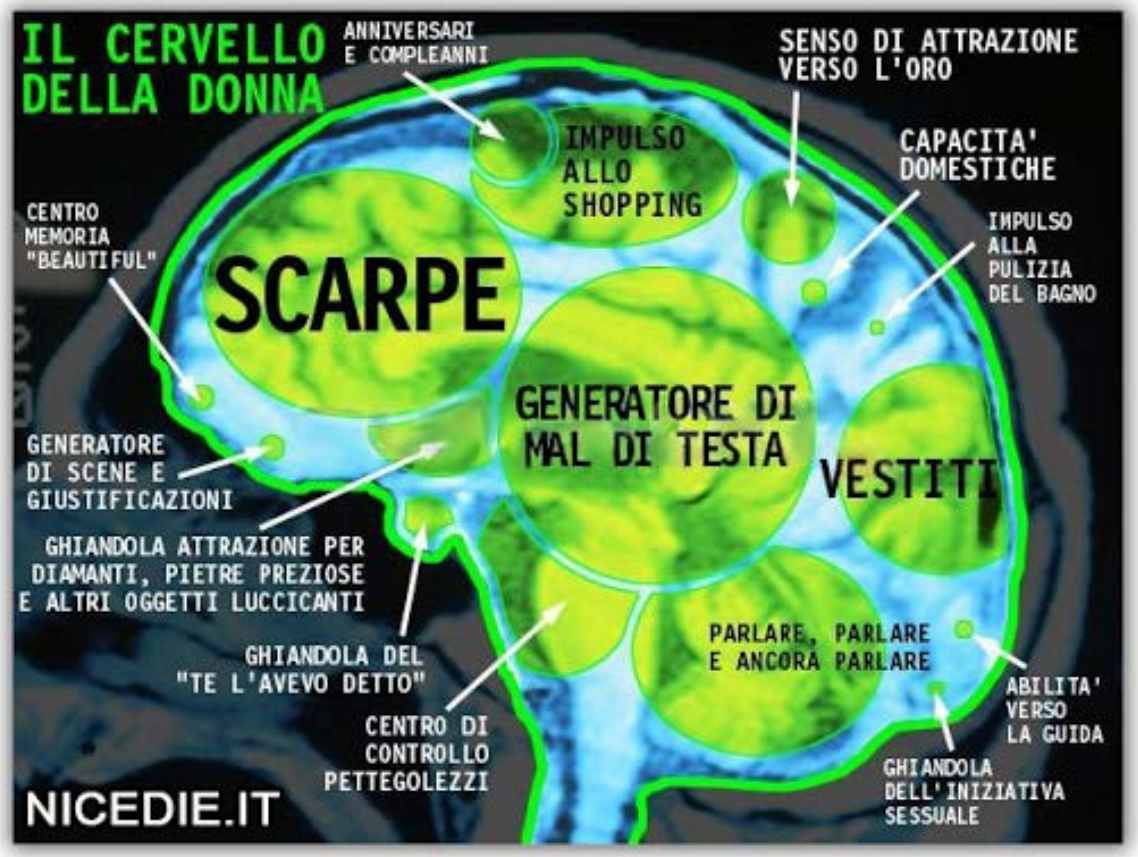


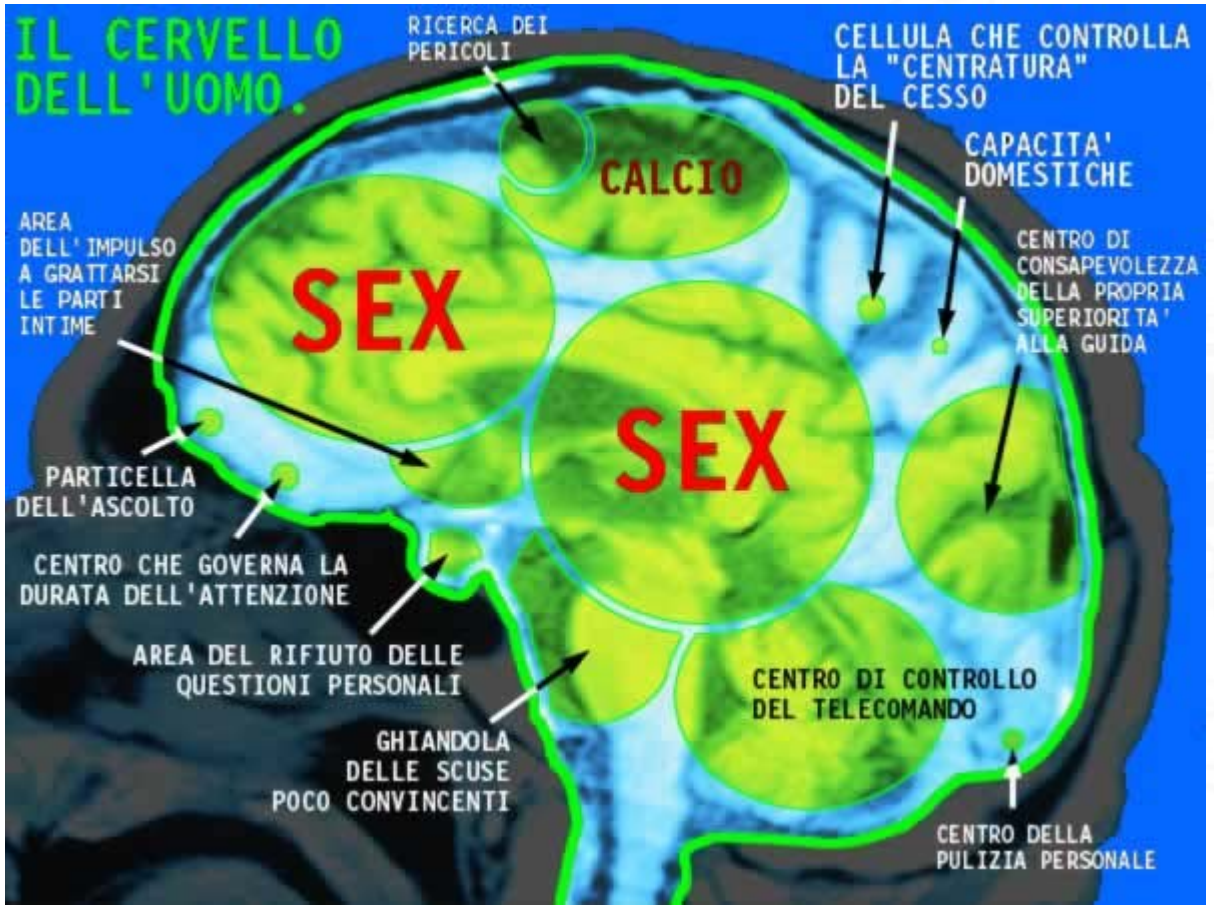
Il ciclo della risposta sessuale nella donna



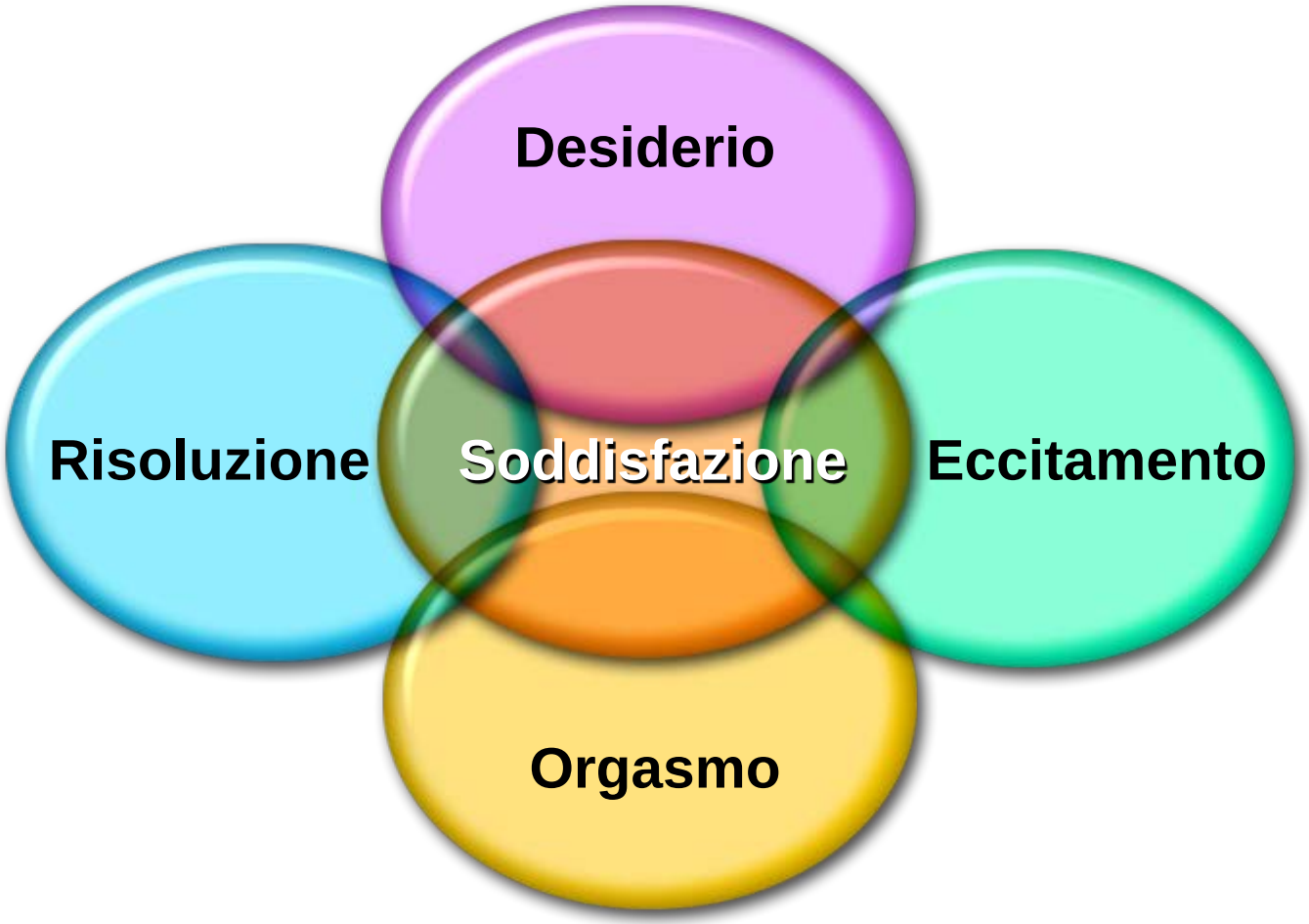
- "Mamma, che cos´è un orgasmo?"
- "Che ne so...chiedilo a tuo padre!".



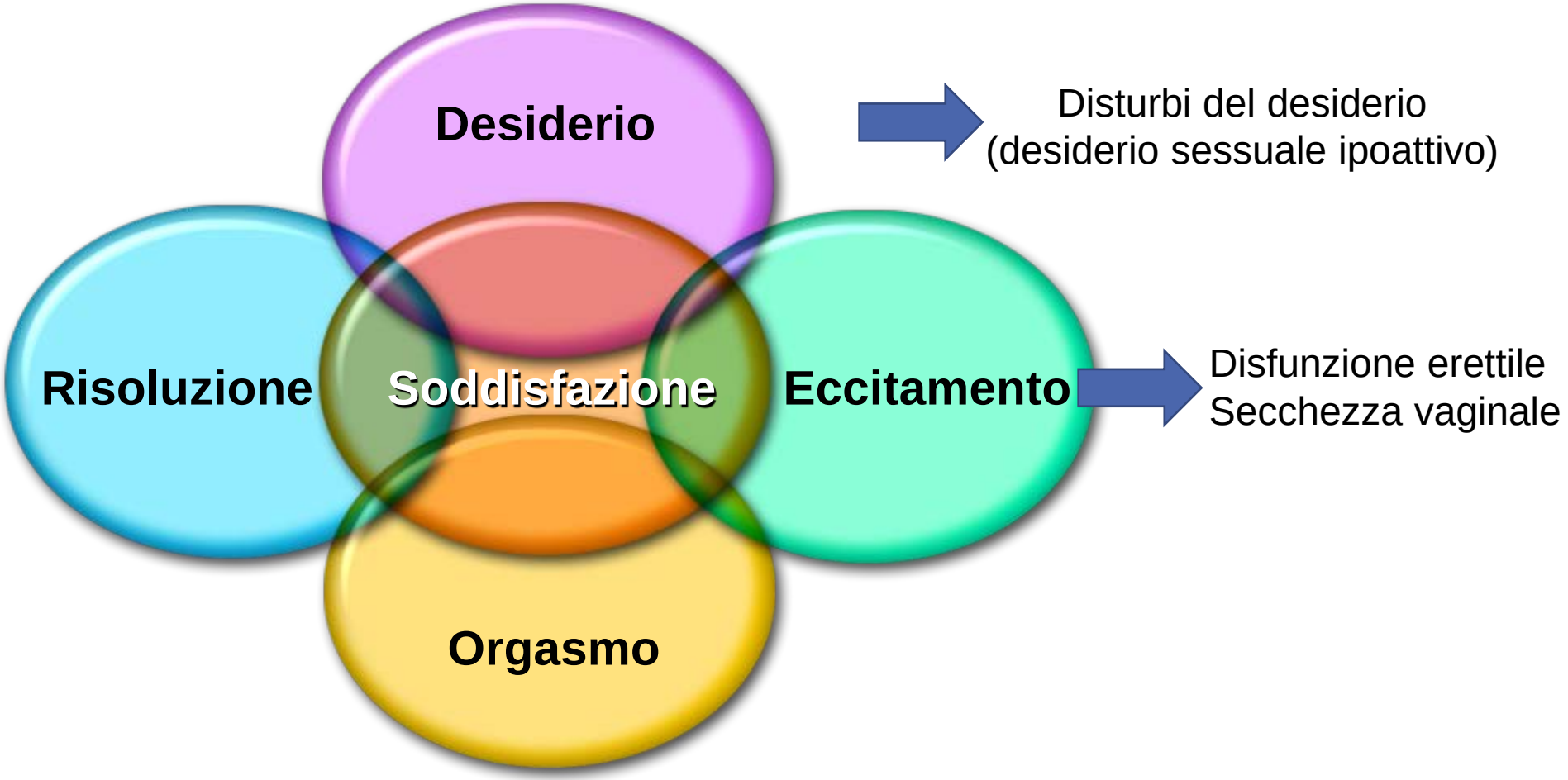

IL CERVELLO DELLA DONNA
ANNIVERSARI E COMPLEANNI
SENSO DI ATTRAZIONE VERSO L'ORO
IMPULSO ALLO SHOPPING
CAPACITA' DOMESTICHE
CENTRO MEMORIA "BEAUTIFUL"
IMPULSO ALLA PULIZIA DEL BAGNO
SCARPE
GENERATORE DI MAL DI TESTA
VESTITI
GENERATORE DI SCENE E GIUSTIFICAZIONI
GHIANDOLA ATTRAZIONE PER DIAMANTI, PIETRE PREZIOSE E ALTRI OGGETTI LUCCICANTI
PARLARE, PARLARE E ANCORA PARLARE
ABILITA' VERSO LA GUIDA
GHIANDOLA DEL "TE L'AVEVO DETTO"
CENTRO DI CONTROLLO PETTEGOLEZZI
GHIANDOLA DELL'INIZIATIVA SESSUALE
NICEDIE.IT


IL CERVELLO DELL'UOMO.
RICERCA DEI PERICOLI
CELLULA CHE CONTROLLA LA "CENTRATURA" DEL CESSO
CAPACITA' DOMESTICHE
CALCIO
AREA DELL'IMPULSO A GRATTARSI LE PARTI INTIME
SEX
SEX
CENTRO DI CONSAPEVOLEZZA DELLA PROPRIA SUPERIORITA' ALLA GUIDA
PARTICELLA DELL'ASCOLTO
CENTRO CHE GOVERNA LA DURATA DELL'ATTENZIONE
AREA DEL RIFIUTO DELLE QUESTIONI PERSONALI
CENTRO DI CONTROLLO DEL TELECOMANDO
GHIANDOLA DELLE SCUSE POCO CONVINCENTI
CENTRO DELLA PULIZIA PERSONALE

Le componenti della salute sessuale



Le disfunzioni sessuali più frequenti nella popolazione anziana

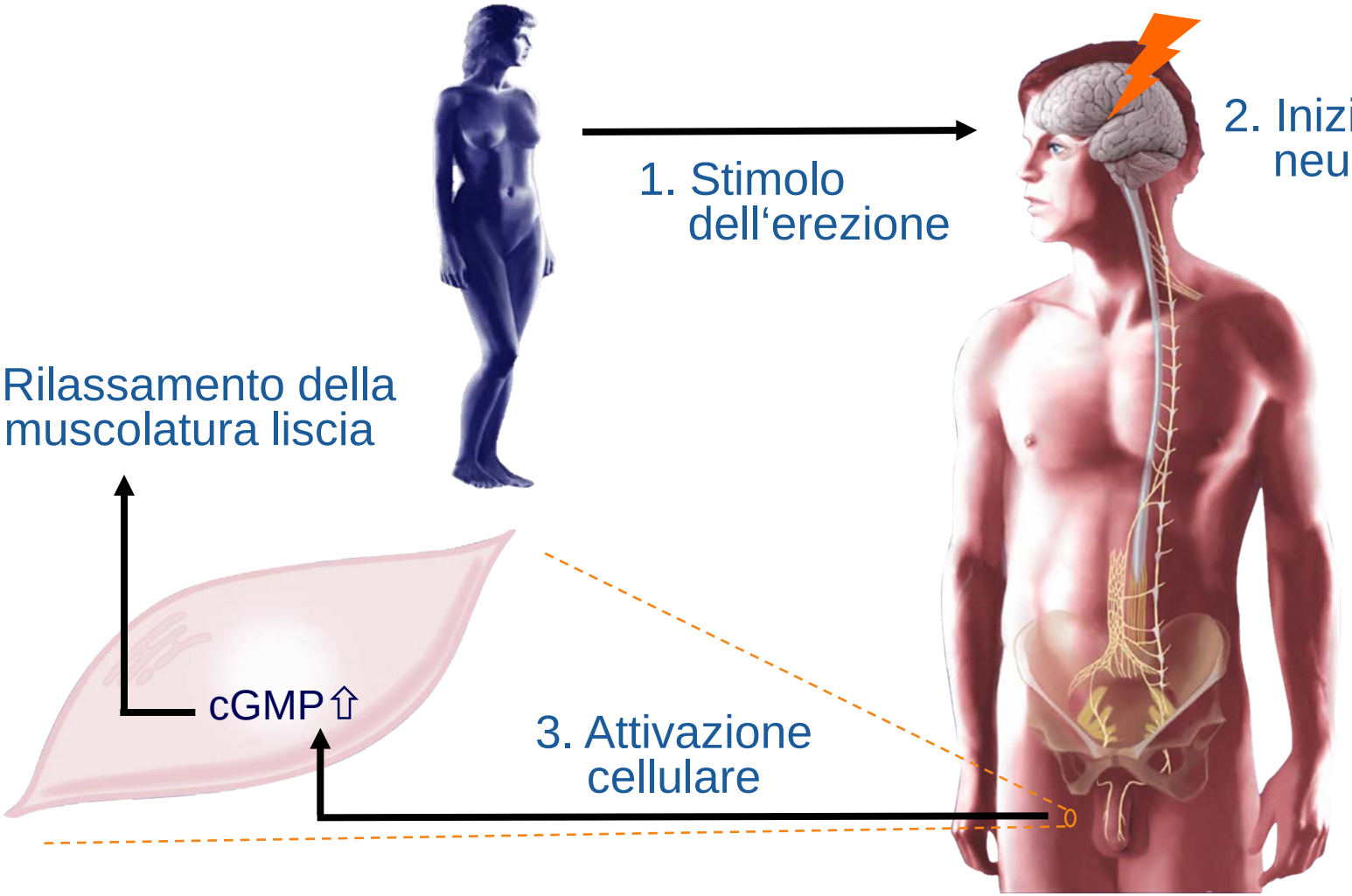


Disfunzione erettile (DE)

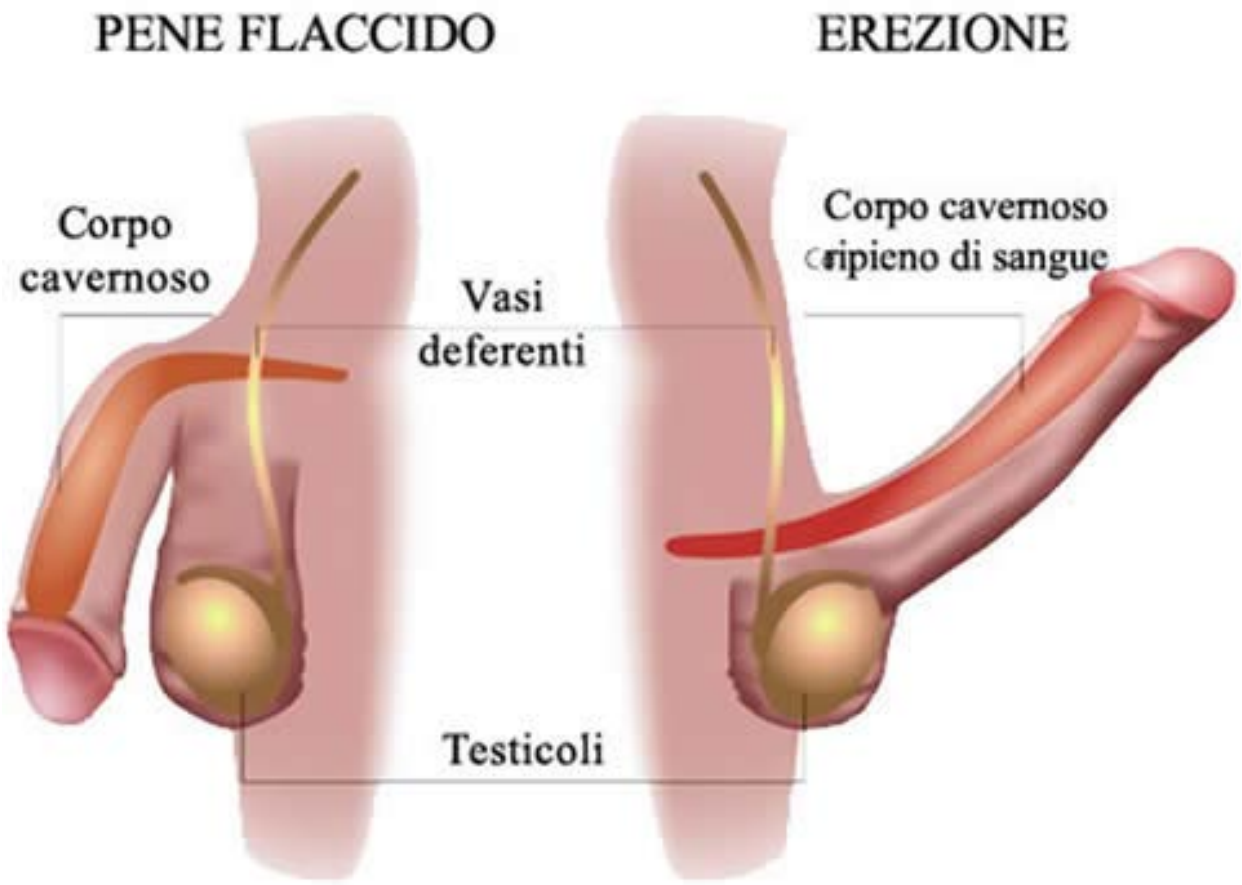
"Inabilità ad ottenere o mantenere una erezione soddisfacente per una soddisfacente attività sessuale"

DSM-IV, American Psychiatric Association, 1994
NIH Consensus Development Panel on Impotence, JAMA, 270:83, 1993

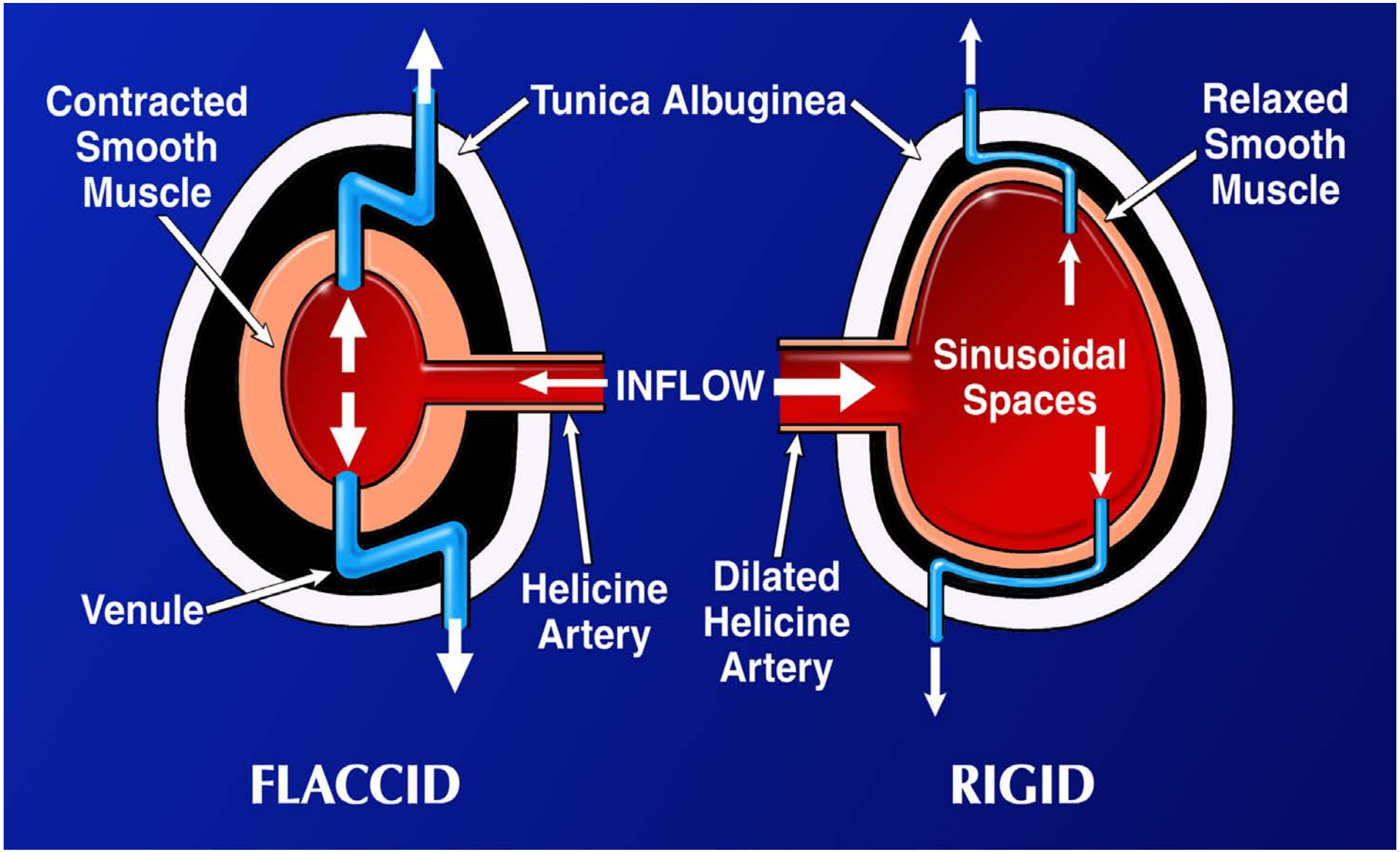
Meccanismo dell’erezione

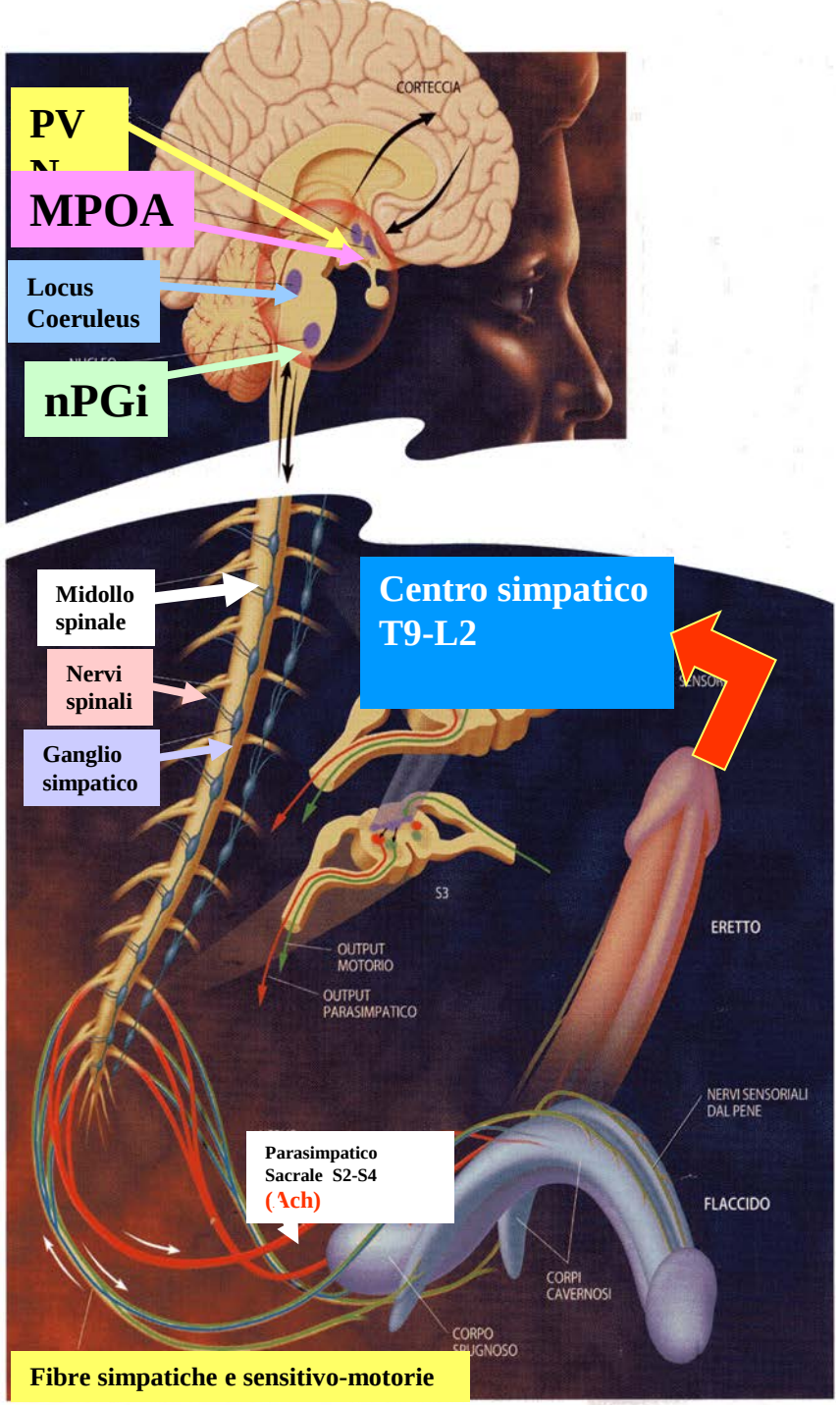


L’erezione è un processo vascolare



Diagrammma dell’ Erezione Peniena





CONTROLLO CENTRALE

CONTROLLO SPINALE

CONTROLLO LOCALE

Erection = haemodynamic phenomenon

Neurological factors

Relational factors

Vascular factors

Endocrino-logical factors

Psychological factors

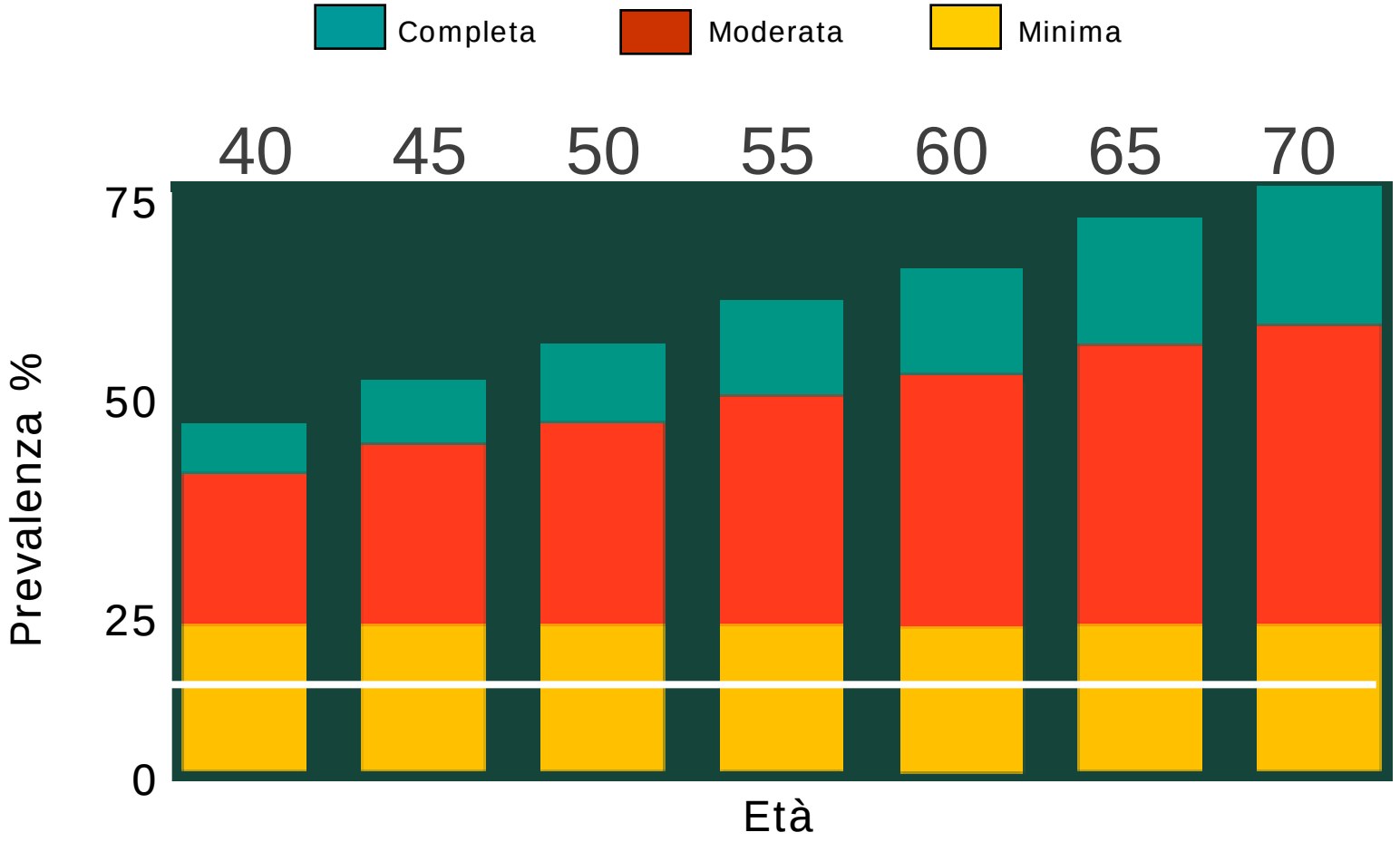
Tissue factors (corpora cavernosa)

