

Antilibidinal effects of Androgen Deprivation Therapy

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IALMH Amsterdam





TBS Ter Beschikking Stelling =

Court Order Measure
for compulsory psychiatric treatment
under the Penal Code

Most severe offences
(warranting at least four years of prison sentence)

Offence related to a mental disorder

Sexual thoughts, sexual behaviour

Important biological factors:

Testosterone

Serotonin

Dopamin

Prolactin

and many more

Sexual thoughts, sexual behaviour

Important biological factors:

Treatment:

Testosterone



Serotonin



Dopamine



Prolactin



Sexual thoughts, sexual behaviour

Important biological factors:

Treatment:

Testosterone



Androgen Deprivation Th.

Serotonin



SSRI antidepressant

Dopamine



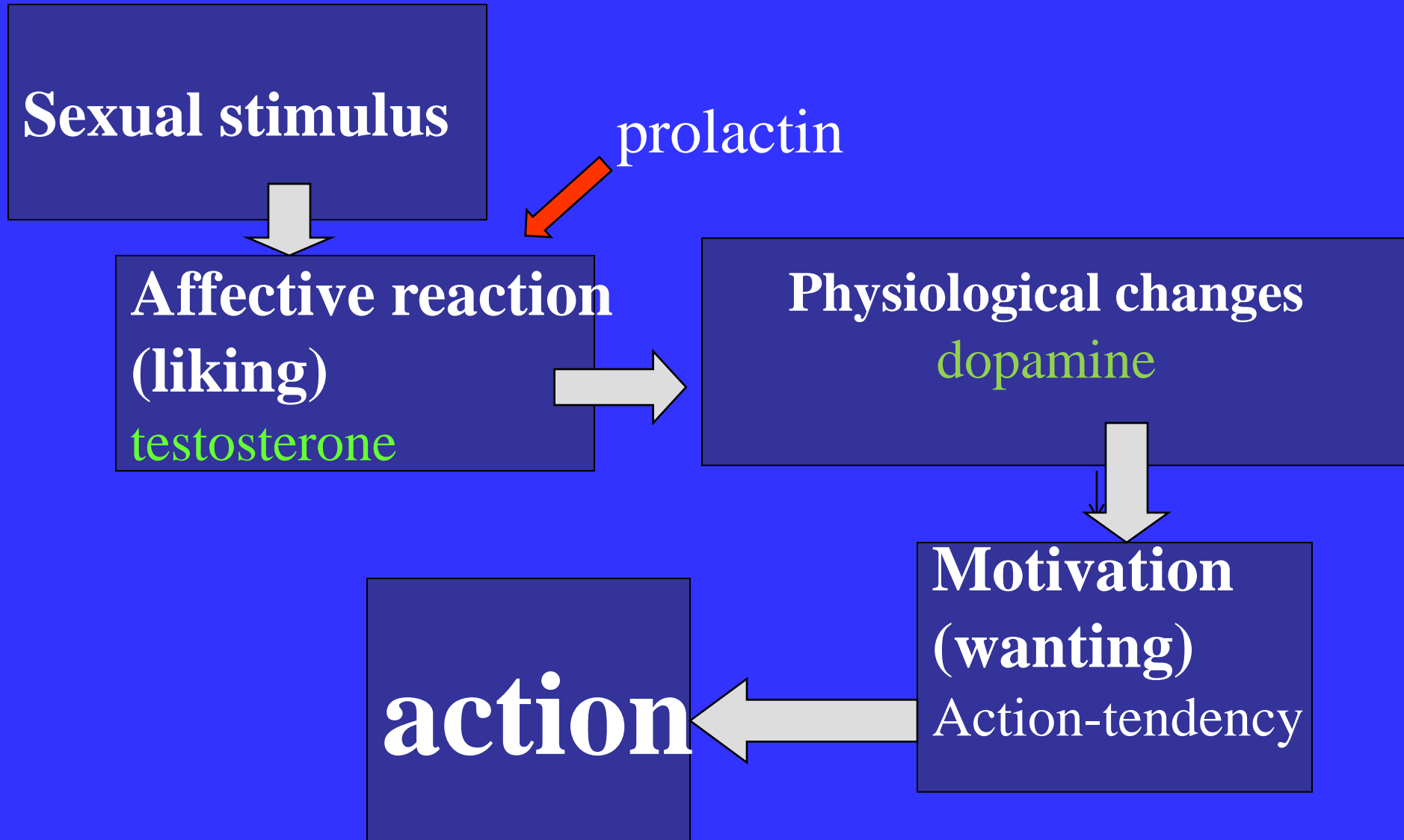
Antipsychotic medication

Prolactin



Antipsychotic medication

What is happening when we are confronted with a sexual stimulus ?



Emotional circuit not the only factor

Also important:

: Thinking

: Judgement

This happens in the prefrontal cortex

Sexual stimulus activates emotional circuit

Prefrontal cortex can inhibit the emotional circuit

Psychotherapy

Cognitive Behavioral Therapy

! Sexual preference

TESTOSTERON

A hand-drawn diagram on a white background. At the top is a blue, thick, U-shaped structure. Below it is a central area filled with radiating lines in shades of orange and red, with the word 'TESTOSTERON' written across it in a simple, hand-drawn font. Below this central area is a black line structure that starts with a horizontal line, goes down, then right, then down again, then right, and finally down into a funnel-like shape on the right side. The entire diagram is set against a blue background.

