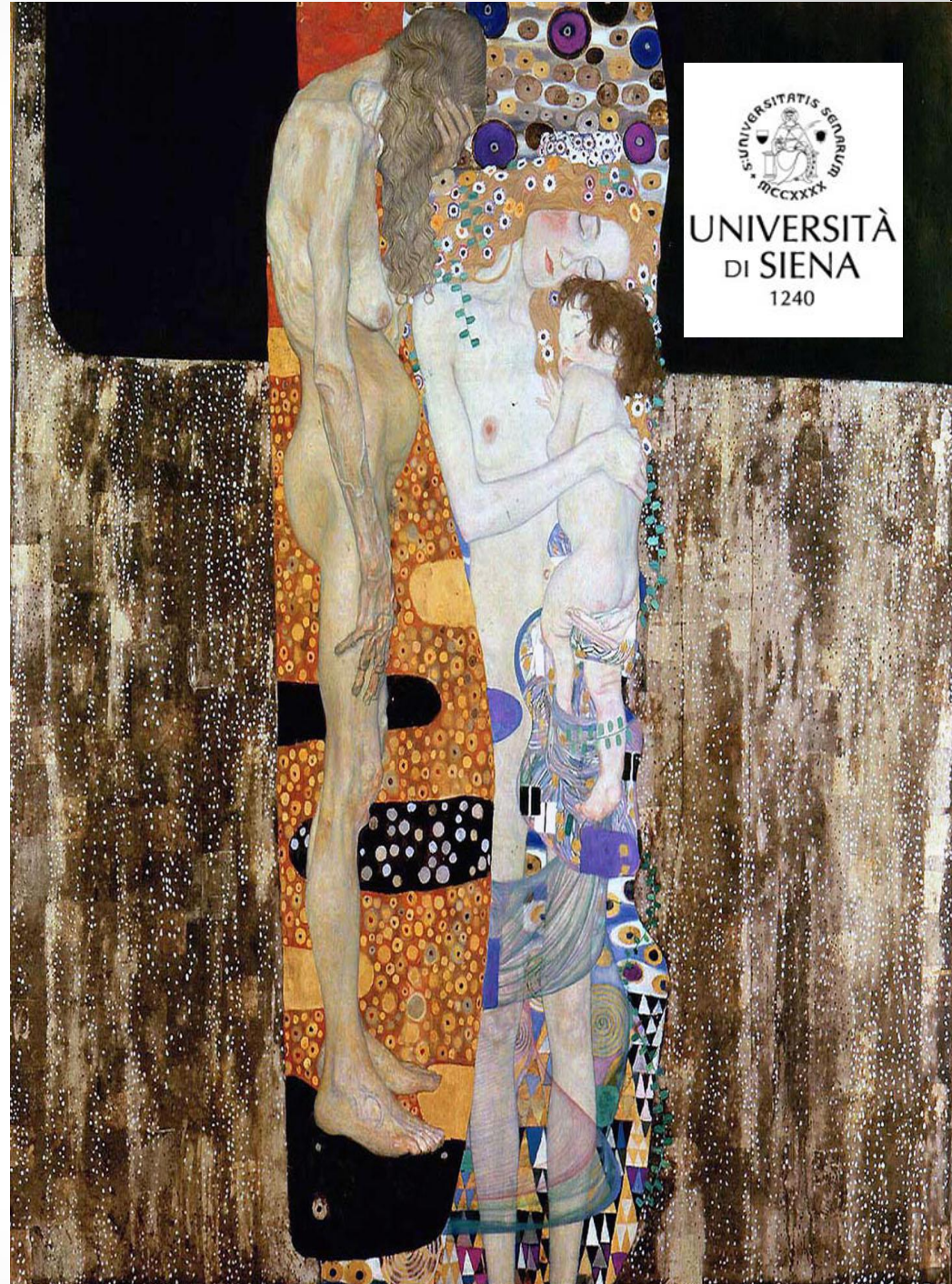


Differenze di Genere nella percezione del Dolore

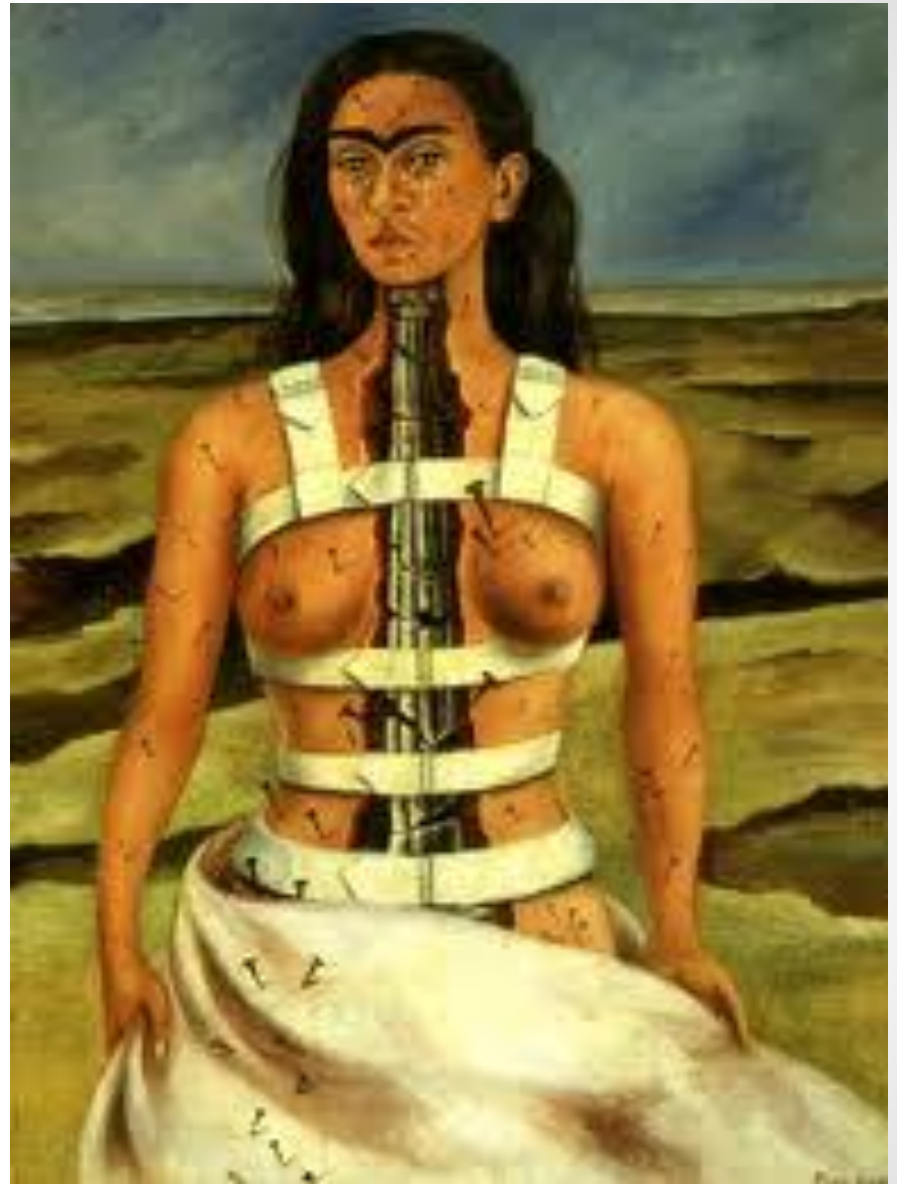
Prof.ssa Anna Maria Aloisi

Università di Siena
Dip. Scienze Mediche
Chirurgiche e Neuroscienze



Dolori di donne e di uomini

- Influenzati da.....





Geni

XX
XY

L. Cranach
1528

Le origini...



L'età ...