Prevalenza della disfunzione erettile in Italia in funzione dell'età

Età	% con DE
18-29	2.1
30-39	1.9
40-49	4.8
50-59	15.7
60-69	26.8
> 70	48.3

(Parazzini et al. Eur Urol, 37,43, 2000)

Modificazione della prevalenza dei vari stadi di gravità della DE con l'età



Feldman, H.A. et al. *J of Urol* 1994; 151:54–61

DISFUNZIONE ERETTILE - CAUSE

NON ORGANICHE 20-40%

- Generalizzata 15-25%
- Situazionale 5-15%

ORGANICHE 60-80%

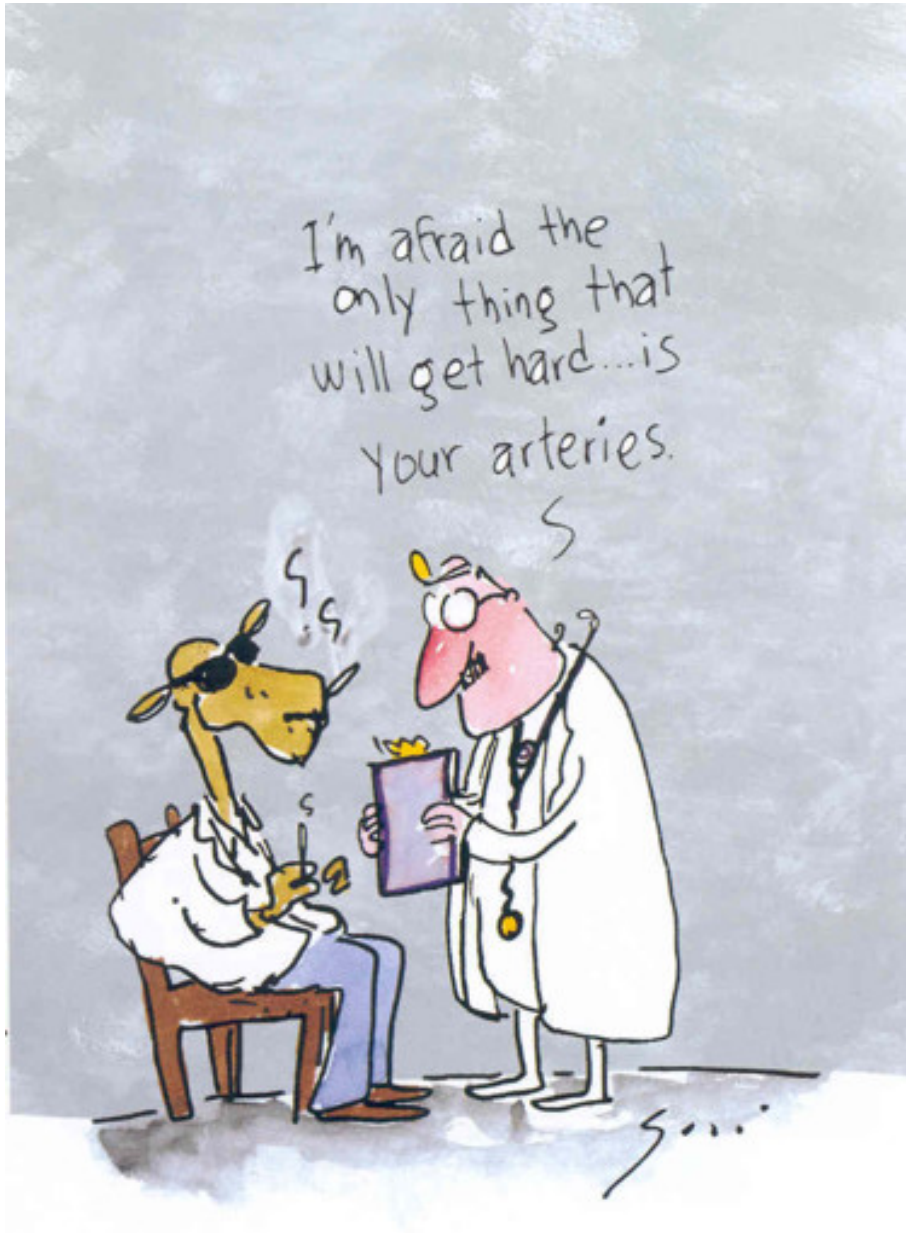
- Vascolari 30-40%
- Neurogena 3-10%
- Endocrina
  - ↓ TE 7-10%
  - ↑ PRL 2-3%
- Iatrogena 15-20%
- Altre [anatomiche (ipp, traumi penieni), m. sist. croniche, ecc.] < 3 %

Nota: vi sono anche forme MISTE, per altro frequenti (30-50%), dovute a cause organiche cui si sovrappongono cause psicogene che aggravano la DE

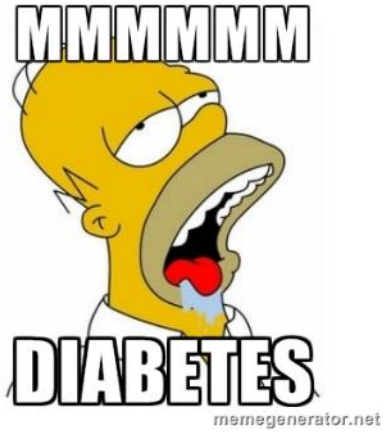
Anche nei soggetti anziani bisogna ricercare cause eziologiche della DE

Modificare stili di vita e fattori di rischio

Impotenza che fortuna!

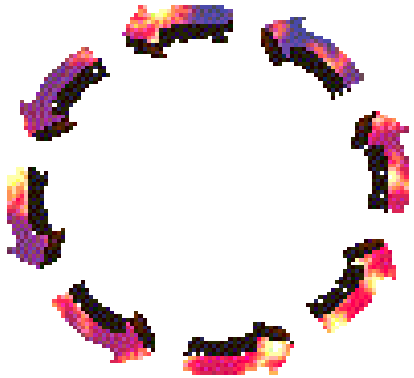


Diabete



Malattie cardiovascolari

Sindrome metabolica



Disfunzione erettile

Ipogonadismo

E l’ipogonadismo quanto conta?

Prevalence of biochemical hypogonadism (low T)

Study	Characteristics	Prevalence
BLSA (Baltimore Longitudinal Studies on Ageing, JCEM 2001)	N: 890, mean 53.8 yr (longitudinal)	TT <11 nmol/l: 20% a 60 yr 30% a 70 yr 50% a 80 yr
MMAS (Massacchusetts Male Aging Study, JCEM 2004)	N: 1667, 40-70 yr (longitudinal)	TT <6.94 nmol/l: 6%
BACHS (Boston Area Community Health Survey, JCEM 2007)	N: 1475, 30-79 yr (cross-sectional)	TT <10.4 nmol/l: 24%
EMAS (European Male Ageing Study, NEJM 2010)	N: 3219, 40-79 yr (cross-sectional)	TT <11 nmol/l: 17% TT <8 nmol/l: 4%

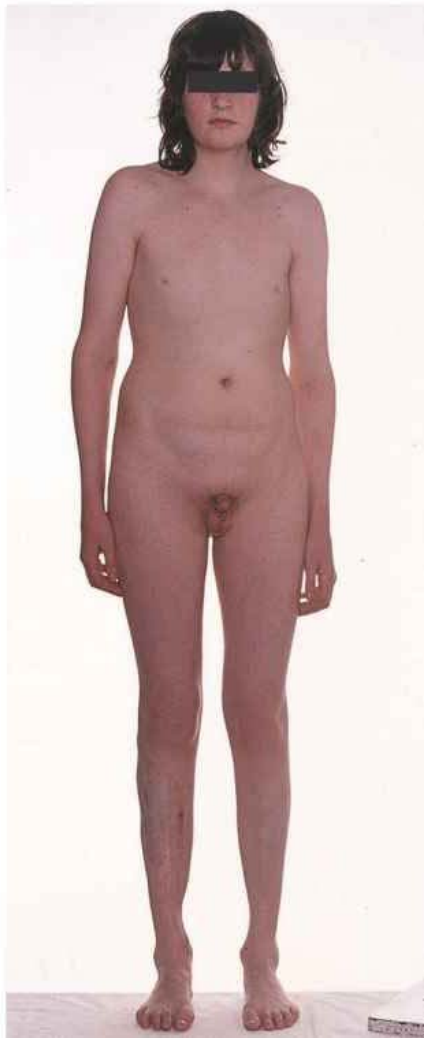
Testosterone Therapy in Men With Hypogonadism: An Endocrine Society* Clinical Practice Guideline

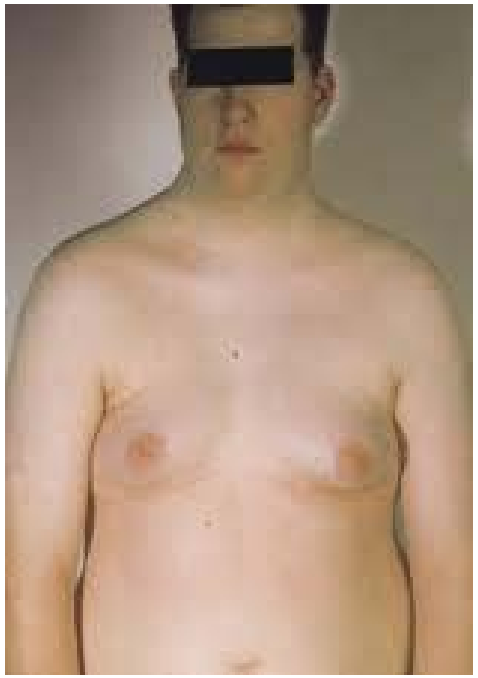
Shalender Bhasin,[1] Juan P. Brito,[2] Glenn R. Cunningham,[3] Frances J. Hayes,[4] Howard N. Hodis,[5] Alvin M. Matsumoto,[6] Peter J. Snyder,[7] Ronald S. Swerdloff,[8] Frederick C. Wu,[9] and Maria A. Yialamas[10]

J Clin Endocrinol Metab, May 2018, 103(5):1715–1744

Diagnosis of men with suspected hypogonadism

1.1 We recommend diagnosing hypogonadism in men with symptoms and signs of testosterone deficiency and unequivocally and consistently low serum total testosterone and/or free testosterone concentrations (when indicated). (1|⊕⊕⊕O)





The NEW ENGLAND JOURNAL of MEDICINE

N Engl J Med 2010;363:123-35.

ORIGINAL ARTICLE

Identification of Late-Onset Hypogonadism in Middle-Aged and Elderly Men

Frederick C.W. Wu, M.D., Abdelouahid Tajar, Ph.D., Jennifer M. Beynon, M.B., Stephen R. Pye, M.Phil., Alan J. Silman, M.D., Joseph D. Finn, B.Sc., Terence W. O'Neill, M.D., Gyorgy Bartfai, M.D., Felipe F. Casanueva, M.D., Ph.D., Gianni Forti, M.D., Aleksander Giwercman, M.D., Ph.D., Thang S. Han, M.D., Ph.D., Krzysztof Kula, M.D., Ph.D., Michael E.J. Lean, M.D., Neil Pendleton, M.D., Margus Punab, M.D., Ph.D., Steven Boonen, M.D., Ph.D., Dirk Vanderschueren, M.D., Ph.D., Fernand Labrie, M.D., Ph.D., and Ilpo T. Huhtaniemi, M.D., Ph.D., for the EMAS Group*

Late-onset hypogonadism can be defined by teh presence of at least three sexual symptoms associated with a total testosterone level of less than 11 nmol/L

Torniamo alla donna e alla menopausa…

Definition

"Menopause is a clinical diagnosis in healthy women over 45 years who have not had a period for at least 12 months and are not using hormonal contraception, or who do not have a uterus and have menopausal symptoms "

Retrospective diagnosis

Terminologia

Menarche — FMP (0)

Stage	-5	-4	-3b	-3a	-2	-1	+1 a	+1b	+1c	+2
Terminology	REPRODUCTIVE				MENOPAUSAL TRANSITION		POSTMENOPAUSE			
	Early	Peak	Late		Early	Late	Early			Late
					Perimenopause					
Duration	*variable*				*variable*	1-3 years	2 years (1+1)		3-6 years	*Remaining lifespan*
PRINCIPAL CRITERIA										
Menstrual Cycle	Variable to regular	Regular	Regular	Subtle changes in Flow/ Length	*Variable Length* Persistent ≥7- day difference in length of consecutive cycles	Interval of amenorrhea of >=60 days				
SUPPORTIVE CRITERIA										
Endocrine FSH AMH Inhibin B			Low Low	Variable Low Low	↑ Variable Low Low	↑ >25 IU/L** Low Low	↑ Variable Low Low		Stabilizes Very Low Very Low	
Antral Follicle Count			Low	Low	Low	Low	Very Low		Very Low	
DESCRIPTIVE CHARACTERISTICS										
Symptoms						Vasomotor symptoms *Likely*	Vasomotor symptoms *Most Likely*			*Increasing* symptoms of urogenital atrophy

* Blood draw on cycle days 2-5 ↑ = elevated

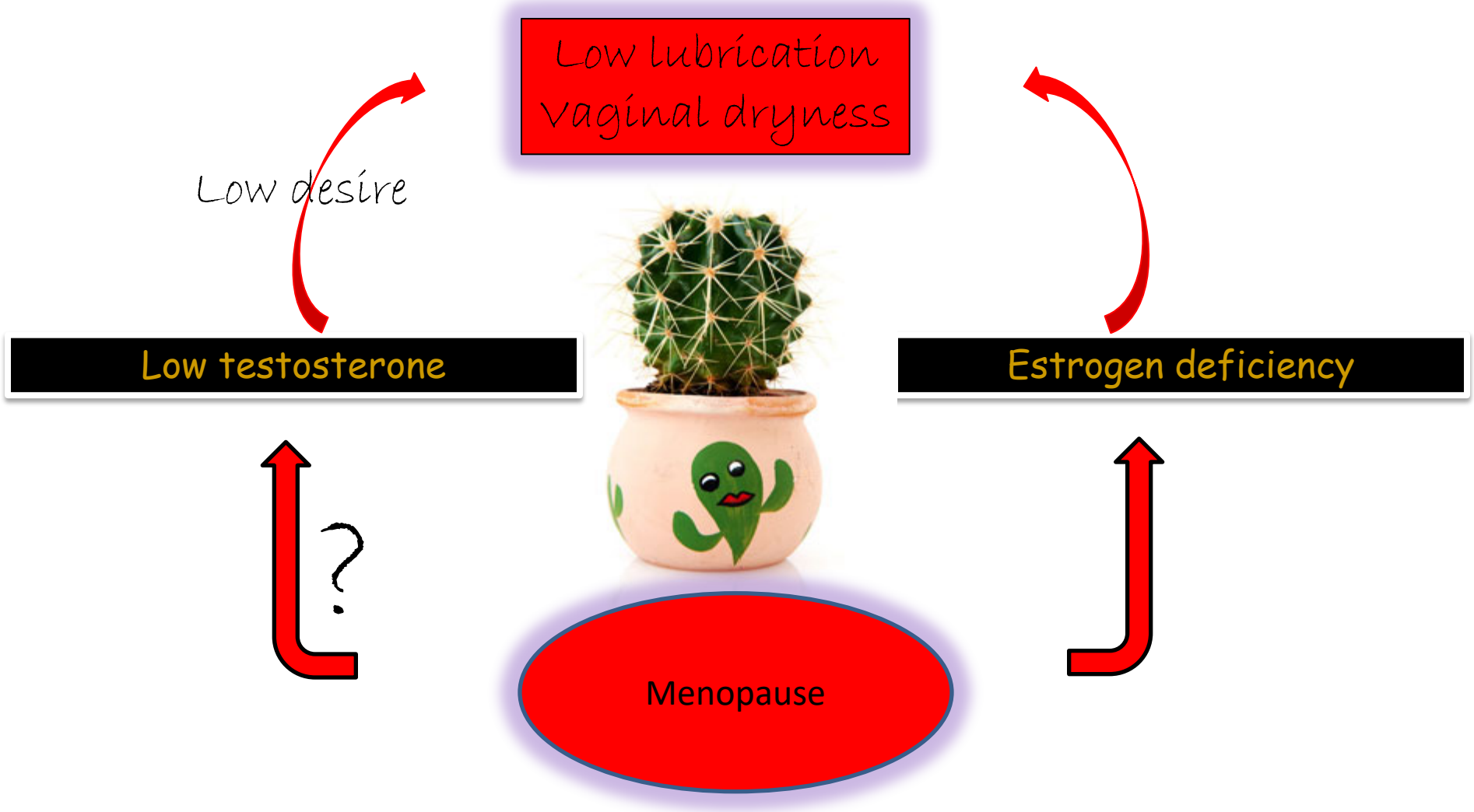
**Approximate expected level based on assays using current international pituitary standard[67-69]

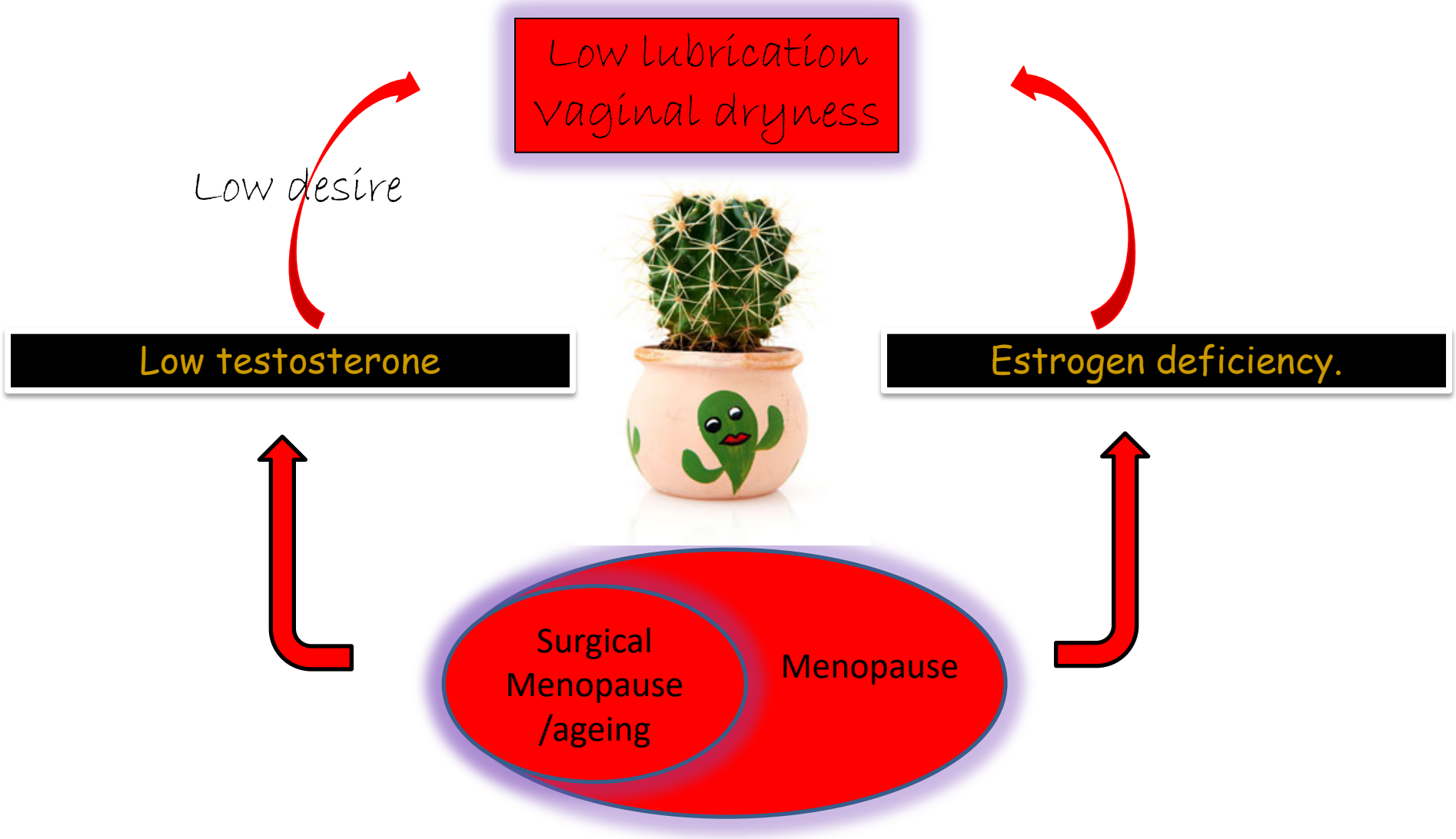
FIG. 2. The Stages of Reproductive Aging Workshop + 10 staging system for reproductive aging in women.

Low lubrication
vaginal dryness

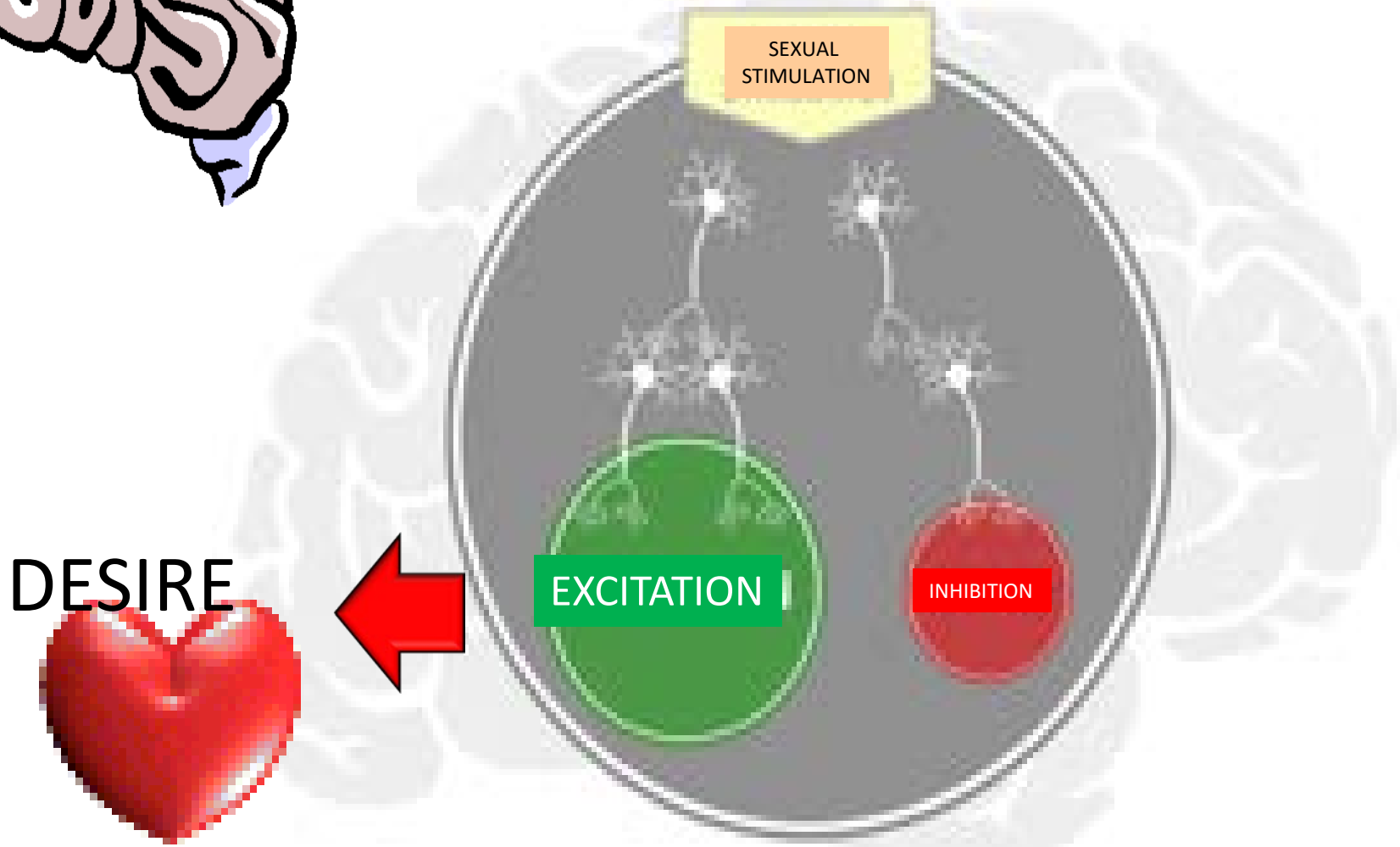
Estrogen deficiency

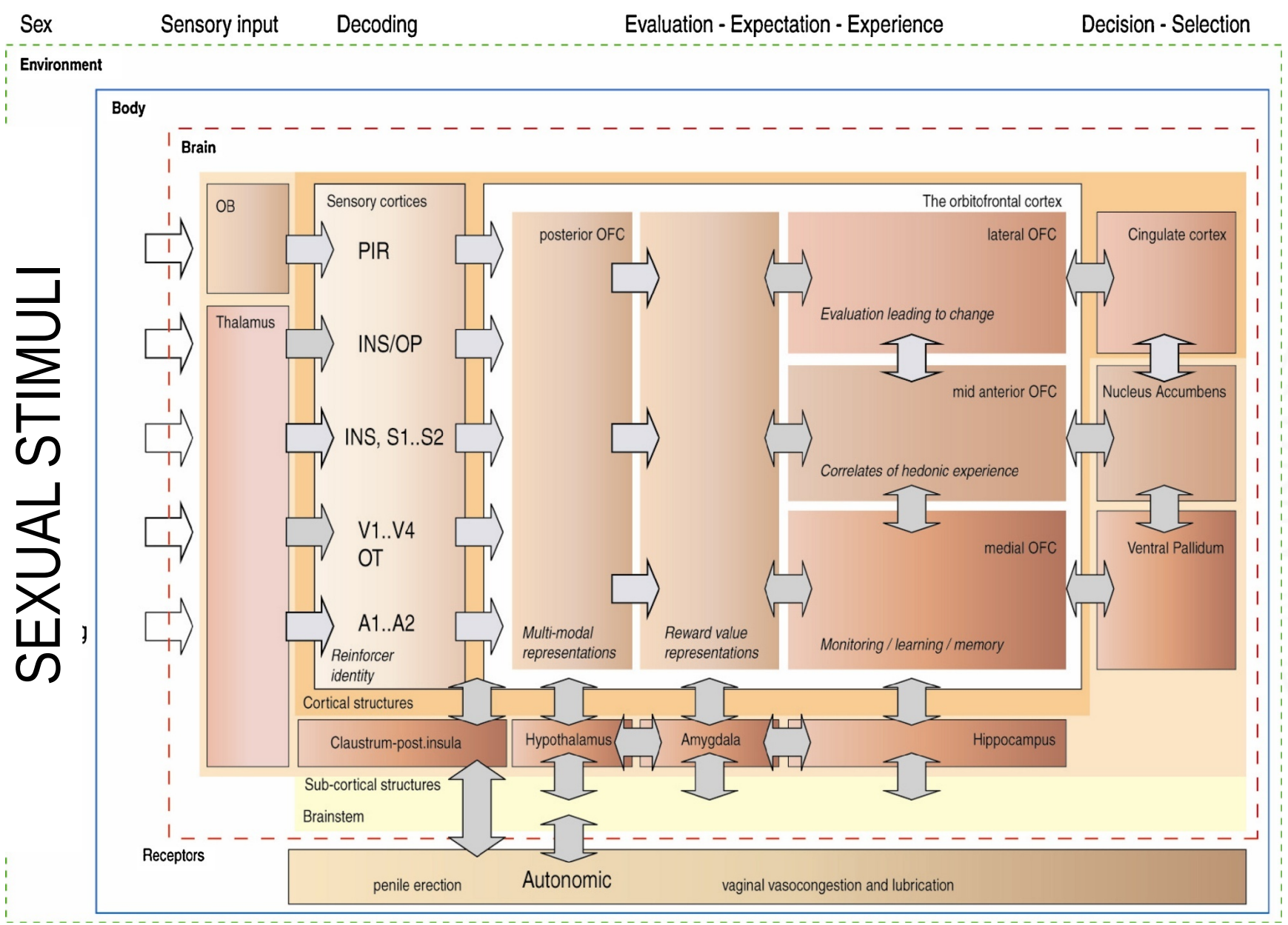
Menopause

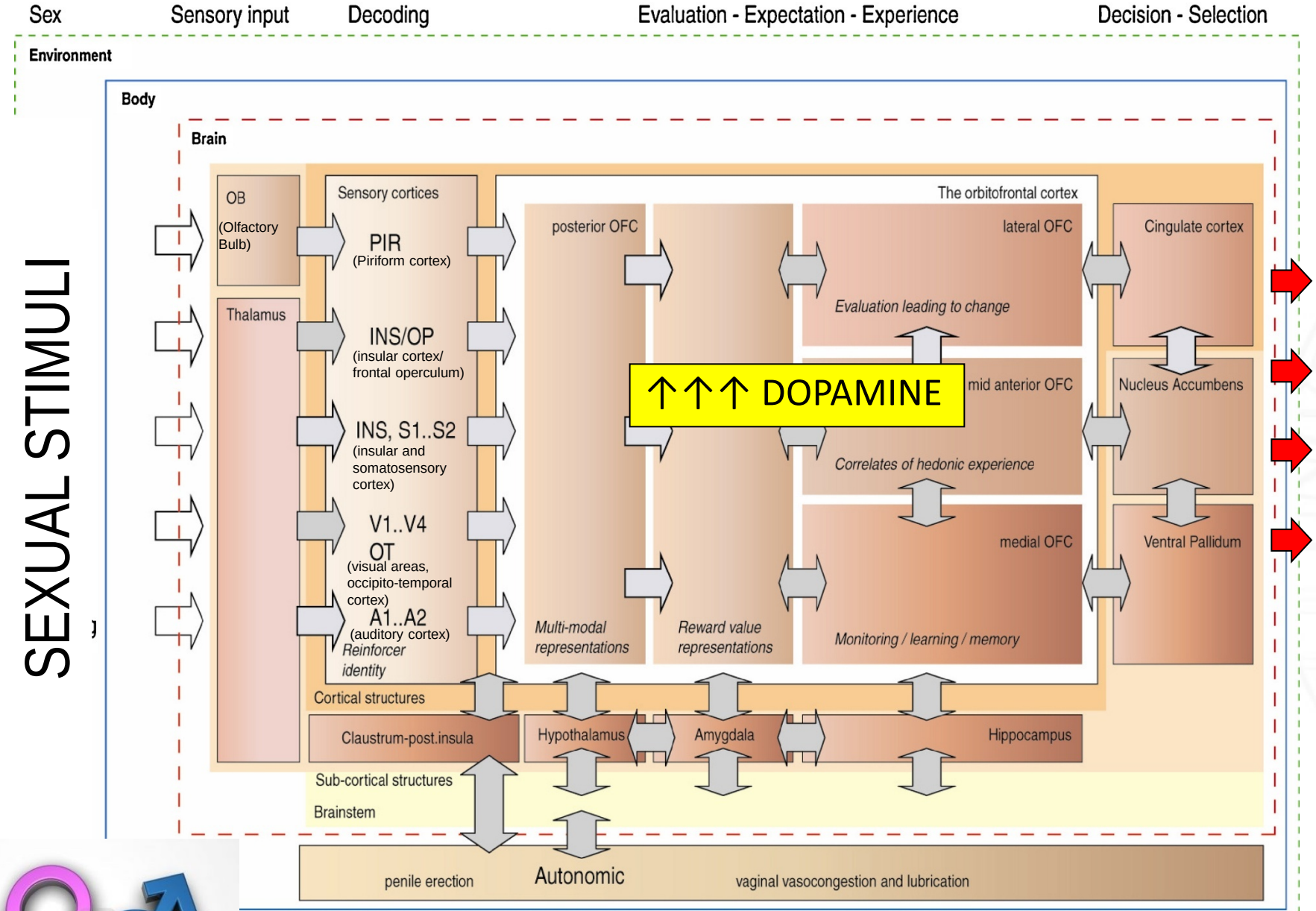

Low lubrication
vaginal dryness
Low desire
Low testosterone
Estrogen deficiency
?
Menopause