Content doesn't change

Hypothalamus



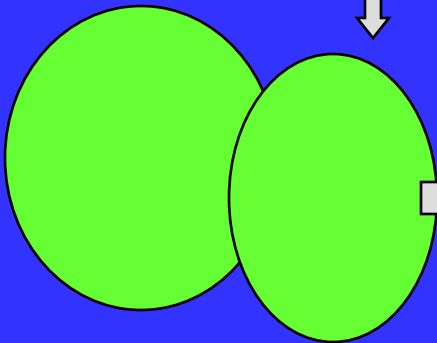
Gonadotropin Releasing Hormone



Hypofyse



Gonadotropin



17

Testosterone



Brain tissue

Indication for pharmacological treatment:

Hypersexuality

and/or

Paraphilia (pedophilia, etc)

When psychotherapy alone has insufficient efficacy

Hypothalamus



Gonadotropin Releasing Hormone



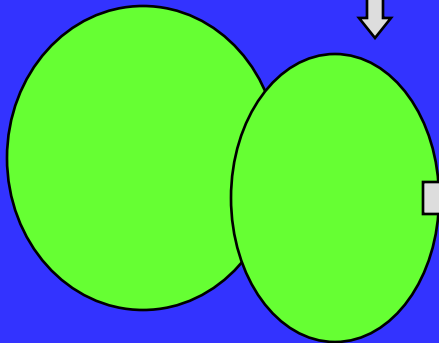
Hypofyse



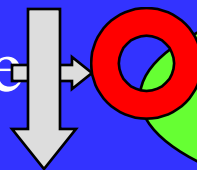
Gonadotropin



4



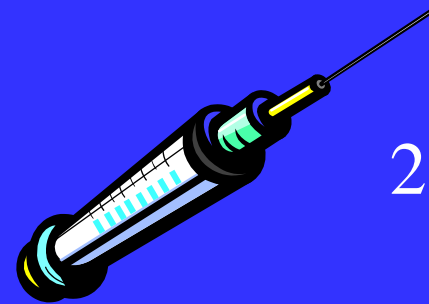
Testosterone



Brain tissue

Cyproterone acetate

effect is dose dependant



2 week

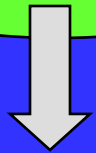
triptorelin

3,25 mg i.m. per month

Gonadotrofine RH Agonist =

LHRH agonist

Hypothalamus



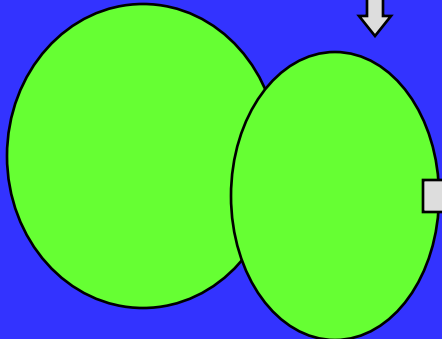
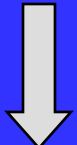
Gonadotropin Releasing Hormone