10 JAHRE.
Zehnte Jahr das Kind im Flügelkleid
Vonnacht der Unschuld Seligkeit

20 JAHRE.
Mit zwanzig Jahren wird erblüht
In reiner Lieb' ihr Herz angefüllt

30 JAHRE.
Mit dreißig Jahren Mutterfrucht
Dem Wais' die Kribsel' laut karthlich

40 JAHRE.
Mit vierzig Jahren ruht der Kinder Glanz
Die eigene Jugend ihr zurück

50 JAHRE.
Mit fünfzig Jahren 'wie man sagt'
Ein Ekel sie jetzt glücklich macht

60 JAHRE.
Mit sechzig Jahren geht es denn bergab
In langsamem Schritte nach dem Grab

70 JAHRE.
Mit siebenzig Jahren Urwunden
Der alte Mutterkranz noch frucht

80 JAHRE.
Die hundert Jahre noch nicht ganz
Führt fort sie an Erbanne zu

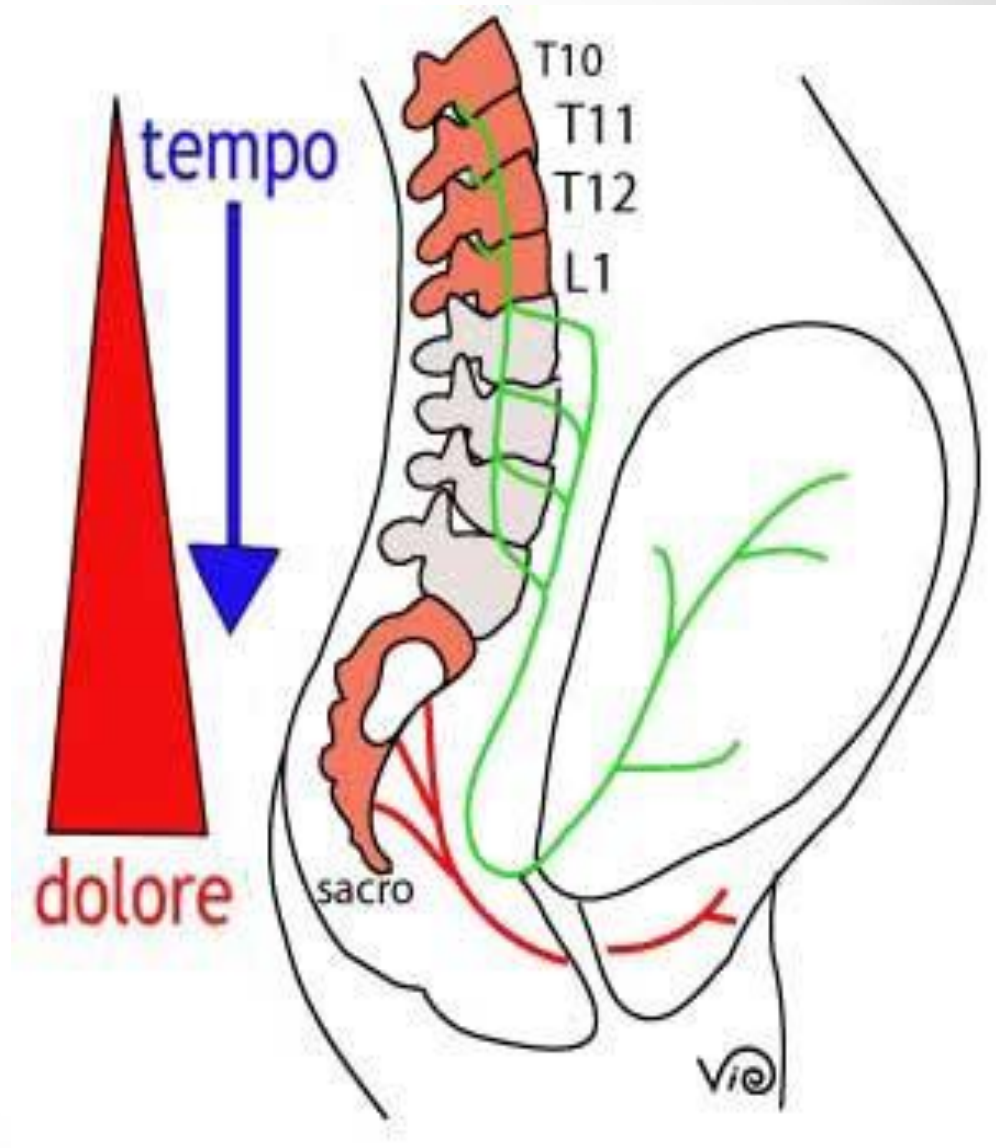
90 JAHRE.
Mit neunzig Jahren langst erkrankt
Denkt sie noch an die letzte Nacht

DAS STUFENALTER DER FRAU

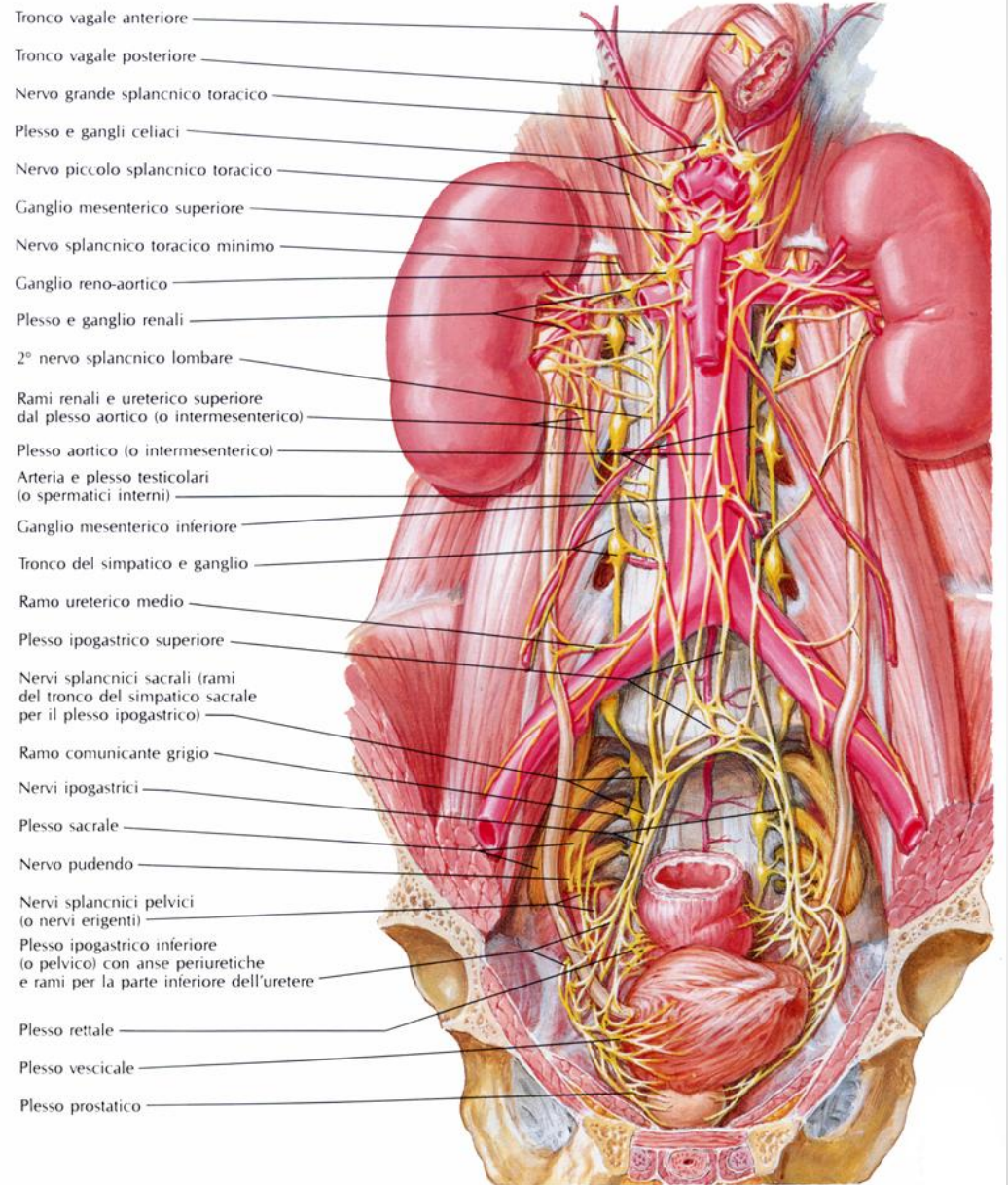
Famiglia..



Mal di schiena !?



... non solo utero



Menopausa..