Low lubrication
vaginal dryness
Low desire
Low testosterone
Estrogen deficiency.
Surgical
Menopause
/ageing
Menopause

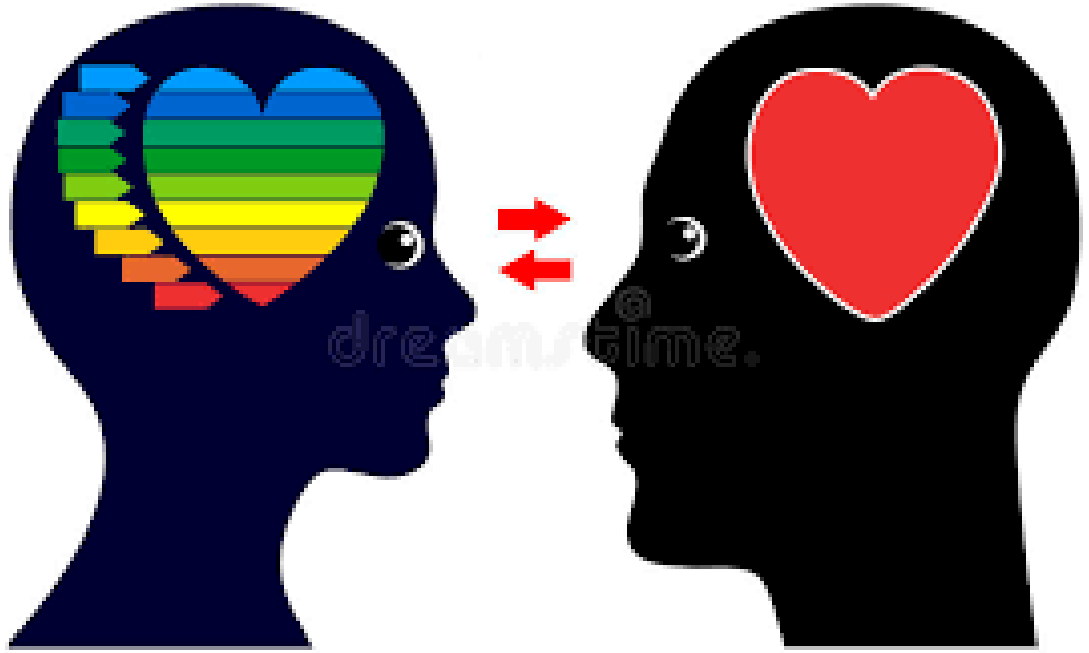
Differenze di genere nel desiderio, stimoli sessuali ed eccitamento

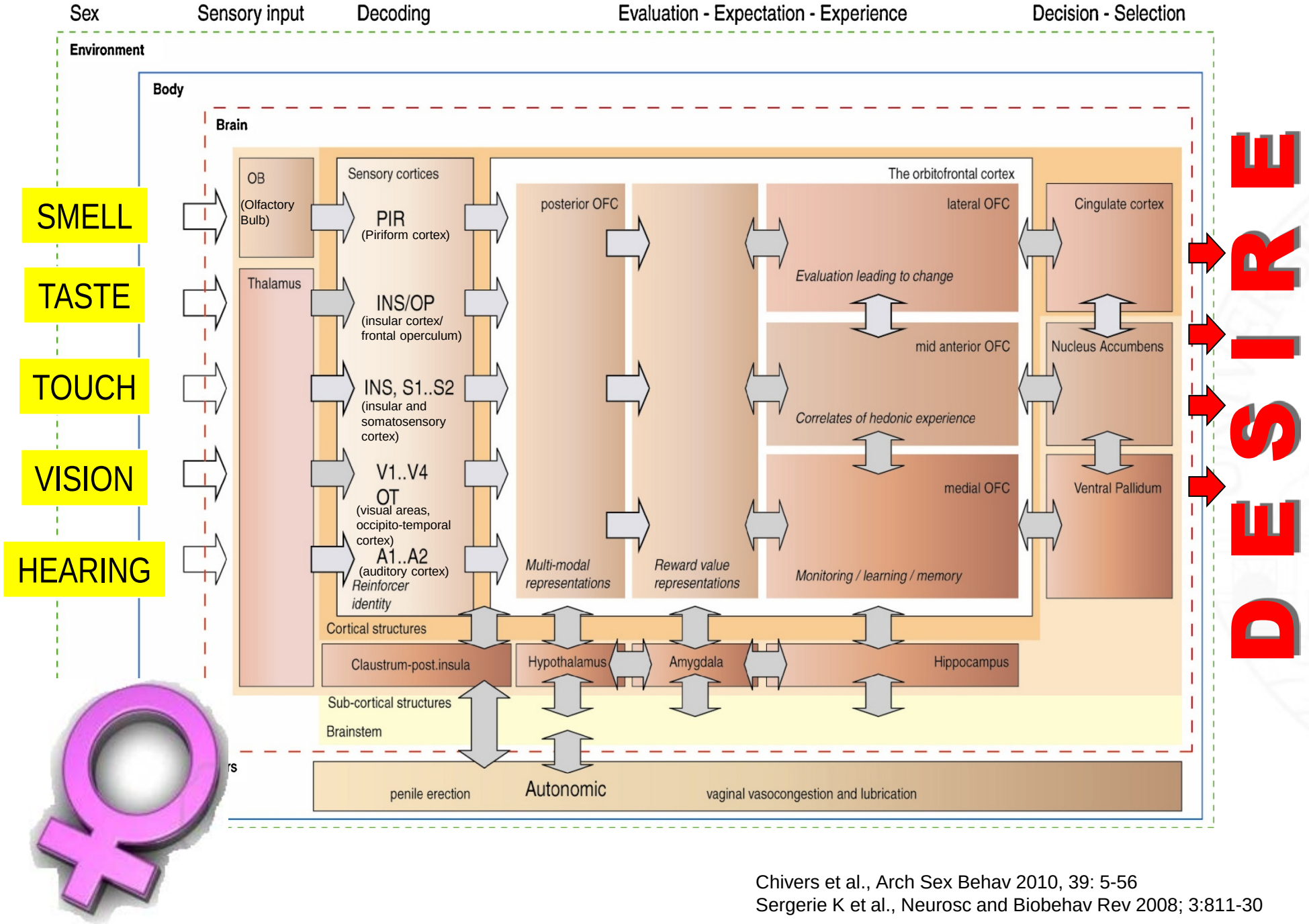



Sex
Sensory input
Decoding
Evaluation - Expectation - Experience
Decision - Selection
Environment
SEXUAL STIMULI
Body
Brain
OB
Thalamus
Sensory cortices
PIR
INS/OP
INS, S1..S2
V1..V4
OT
A1..A2
Reinforcer identity
The orbitofrontal cortex
posterior OFC
lateral OFC
Evaluation leading to change
mid anterior OFC
Correlates of hedonic experience
medial OFC
Monitoring / learning / memory
Multi-modal representations
Reward value representations
Cingulate cortex
Nucleus Accumbens
Ventral Pallidum
Cortical structures
Claustrum-post.insula
Hypothalamus
Amygdala
Hippocampus
Sub-cortical structures
Brainstem
Receptors
penile erection
Autonomic
vaginal vasocongestion and lubrication



The limbic system & higher-order cognitive brain areas.

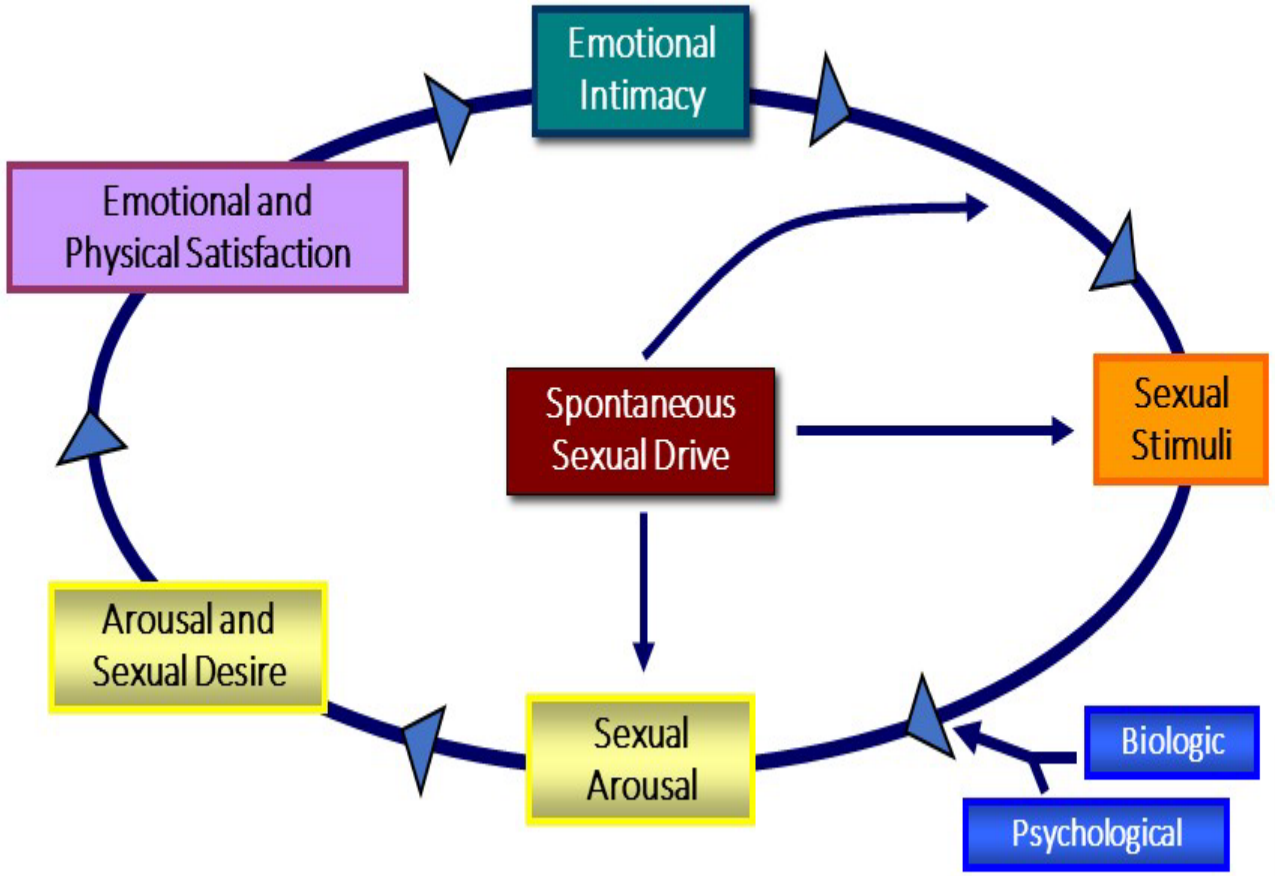




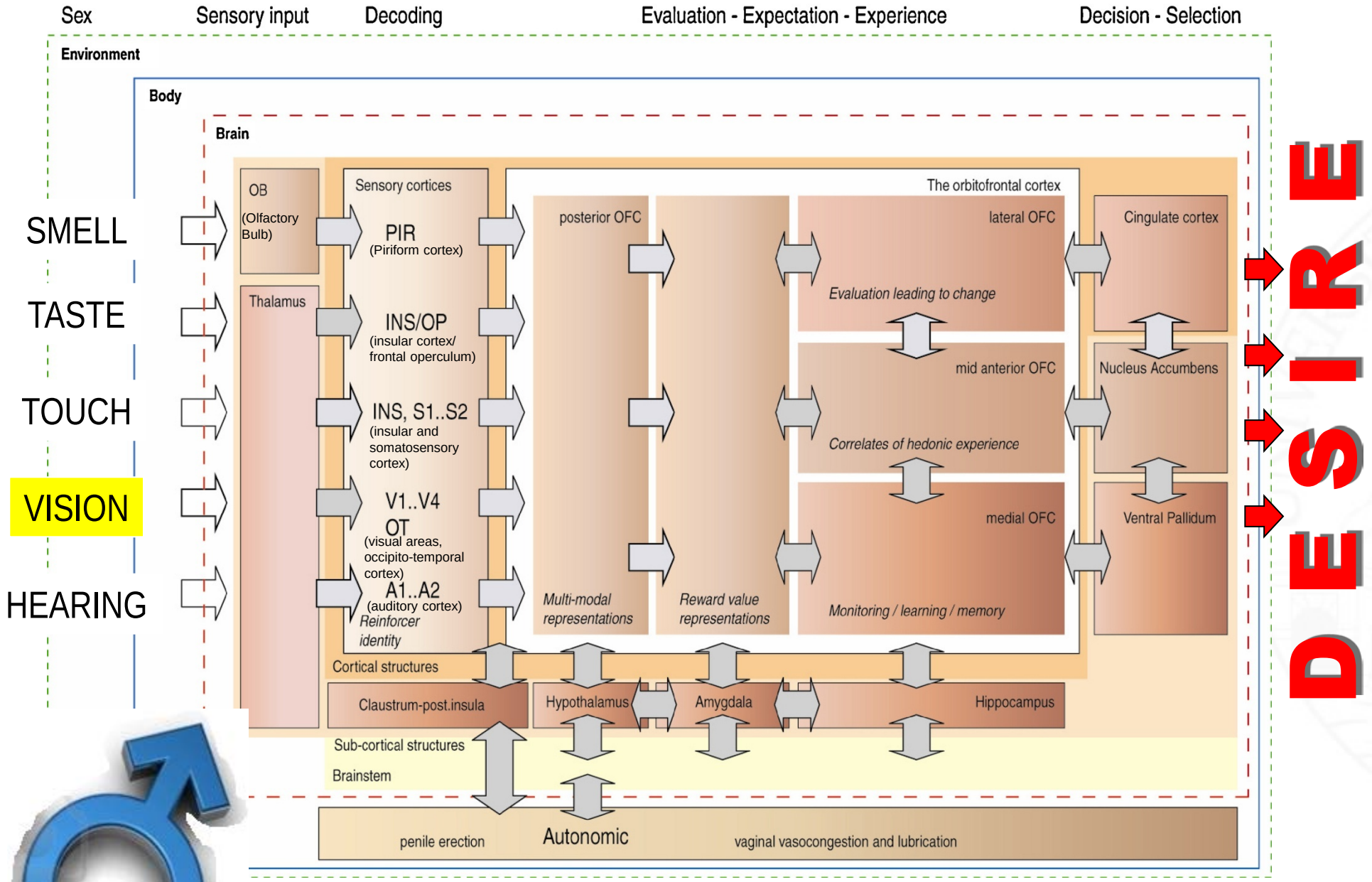
Chivers et al., Arch Sex Behav 2010, 39: 5-56
Sergerie K et al., Neurosc and Biobehav Rev 2008; 3:811-30

Female Sexual Response Cycle

Basson circular model of female sexual response



ISSWSH International Society for the Study of Women's Sexual Health, Inc.



Childress et al., PlosOne 2008, 3:1506
Salonia et al., j Sex med 2010, 7:2637
Georgiadis, Progress in Neurobiology 98 (2012) 49

Hearing

Vision

Affiliation

Taste

Emphaty

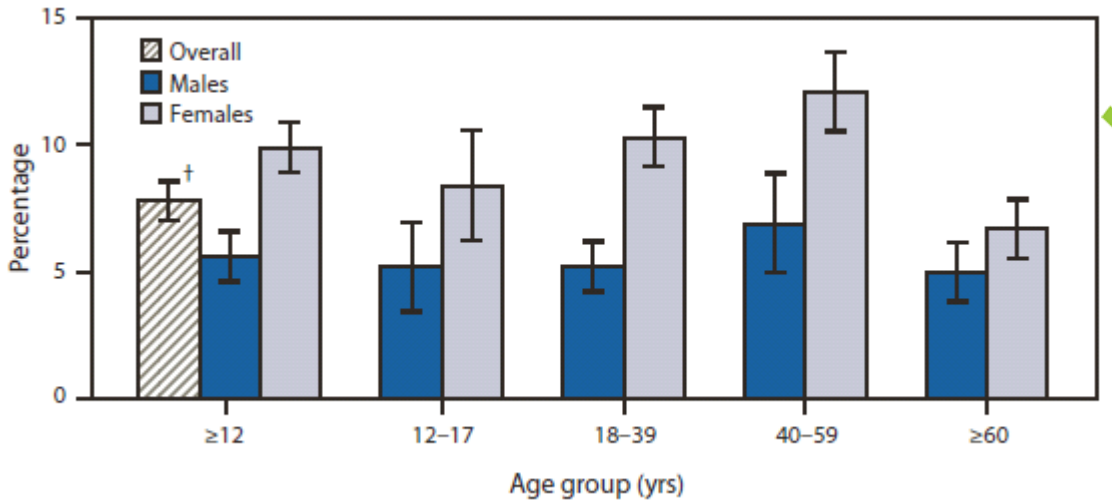
Smell

Touch

Bonding

«SPONGE BRAIN»

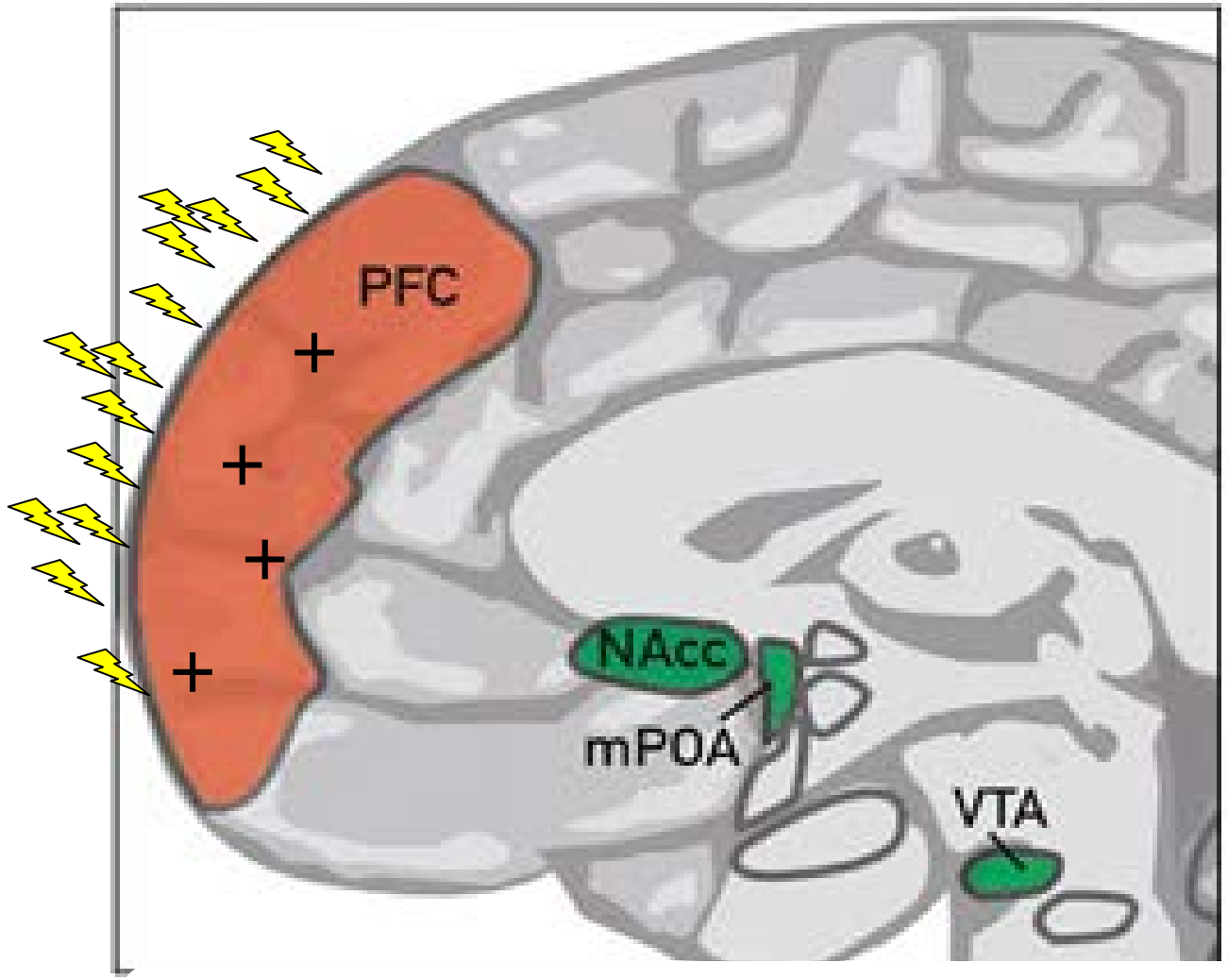
HIGHER PREVALENCE OF DEPRESSION IN FEMALES THAN IN MALES



Hamann and Canli, Curr Opin Neurobiol 14:233-8, 2004

Hamann S. Neuroscience Update 11(4):288-93, 2005

Hypoactive sexual desire disorder (HSDD)



Increased activation of Prefrontal cortex➔ increased inhibition on sexual desire

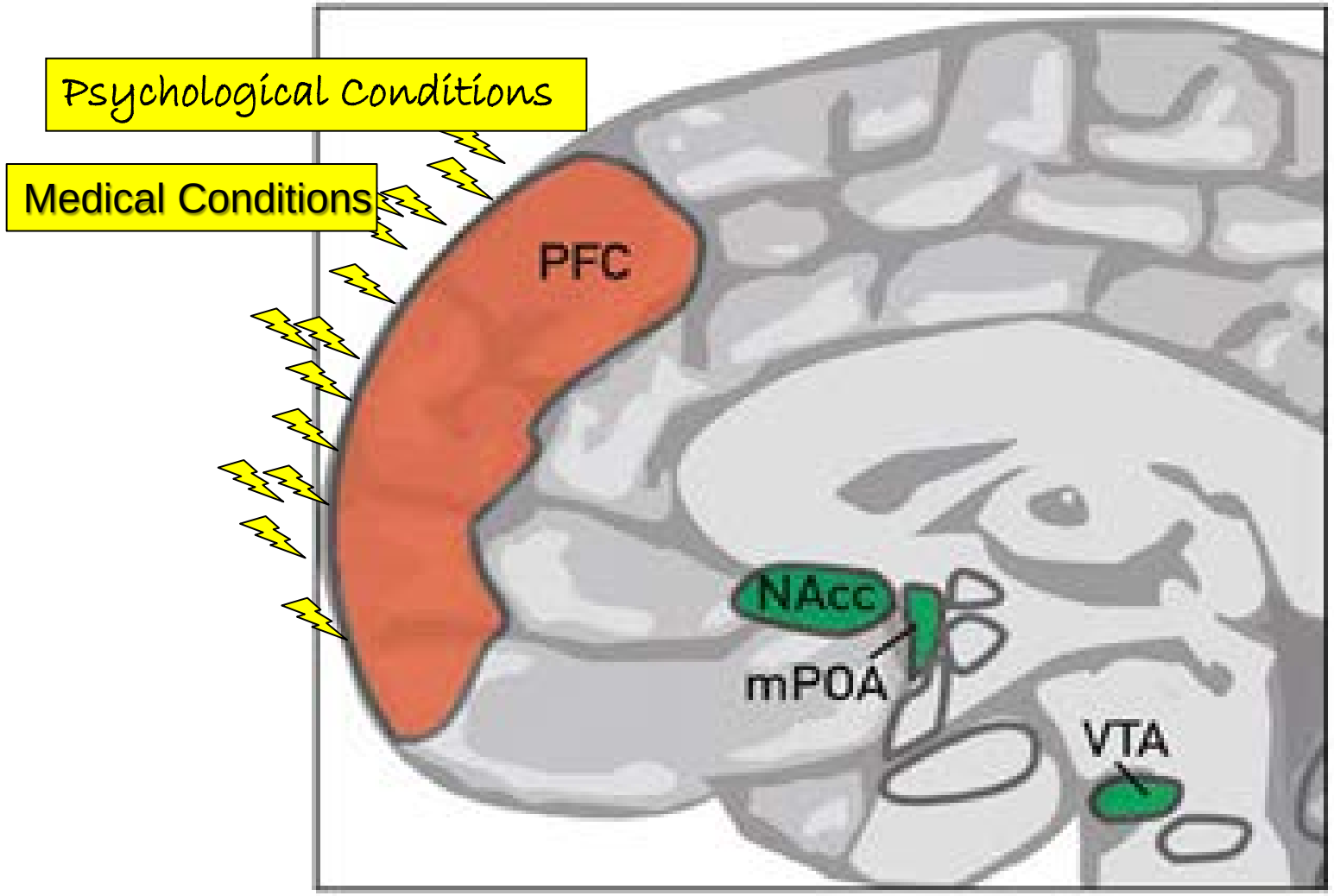
Goldstein I et a., Mayo Clinic Proceedings Volume 92, Issue 1, January 2017, Pages 114-128

Psychological Conditions Potentially Impacting Sexual Desire

- Depression/anxiety
- Poor self/body image
- Stress/distraction
- History of abuse (physical, sexual, emotional)
- Substance abuse
- Self-imposed pressure for sex
- Religious, personal, cultural or family values, beliefs and taboos
- Relationship factors
- Lifestyle factors (e.g., fatigue, sleep deprivation)
- Sexual factors (e.g., inadequate stimulation)

Adapted from Clayton et al., Mayo Clin Proc 2018; in press

Reduced sexual desire



Clayton et al., Mayo Clin Proc 2018; in press

Goldstein I et a., Mayo Clinic Proceedings Volume 92, Issue 1, January 2017, Pages 114-128

Which are the male factors associated with female sexual dysfunction (FSD)?