Hypofyse

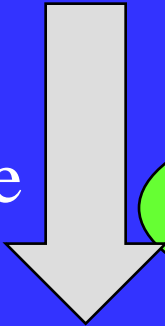


Gonadotropin

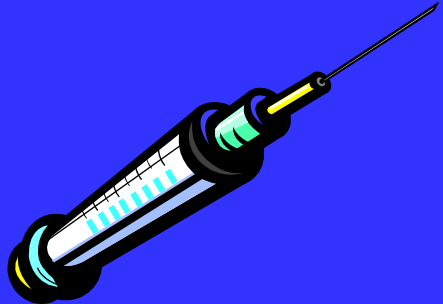


0,5

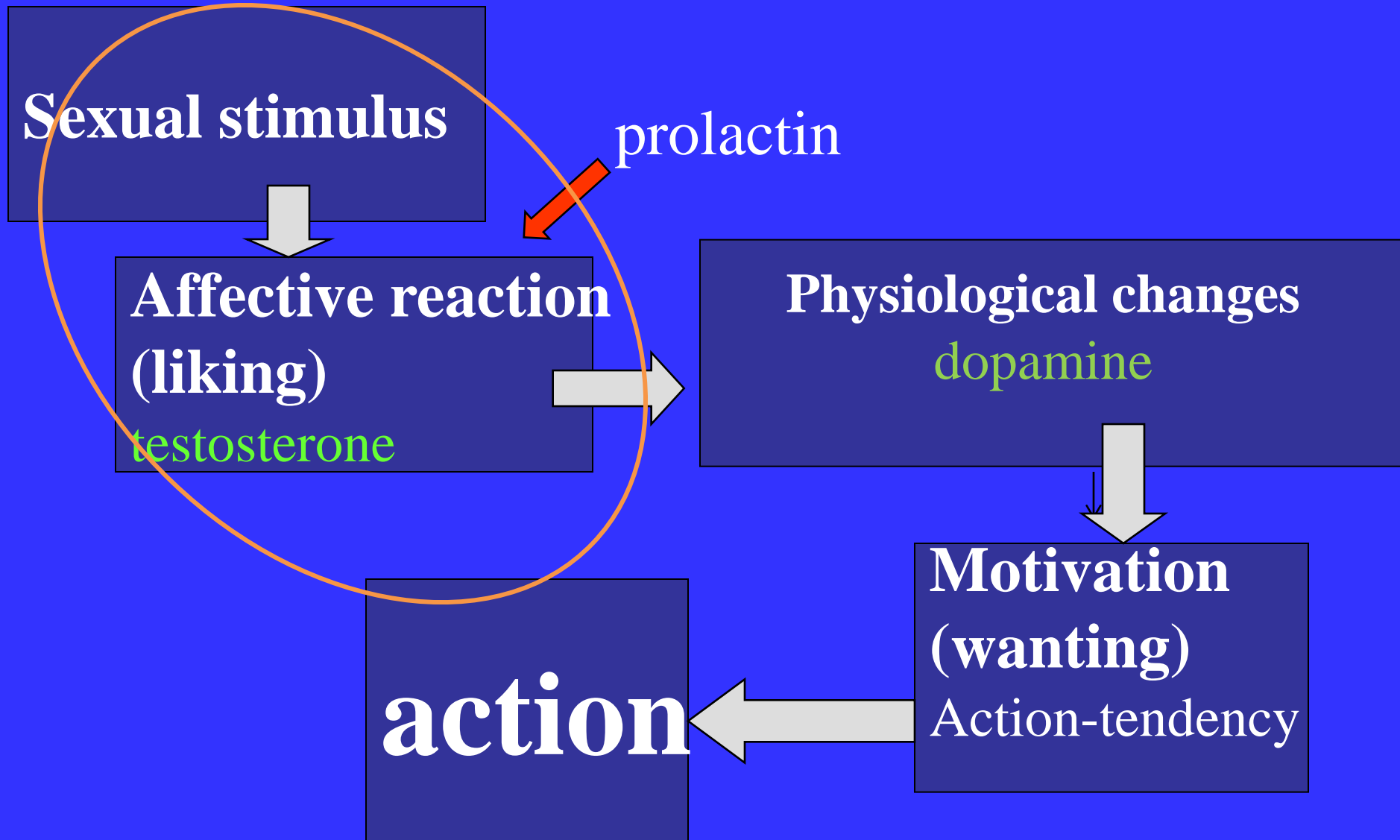
Testosterone



Brain Tissue



What is happening when we are confronted with a sexual stimulus ?



LIKING

Pedophile patient :fMRI amygdala ↑ boys

Control group

Heteroseksual males :fMRI amygdala ↑ woman

Amygdala connects information from sensory organs to emotions

Abnormal amygdala activation profile in pedophilia.

Sartorius A, Ruf M, Kief C, Demirkaya T, Bailer J, Ende G, Henn FA, Meyer-Lindenberg A, Dressin

Eur Arch Psychiatry Clin Neurosci. 2008 Aug;258(5):271-7. Epub 2008 May 26.

Research in rats:

Blockade of Androgen receptor in amygdala:

Less erections

It takes more time before an erection occurs

Physiol Behav. 2011 Jun 1;103(3-4):295-301. Epub 2011 Feb 20.

Blockade of androgen receptor in the medial amygdala inhibits noncontact erections in male rats.

Bialy M, Nikolaev-Diak A, Kalata U, Nikolaev E.