Menopause affects pain depending on pain type and characteristics

*Maria Cristina Meriggiola, MD, PhD,¹ Michela Nanni, MD,¹ Valeria Bachiocco, MD,²
Stellina Vodo, MS,² and Anna M. Aloisi, MD, PhD^{2,3}*

Abstract

Objective: Women are more affected than men by many chronic pain conditions, suggesting the effect of sex-related mechanisms in their occurrence. The role of gonadal hormones has been studied but with contrasting results depending on the pain syndrome, reproductive status, and hormone considered. The aim of the present study was to evaluate the pain changes related to the menopausal transition period.

Methods: In this observational study, postmenopausal women were asked to evaluate the presence of pain in their life during the premenopausal and postmenopausal periods and its modification with menopause.

Results: One hundred one women were enrolled and completed questionnaires on their sociodemographic status, pain characteristics, and evolution. The most common pain syndromes were headache (38%), osteoarticular pain (31%), and cervical/lumbar pain (21%). Pain was present before menopause in 66 women, ceased with menopause in 17, and started after menopause in 18. Data were used for cluster analysis, which allowed the division of participants into four groups. In the first, all women experienced headaches that disappeared or improved with menopause. The second group included osteoarticular pain; the pain improved in half of these women and remained stable in the other half. The third group had cervical/lumbar pain, which disappeared or improved with menopause in all. The fourth group presented different kinds of moderate pain, which worsened in all.

Conclusions: The present study provides preliminary data suggesting that menopause can affect pain depending on the painful condition experienced by the woman. This underlines the different interactions of menopause-related events with body structures involved in pain.

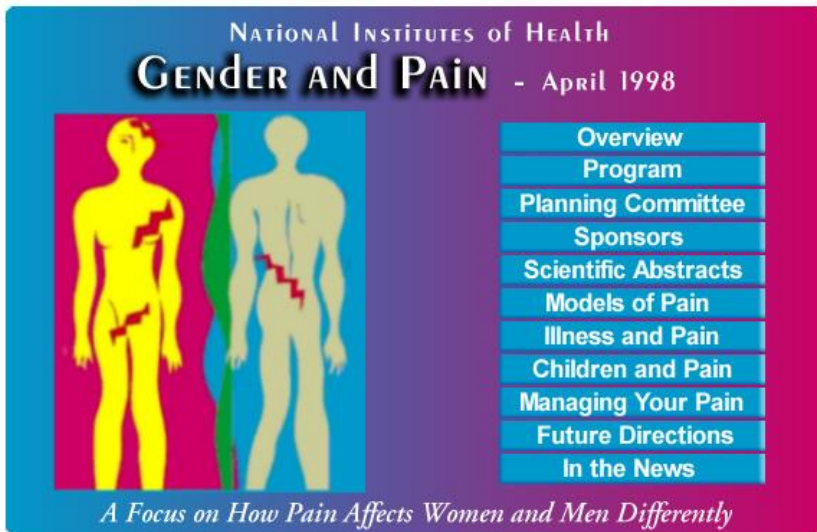
Key Words: Menopause – Pain syndromes – Pain questionnaires.

Pain (num)	Better	Stable	Worst
Headache (38)	19 (50.0%)	11 (29.0%)	8 (21%)
Osteoarticular (31)	3 (10%)	11 (35%)	17 (55%)
Cervical/lumbar(21)	11 (52.2%)	6 (29.9%)	4 (19%)
Fibromialgia, Visceral pain (11)	3 (27%)	7 (64%)	1 (9%)

Alimentazione.....



Differenze sessuali in molte sindromi dolorose croniche



real women, real pain

2007-2008 Global Year Against Pain in Women

[Behav Brain Sci.](#) 1997 Sep;20(3):371-80;
discussion 435-513.

Sex differences in pain.

[Berkley KJ](#)

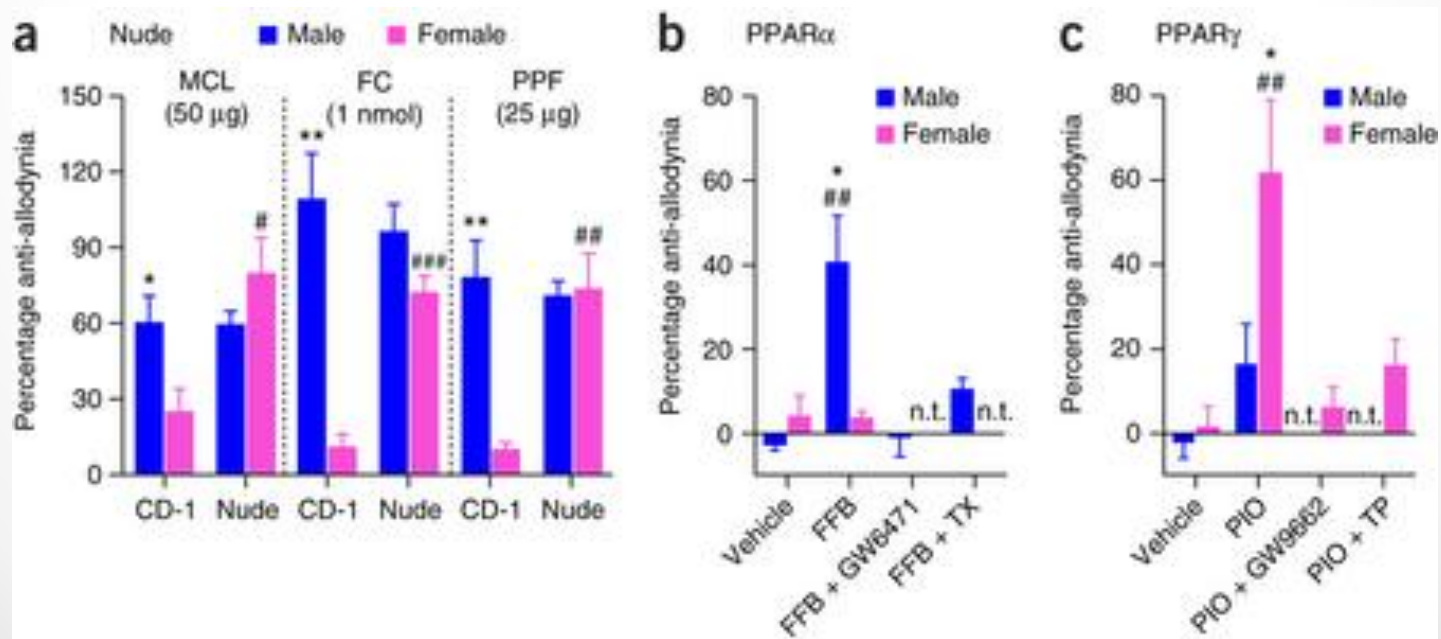


NATURE NEUROSCIENCE

Different immune cells mediate mechanical pain hypersensitivity in male and female mice

Robert E Sorge, Josiane C S Mapplebeck, Sarah Rosen, Simon Beggs, Sarah Taves, Jessica K Alexander, Loren J Martin, Jean-Sebastien Austin, Susana G Sotocinal, Di Chen, Mu Yang, Xiang Qun Shi, Hao Huang, Nicolas J Pillon, Philip J Bilan, YuShan Tu, Amira Klip, Ru-Rong Ji, Ji Zhang, Michael W Salter, & **Jeffrey S Mogil**