[1]E. Maseroli, [1]E. Fanni, [2]E. Mannucci, [3]M. Fambrini, [4]E. A. Jannini, [1,5]M. Maggi and [1,5,*]L. Vignozzi

156 heterosexual women attending the Sexual Medicine Outpatient Clinic at the University of Florence for FSD

	FSFI (Female Sexual Function Index)	
	R Spearman	p
Partner's sexual dysfunctions (as perceived by the patient)		
Hypoactive sexual desire	**-0,251**	**0,003**
Erectile dysfunction	-0,076	0,368
Premature ejaculation	-0,064	0,446
Delayed ejaculation	-0,098	0,255

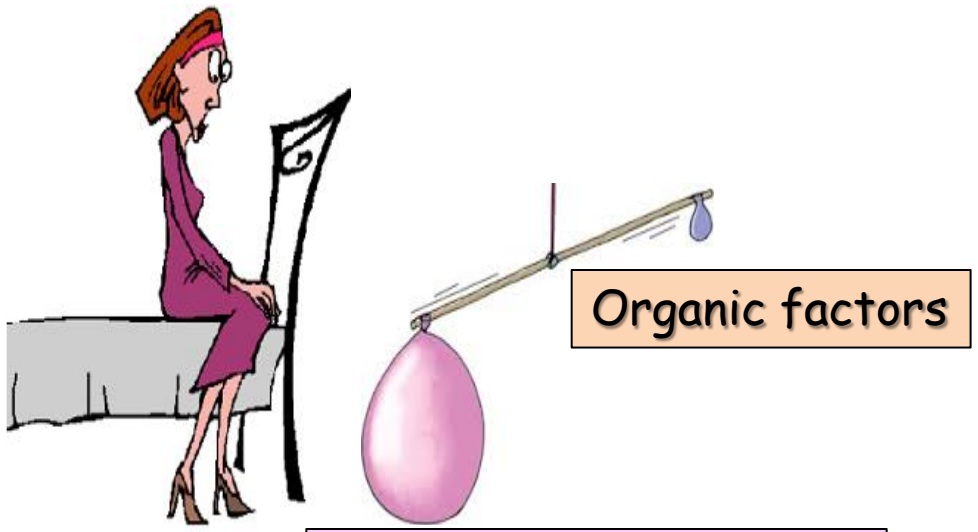
FSFI total score:

-NO association with ED, PE or DE (as perceived by the patient)

-negatively associated with partner's reduced sexual desire

Maseroli et al., Andrology. 2016 Sep;4(5):911-20

Female sexual **DESIRE**



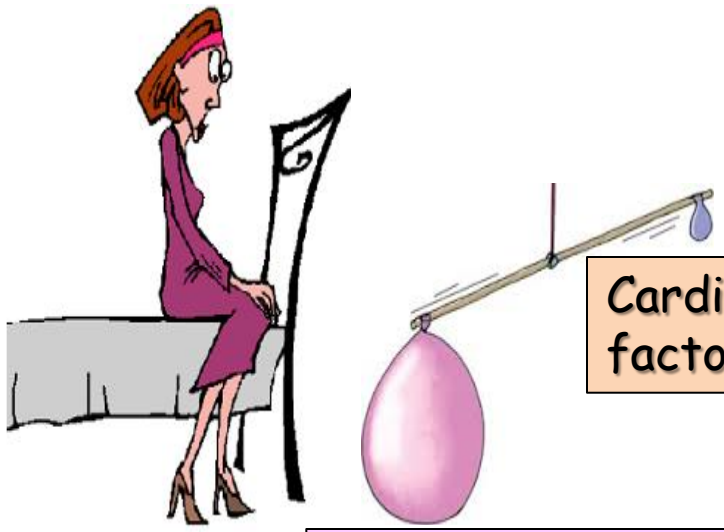
Organic factors

Relational factors

Psychological factors

Summary #1

Female sexual **DESIRE**



Cardiometabolic risk factors

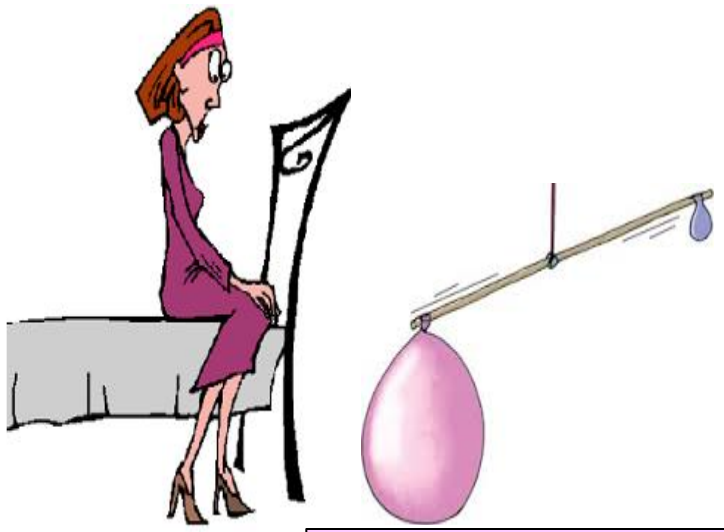
Relational factors

Psychological factors

Sex Hormones alterations

Summary #2

Female sexual **AROUSAL**



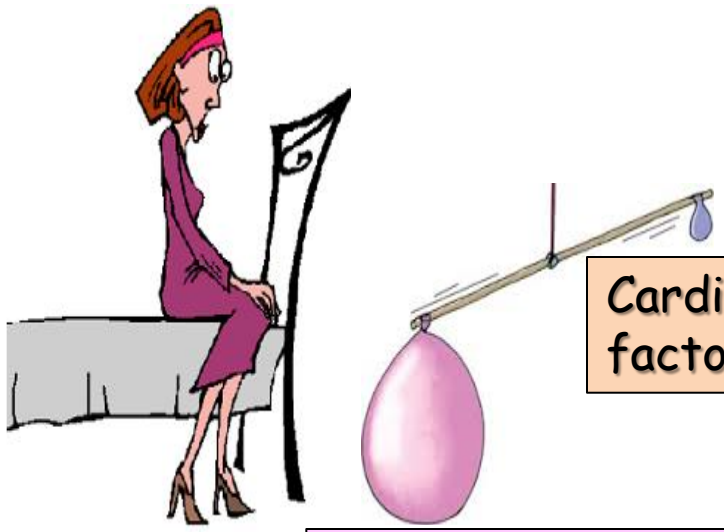
Relational factors

Psychological factors

Sex Hormones alterations

Summary #2

Female sexual **AROUSAL**



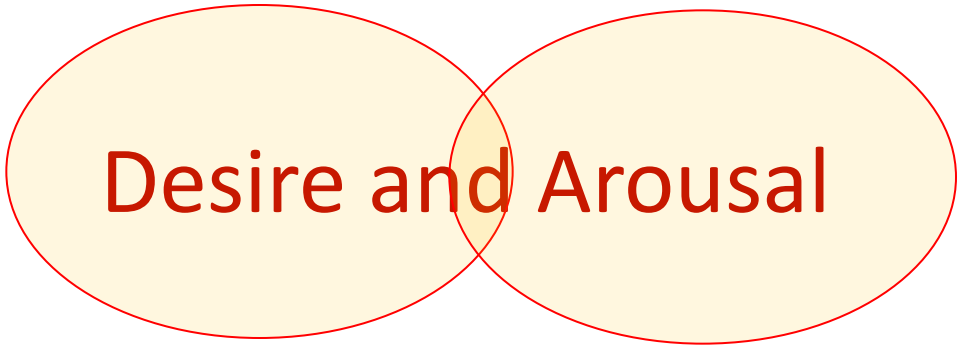
Cardiometabolic risk factors

Relational factors

Psychological factors

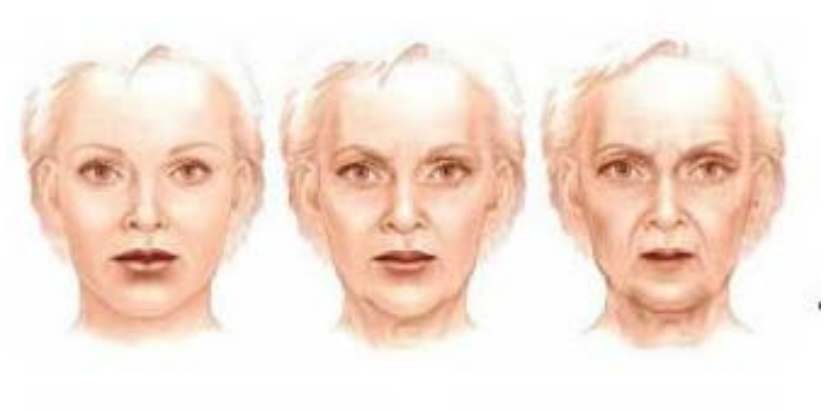
Sex Hormones alterations

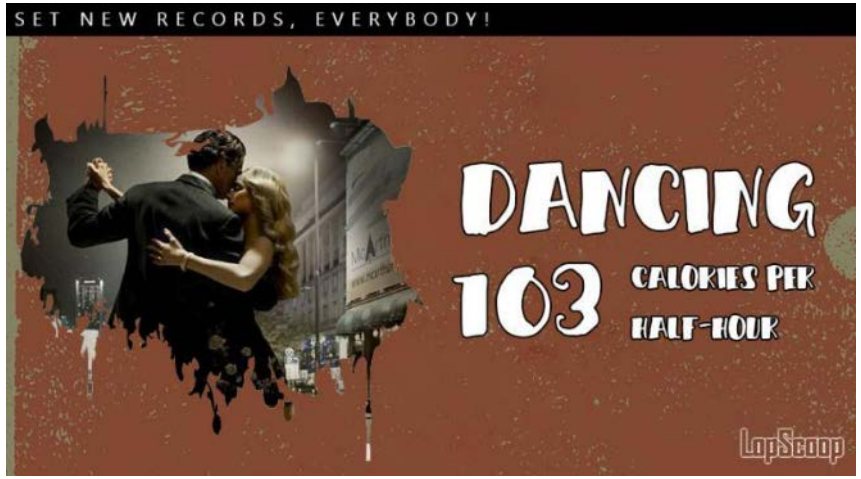
Summary #3



- ✓ Pathophysiological perspective:

Psychological condition	+++++	-
Hormonal alterations	+++	+++
Cardiometabolic diseases	-	+++



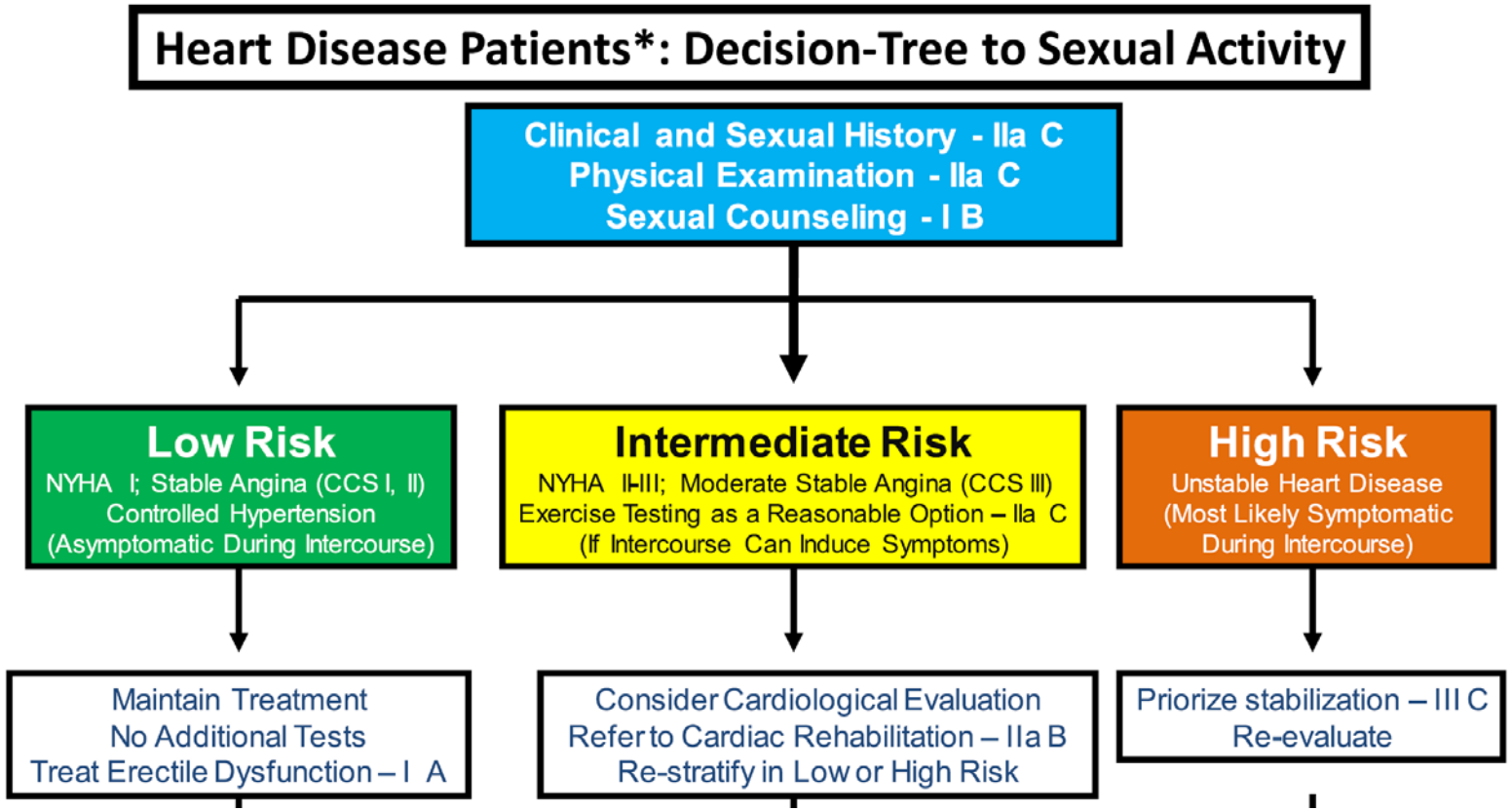

SET NEW RECORDS, EVERYBODY!
DANCING
103 CALORIES PER HALF-HOUR
LapScoop


SET NEW RECORDS, EVERYBODY!
KISSING
68 CALORIES PER HOUR
LapScoop


SET NEW RECORDS, EVERYBODY!
UNDRESSING
8+ CALORIES TOTAL


SET NEW RECORDS, EVERYBODY!
MASSAGING
80+ CALORIES PER HOUR
LapScoop


SET NEW RECORDS, EVERYBODY!
HAVING SEX
144+ CALORIES PER HALF-HOUR
LapScoop


Heart Disease Patients*: Decision-Tree to Sexual Activity
Clinical and Sexual History - IIa C
Physical Examination - IIa C
Sexual Counseling - I B
Low Risk
NYHA I; Stable Angina (CCS I, II)
Controlled Hypertension
(Asymptomatic During Intercourse)
Intermediate Risk
NYHA II-III; Moderate Stable Angina (CCS III)
Exercise Testing as a Reasonable Option – IIa C
(If Intercourse Can Induce Symptoms)
High Risk
Unstable Heart Disease
(Most Likely Symptomatic
During Intercourse)
Maintain Treatment
No Additional Tests
Treat Erectile Dysfunction – I A
Consider Cardiological Evaluation
Refer to Cardiac Rehabilitation – IIa B
Re-stratify in Low or High Risk
Priorize stabilization – III C
Re-evaluate


Some people
are old at 18,
and some
are young
at 90.
Time is a
concept
that humans
created.
~ Yoko Ono ~

KiTOMI

K

T:

O n of genitals

M

I: Interco

KiTOMI

KiTOM

KiT

Thank you

Metabolic Equivalents (METs)

1 MET = 3.5 ml O_2 utilisation/kg/min

Tolerance < 4 METs = higher risk

Activity	METS min	METS max
Cycling 5 mph	2	3
Cycling 10 mph	5	6
Cycling 13 mph	8	9
Ballroom Dancing	4	5
Swimming	8	10
Tennis	4	9
Walking 1 mph	1	2
Walking 2 mph	2	3
Walking 3 mph	3	3.5
Walking 4 mph	5	6

Activity	METS min	METS max
Bed making	2	6
Carrying heavy bags	5	7
Cleaning windows	3	4
Dressing	2	3
General housework	3	4
Grocery shopping	2	4
Painting/decorating	4	5
Sexual intercourse	3	5
Showering	3	4
Vacuuming	3	3.5
Walking up stairs	4	7

Metabolic equivalent (METs) of Selected Daily Activity compared to Sexual Activity

TABLE 1 MET of Selected Daily Activities[6,8]

Activity	MET Score Rating
Sex with long-standing partner (average)	
Partner stimulation	1.7
Self-stimulation	1.8
Partner on top	2.5
Man on top	3.3
Recreational activities	
Walking (5 km/hr)	3.2
Golf (carrying clubs)	5.1
Tennis	6.8
Household chores	
Ironing	2.0
Washing floors	3.3
Gardening (digging)	4.4
Carpentry	5–7

MET = metabolic equivalents.
Adapted from *Arch Intern Med*[6] and *Clin Cardiol*.[8]

B. Patients with established CVD or diabetes

Low risk*	Indeterminate risk**		High risk***
	Low risk (negative stress test)	High risk (positive stress test)	
Exercise ability or stress test Lifestyle intervention RF drug intervention PDE5i Tth‡	Lifestyle intervention RF drug intervention PDE5i Tth‡	Deferral of sexual activity Cardiologist referral	Deferral of sexual activity Cardiologist referral

* Low-risk patients include those with complete revascularization (eg, via coronary artery bypass grafting, stenting, or angioplasty), patients with asymptomatic controlled hypertension, those with mild valvular disease, and patients with left ventricular dysfunction/heart failure (NYHA classes I and II) who achieved 5 metabolic equivalents of the task METS without ischemia on recent exercise testing.

** Indeterminate risk patients include diabetics, those with mild or moderate stable angina pectoris, past myocardial infarction (2-8 wks) without intervention awaiting exercise electrocardiography, congestive heart failure (NYHA class III), and noncardiac sequelae of atherosclerotic disease (eg, peripheral artery disease and a history of stroke or transient ischemic attack); this patient with ED may require assessment for additional vascular disease using carotid intima-media thickness or ankle-brachial index and subsequent reclassification to low or high risk.

*** High-risk patients include those with unstable or refractory angina pectoris, uncontrolled hypertension, congestive heart failure (NYHA class IV), recent myocardial infarction without intervention (<2 weeks), high-risk arrhythmia (exercise-induced ventricular tachycardia, implanted internal cardioverter defibrillator with frequent shocks, and poorly controlled atrial fibrillation), obstructive hypertrophic cardiomyopathy with severe symptoms, and moderate to severe valve disease, particularly aortic stenosis.

‡ Where appropriate

CVD: cardiovascular disease; FRS: Framingham risk score; PDE5i : phosphodiesterase type 5 inhibitors; RF: risk factor; Tth: testosterone therapy

Vlachopoulos et al., Eur Heart J, 2013

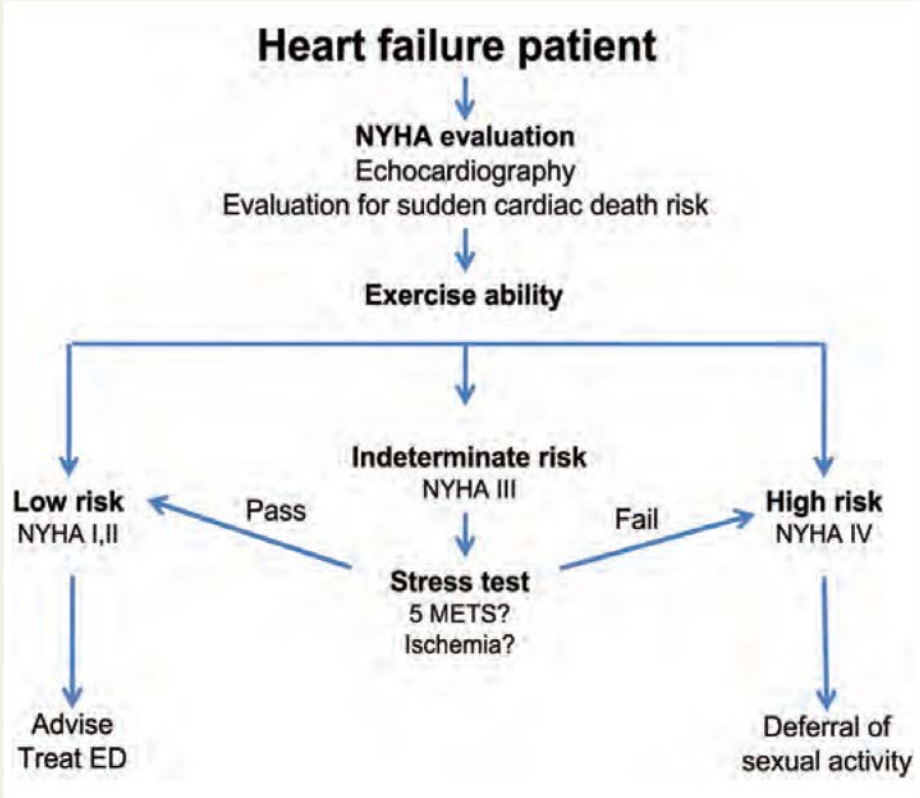


Figure 5 Management of erectile dysfunction in patients with heart failure.

Vlachopoulos et al., Eur Heart J, 2013

Erectile dysfunction

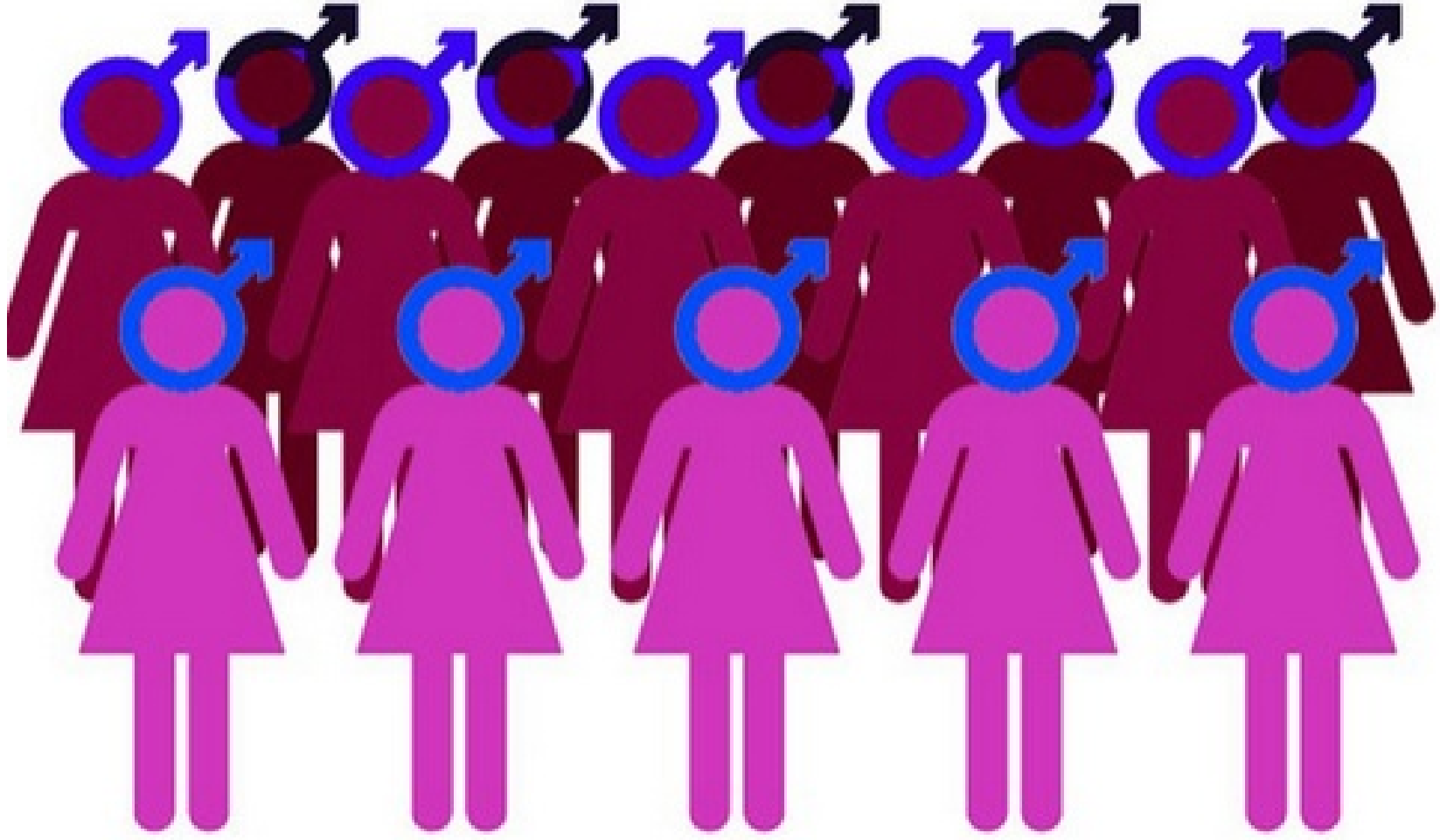
Rany Shamloul, Hussein Ghanem

Lancet 2013; 381: 153–65

Risk stratification and treatment of men with erectile dysfunction and cardiovascular disease

	Recommended treatment
Low risk (asymptomatic after moderate-intensity exercise): asymptomatic and less than three major risk factors—controlled hypertension, mild valvular disease, LVD (NYHA class I), and NYHA class II	Sexual activity can be continued and oral PDE5-Is can be given
Intermediate or indeterminate risk: asymptomatic and at least three coronary artery disease risk factors—mild stable angina pectoris, asymptomatic after MI (>6–8 weeks), moderate stable angina pectoris, MI for over 2 weeks but less than 6 weeks, LVD or CHF (NYHA class III) peripheral arterial disease, history of stroke, or transient ischaemic attack	In-depth cardiovascular assessment to re-categorise the patient is needed before treatment of erectile dysfunction
High risk: unstable or refractory angina, uncontrolled hypertension, CHF (NYHA class IV), recent MI (<2 weeks), high-risk arrhythmias, obstructive hypertrophic cardiomyopathies, or moderate-to-severe valve disease	Sexual activity stopped. Stabilise cardiovascular condition first then proceed to treatment for erectile dysfunction

MI=myocardial infarction. LVD=left ventricular disease. NYHA=New York heart classification. CHF=congestive heart failure. PDE5-Is= phosphodiesterase type 5 inhibitors. Adapted from Nehra and colleagues.[48]

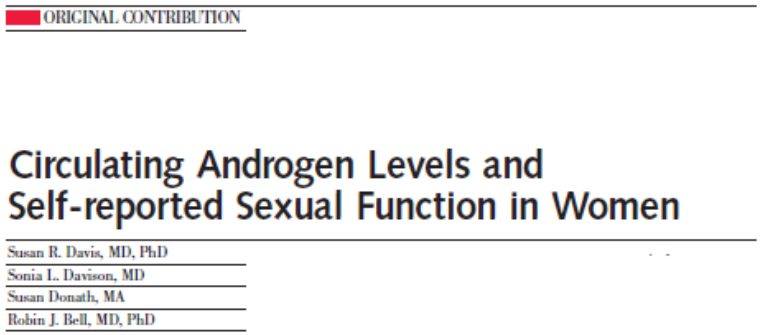


GENDER-DIFFERENCE

Evidence

Three studies demonstrate consistent relations between androgen levels and sexual interest and arousal in women.

1



ORIGINAL CONTRIBUTION

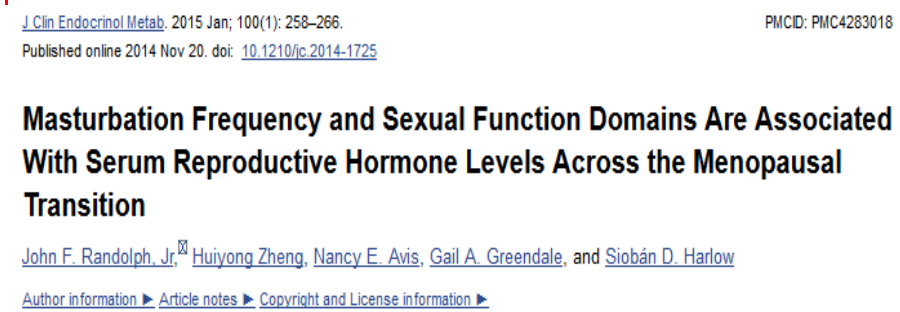
Circulating Androgen Levels and Self-reported Sexual Function in Women

Susan R. Davis, MD, PhD
Sonia L. Davison, MD
Susan Donath, MA
Robin J. Bell, MD, PhD

An Australian study enrolling 1,021 18- to 75-year old women randomly recruited from the community, who completed Profile of Female Sexual Function (PFSF) questionnaire.

Having low sexual desire, sexual arousal, or sexual responsiveness also was associated with a DHEAS value below the 10th centile for age.

2



J Clin Endocrinol Metab. 2015 Jan; 100(1): 258–266.
Published online 2014 Nov 20. doi: 10.1210/jc.2014-1725
PMCID: PMC4283018

Masturbation Frequency and Sexual Function Domains Are Associated With Serum Reproductive Hormone Levels Across the Menopausal Transition

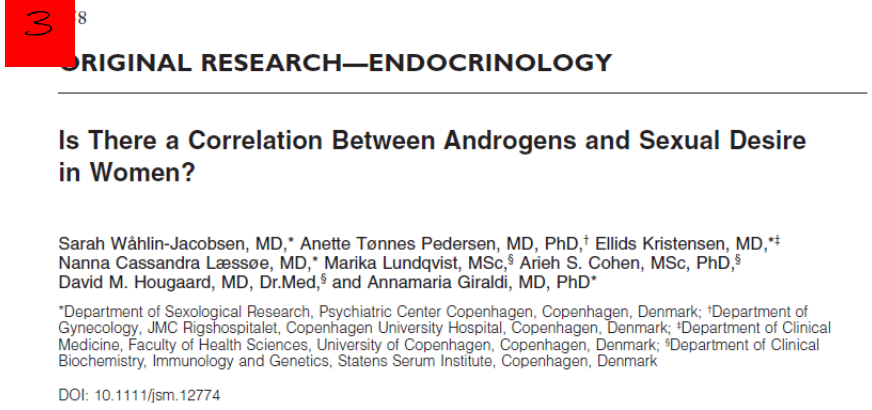
John F. Randolph, Jr.,✉ Huiyong Zheng, Nancy E. Avis, Gail A. Greendale, and Siobán D. Harlow

Author information ▶ Article notes ▶ Copyright and License information ▶

The Study of Women's Health Across the Nation (SWAN). A multisite, longitudinal cohort study conducted in community-based groups of women (at baseline, 3302 women)

Frequency of sexual desire was positively associated with T

3



ORIGINAL RESEARCH—ENDOCRINOLOGY

Is There a Correlation Between Androgens and Sexual Desire in Women?

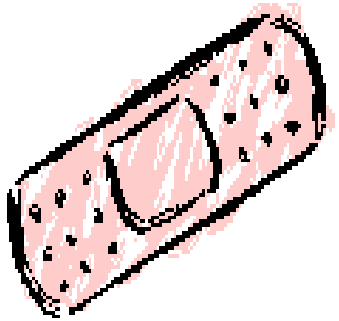
Sarah Wåhlin-Jacobsen, MD,* Anette Tønnes Pedersen, MD, PhD,† Ellids Kristensen, MD,*‡ Nanna Cassandra Læssøe, MD,* Marika Lundqvist, MSc,§ Arieh S. Cohen, MSc, PhD,§ David M. Hougaard, MD, Dr.Med,§ and Annamaria Giraldi, MD, PhD*

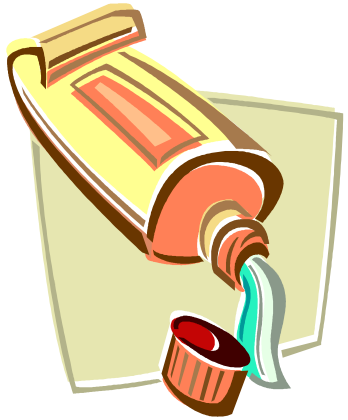
*Department of Sexological Research, Psychiatric Center Copenhagen, Copenhagen, Denmark; †Department of Gynecology, JMC Rigshospitalet, Copenhagen University Hospital, Copenhagen, Denmark; ‡Department of Clinical Medicine, Faculty of Health Sciences, University of Copenhagen, Copenhagen, Denmark; §Department of Clinical Biochemistry, Immunology and Genetics, Statens Serum Institute, Copenhagen, Denmark

DOI: 10.1111/jsm.12774

The participants (N = 560) were volunteers aged 19–65 years.