Arousal Motivation

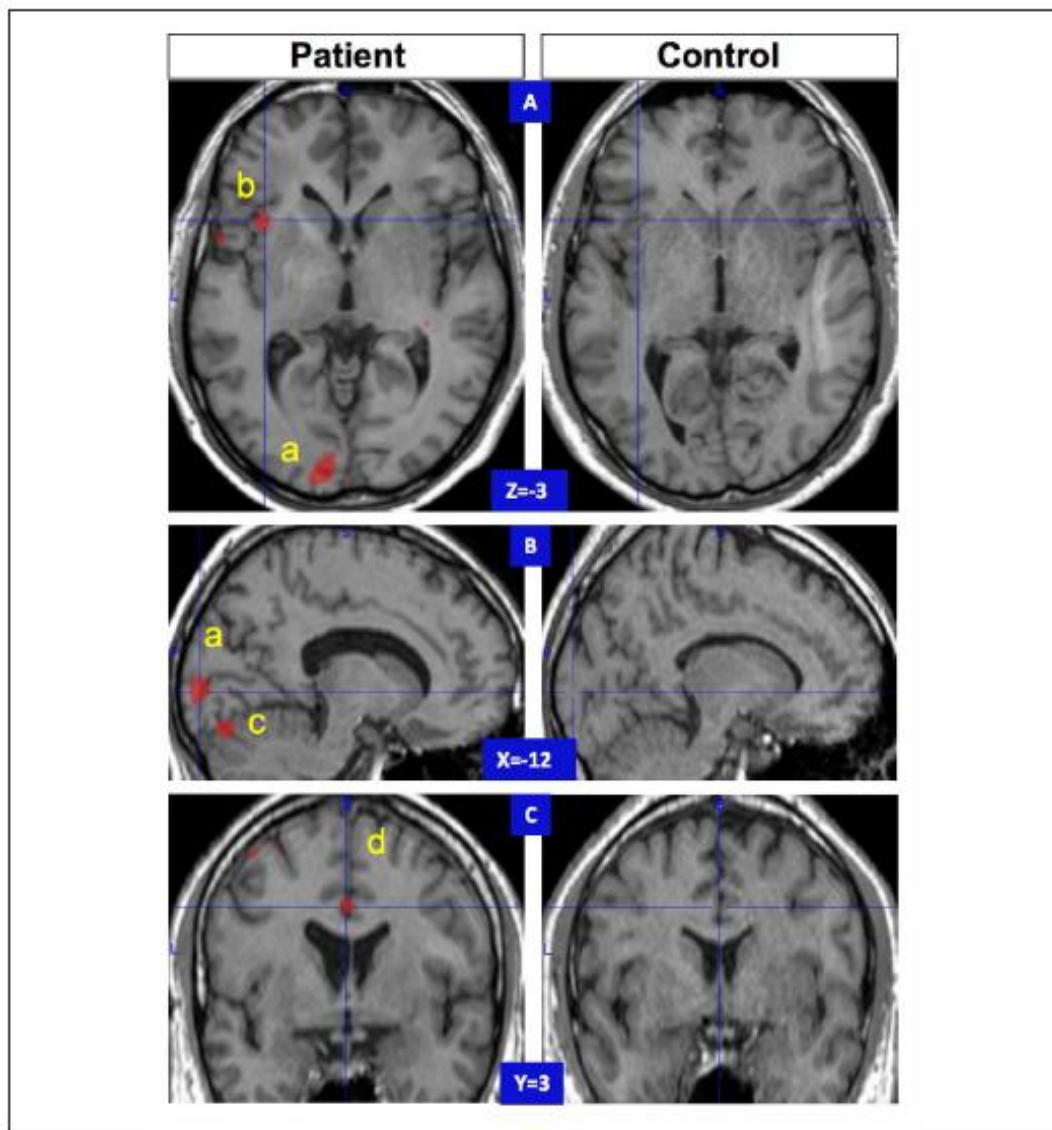
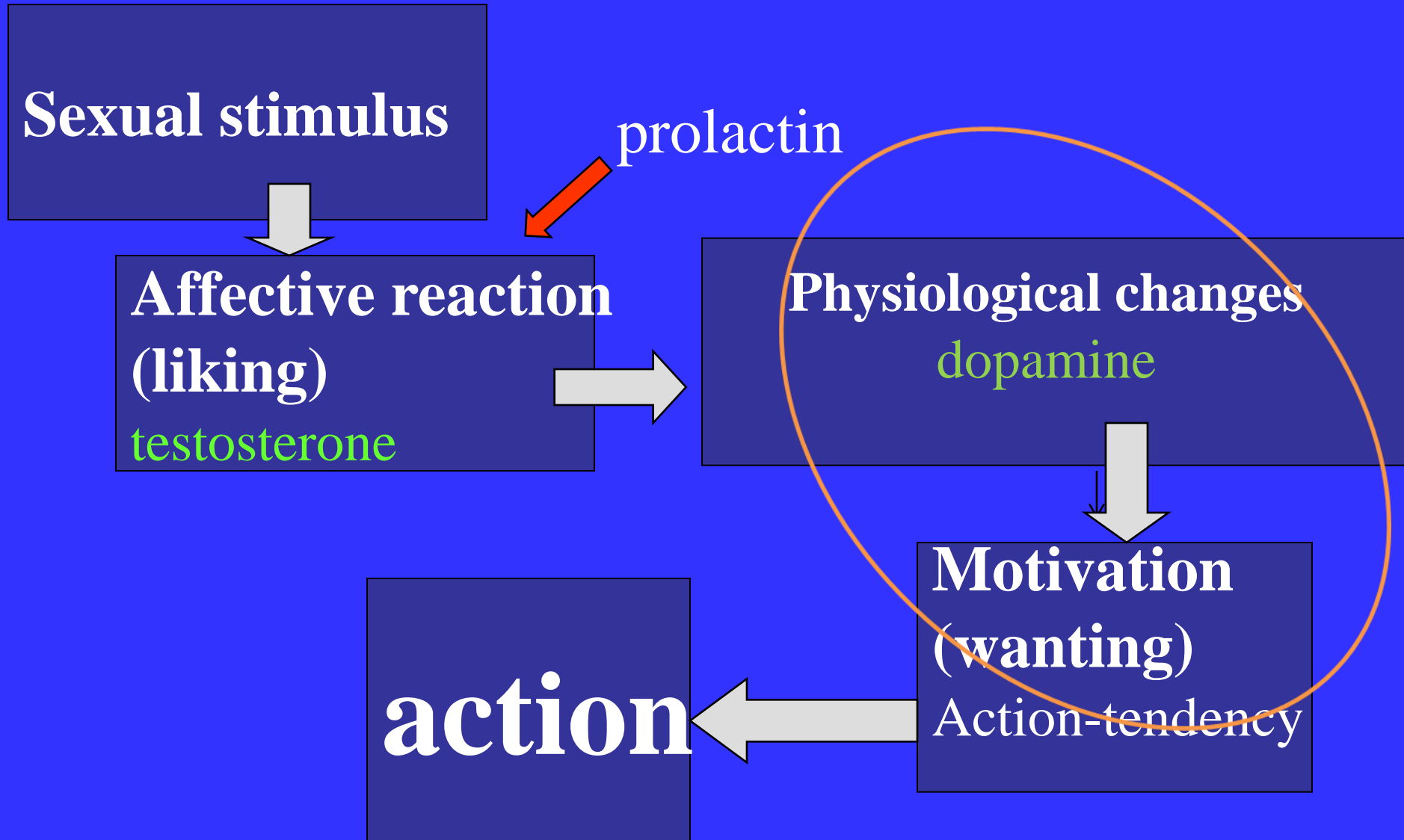