Nature Neuroscience 18, 1081–1083 (2015) doi:10.1038/nn.4053



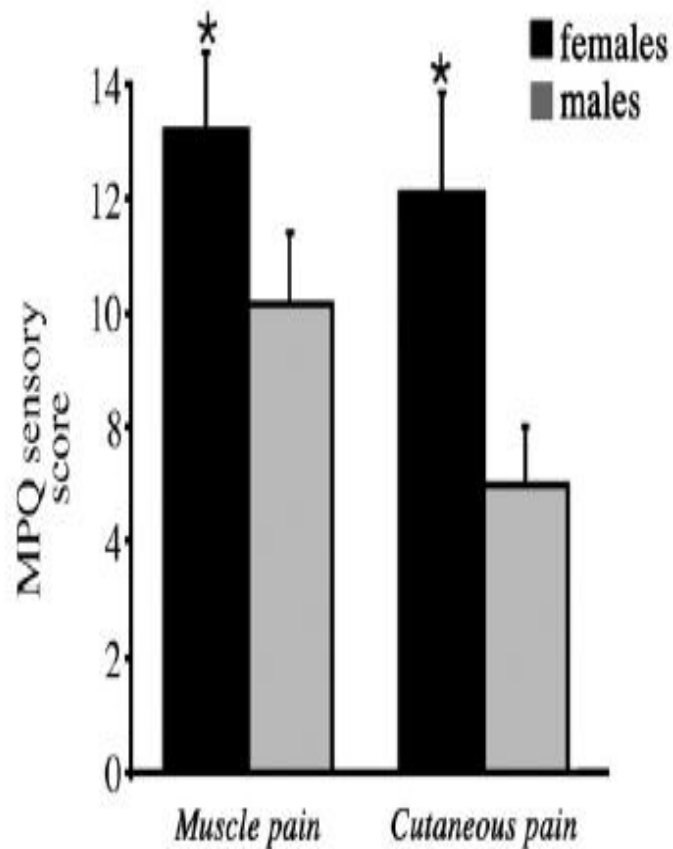
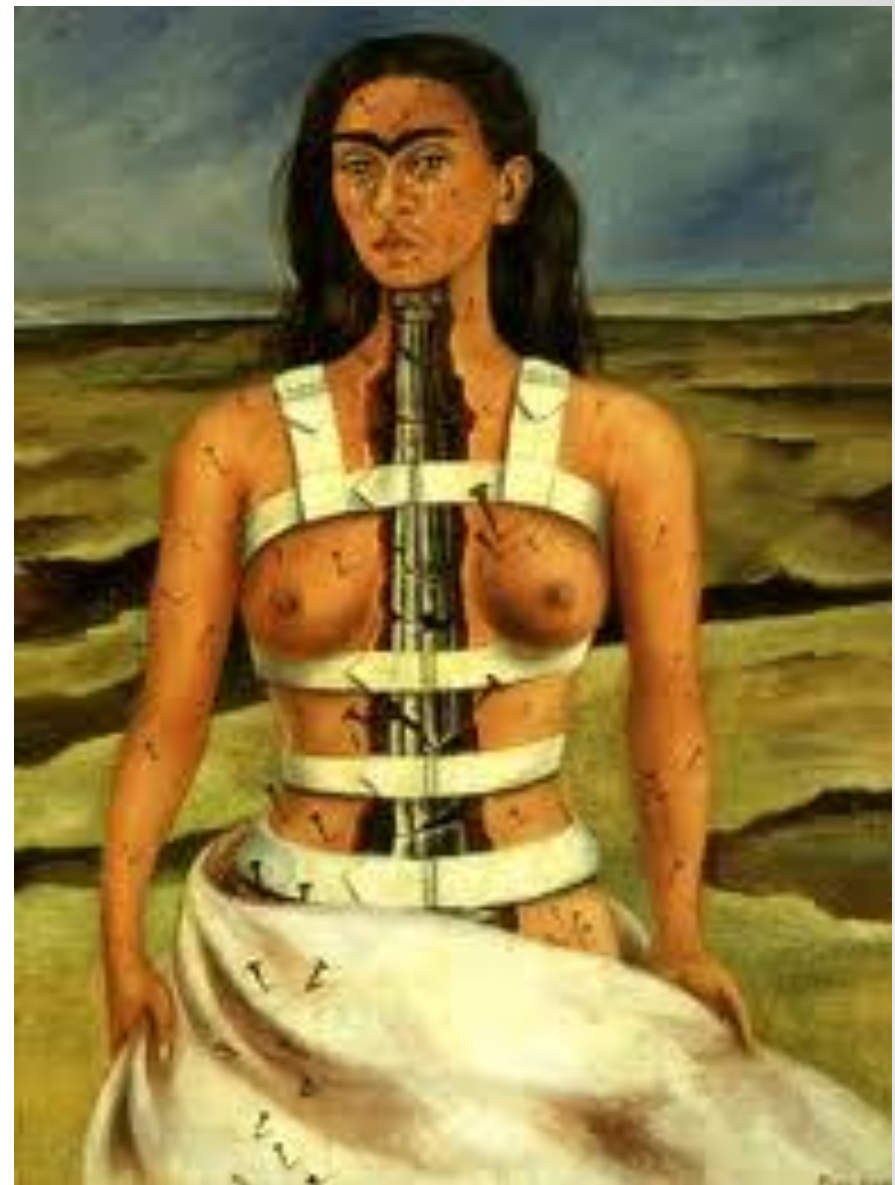
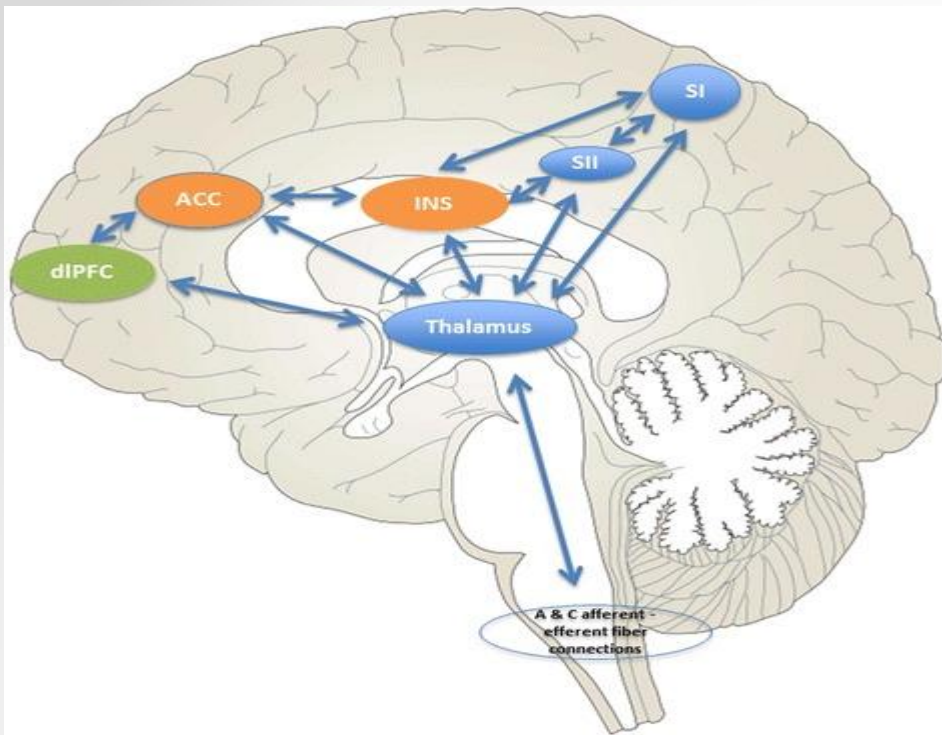


Fig. 3. Graphs showing the McGill pain questionnaire sensory scores for female and male groups during muscle and cutaneous pain. Females reported significantly greater sensory scores than males.



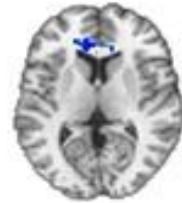


Females > Males

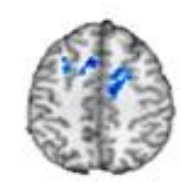
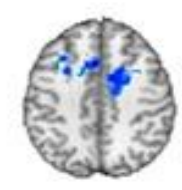
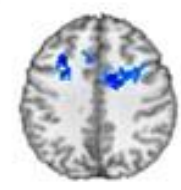
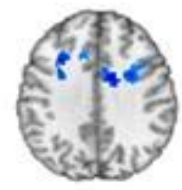
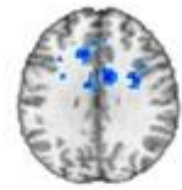
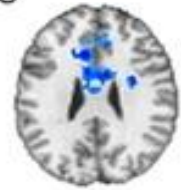
SPM Contrast