Sexual desire was positively associated with T, DHEA, Androstenedione





Testosterone treatment for hypoactive sexual desire disorder

Alterazioni cardio-metaboliche e sessualità in (peri-)menopausa

In conclusione:

- ✓ **In (peri-) menopausa si assiste ad un aumento del rischio cardiometabolico e vascolare**

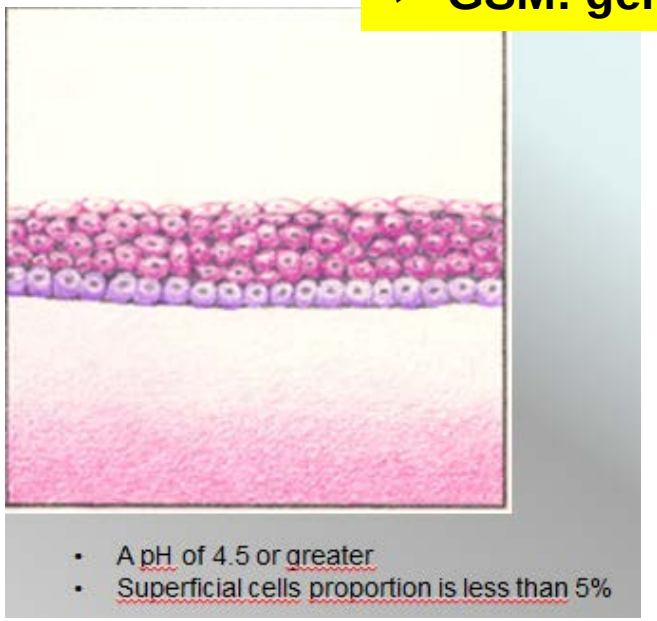
Il fattore invecchiamento sembra avere un ruolo maggiore del fattore menopausa di per sé

- ✓ **In (peri-) menopausa si assiste ad un aumento del rischio di disfunzione sessuale (disturbo del desiderio e disturbo dell'eccitazione)**

Fattori psicologici/relazionali ed anche ormonali

Fattori psicologici/relazionali, ormonali e cardiometabolici

✓ GSM: genito-urinary syndrome of menopause

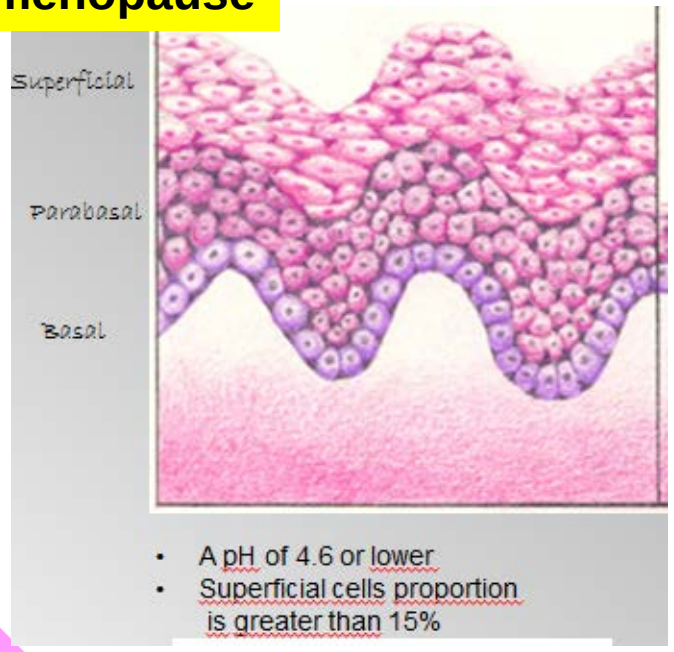


- A pH of 4.5 or greater
- Superficial cells proportion is less than 5%

PUBERTY

MENOPAUSE

GSM



- A pH of 4.6 or lower
- Superficial cells proportion is greater than 15%

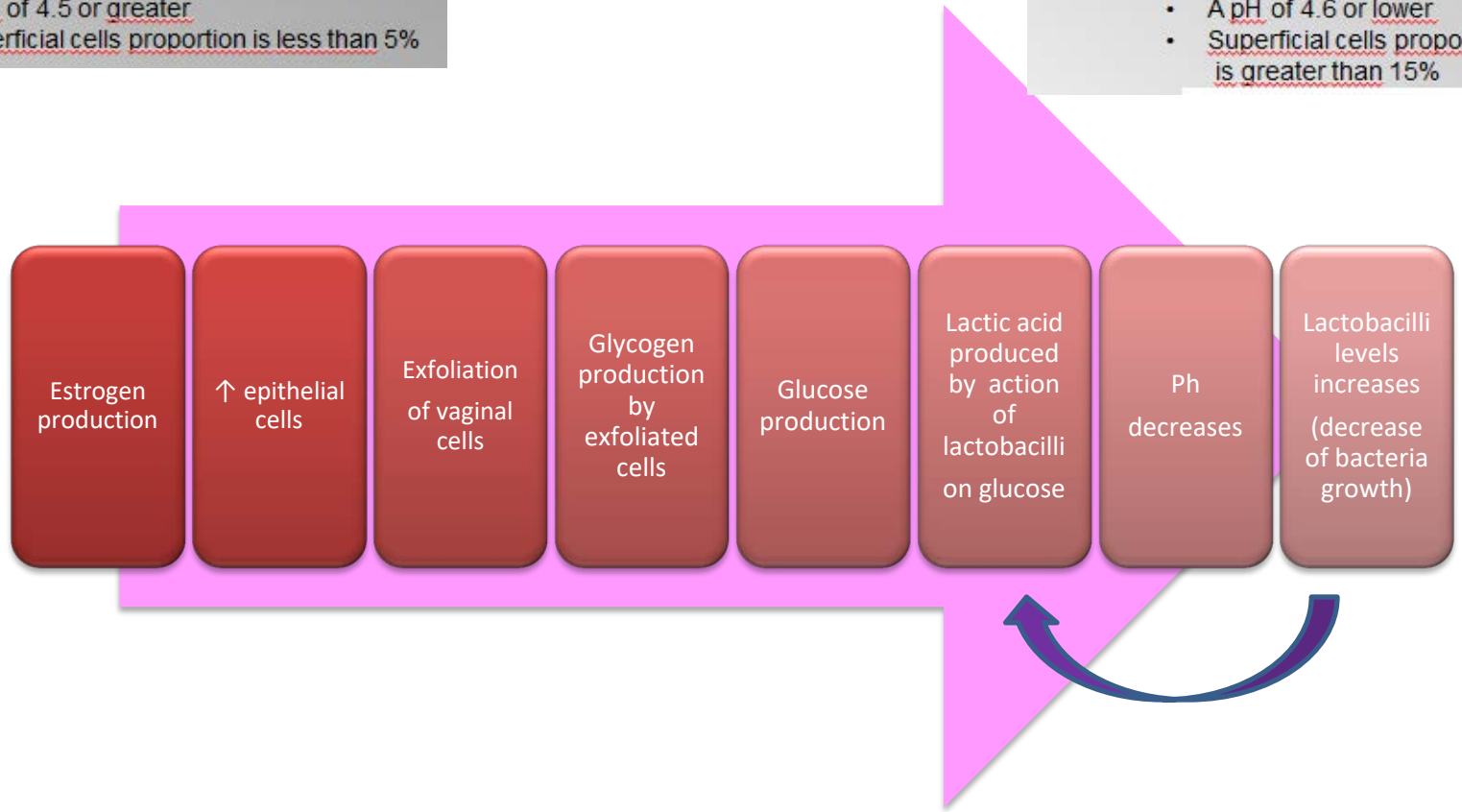


Table 3. Genitourinary Syndrome of Menopause

- Symptoms
  - Vulvar pain, burning, or itching
  - Vaginal dryness
  - Vaginal discharge
  - Dyspareunia
  - Spotting or bleeding after intercourse
  - Dysuria, urinary frequency, urgency
  - Recurrent urinary tract infections
- Signs, external genitalia
  - Decreased labial size
  - Loss of vulvar fat pads
  - Vulvar fissures
  - Receded or phimotic clitoris
  - Prominent urethra with mucosal eversion or prolapse
- Signs, vagina
  - Introital narrowing
  - Loss of elasticity with constriction
  - Thin vaginal epithelial lining
  - Loss of mature squamous epithelium
  - Pale or erythematous appearance
  - Petechiae, ulcerations, or tears
  - Alkaline pH (>5.5)
  - Infection (yellow or greenish discharge)

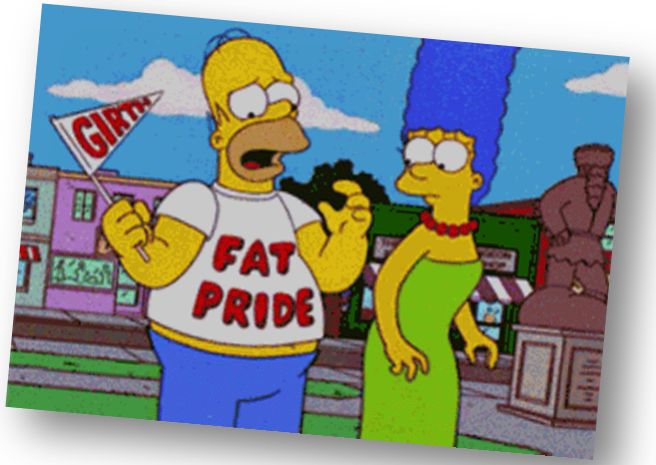
Endocrine Society Guideline 2015

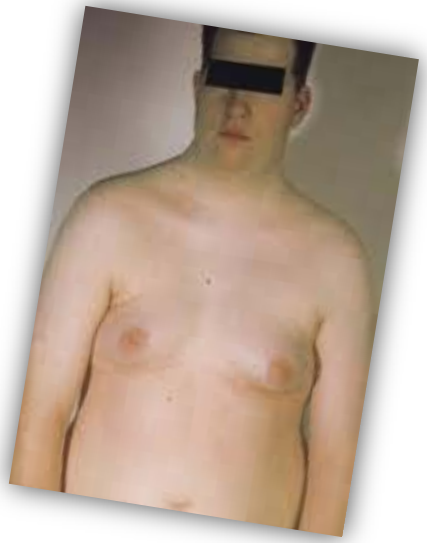
Stuenkel et al Guideline on Menopause J Clin Endocrinol Metab, November 2015, 100(11):3975–4011

UNIVERSITÀ DEGLI STUDI DI PADOVA

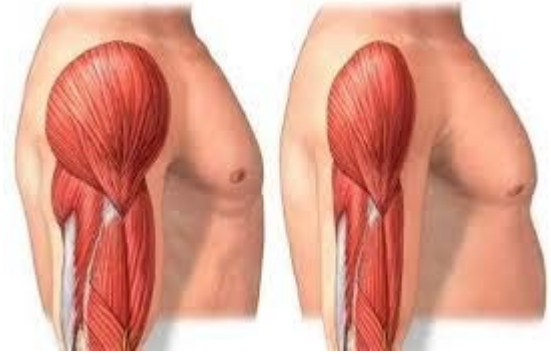
DIPARTIMENTO DI MEDICINA
UOC Andrologia e Medicina della Riproduzione Umana
Centro Regionale Specializzato di Crioconservazione dei Gameti Maschili
Centro Regionale Specializzato per la Sindrome di Klinefelter
Direttore: Prof. Carlo Foresta

siams
Società Italiana di Andrologia
e Medicina della Sessualità





Maledetto testosterone!



File Modifica Visualizza Cronologia Segnalibri Strumenti Aiuto

10 sintomi del Testosteron...

testosteronelibero.it/sintomi-testosterone-alto/

120%

Cerca

Più visitati Come iniziare Ultime notizie HotMail gratuita Personalizza collegam... Personalizzazione coll... Windows WindowsMedia

10 sintomi del Testosterone Alto che ogni uomo vorrebbe avere

gennaio 5, 2016 by Tiziano Leoni

Maschio Alfa

Gli articoli più letti

IT 18:30 07/02/2017

SUPER-POTERE # 1: Aumento del desiderio sessuale

SUPER-POTERE # 2: Migliore "forza" e durata dell'erezione

RAGIONE NUMERO 3: Maggiore capacità di costruire muscoli.

SUPER-POTERE # 4: Maggiore capacità di bruciare grassi

SUPER-POTERE # 5: Riduzione dello stress psicologico

SUPER-POTERE # 6: Riduzione dello stress fisico

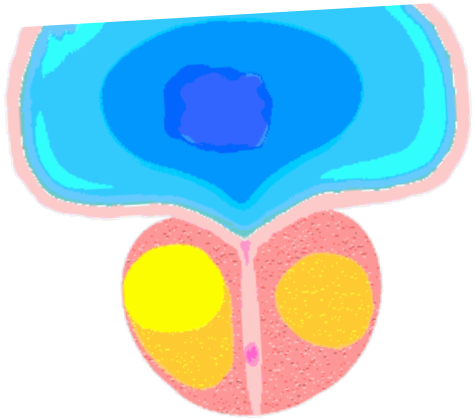
SUPER-POTERE # 7: Maggiore senso del benessere

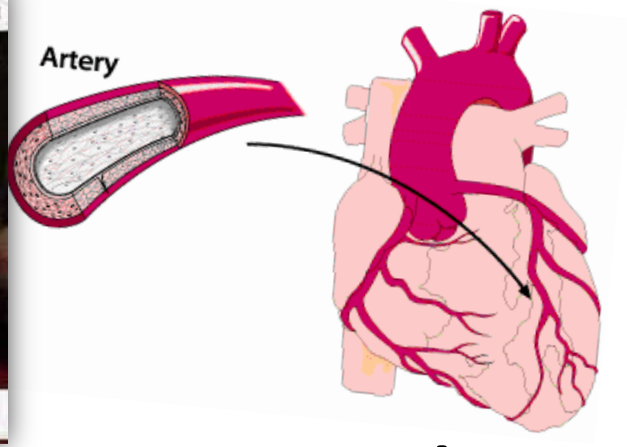
SUPER-POTERE # 8: Maggiore sicurezza e leadership

SUPER-POTERE # 9: Maggiore attrazione nelle donne.

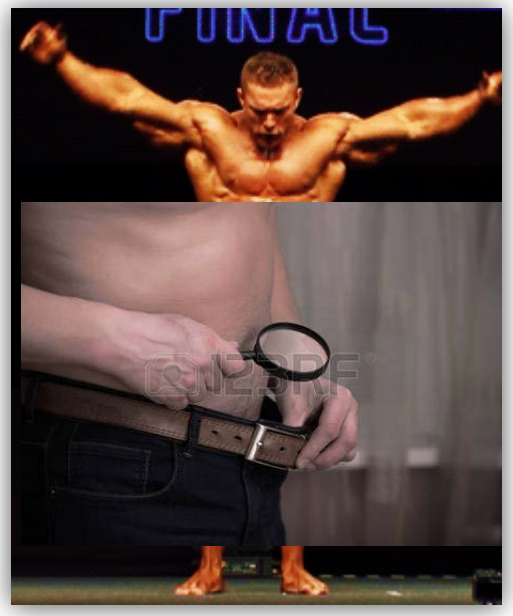
SUPER-POTERE # 10: Salute garantita tutta la vita!!

1. Il potenziamento della sintesi di





Maledetto testosterone!



Classificazione delle disfunzioni sessuali maschili

Disturbi del desiderio

- Iperattività
- Ipoattività
- Avversione al sesso

Disturbi della erezione

- Disfunzione erettile
- Erezione prolungata (priapismo)
- Deformità del pene (congenita/acquisita)

Disturbi della eiaculazione

- Eiaculazione precoce
- Eiaculazione ritardata
- Aneiaculazione
- Eiaculazione retrograda

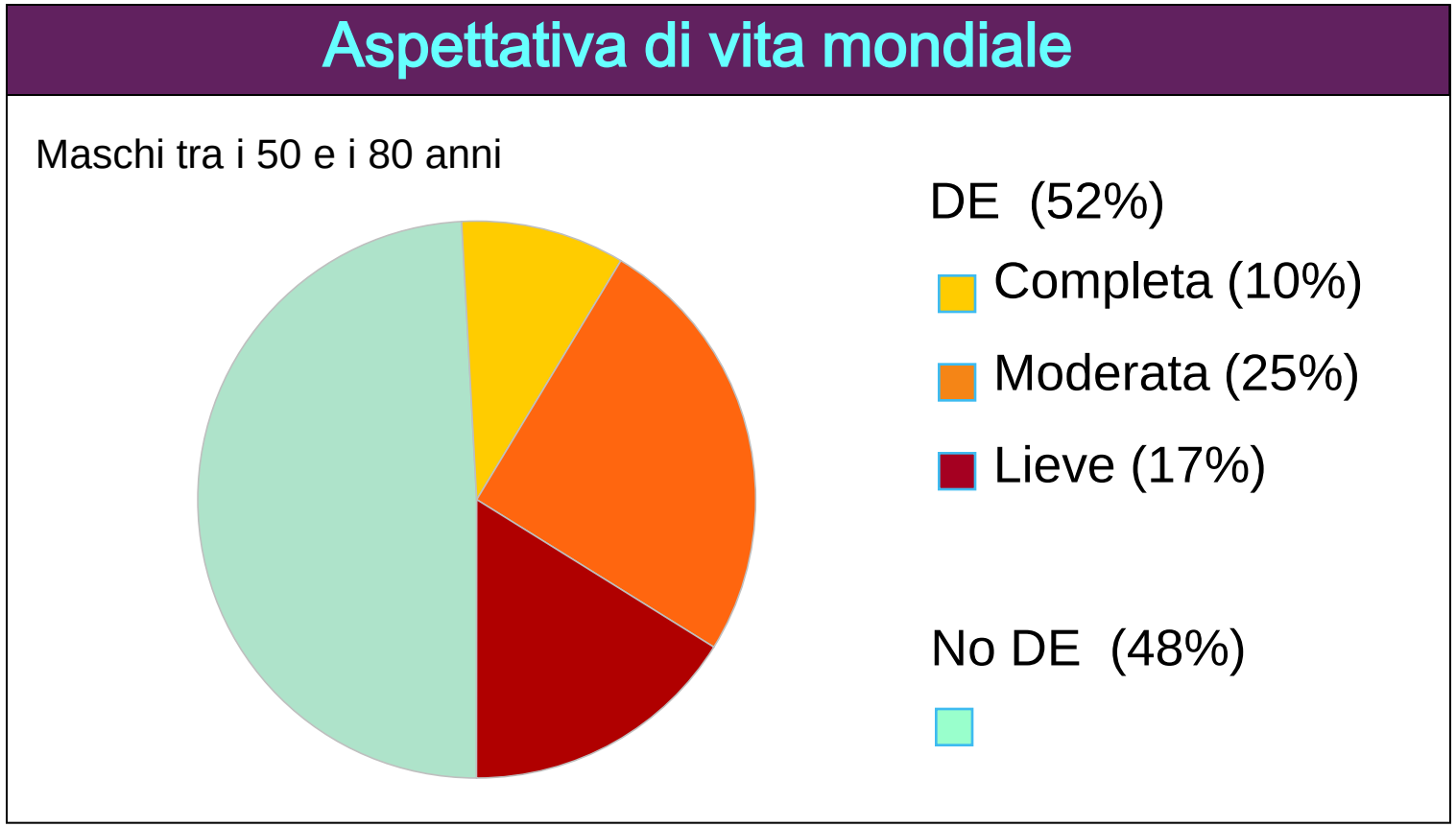
Disturbi della fase orgasmica

- Anorgasmia
- Orgasmo ritardato

Disturbi della sensibilità locale

- Iposensibilità
- Ipersensibilità
- Dolori “sessuali”

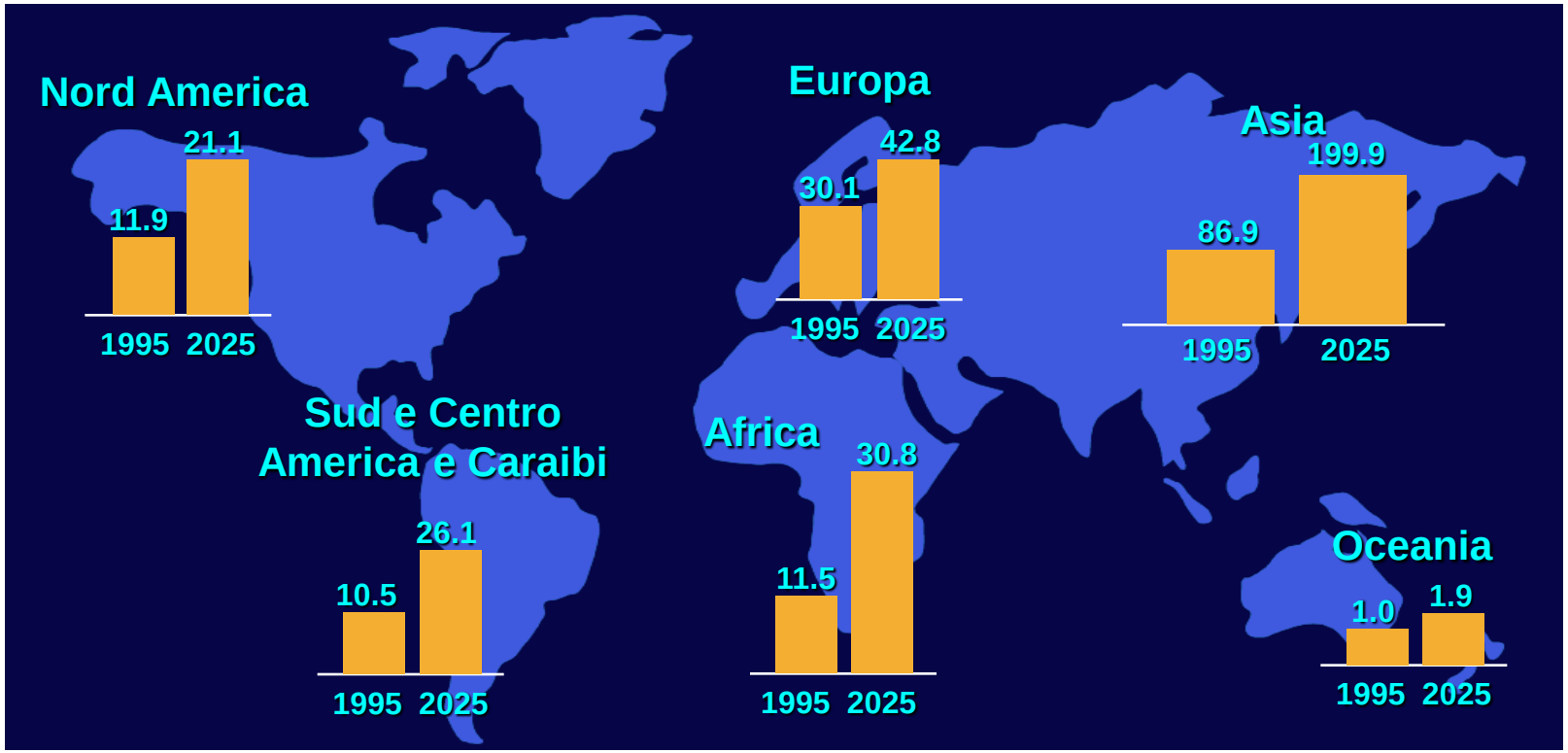
La maggiore aspettativa di vita aumenterà la prevalenza di DE



Massachusetts Male Aging Study (n = 1290)

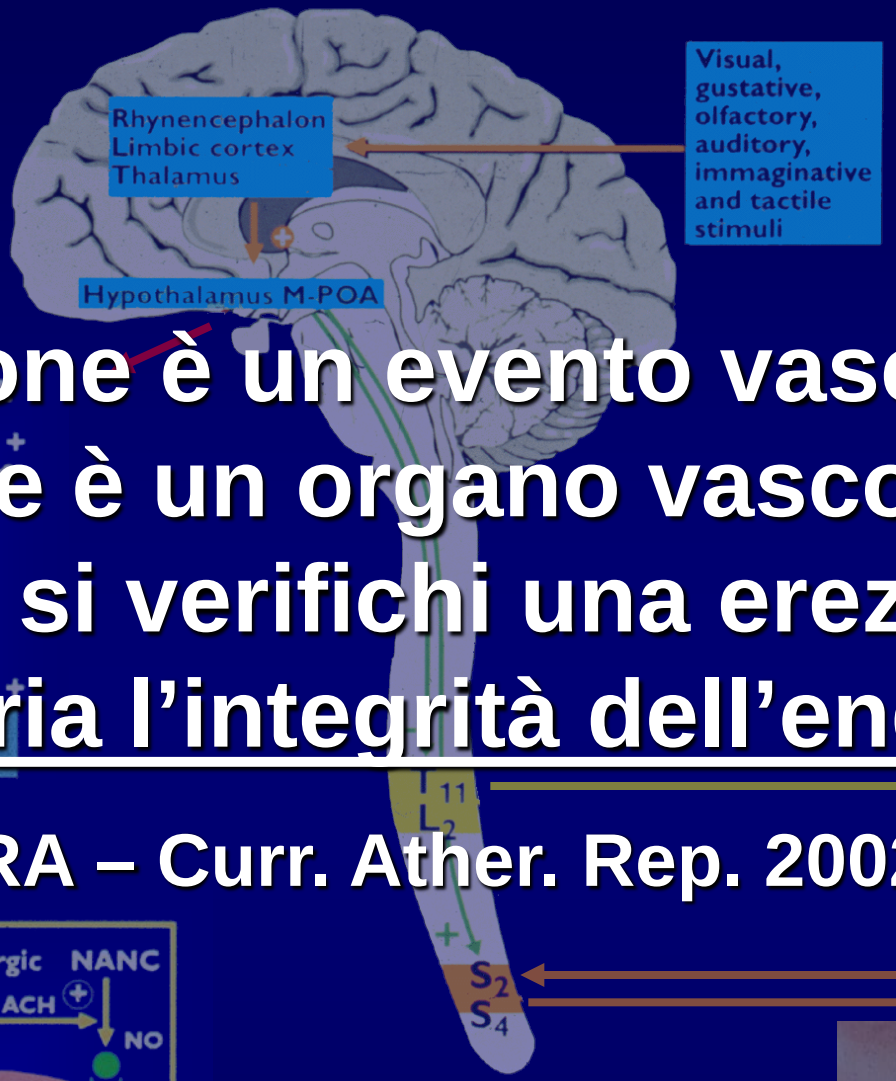
Feldman HA et al. J Urol 1994; 151: 54-61.

La crescente prevalenza della DE



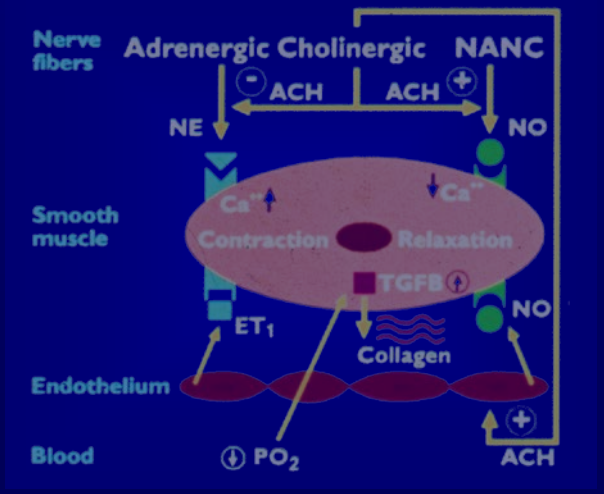
La prevalenza di DE a livello mondiale aumenterà da 152 milioni di uomini nel 1995 a 322 milioni di uomini nel 2025

Aytac IA et al. BJU Int 1999; 84: 50-56.



“L’erezione è un evento vascolare e il pene è un organo vascolare. Perché si verifichi una erezione è necessaria l’integrità dell’endotelio”

(Kloner RA – Curr. Ather. Rep. 2002;4:397)



Maturitas 79 (2014) 52–57

Contents lists available at ScienceDirect

Maturitas

journal homepage: www.elsevier.com/locate/maturitas

Review Article

Late onset hypogonadism of men is not equivalent to the menopause

Farid Saad[a,b,*], Louis J. Gooren[c]

A B S T R A C T

Some men between the ages 45 and 60 years develop complaints and symptoms reminiscent of menopausal complaints in women. So, parallels were sought between the changes in female and male endocrinology during that period of life. Indeed, men do show a decline of serum testosterone from age 40 to 50 years onwards but it is a slow decline of 1–2% per year and over time it may amount to hypogonadism. The mechanism of a decline in serum testosterone in men does not resemble the menopause; it is partially an aging neuroendocrine system with a less efficient testosterone production but equally or more important, the result of inhibition of testosterone production by metabolic factors in relation to visceral obesity. These effects are in part reversible with weight loss. A hypogonadal state in aging men has deleterious effects. Mortality of all causes is highest in men with low testosterone impacting on their metabolic state leading to diabetes mellitus, cardiovascular disease, osteoporosis, and sexual dysfunction. Normalization of testosterone in aging hypogonadal men has a beneficial effect on the above pathologies. The fear that testosterone treatment of elderly men would lead to prostate disease has not been substantiated in studies. So, while men do not have a 'menopause', testosterone deficiency in old age deserves serious attention.