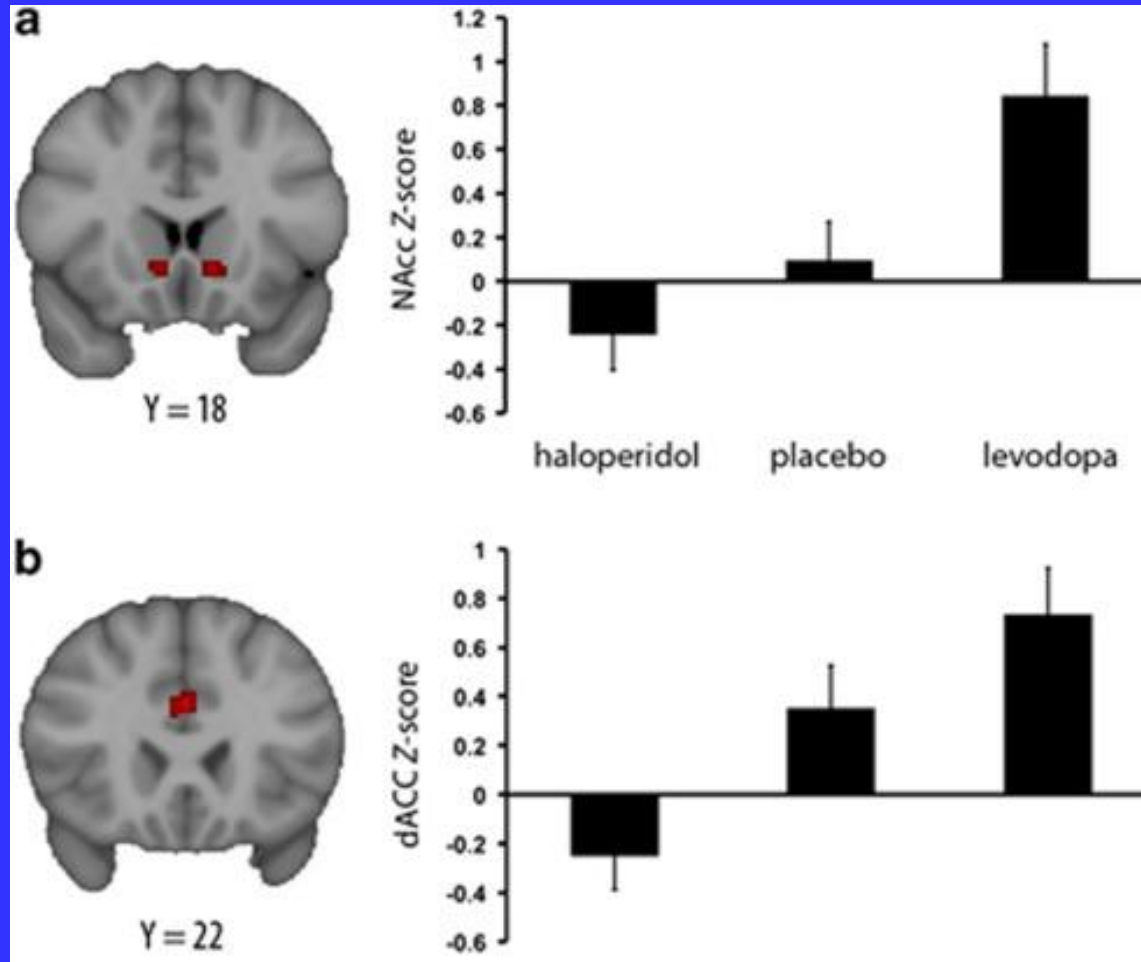
Figure 2. Brain areas where activation in response to pictures representing boys decreased under leuprorelin therapy

Moulier V, Fontelle V, Péligrini-Issac M, Cordier B, Baron-Laforêt S, Boriassé E, Durand E, Stoléro S. Int J Offender Ther Comp Criminol. 2012 Feb;56(1):50-60. doi: 10.1177/0306624X10392191. A pilot study of the effects of gonadotropin-releasing hormone agonist therapy on brain activation pattern in a man with pedophilia.

What is happening when we are confronted with a sexual stimulus ?



Dopamine modulates reward system activity during subconscious processing of sexual stimuli



Dopamine modulates reward system activity during subconscious processing of sexual stimuli.