T-Score

-8

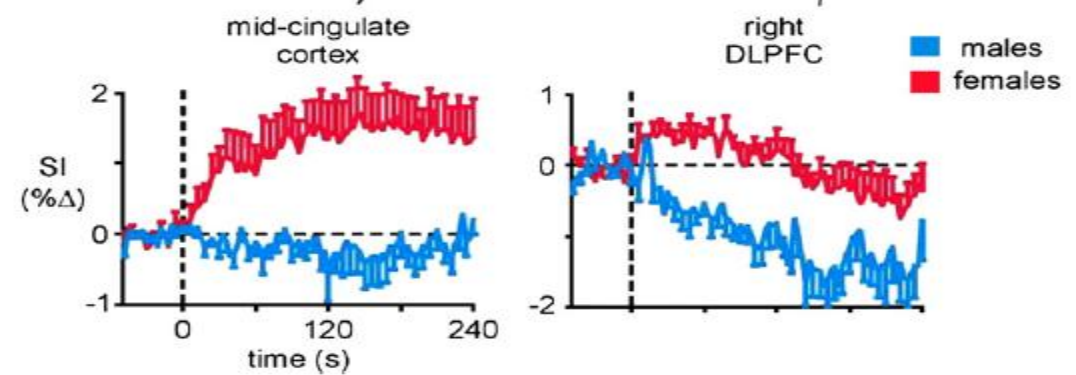
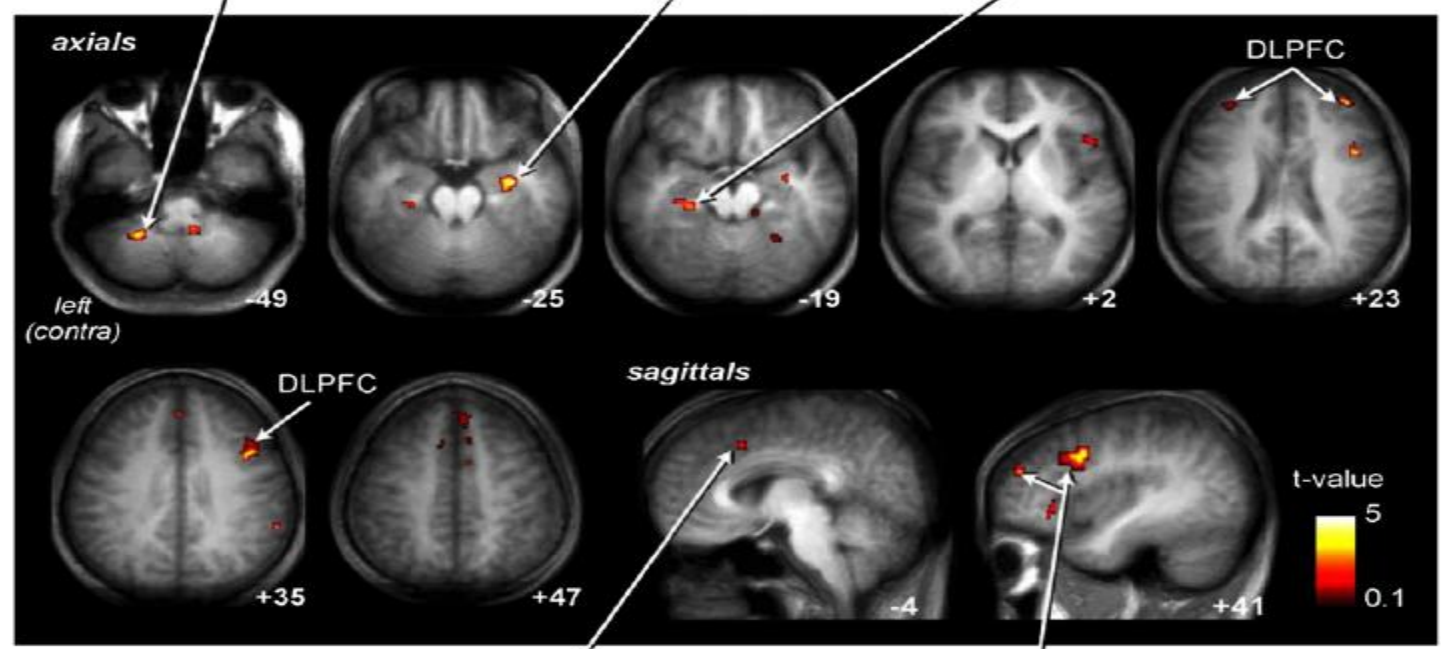
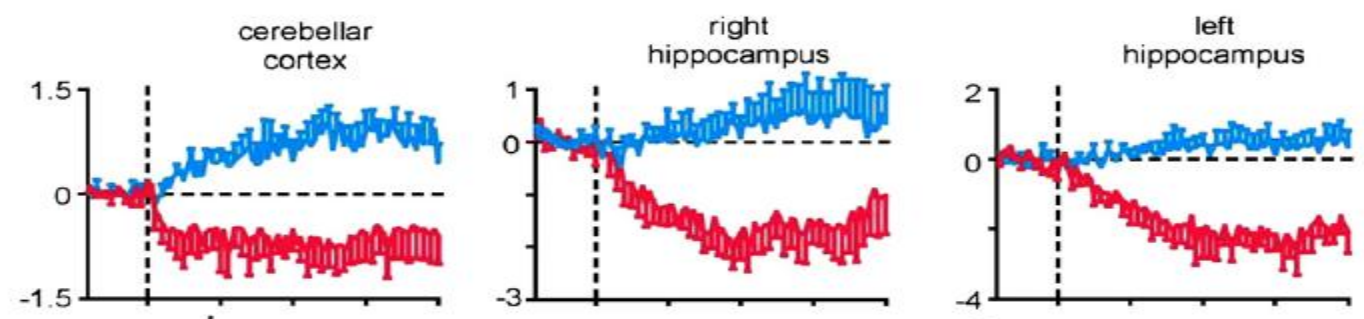


28



Mild pain < Warmth

Muscle pain



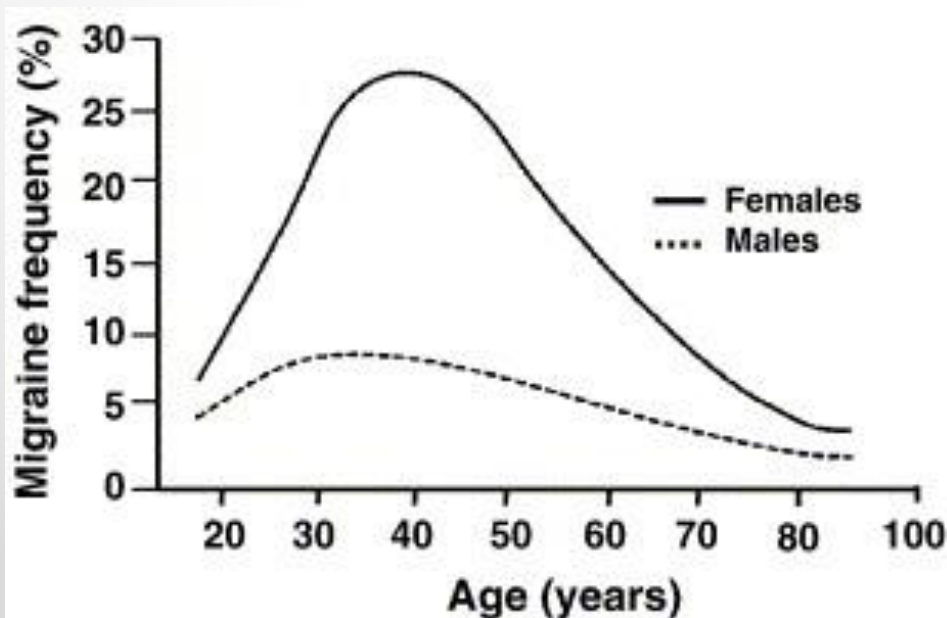
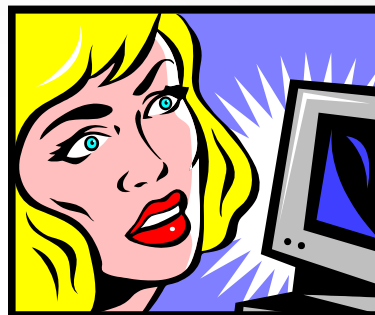
Emicrania