Attività sessuale dopo i 60 anni

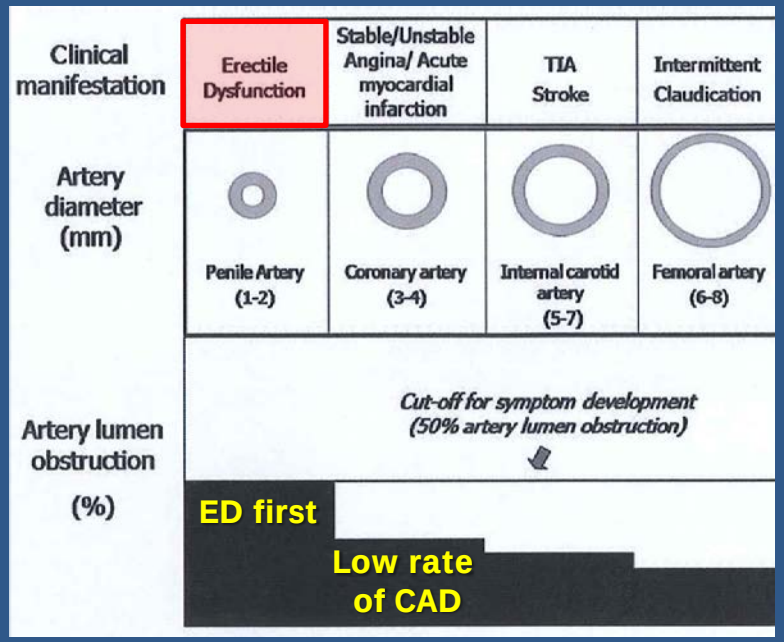
Può esserci una riduzione di intensità e di frequenza dell'attività sessuale

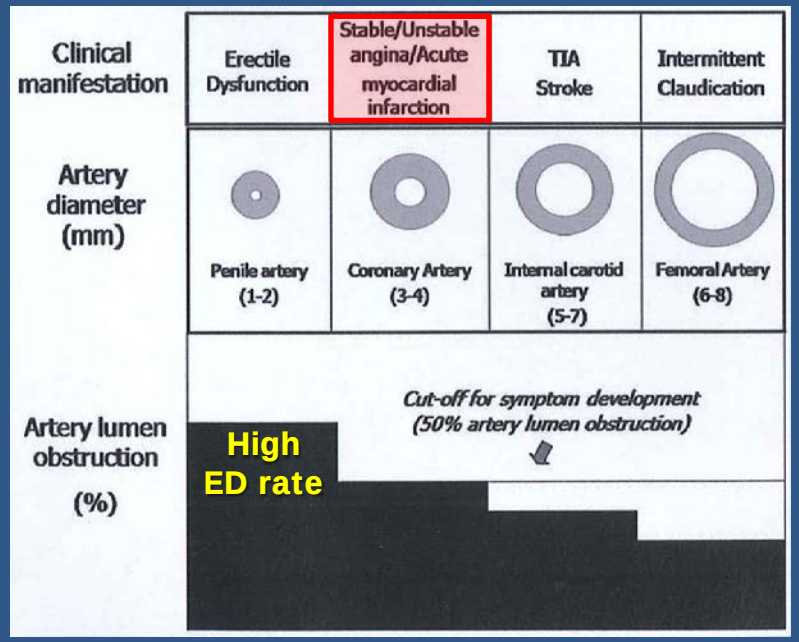
Può continuare ad avere un'attività sessuale soddisfacente

Avere problemi nell'induzione e mantenimento dell'erezione non fa parte di un normale processo di invecchiamento

ED and CAD

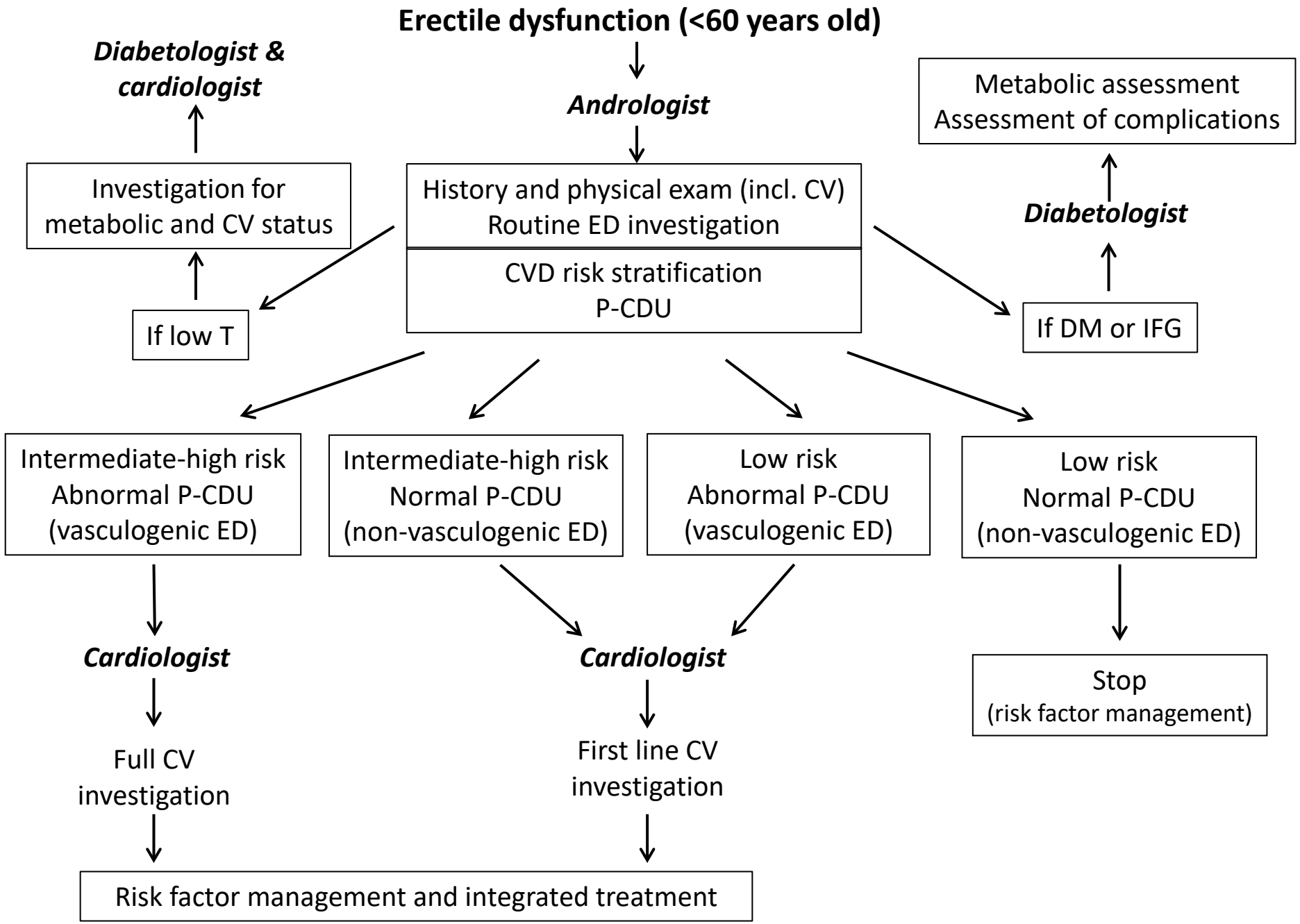
The «chicken or the egg» concept

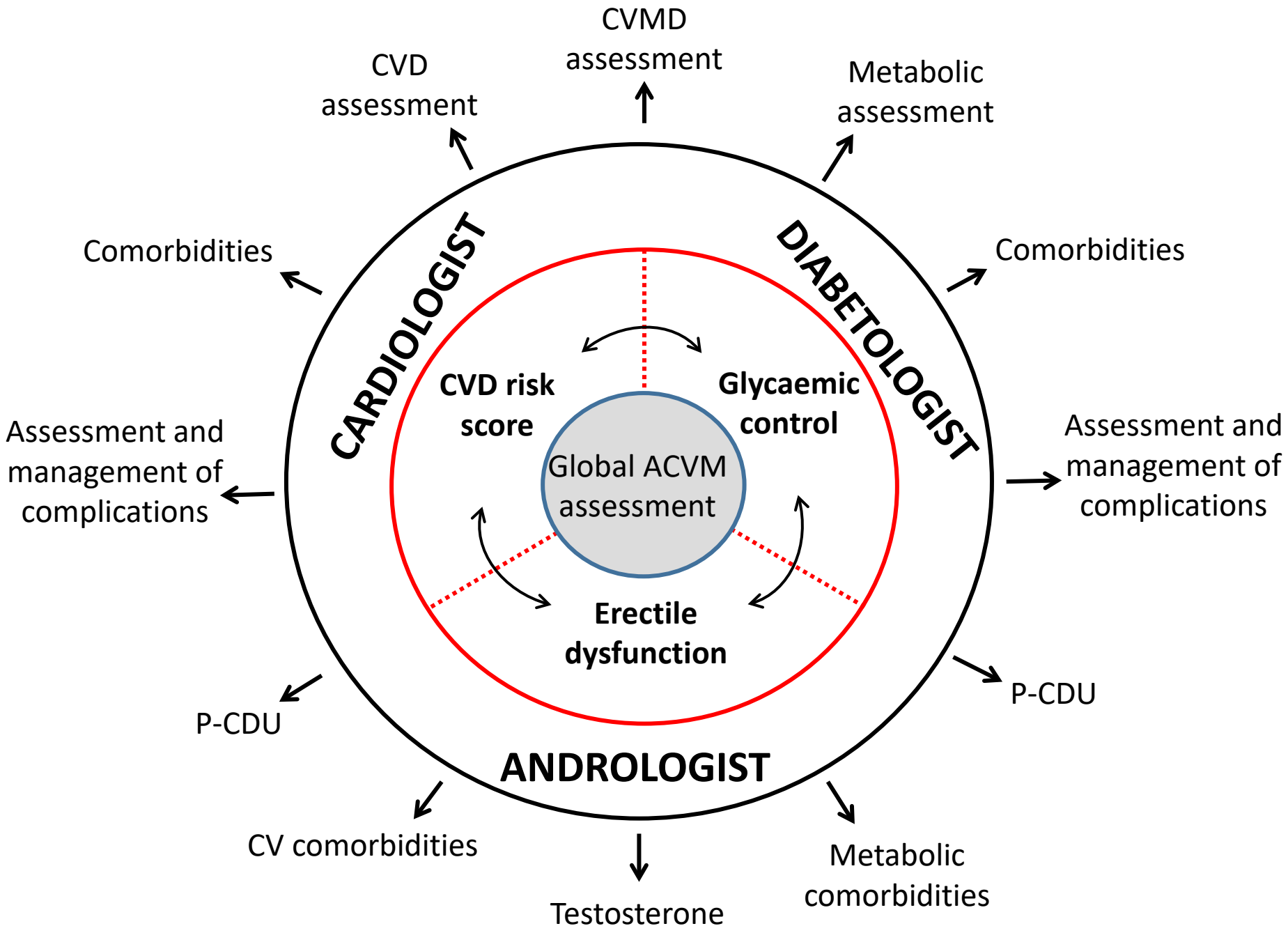




that mens a low rate of positive «non-invasive» tests (i.e. EST)

Montorsi P. *Am J Cardiol* **2005;96:19M**

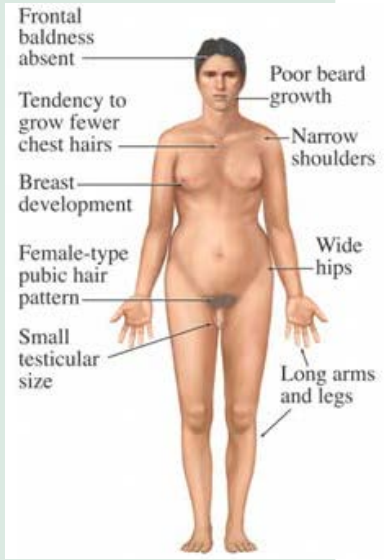

Erectile dysfunction (<60 years old)
Andrologist
Diabetologist & cardiologist
Investigation for metabolic and CV status
If low T
History and physical exam (incl. CV)
Routine ED investigation
CVD risk stratification
P-CDU
Metabolic assessment
Assessment of complications
Diabetologist
If DM or IFG
Intermediate-high risk
Abnormal P-CDU
(vasculogenic ED)
Intermediate-high risk
Normal P-CDU
(non-vasculogenic ED)
Low risk
Abnormal P-CDU
(vasculogenic ED)
Low risk
Normal P-CDU
(non-vasculogenic ED)
Cardiologist
Cardiologist
Full CV investigation
First line CV investigation
Stop
(risk factor management)
Risk factor management and integrated treatment


CVMD assessment
CVD assessment
Metabolic assessment
Comorbidities
Comorbidities
CARDIOLOGIST
DIABETOLOGIST
CVD risk score
Glycaemic control
Global ACVM assessment
Assessment and management of complications
Assessment and management of complications
Erectile dysfunction
P-CDU
P-CDU
ANDROLOGIST
CV comorbidities
Testosterone
Metabolic comorbidities

Clinical manifestations of male hypogonadism

Prepubertal onset

- Testes volume <5 cm^3
- Micropenis
- Cryptorchidism
- Anosmia (Kallmann's syndrome)
- Hypopigmented scrotum
- Lack of scrotal rugae
- Gynaecomastia
- Eunuchoidal proportions
- Decreased body hair
- High-pitched voice
- Low hair line
- Decreased libido
- Decreased bone mass
- Decreased muscle mass
- Visual-field defects (pituitary lesion)
- Small prostate



Postpubertal onset*

- Decreased libido
- Decreased spontaneous erections
- Decrease in testicular volume
- Gynaecomastia
- Hot flashes
- Decreased bone mass
- Height loss or minimum-trauma fracture
- Decreased pubic and axillary hair
- Decreased frequency of shaving
- Galactorrhoea (prolactinoma; rare)
- Visual-field defects (pituitary lesion)
- Decreased muscle mass
- Decreased energy and motivation

*These patients have normal skeletal proportions, penile length, voice, and prostate size.

Basaria, Lancet 2014

LOH

Complex relation between symptoms and T levels

Symptoms of hypogonadism are similar to those of ageing:

Diminished libido and erections (especially nocturnal)

Depressed mood, irritability, fatigue, decreased cognitive abilities

Sleep disturbances

Decreased muscle mass & strength

Decreased body hair & skin changes

Decreased bone mineral density

Testosterone Deficiency in Men: Systematic Review and Standard Operating Procedures for Diagnosis and Treatment

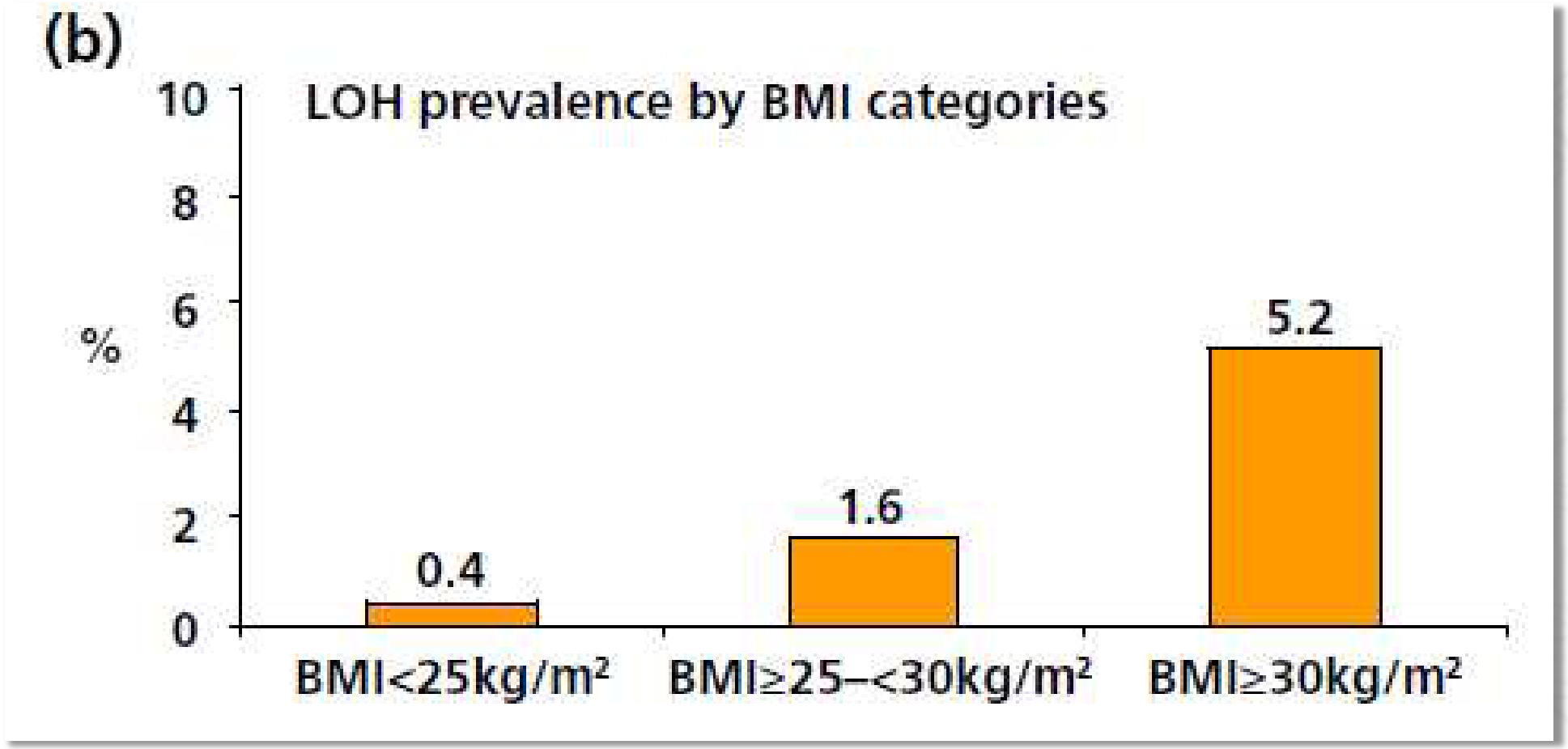
2012 International Society for Sexual Medicine J Sex Med **;**:**–**

Jacques Buvat, MD,* Mario Maggi, MD,† André Guay, MD,‡ and Luiz Otavio Torres, MD§

Table 2 Symptoms, signs, and conditions indicative of Testosterone Deficiency [3,5,6,13,41].

Most specific signs and symptoms	Less specific signs and symptoms	Most specific conditions
Reduced sexual desire and activity	Decreased energy, motivation, initiative	Type 2 diabetes mellitus
Decreased spontaneous erections	Delayed ejaculation	Metabolic syndrome
Erectile Dysfunction	Reduced muscle bulk and strength	Chronic obstructive lung disease, Obstructive Sleep Apnea Syndrome
Hot flushes, sweats	Diminished physical or work performance	End-stage renal disease, hemodialysis
Decreased testicle size	Mild anemia (normocytic, normochromic)	Osteoporosis
Loss of pubic hair, reduced requirement for shaving	Depressed mood, irritability	HIV- associated weight loss
Increased BMI, visceral obesity	Poor concentration and memory	History of infertility, cryptorchidism, pituitary disease, delayed puberty
Height loss, low trauma fractures, reduced BMD	Sleep disturbances, sleepiness	Treatment with opioids or glucocorticoids

EMAS



Wu et al, N Engl J Med. 2010;363:123-35

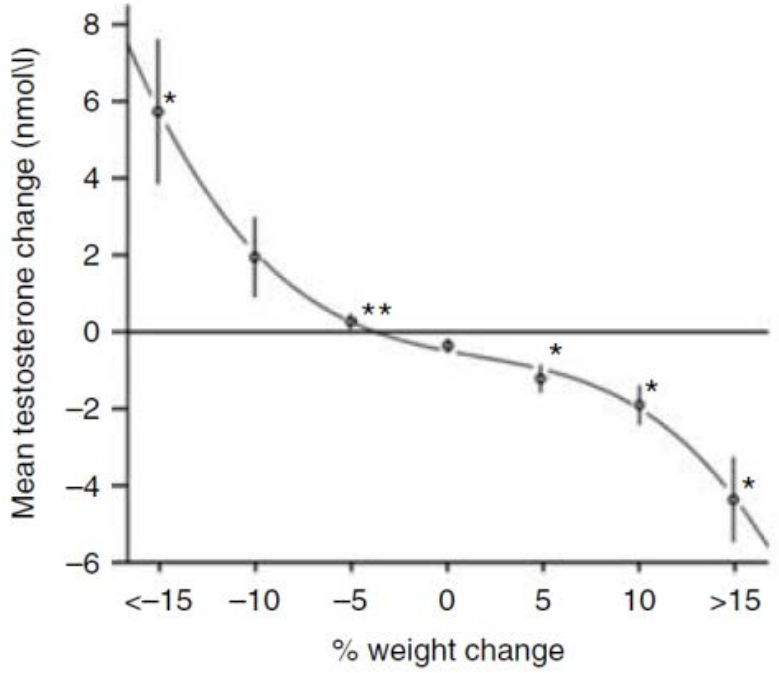
European Journal of Endocrinology (2013) **168** 445–455 ISSN 0804-4643

CLINICAL STUDY

Age-associated changes in hypothalamic–pituitary–testicular function in middle-aged and older men are modified by weight change and lifestyle factors: longitudinal results from the European Male Ageing Study

E M Camacho, I T Huhtaniemi[1], T W O'Neill[2], J D Finn, S R Pye[2], D M Lee[2], A Tajar[2,*], G Bartfai[3], S Boonen[4], F F Casanueva[5,6], G Forti[7], A Giwercman[8], T S Han[9], K Kula[10], B Keevil[11], M E Lean[12], N Pendleton[13], M Punab[14], D Vanderschueren[15], F C W Wu and the EMAS Group[†]

Conclusions: Body weight and lifestyle factors influence HPT axis function in ageing. Weight loss was associated with a rise, and weight gain a fall, in testosterone, FT and SHBG. Weight management appears to be important in maintaining circulating testosterone in ageing men, and obesity-associated changes in HPT axis hormones are reversible following weight reduction.



LOH

Difference between the effects of age and those related to metabolic syndrome and obesity

	Age dependent decrease of testosterone	Dysmetabolic hypotestosteronemia
Testosterone	↓	↓
SHBG	↑	↓
LH	↑	↓

Therefore, the LOH syndrome is not an unique entity.
These two conditions should be distinguished, since their pathophysiology (and hormone profile) differ.

Ipogonadismo dell’adulto
Complessa relazione con i livelli di testosterone

Cut-off di normalità?

Cut-off di sintomatologia?

Durata dell’ipogonadismo

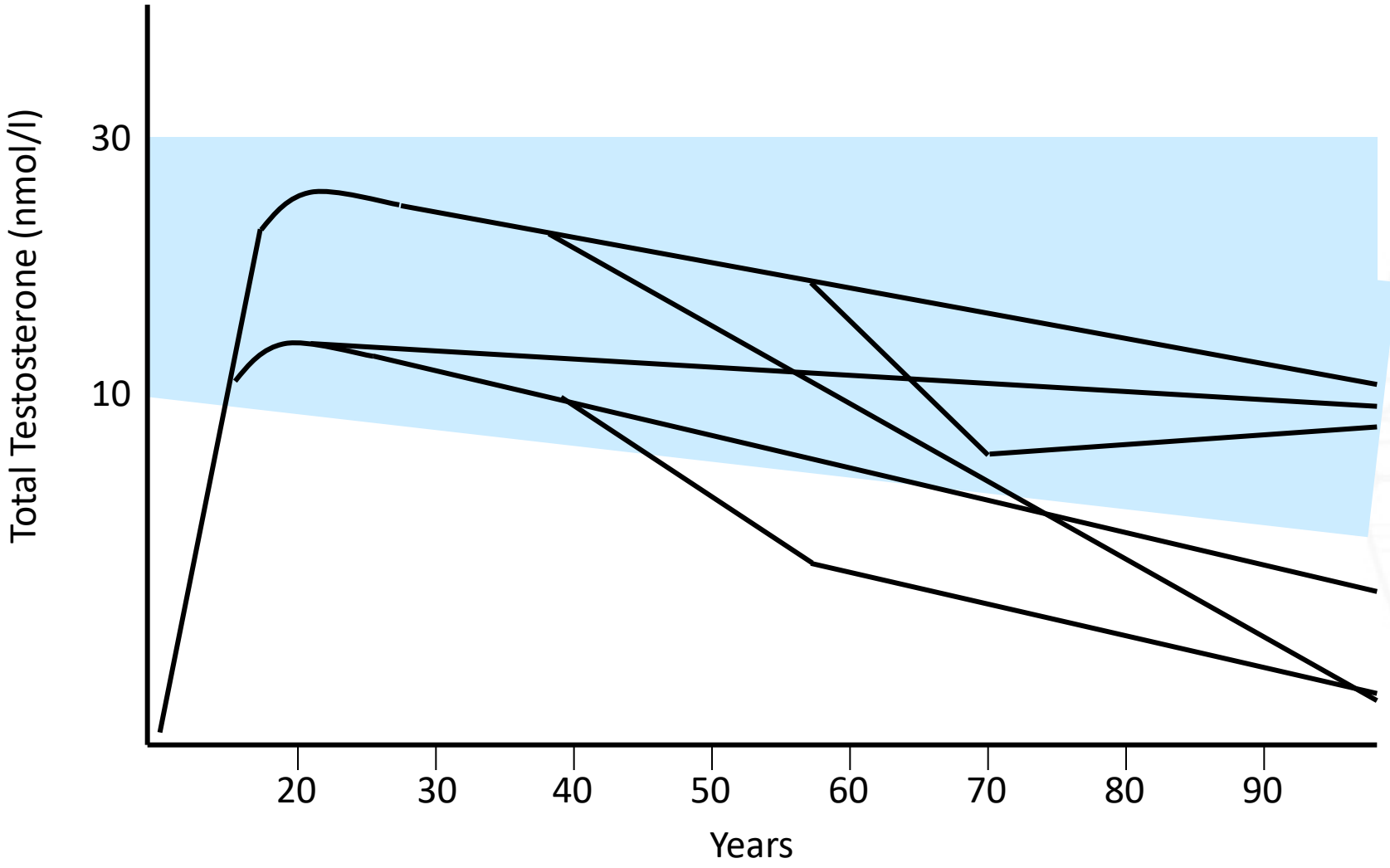
Rapidità di insorgenza

Entità della diminuzione del testosterone

Livelli di partenza di testosterone

…

…

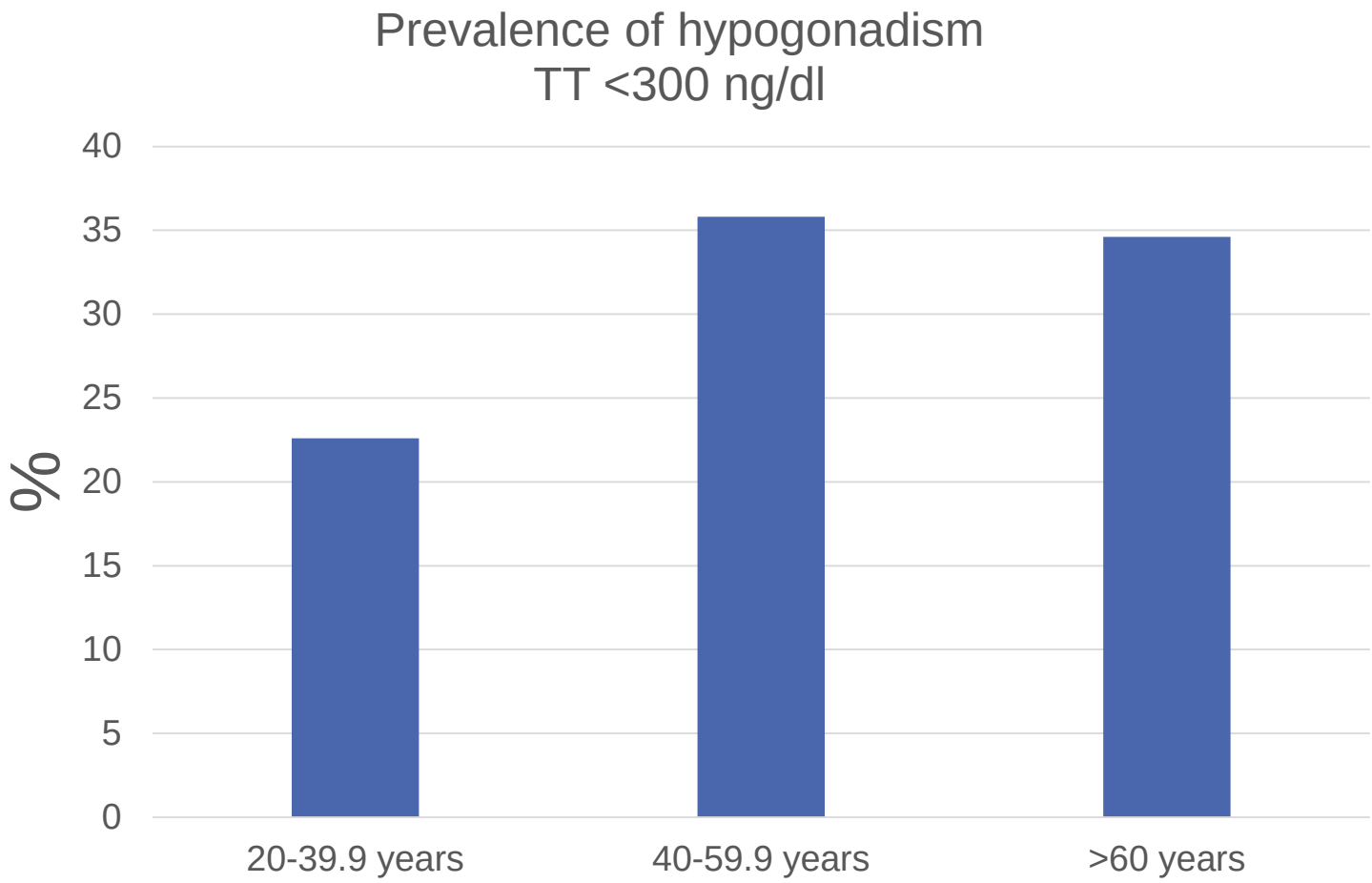

Total Testosterone (nmol/l)
30
10
20
30
40
50
60
70
80
90
Years

OPEN

Testosterone Deficiency, Weakness, and Multimorbidity in Men

Mark D. Peterson[1], Aleksandr Belakovskiy[2], Ryan McGrath[1] & Joshua F. Yarrow[3,4]

SCIENTIFIC REPORTS | (2018) 8:5897 | DOI:10.1038/s41598-018-24347-6



OPEN

Testosterone Deficiency, Weakness, and Multimorbidity in Men

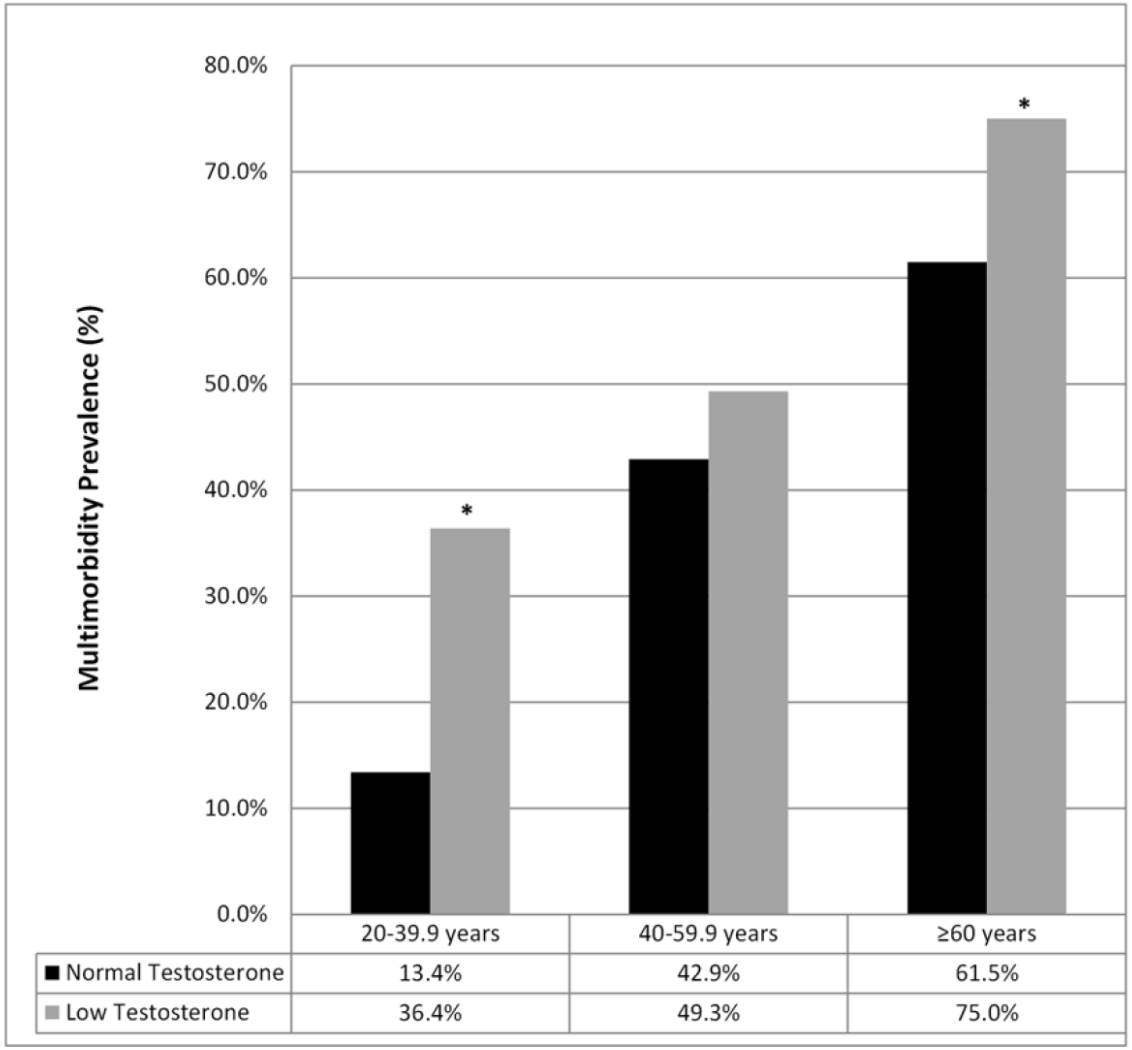
Mark D. Peterson[1], Aleksandr Belakovskiy[2], Ryan McGrath[1] & Joshua F. Yarrow[3,4]

SCIENTIFIC REPORTS | (2018) 8:5897 | DOI:10.1038/s41598-018-24347-6

	Age 20–39.9 years		Age 40–59.9		Age ≥ 60 years	
	Normal TT (≥300 ng/dL)	TT Deficiency (<300 ng/dL)	Normal TT (≥300 ng/dL)	TT Deficiency (<300 ng/dL)	Normal TT (≥300 ng/dL)	TT Deficiency (<300 ng/dL)
Prevalence (%)	*n = 669*	*n = 195*	*n = 490*	*n = 276*	*n = 501*	*n = 268*
Obesity (BMI >30)	22.8	55.7*	30.0	48.0*	25.8	45.9*
Abdominal Obesity (WC >102 cm)	21.5	57.1*	37.1	59.5*	42.9	64.9*
Diabetes	3.1	7.7*	15.9	26.5*	27.9	41.8*
Arthritis	3.6	4.1	18.2	18.1	36.3	44.4*
Cardiovascular Disease	0.3	2.1*	5.5	2.9	15.2	20.2*
Stroke	0.2	0.1	2.9	1.5	10.2	7.8
Pulmonary Disease	0.0	1.0	2.0	1.8	3.8	7.5*
Hypertension	18.4	38.5*	49.6	50.7	73.0	80.0*
Clinical Depression	5.5	11.5*	8.7	8.0	6.2	6.7
Low HDL-Cholesterol	20.2	42.1*	25.1	39.1*	20.2	35.1*
Hypertriglyceridemia	17.9	48.0*	33.6	50.1*	20.4	32.2*
Multimorbidity	*13.5*	*36.4**	*42.9*	*49.3*	*61.5*	*75.0**

Table 2. Prevalence (%) of chronic conditions/diseases between men with testosterone deficiency (<300 ng/dL [10.4 nmol/L])) versus those with normal TT. *Significant difference between subjects with and without Testosterone deficiency, within the same category.