[Neuropsychopharmacology](#), 2012 Jun;37(7):1729-37.

Oei NY, Rombouts SA, Soeter RP, van Gerven JM, Both S.

Dopamine modulates reward system activity during subconscious processing of sexual stimuli

Haloperidol less activity in Nu. Accumbens and dorsale anterior cingulum

Placebo

Levodopa activation in Nu. Accumbens and dorsal anterior cingulum **WANTING**

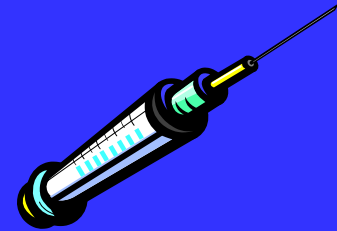
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Side effects of Androgen Deprivation Therapy

A. Cyproterone acetate (Androcur, Cyprostat)



Side effects of Androgen Deprivation Therapy

A. Cyproterone acetate (Androcur, Cyprostat)

Gynecomastia 50 %

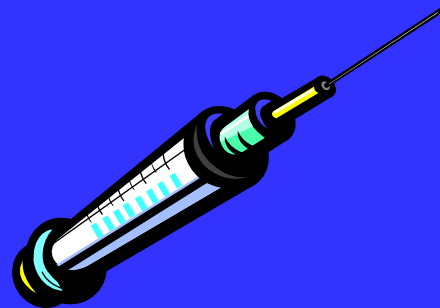
Weight gain /Metabolic symptoms

Muscle weakness

Osteoporosis

Alendronate (a bisfosfonate)
70 mg/week and Calcium/Vit D

Depression

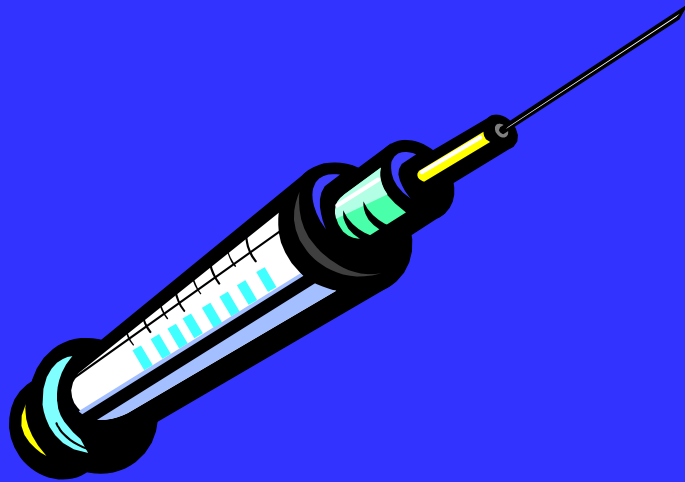


Side effects of Androgen Depletion Therapy

B. LHRH agonists = GonadotrofinRH agonists

triptorelin = Decapeptyl=Salvacyl i.m. 3,75 mg/month

leuprolide = Lucrin= Lupron i.m. 3,75 mg/month



Side effects of ADT

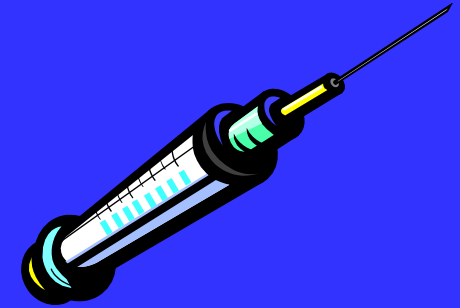
B. LHRH agonists = GonadotrofinRH agonists