Dolore temporomandibolare

Mal di Schiena

Dolori Reumatici

Sindrome intestino irritabile

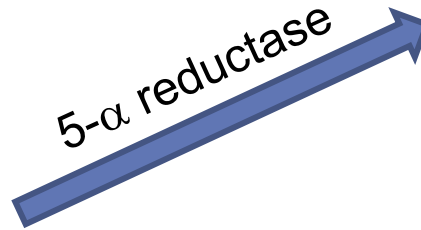
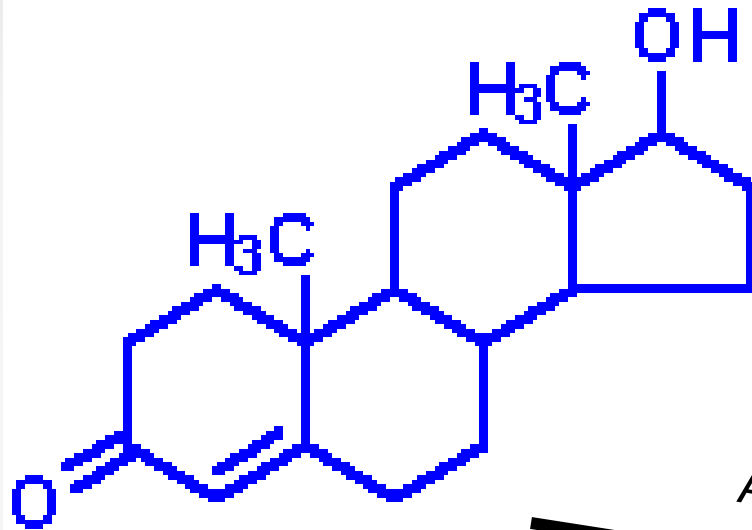


Cefalea a Grappolo

Testosterone

AR

DHT

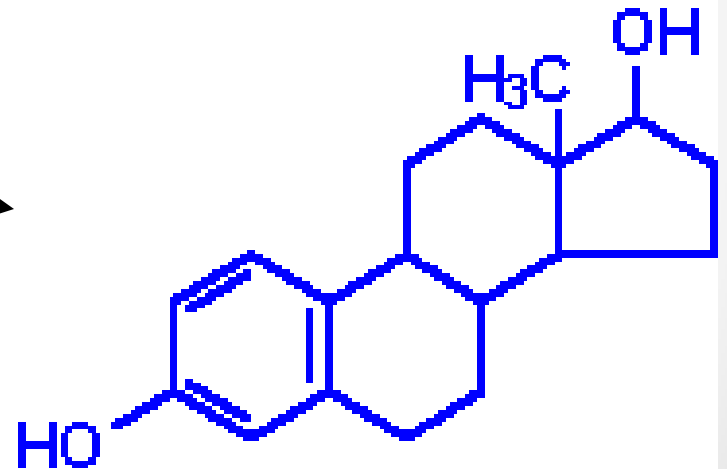


Estradiol

Aromatase



A black arrow pointing from the Testosterone structure to the Estradiol structure, labeled "Aromatase".



Ovaries
Testis
Adrenals

ER α/β



TESTOSTERONE

ESTRADIOL

ng/ml ↔ pg/ml

pg/ml

Men

3-10

3.000-10.000

<50

Women

0.5-1

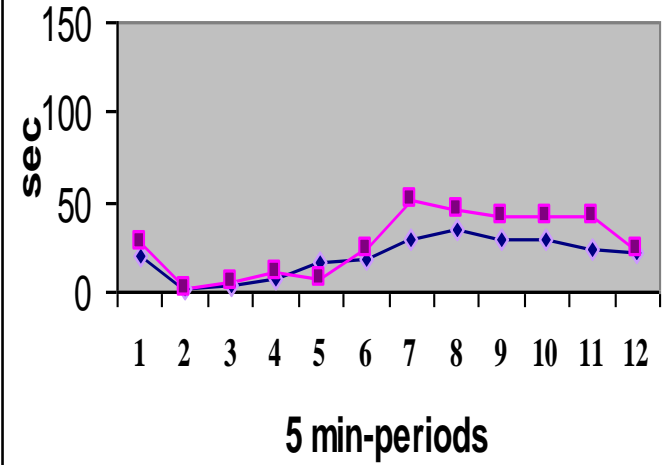
500-1000

20-400

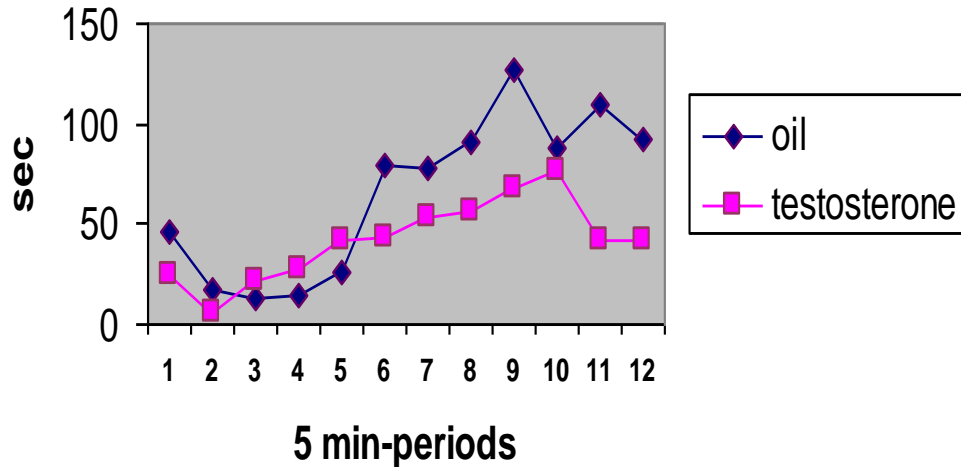


Testosterone-treated
rats
6 days 5 mg/Kg/day s.c.
Formalin s.c. 50 ml 5%

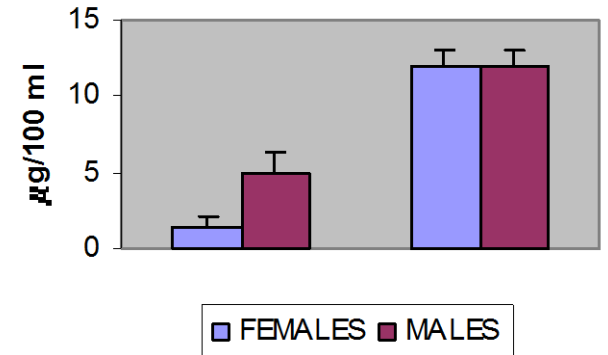
MALES Licking



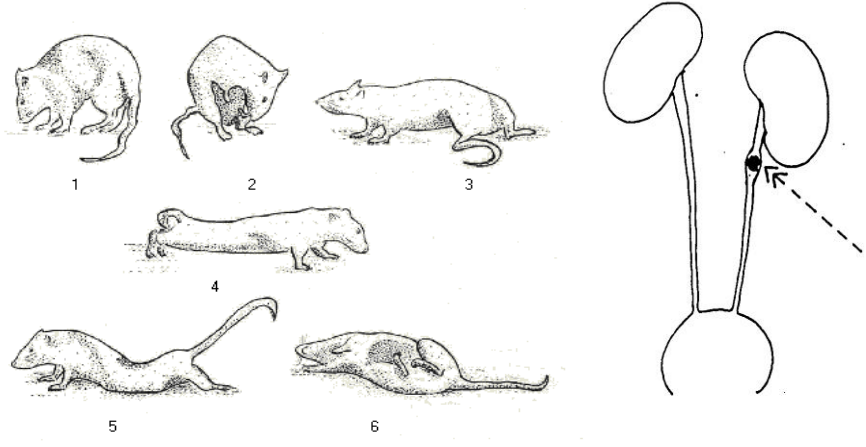
FEMALES Licking duration



TESTOSTERONE



VISCERAL PAIN ureteral calculosis



European Journal of Pain 14 (2010) 602–607

Contents lists available at ScienceDirect

European Journal of Pain

journal homepage: www.EuropeanJournalPain.com

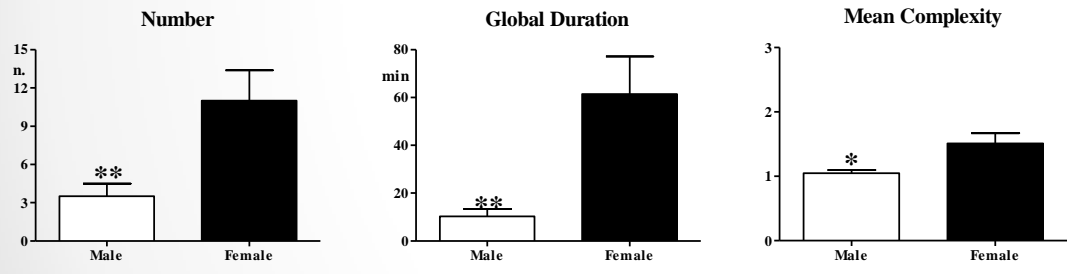



Estradiol and testosterone differently affect visceral pain-related behavioural responses in male and female rats