Multimorbidity in low TT *vs* normal TT



	20-39.9 years	40-59.9 years	≥60 years
Normal Testosterone	13.4%	42.9%	61.5%
Low Testosterone	36.4%	49.3%	75.0%

Predictors of multimorbidity

Model Predictor(s)	Odds Ratio	95% CL	Pr > ChiSq
Unadjusted Model			
[a]Total Testosterone Tertiles (Ref: High Testosterone)			
Low Testosterone	2.18	1.71–2.79	<0.001
Medium Testosterone	1.39	1.09–1.77	0.01
Model 2: Sociodemographic Adjusted			
Age Category (Ref: 20–399 years)			
Age 40–59.9 years	4.52	3.19–6.42	<0.001
Age ≥ 60 years	9.19	6.87–12.31	<0.001
Race/ethnicity (Ref: Non-Hispanic White)			
Non-Hispanic black	0.98	0.76–1.26	0.86
Hispanic or Mexican American	1.04	0.79–1.37	0.79
Other, including multi-racial	0.96	0.61–1.49	0.85
Education Level (Reference: College Graduate)			
<High School Graduate	1.67	0.89–3.14	0.11
Some College	1.43	0.79–2.61	0.24
Marital Status (Reference: Unmarried)	1.09	0.76–1.56	0.66
Income Level (Reference: ≥$75,000)			
<$25,000	2.11	1.37–3.25	0.01
$25,000–$54,999	1.22	0.79–1.90	0.37
$55,999–$74,999	1.32	0.89–1.95	0.16
[a]Total Testosterone Tertiles (Ref: High Testosterone)			
Low Testosterone	2.87	2.14–3.83	<0.001
Medium Testosterone	1.67	1.27–2.20	<0.001

Table 3. Univariate and sociodemographic-adjusted logistic regression mode men. [a]Denotes age-category specific Total Testosterone Tertiles.

Model Predictor(s)	Odds Ratio	95% CL	Pr > ChiSq
Age Category (Ref: 20–399 years)			
Age 40–59.9 years	3.62	2.43–5.40	<0.001
Age ≥60 years	6.23	4.07–9.54	<0.001
Obesity (BMI ≥30)	1.75	1.07–2.87	0.03
Race/ethnicity (Ref: Non-Hispanic White)			
Non-Hispanic black	1.08	0.79–1.46	0.63
Hispanic or Mexican American	0.97	0.71–1.33	0.85
Other, including multi-racial	1.13	0.75–1.68	0.57
Education Level (Reference: College Graduate)			
<High School Graduate	1.52	0.76–3.02	0.23
Some College	1.27	0.70–2.30	0.43
Marital Status (Reference: Unmarried)	1.29	0.82–2.03	0.27
Income Level (Reference: ≥$75,000)			
<$25,000	2.41	1.53–3.80	<0.001
$25,000–$54,999	1.24	0.79–1.94	0.36
$55,999–$74,999	1.21	0.77–1.89	0.41
[a]Total Testosterone Tertiles (Ref: High Testosterone)			
Low Testosterone	1.82	1.29–2.55	<0.001
Medium Testosterone	1.31	1.01–1.69	0.04
Normalized Grip Strength	1.21	1.08–1.35	<0.001

Table 4. Multiple logistic regression models for independent predictors of multimorbidity of obesity and NGS. [a]Denotes age-category specific Total Testosterone Tertiles. *OR and 95 unit lower.

J Endocrinol Invest
DOI 10.1007/s40618-014-0155-9

CONSENSUS STATEMENT

Outcomes of androgen replacement therapy in adult male hypogonadism: recommendations from the Italian society of endocrinology

A. M. Isidori · G. Balercia · A. E. Calogero · G. Corona · A. Ferlin · S. Francavilla · D. Santi · M. Maggi

Parameter	Population	Effect	No. RCT/ No. subjects	Evidence
Body composition				
Waist circumference	MetS or T2DM	↓	6/701	2 ØØOO
Body fat	MetS or T2DM Metabolically unclassified	↓ ↓	5/379 10/1513	2 ØØOO 1 ØØØO
Body lean	MetS or T2DM Metabolically unclassified	↑ ↑	4/174 9/1491	2 ØØOO 2 ØØØO
Metabolism				
Glycated haemoglobin	MetS or T2DM	↓	6/555	2 ØØOO
Total cholesterol	Metabolically unclassified	↓	9/490	2 ØØOO
LDL cholesterol	Metabolically unclassified	↓	8/464	2 ØØOO
Triglycerides	Metabolically unclassified	↓	8/380	2 ØØOO
Bone density	Healthy men	↑	2/41	2 ØOOO
Sexual function				
Libido	Young to middle-aged men with sexual dysfunction	↑ (if T<8 nmol/L)	17/1111	1 ØØØO
Sexual related erections	Young to middle-aged men with sexual dysfunction	↑ (if T<12 nmol/L)	24/1431	1 ØØØO
Orgasmic function	Young to middle-aged men with sexual dysfunction	↑ (if T<12 nmol/L)	10/677	2 ØOOO
Depressive symptoms	Major depression	↑	5/210	2 ØØOO

Terapia LOH

- Sempre e solo testosterone?
- Ruolo delle co-morbidità
- Tipo di ipogonadismo
- Altre funzioni ormonali del testicolo
- Terapie alternative/aggiuntive

→ Terapia personalizzata

Best Practice & Research Clinical Endocrinology & Metabolism 27 (2013) 557–579

Contents lists available at SciVerse ScienceDirect

Best Practice & Research Clinical Endocrinology & Metabolism

journal homepage: www.elsevier.com/locate/beem

7

Diagnosis and treatment of late-onset hypogonadism: Systematic review and meta-analysis of TRT outcomes

G. Corona, MD, PhD, Endocrinologist [a,b], G. Rastrelli, MD, PhD, Endocrinologist [a], M. Maggi, MD, PhD, Endocrinologist [a,*]

Different levels of interventions:

- Lifestyle modification (physical activity, weight loss)
- Removal and/or proper treatment of LOH-associated comorbidities
- Medical therapy, based on nature of hypogonadism and requirement of fertility

The 2001 Stages of Reproductive Aging Workshop (STRAW) proposed nomenclature and a staging system for ovarian aging including menstrual and qualitative hormonal criteria to define each stage

The STRAW staging system

menarche

25-30 yrs

Final menstrual period (FMP)

Stages:	-5	-4	-3	-2	-1	0	+1	+2
Terminology:	Reproductive			Menopausal transition			Postmenopause	
	Early	Peak	Late	Early	Late*		Early*	Late
				Perimenopause				
Duration of stage:	Variable			Variable		(a) 1 yr	(b) 4 yrs	until demise
Menstrual cycles:	Variable to regular	Regular		Variable cycle length (>7 days different from normal)	≥2 skipped cycles and an interval of amenorrhea (≥60 days)	Amen x 12 months	None	
Endocrine:	Normal FSH		↑ FSH	↑ FSH			↑ FSH	

Importance of the transition for many women as a period of temporal changes;
ie,
- ✓ vasomotor symptoms,
- ✓ sleep disturbance,
- ✓ depression

and longer-term changes in several health outcomes
(ie, urogenital symptoms, bone, lipids)

Definition

MENOPAUSE & CVD

Atsma F BM, Grobbee DE, van der Schouw YT.: Postmenopausal status and early menopause as independent risk factors for cardiovascular disease: a meta-analysis. Menopause 2006;13:2657-279

natural postmenop. versus premenop. status and cardiovascular disease

oophorectomy. versus premenop. status and cardiovascular disease

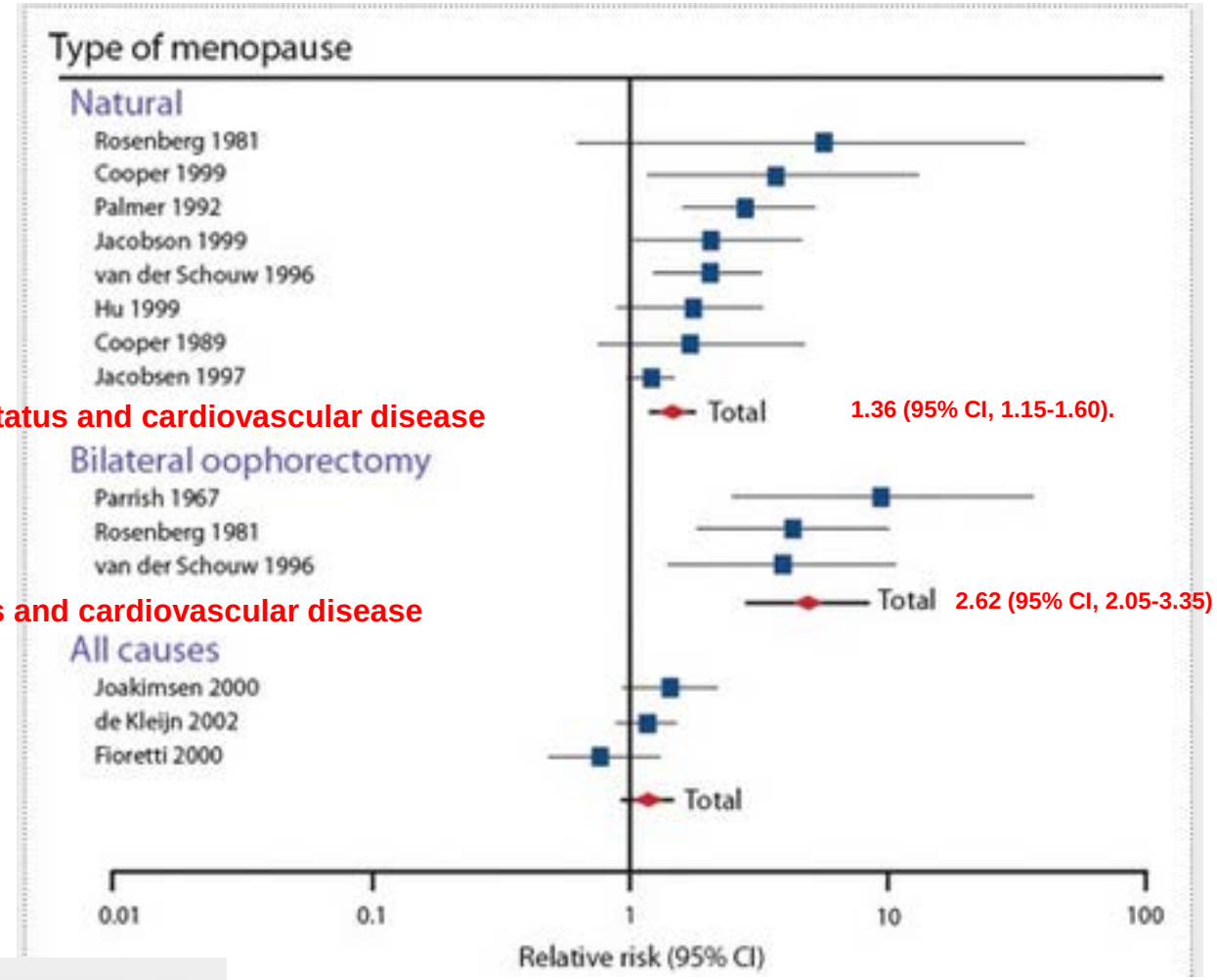


Figure 1
Meta-analysis showing relative risk of cardiovascular disease in relation to menopausal status. Adapted and reprinted with permission from Atsma *et al.*, 2006.

REMARKS #1

the “why”

- ✓ **Natural menopause is associated with increased CVD risk (RR:1.36)**
- ✓ **Surgical menopause is associated with a higher CVD risk than natural menopause (RR: 2.62)**
- ✓ **The lower the age at menopause (<45 years) the higher the risk of CVD (coronary heart disease) and mortality**

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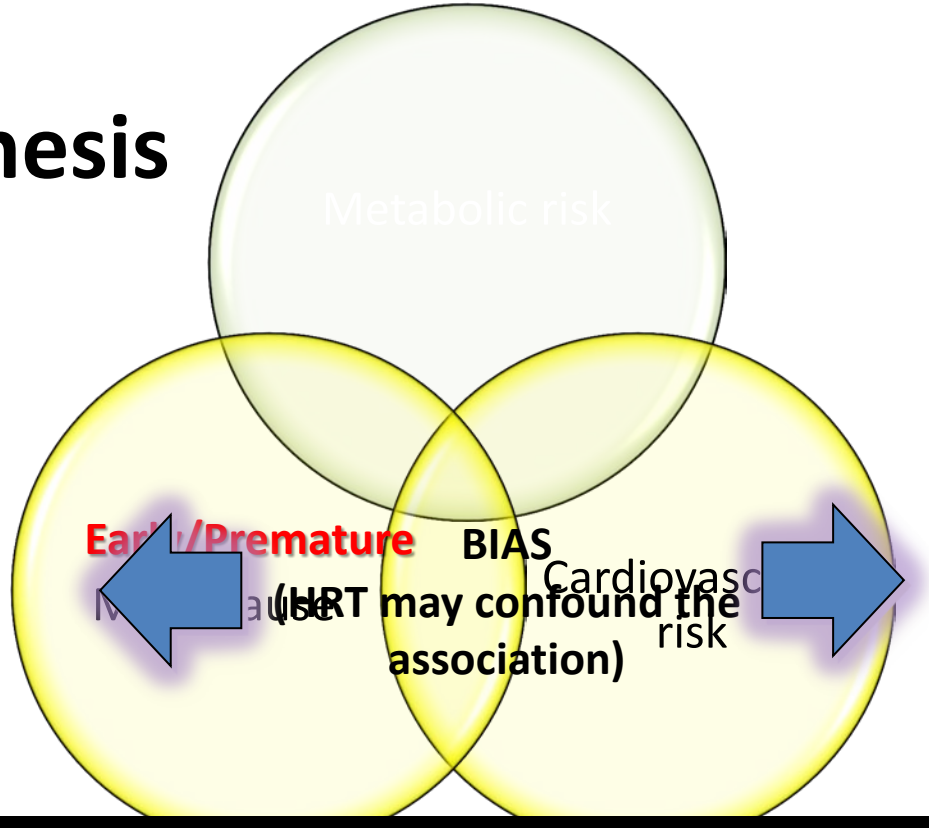
the “why”

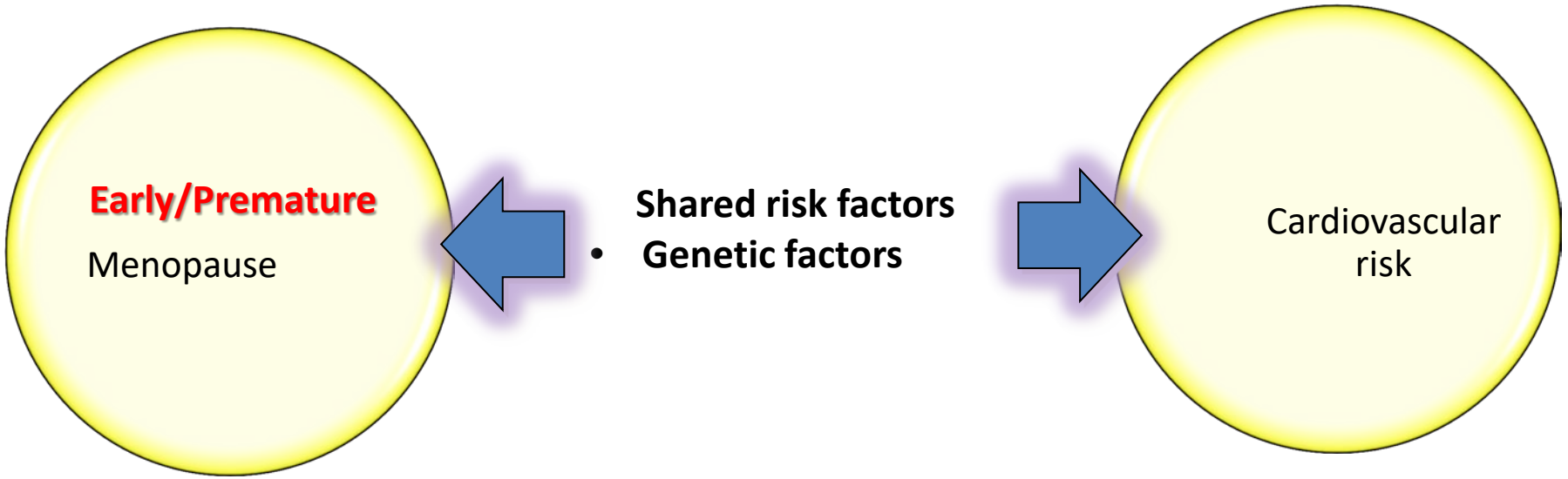
- ✓ 1° hypothesis



HRT was only adjusted for in a minority of studies

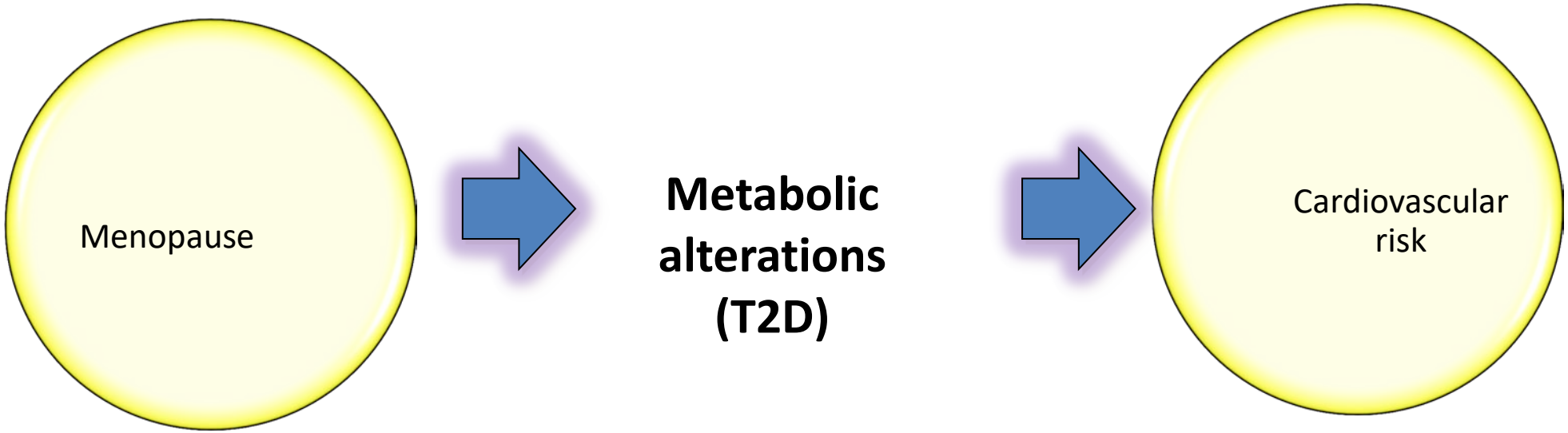
the “why”

- ✓ 1° hypothesis
- ✓ 2° hypothesis

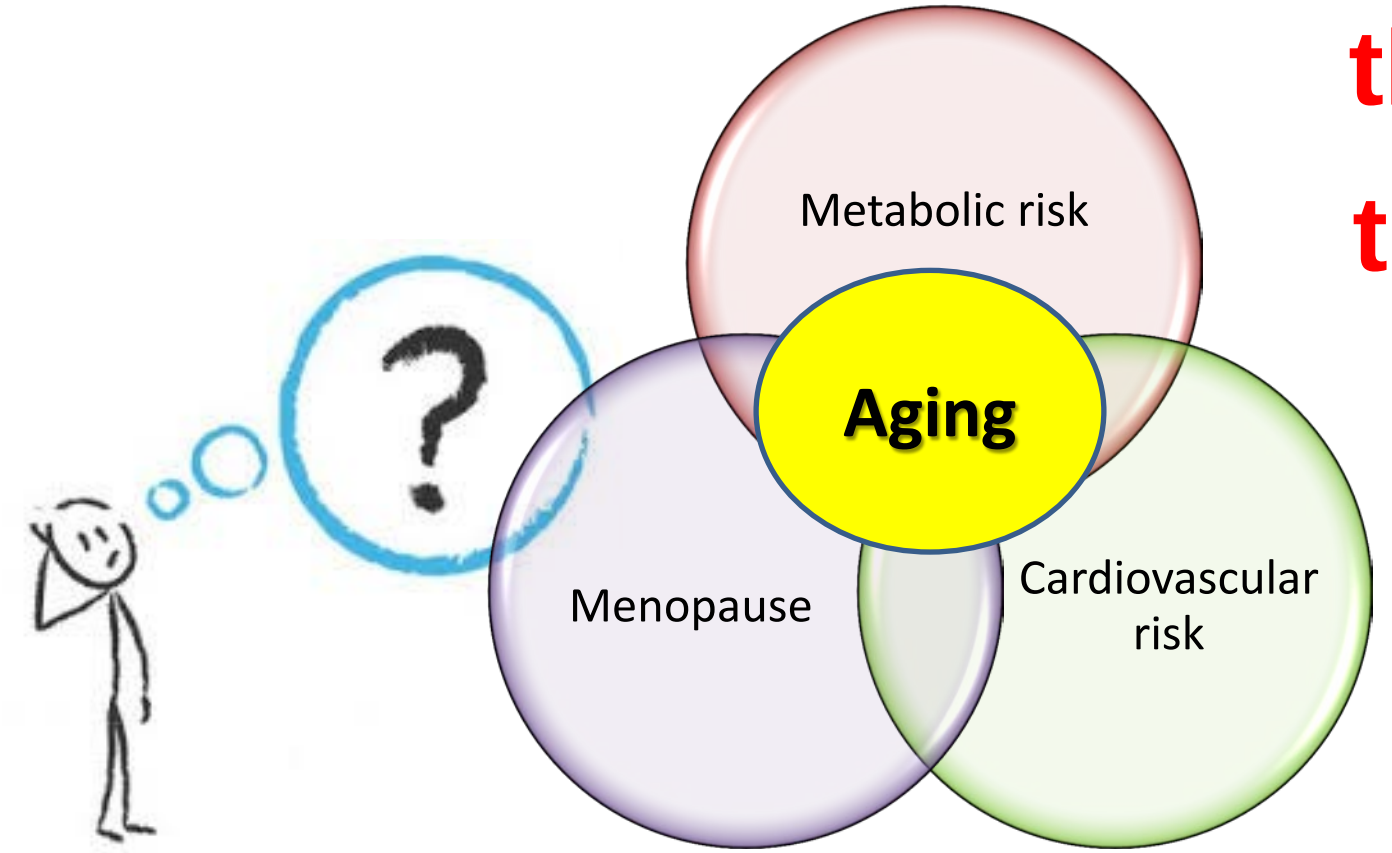


the “why”

- ✓ 1° hypothesis
- ✓ 2° hypothesis
- ✓ 3° hypothesis



the “what”



the “type”

the “age”

de Kat et al. BMC Medicine (2017) 15:2
DOI 10.1186/s12916-016-0762-8

BMC Medicine

BOTH CHRONOLOGICAL AGING AND MENOPAUSAL STATUS CONTRIBUTE TO THE CVD RISK PROFILE

However chronological aging plays a major role as compared to menopausal status

A. C. de Kat[1,2], V. Dam[2], N. C. Onland-Moret[2], M. J. C. Eijkemans[2], F. J. M. Broekmans[1] and Y. T. van der Schouw[2*]

	Naturally postmenopause vs. premenopause	Age 50 Vs. Age 45
SBP	↓	↑
DBP	No difference	↑
LDL	↑	↑
TG	↓	↑
GLY	No difference	↑
BMI	No difference	↑

Understanding the effect of Menopause,
or chronological aging
on CV & metabolic disease
Still a Work in Progress

Recommendation against prescribing HRT for preventing CV or metabolic diseases in natural menopause

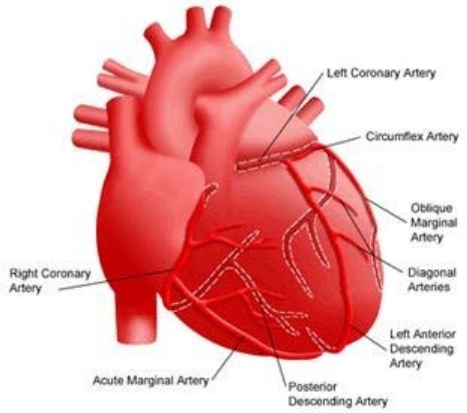
ORIGINAL CONTRIBUTION

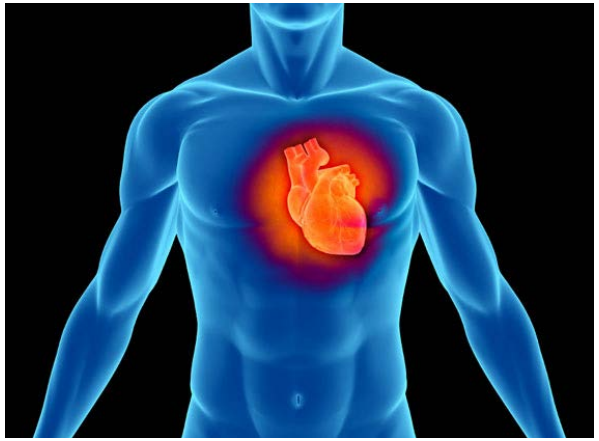
Erectile Dysfunction and Subsequent Cardiovascular Disease

Ian M. Thompson, MD
Catherine M. Tangen, DrPH
Phyllis J. Goodman, MS

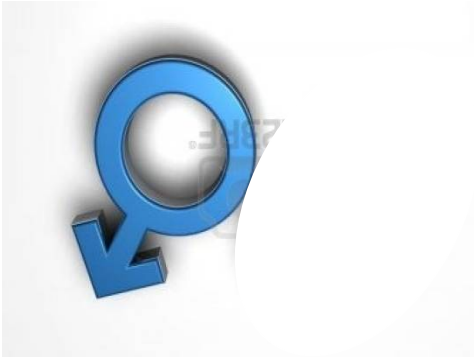
Context The risk factors for cardiovascular disease and erectile dysfunction are similar.

Objective To examine the association of erectile dysfunction and subsequent cardiovascular disease.





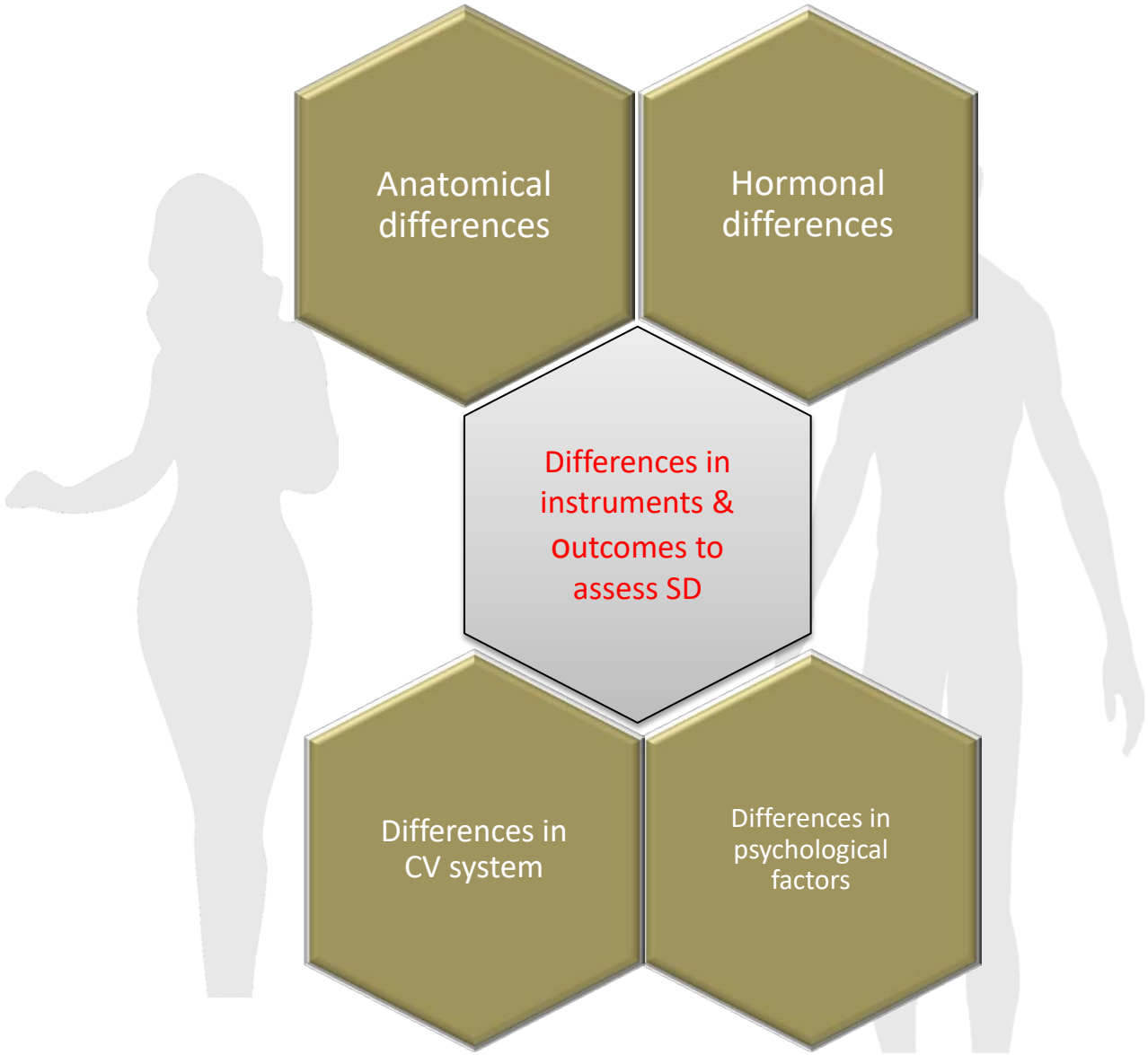
#ED is a harbinger of CVD
#Sexual activity stimulates T



Can sexual health be a mirror of cardiovascular health in women?