triptorelin = Decapeptyl

i.m. 3,75 mg/month

leuprolide = Lucrin = Lupron

i.m. 3,75 mg/month



Gynecomastia 10 %

Weight gain / Metabolic symptoms

Muscle weakness

Osteoporosis

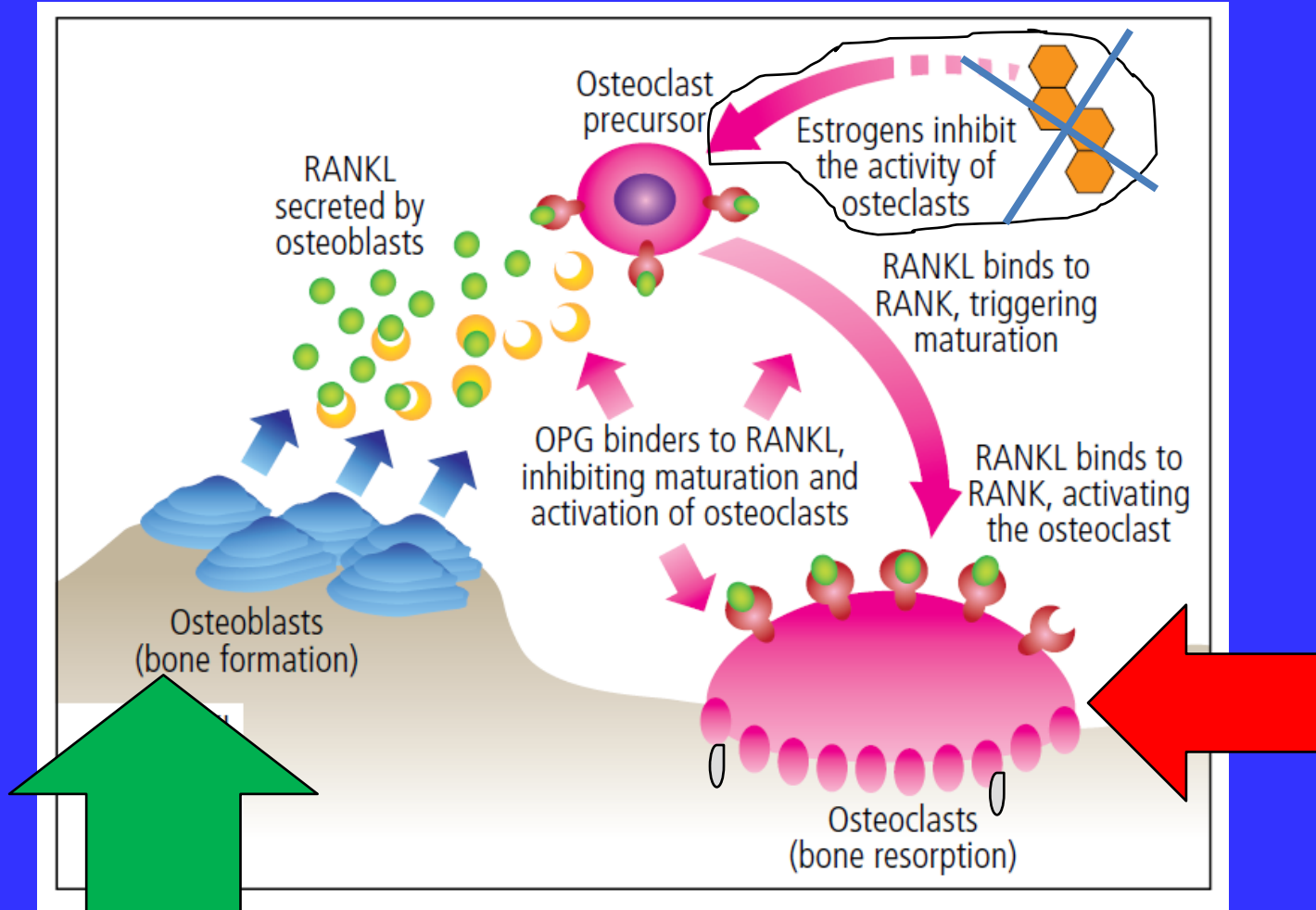
Alendronate (a bisfosfonate) 70 mg/week
and Calcium/Vit D suppletion

Depression

SSRI

Hot flushes

ADT Osteoporosis Prevention



Exercise 30 min 3-4 / week

Optimized Calcium and vitamin D3 (800 IU/d) supplementation

Stop smoking Bisphosphonate (alendronate 70 mg/week)

Setting Van der Hoeven clinic: 2001-2008

160 patients:

100 inpatients

40 patients living in houses in the community

20 staying in general psychiatric hospitals

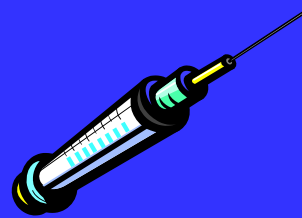
Setting Van der Hoeven clinic:

2001-2007

160 patients:

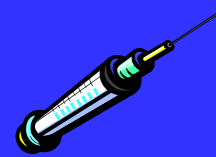
44 sex offenders:

LHRH agonists 18



0,5

Cyproterone 4



4

Antipsychotic 10

SSRI AD 2

No medication 10

Setting Van der Hoeven clinic: 2001-2007

160 patients: 44 sex offenders:

LHRH agonists	18
Cyproterone	4
Antipsychotic	10
SSRI AD	2
No medication	10
	44



Setting Van der Hoeven clinic:

Recidivism during treatment 2001-2013

LHRH agonists 0

Cyproterone 0

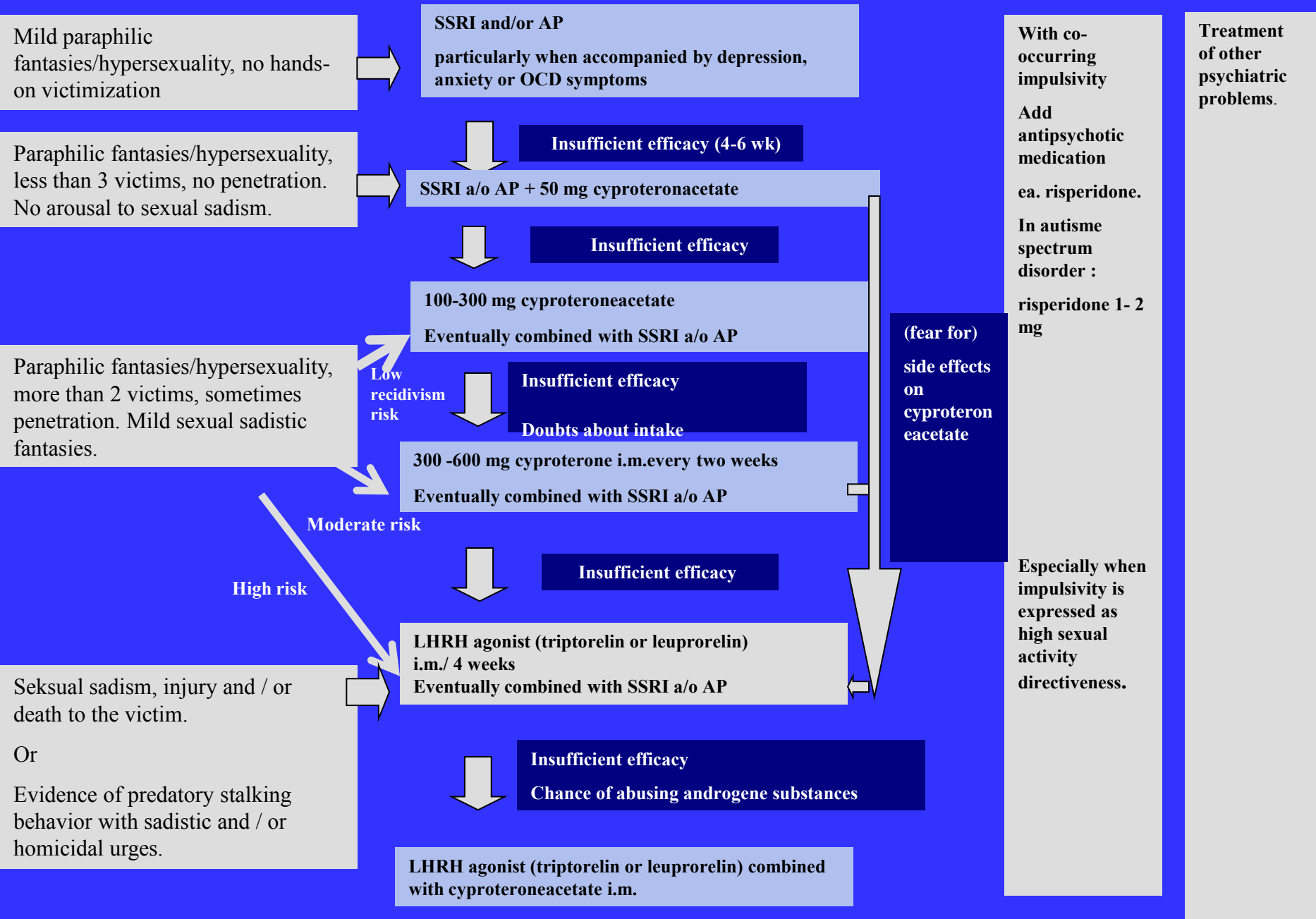
Antipsychotic 0

SSRI AD 2

No medication 1

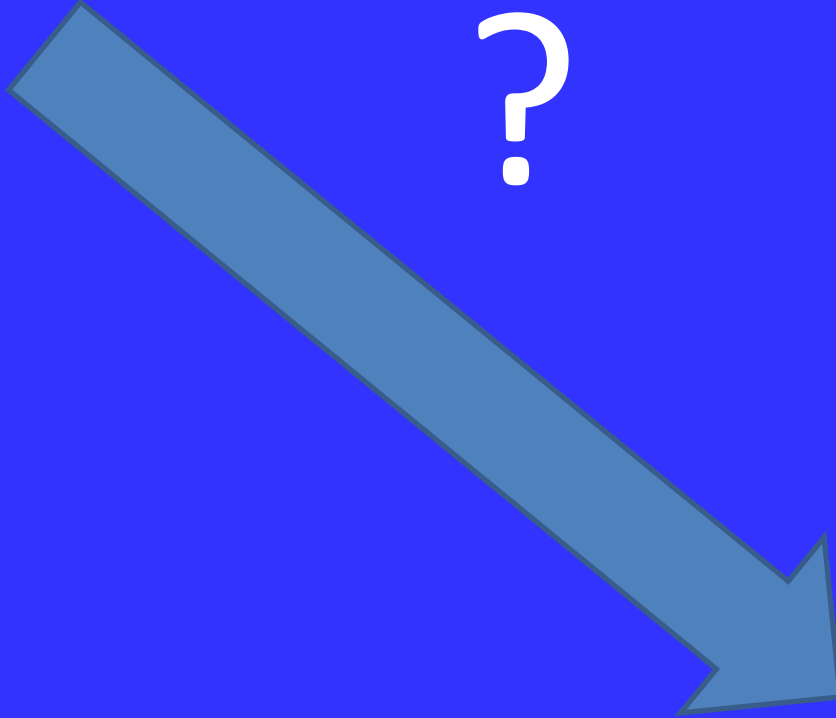
3

algorithm/guideline for the Pharmacological treatment of Sexual offenders when psychotherapy alone has insufficient efficacy



Medication

?



Liberty

No Alcohol, no Drugs

Medication

Psychotherapy: Relapse Prevention Plan

Prosocial contacts

Education, Work

Impulsivity ↓

Realistic plan for future



Recidivism Risk



Gradually

Liberty



Thanks for your attention!

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