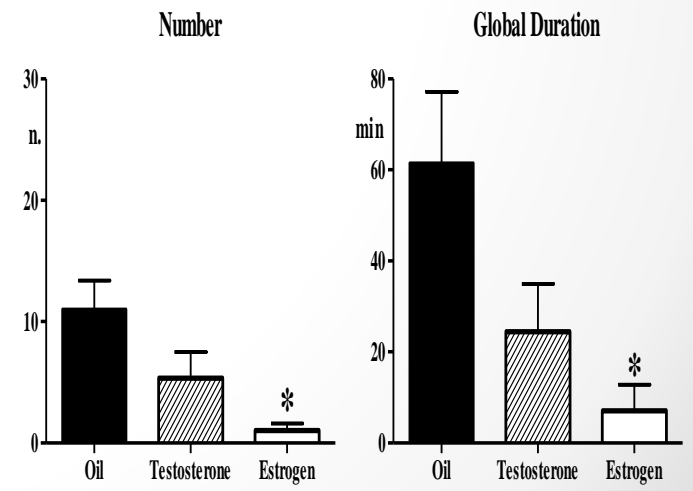
Anna Maria Aloisi^{a,b,*}, Giannapia Affaitati^c, Ilaria Ceccarelli^a, Paolo Fiorenzani^a, Rosanna Lerza^c, Cosmo Rossi^c, Maria Caterina Pace^d, Maria Chiefari^d, Caterina Aurilio^d, Maria Adele Giamberardino^c

^aStress and Pain Neurophysiology Lab, University of Siena, Via Aldo Moro 2, 53100 Siena, Italy

Ureteral Crisis Male vs Female Oil-treated Rats



Ureteral Crisis in Female Treated Rats



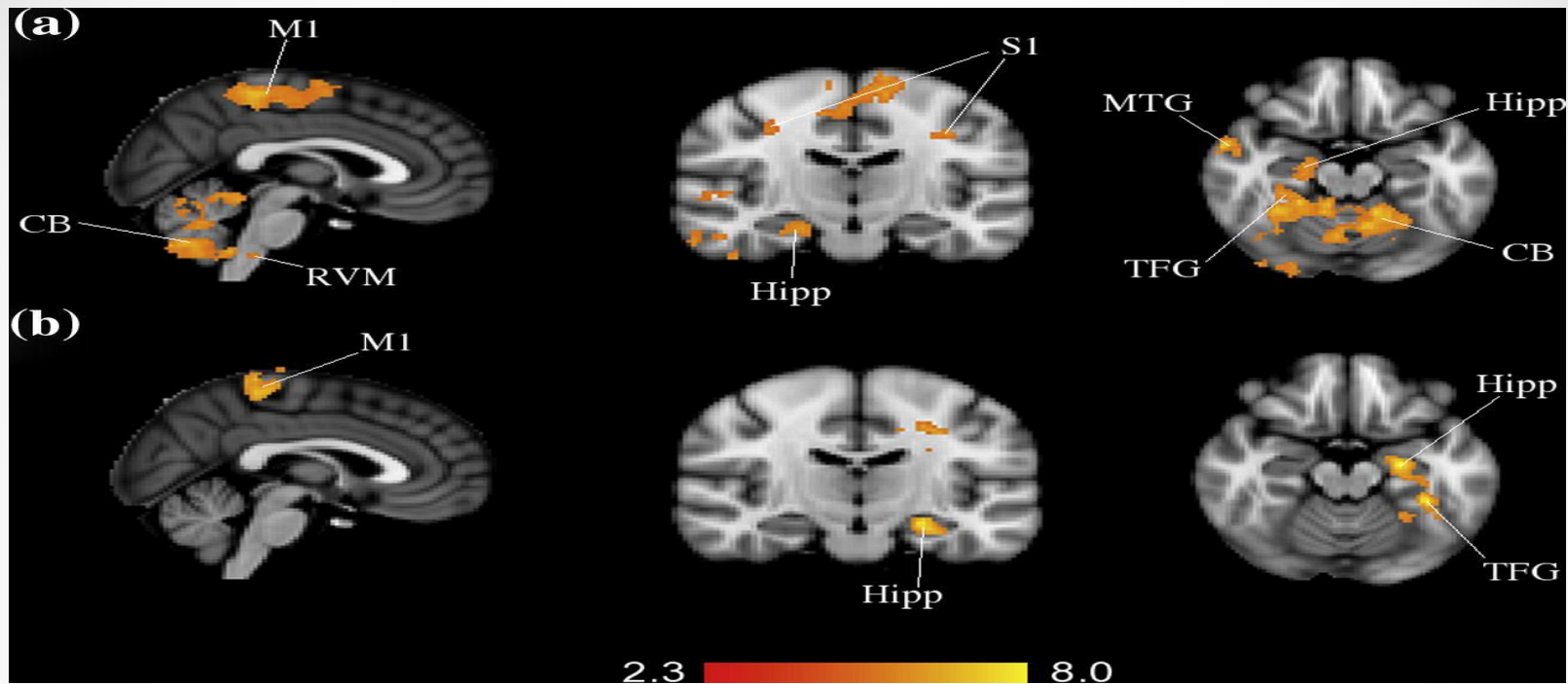


Fig. 3 Results of a mixed-effects analysis comparing brain activation in response to noxious stimulation of the left arm in control women and COCP users with (A) low serum testosterone levels and (B) high serum testosterone levels. Data shown are the result...

Katy Vincent , Catherine Warnaby , Charlotte J. Stagg , Jane Moore , Stephen Kennedy , Irene Tracey

Brain imaging reveals that engagement of descending inhibitory pain pathways in healthy women in a low endogenous estradiol state varies with testosterone