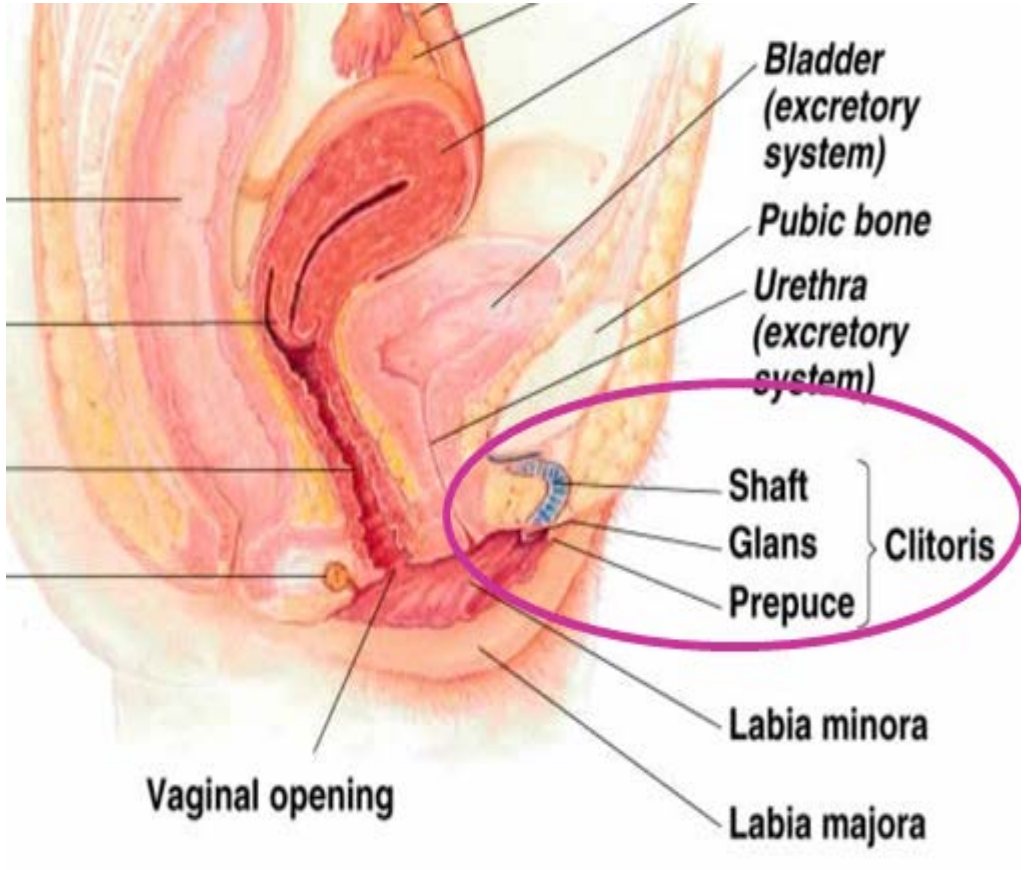
Can sexual health be a mirror of cardiovascular health in women?

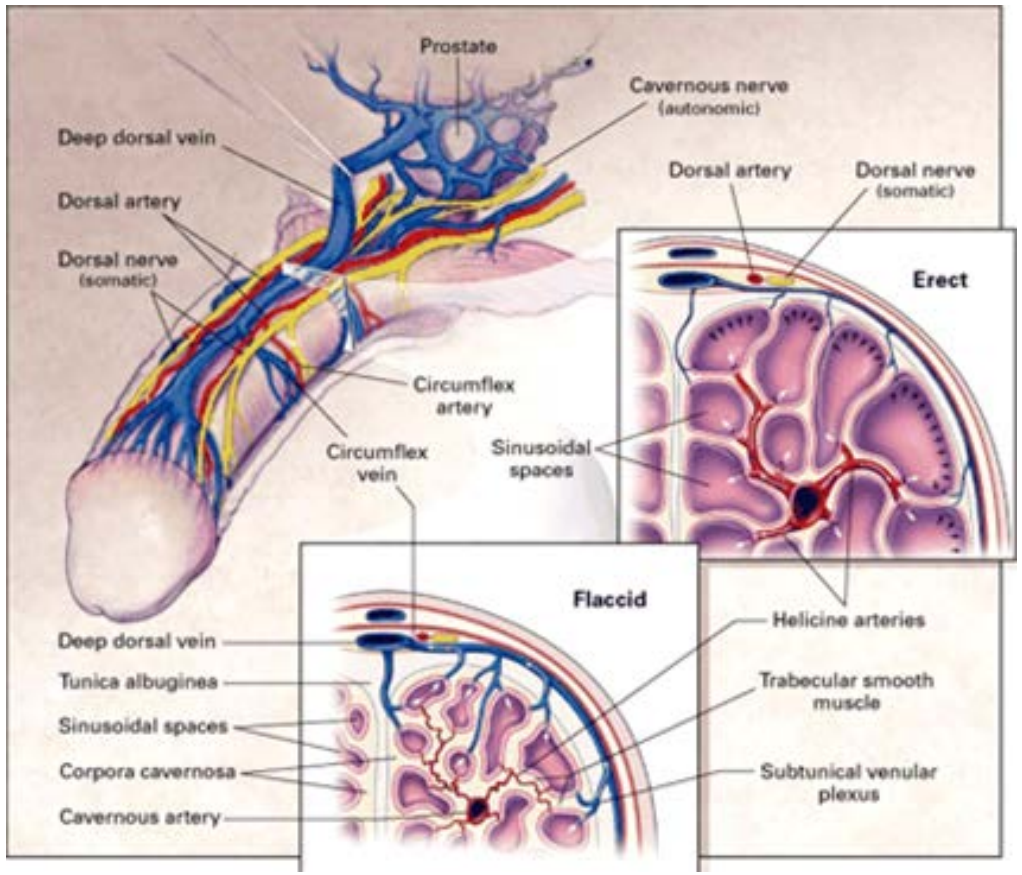
Potential causes of gender differences in the relationship between SD & CVD



Maseroli et al., Sex Med Rev. 2018 Apr 13. pii: S2050-0521(18)30044-1.

Clitoris vs. Penis



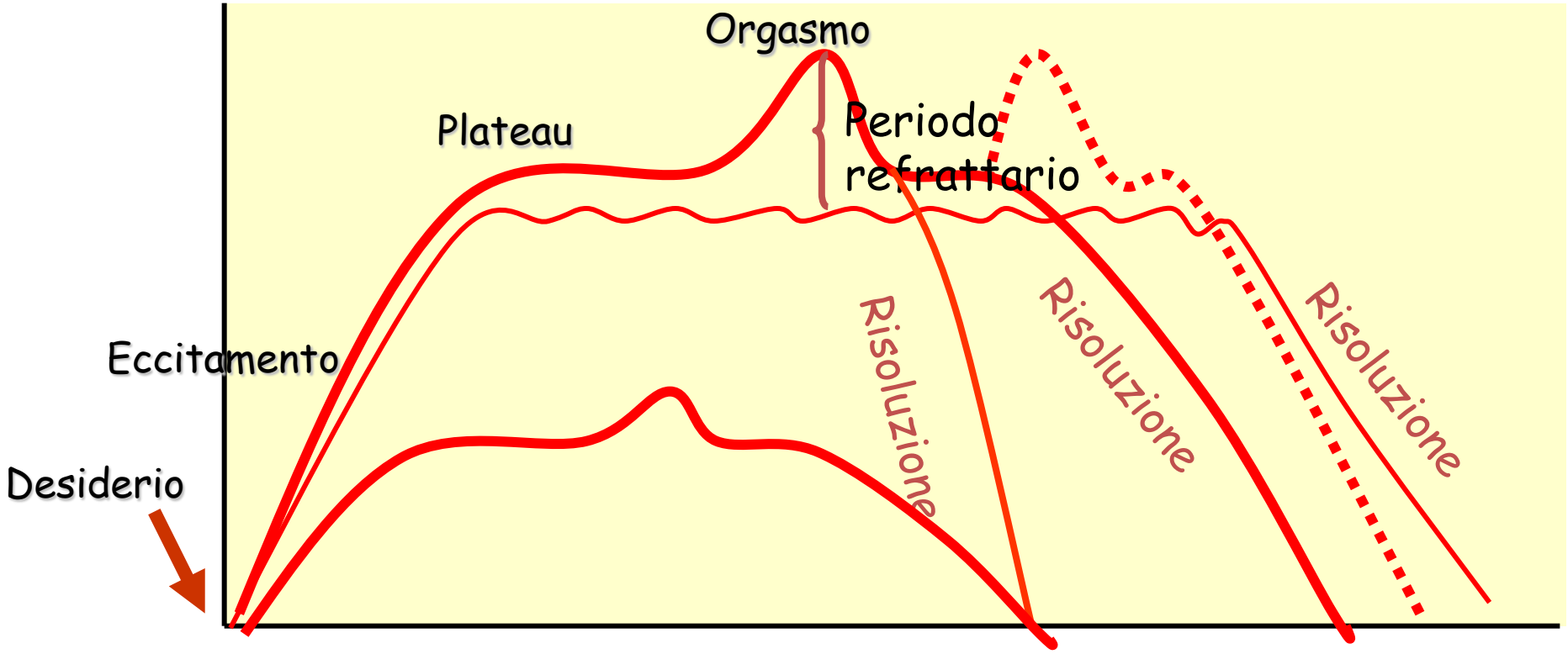


Il Ciclo della Risposta Sessuale nella Donna

Master & Johnson (1966) per primi caratterizzarono la risposta sessuale femminile:

- Eccitamento
- Plateau
- Orgasmo
- Risoluzione

Master EH, Johnson V. Human sexual response. Boston, Little Brown, 1966

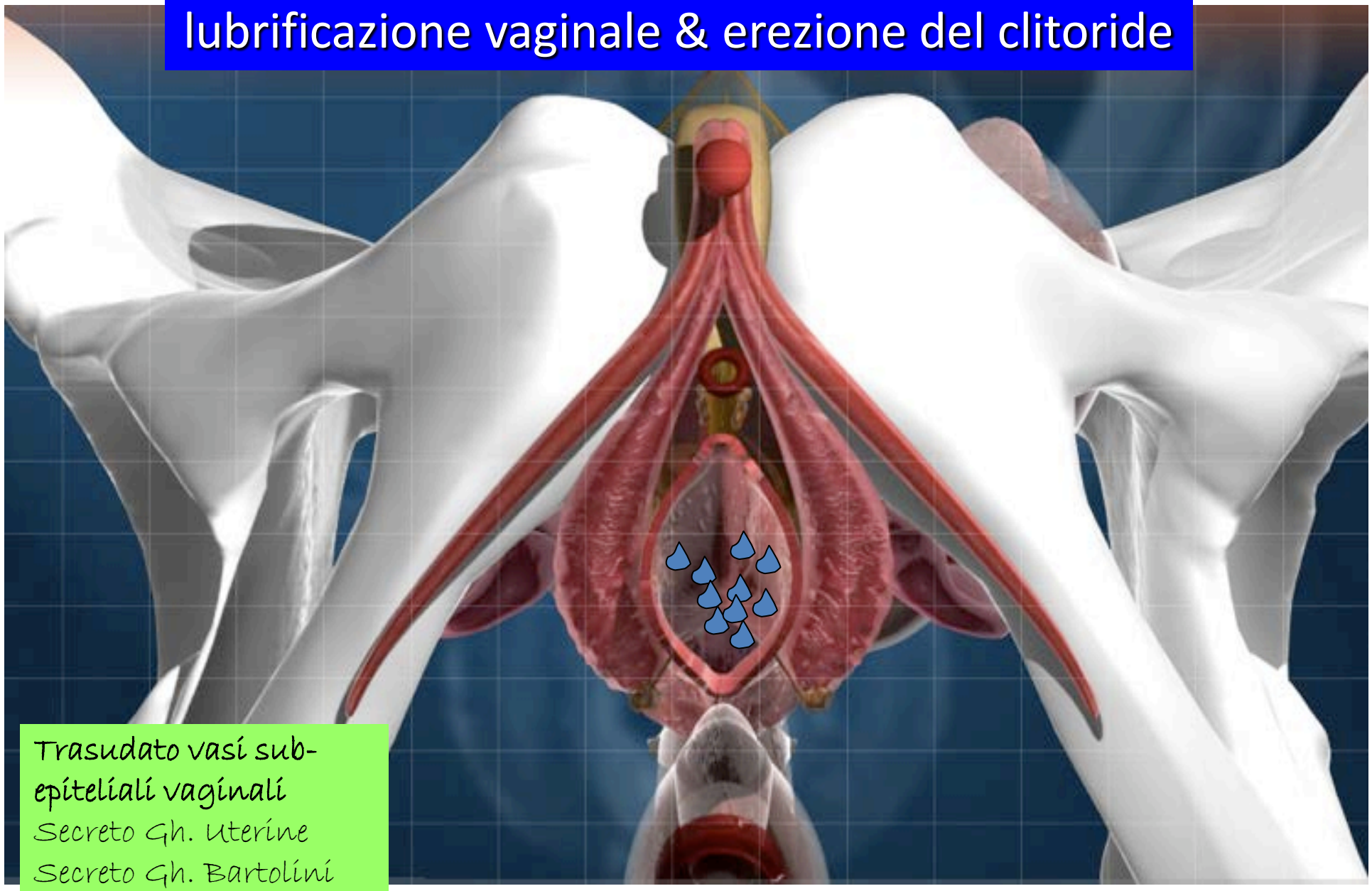


Kaplan H. The new sex therapy. London, Ballier Tindall.1974

Non soddisfazione sessuale

DISTURBO O DISFUNZIONE

Fase di Eccitamento:
lubrificazione vaginale & erezione del clitoride



Trasudato vasi sub-epiteliali vaginali
Secreto Gh. Uterine
Secreto Gh. Bartolini

Erezione del clitoride & lubrificazione: fenomeno vasodilatazione

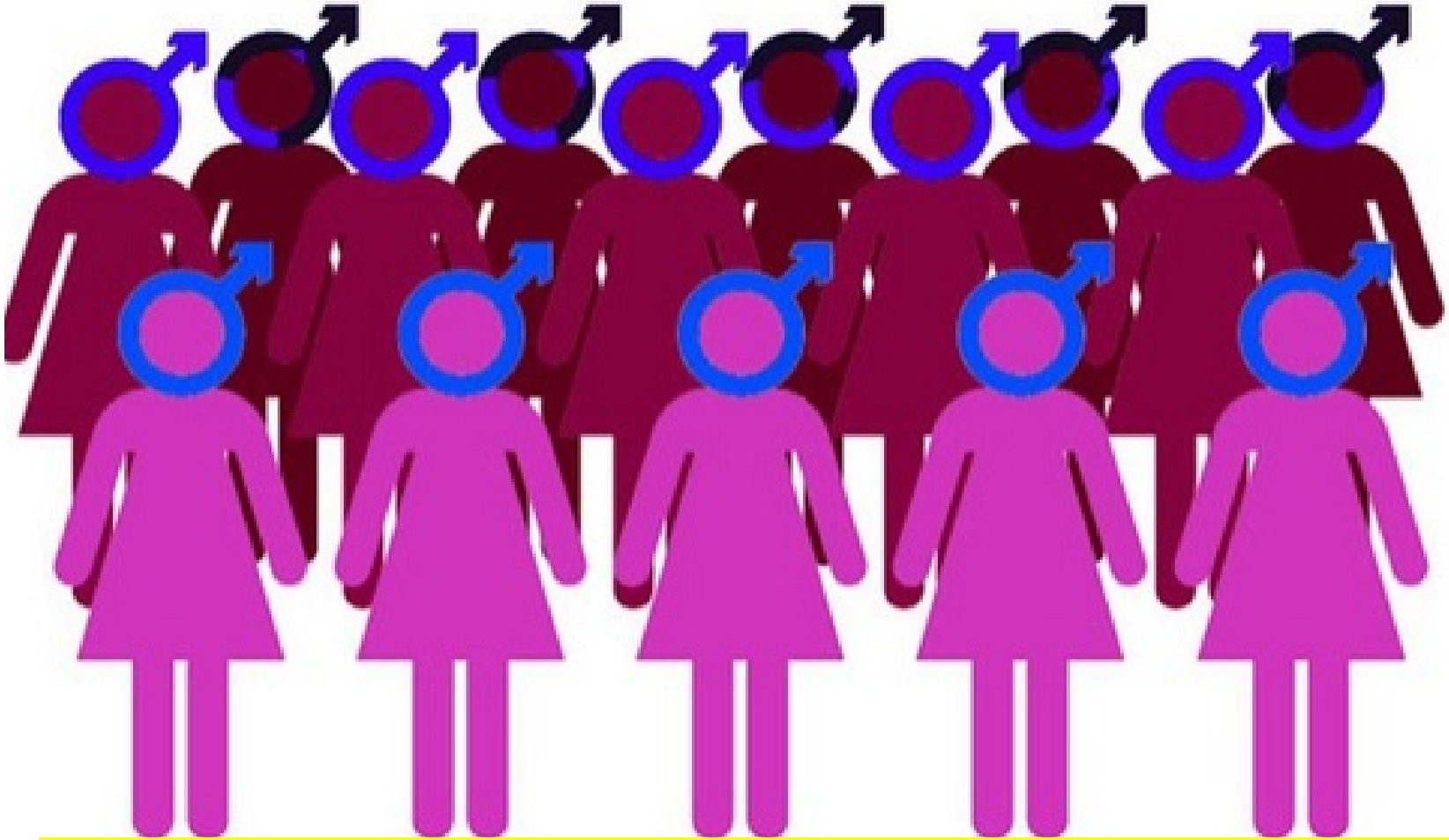
Erezione: fenomeno vasodilatazione

Malattia cardiovascolare

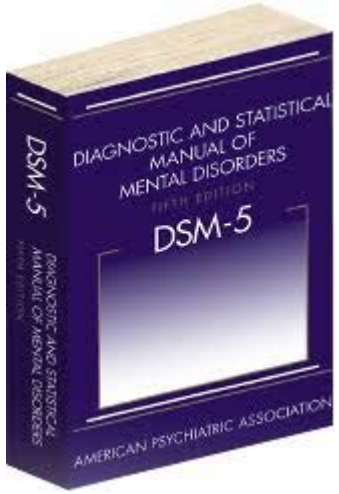
Malattia aterosclerotica Disturbo di lubrificazione ed eccitazione

Malattia aterosclerotica Disturbo di Erezione:

Can FSD be a mirror of cardiovascular health in women?



✓ Choose the most appropriate target to be explored
(do not choose sexual satisfaction)



I'M NEW

FEMALE Sexual Interest/Arousal Disorder

desire and arousal

DSM5

American Psychiatric Association.Diagnostic and Statistical Manual of Mental Disorders (5th version).
Washington: American Psychiatric Association; 2013.

Medical Conditions Potentially Impacting Sexual Desire

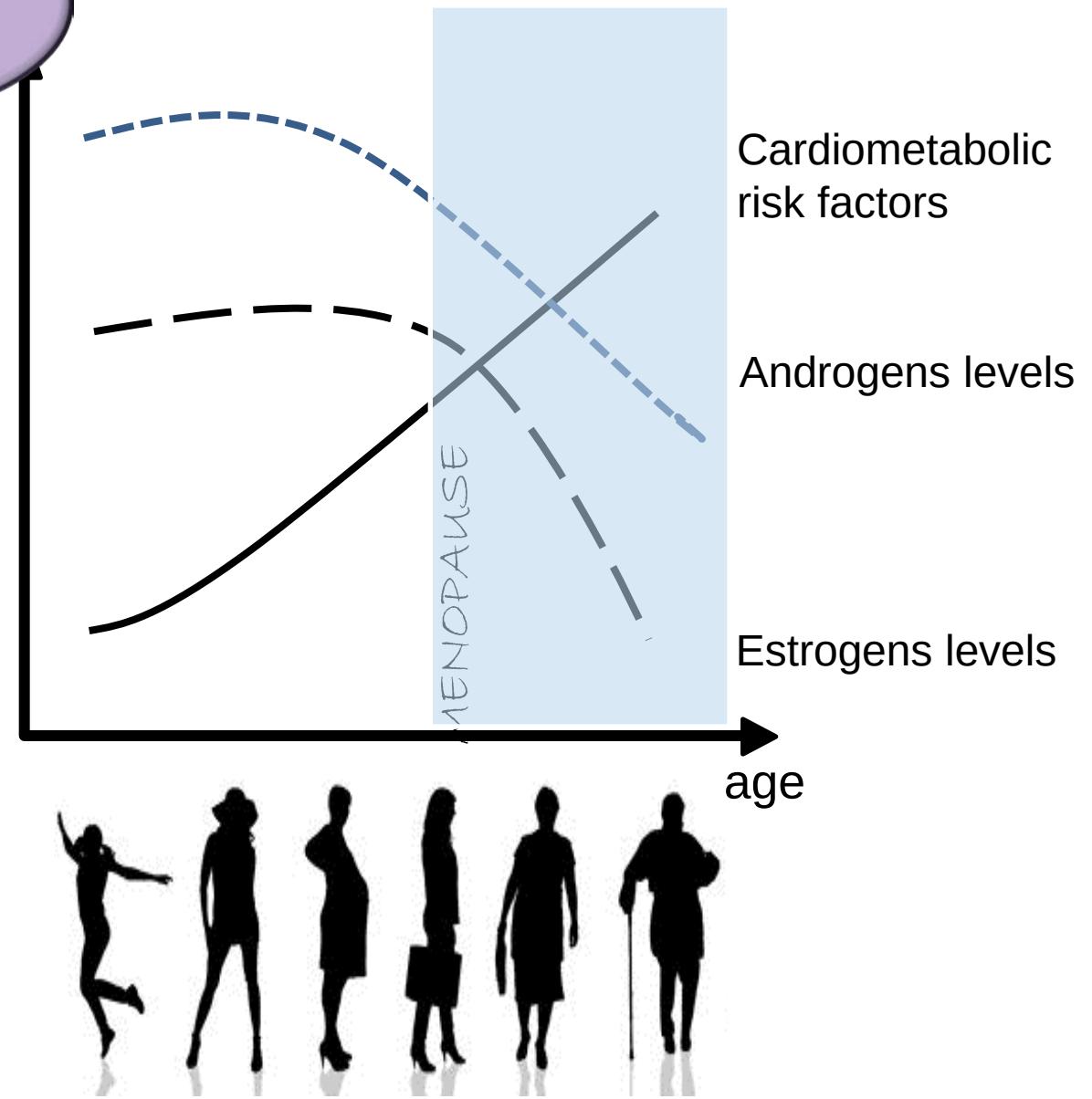
MEDICAL CONDITION	DESIRE
Coronary artery disease	
Hypertension	+
Diabetes	+
Metabolic syndrome	+
Hypothyroidism	
Pituitary tumor/hyperprolactinemia	+
Urinary incontinence	+
Spinal cord injury/multiple	+
Parkinson's disease/deme	+
Arthritis	
Dermatologic conditions (v psoriasis, Paget's disease)	
Gynecologic conditions (genitourinary syndrome of menopause, sexually transmitted infections, endometriosis, chronic pelvic pain, childbirth, pelvic organ prolapse)	
Malignancy and treatment (breast, anal, bladder, colorectal and gynecologic cancers)	+
Major depression	+

Psychological (depression) Relational factors

Clayton et al., Mayo Clin Proc 2018; in press

Hormonal factors and desire

Androgens
&
Estrogens



Maseroli et al., Sex Med Rev 2018, in press

Hormonal factors and desire

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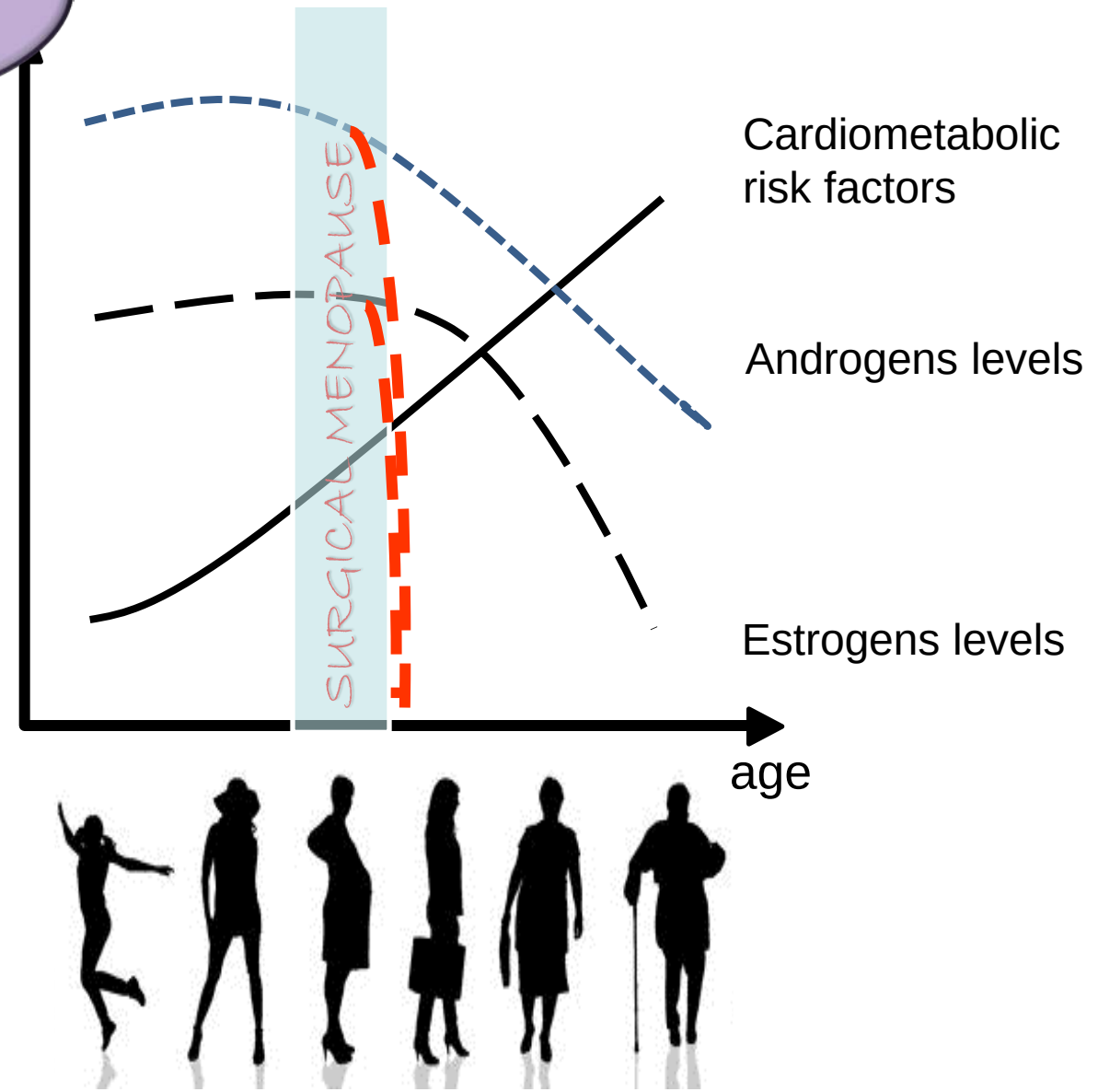
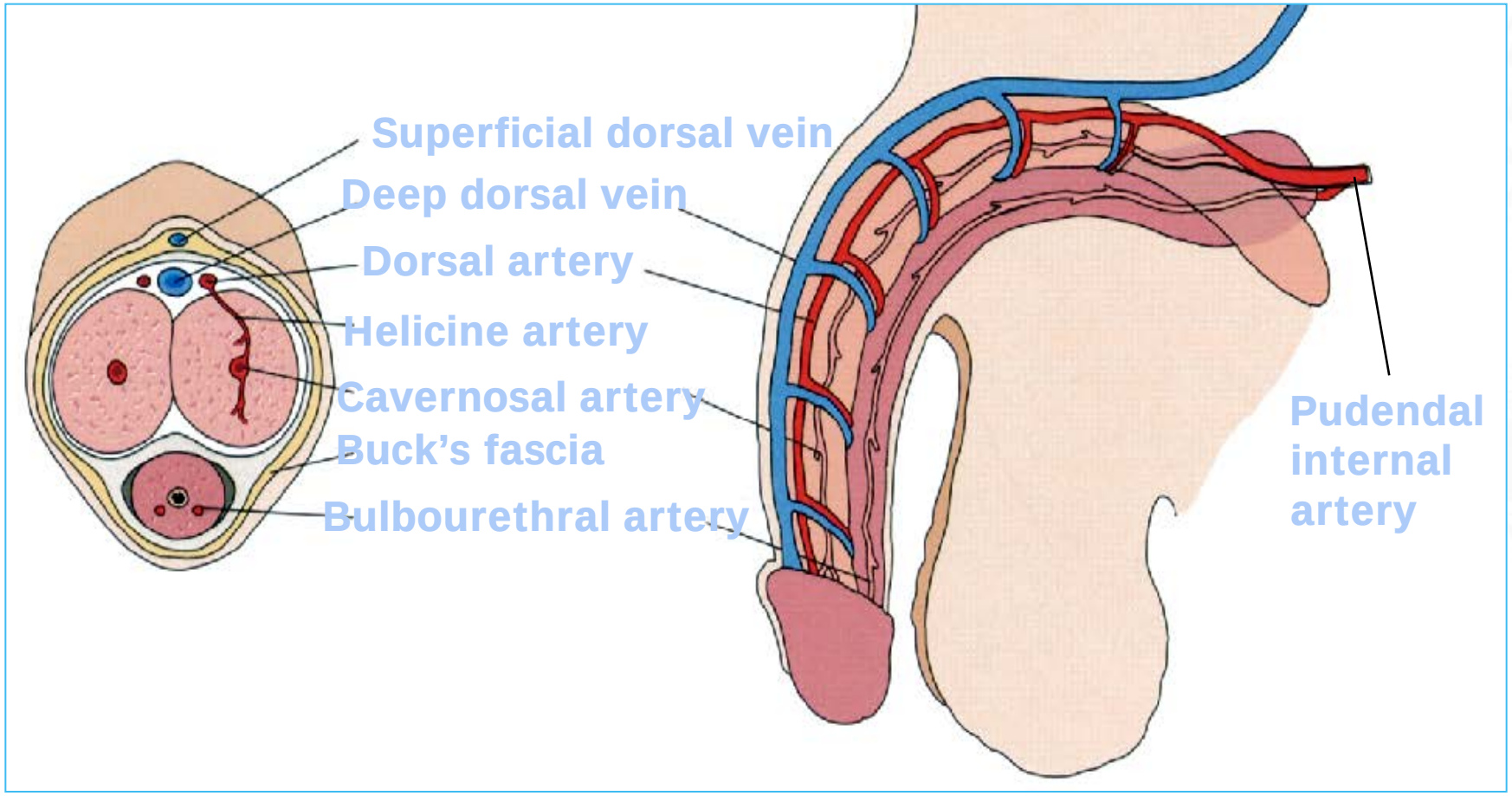


Maseroli et al., Sex Med Rev 2018, in press

L’erezione è un evento neurovascolare



DE

FR comuni
Mecc. fisiopat. comuni

Associazione clinica

CVD

- ↑ Rischio di CVD (ipertensione, cardiopatia ischemica, arteriopatia arti inferiori, ictus iscehmico)
- Marcatore sentinella di CVD subclinica
- Precede evento CV di 3-5 anni

Ipogonadismo

DE

DM

FR comuni

Associazione clinica

- ↑ Rischio di DM non noto
- Precede DM di 10-15 anni
- Predittore di cardiopatia silente
- Precede le altre complicanze del DM e può essere il primo sintomo

ECD penieno

- PSV
- IMT
- Acc
- Calcificazioni
- Stenosi
- …