PAIN Volume 154, Issue 4 2013 515 - 524

<http://dx.doi.org/10.1016/j.pain.2012.11.016>

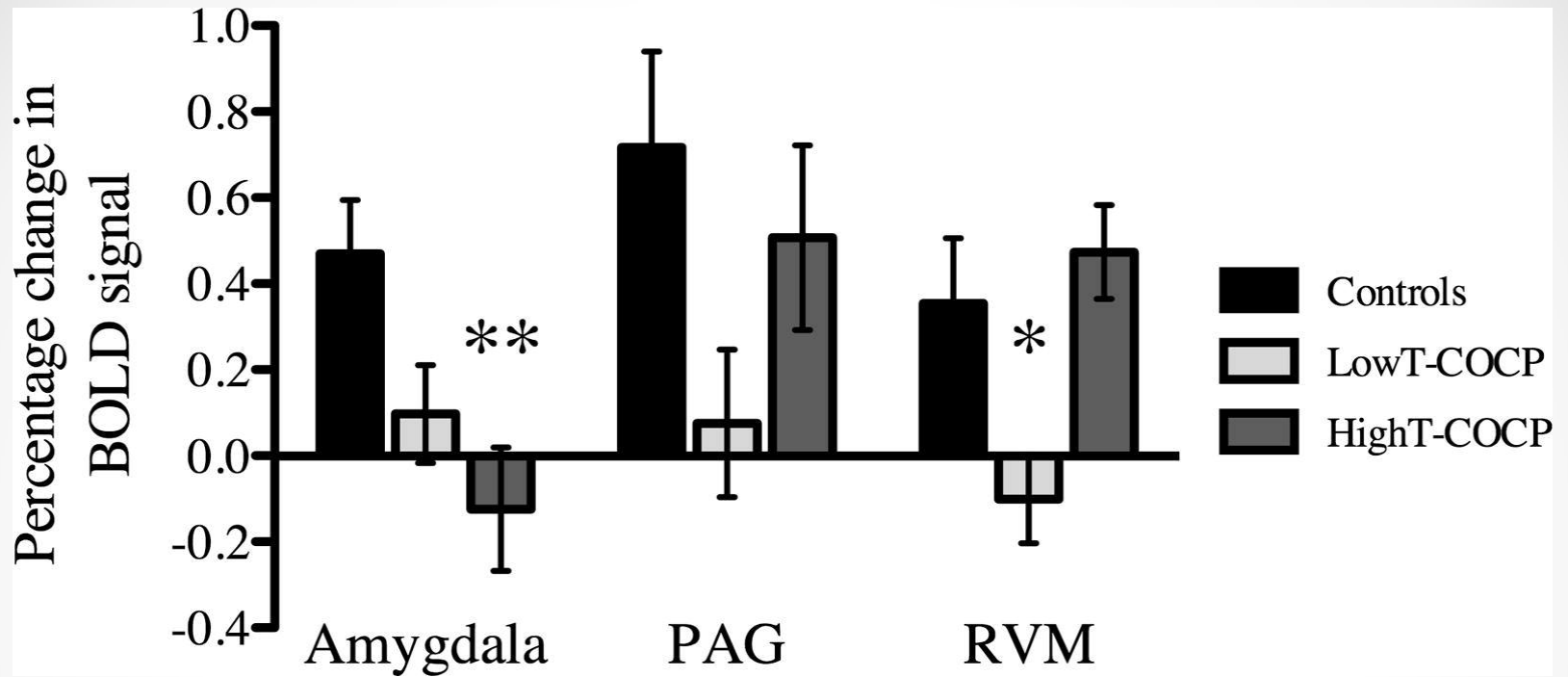


Fig. 4 Activity in 3 regions of **the pain-inhibitory system** in response to noxious stimulation of the left inner arm in control women and COCP users divided into subgroups by serum testosterone levels. Data are expressed as mean \pm SE.

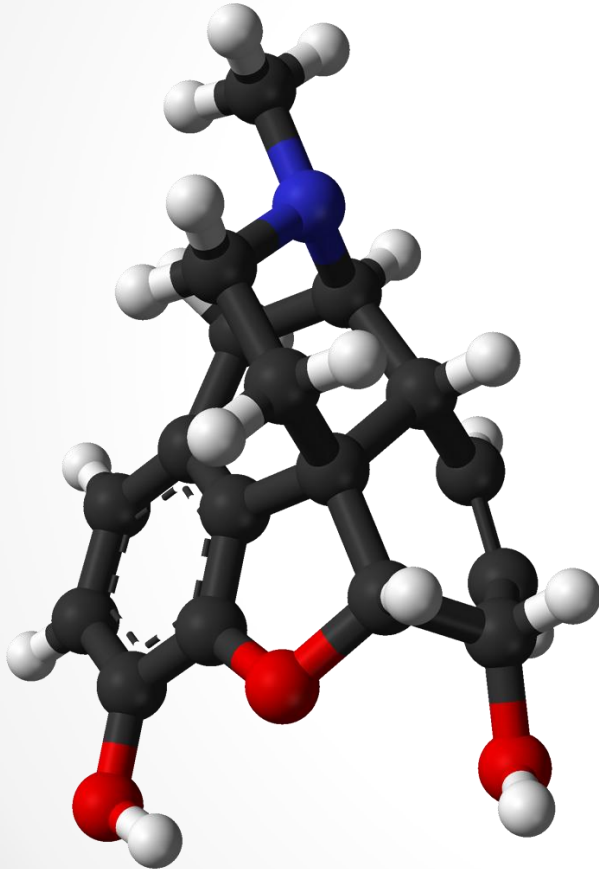
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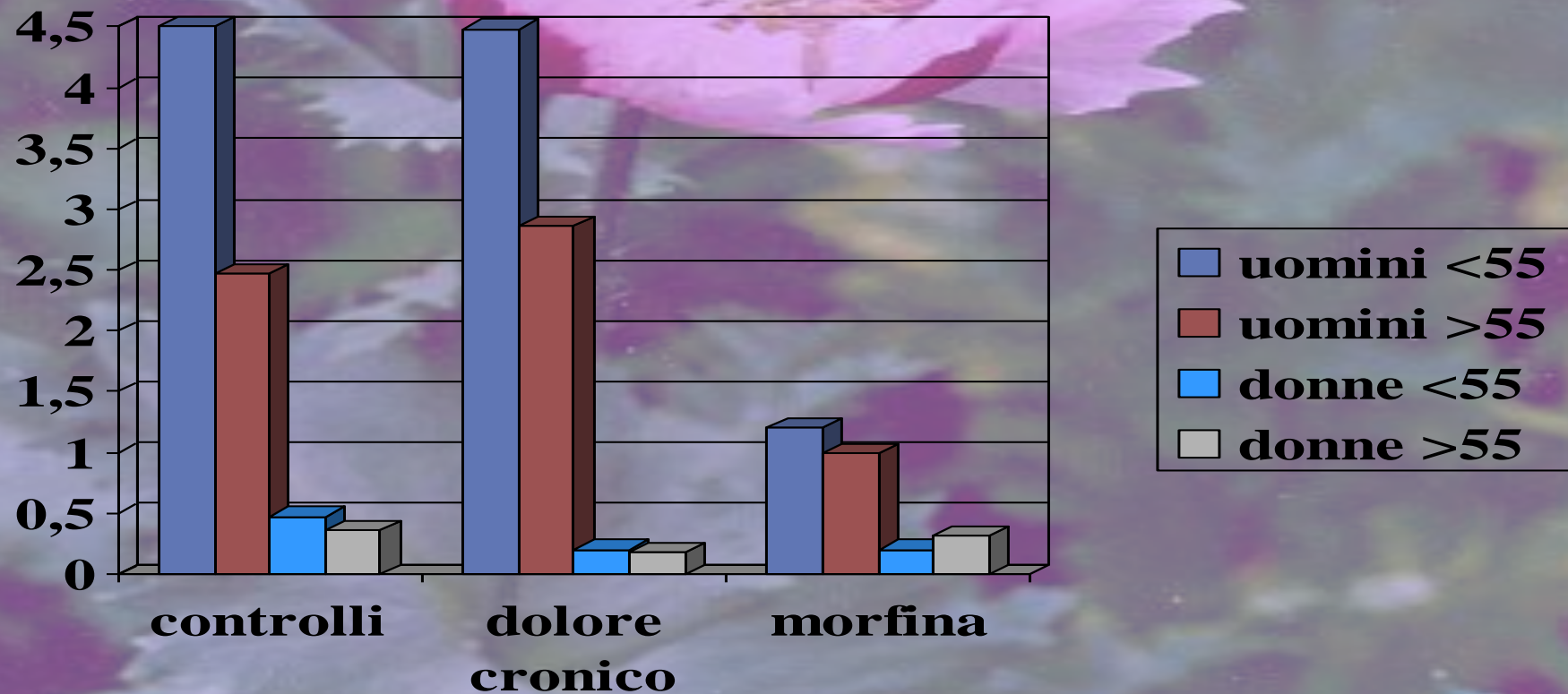
Effetti collaterali Opioidi



Morphine

- Nausea
- Prurito
- Stipsi
- Ipogonadismo
 - OPIAD: opioid induced androgen deficiency

OPIAD: Testosterone (ng/ml)



■ Sintomi del testosterone basso nell'uomo:

Apparato neurologico

- * Problemi psicologici

Apparato muscolo scheletrico

- * Malformazioni scheletriche
- * Riduzione massa muscolare

Apparato genitale

- * Genitali poco sviluppati
- * Infertilità

Apparato cutaneo

- * Caduta dei capelli

Apparato circolatorio

- * Aumento malattie cardiache
- * Diabete

Sistemici

- * Insonnia
- * Calo desiderio sessuale
- * Ritardo pubertà





RESEARCH

Open Access

Hormone replacement therapy in morphine-induced hypogonadic male chronic pain patients

Anna Maria Aloisi^{1,2*}, Ilaria Ceccarelli¹, Maria Carlucci¹, Annalisa Suman¹, Gianfranco Sindaco³, Sergio Mameli⁴,
Valentina Paci³, Laura Ravaoli³, Giandomenico Passavanti⁵, Valeria Bachiocco¹, Gilberto Pari²

Grazie!

...