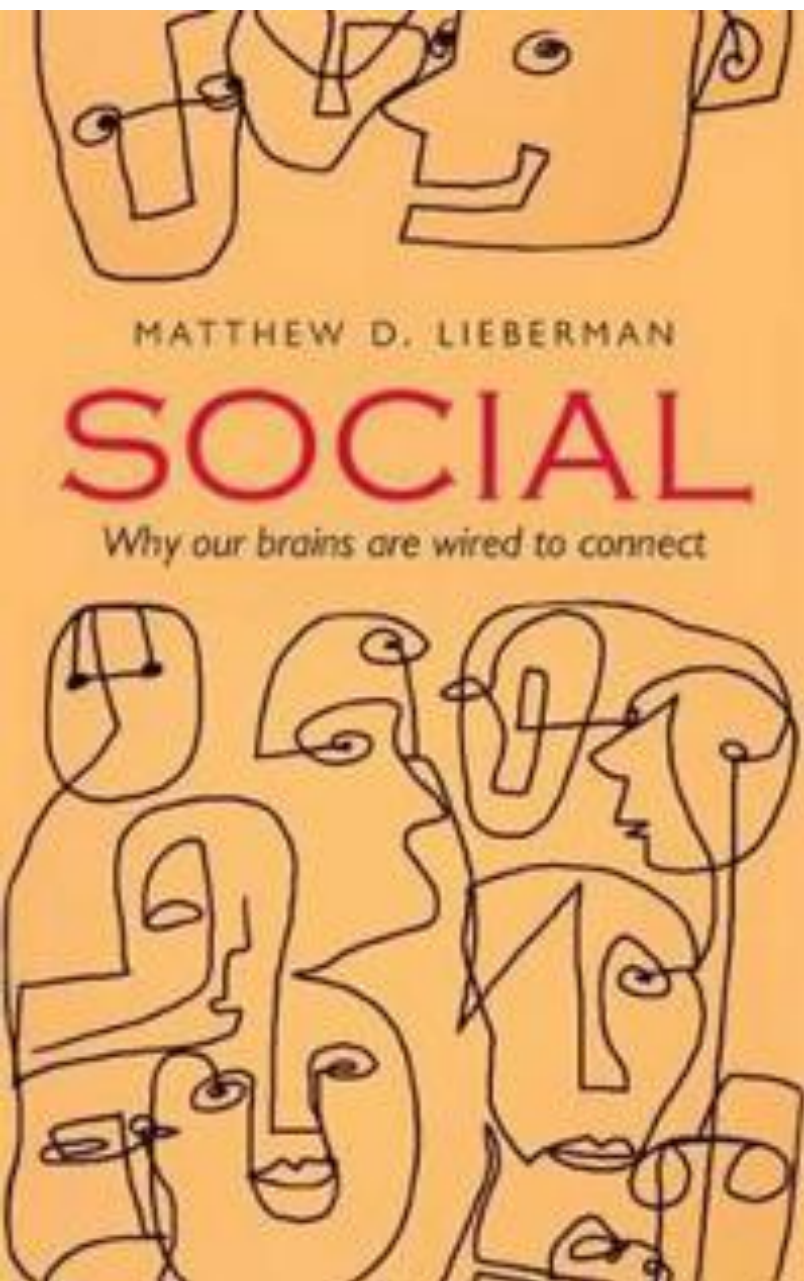


High dose anabolic steroid use and facial emotion recognition, the hormonal influence on social cognition.

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No conflict of interest to declare 😊.

RUSFORSK



Evidence that sex-hormones might influence social cognition

Review

The role of testosterone in social interaction

Christoph Eisenegger¹, Johannes Haushofer² and Ernst Fehr²

Cell PRESS

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



Hormonal and modality specific effects on males' emotion recognition ability

Adi Lausen^{a,b,c,*}, Christina Broering^{a,c}, Lars Penke^{d,e}, Annakristin...

^a Department of Affective Neuroscience and Psychophysiology, Institute of Psychology, University of Cologne, Cologne, Germany; ^b Department of Mathematical Sciences, University of Cape Town, Cape Town, South Africa; ^c Department of Psychology, University of Cologne, Cologne, Germany; ^d Department of Psychology, University of Cologne, Cologne, Germany; ^e Department of Psychology, University of Cologne, Cologne, Germany

Testosterone decreases trust in socially naïve humans


Peter A. Bos^a, David Terburg^a, and Jack van Honk^{a,b,1}

PNAS

Recent research in humans using an economic exchange task has shown that administration of oxytocin, a peptide hormone has an important role in the formation and maintenance of social relationships. Oxytocin is associated with attachment and bonding (9), increases in-... as evidenced by higher...

Psychoneuroendocrinology


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



Testosterone reduces functional connectivity during the 'Reading the Mind in the Eyes' Test

Peter A. Bos^{a,b,*}, Dennis Hofman^a, Erno J. Hermans^{c,d}, Estrella R. Montoya^a, Simon Baron-Cohen^e, Jack van Honk^{a,b,f}

ELSEVIER



Testosterone and Its Influence on Emotion Recognition in Young, Healthy Males

Stefanie Rukavina^a, Frauke Sachsenweger^a, Lucia Jerg-Bretzke, Andreas Ewald Daucher, Harald C. Traue, Steffen Walter, Holger Hoffmann

ELSEVIER

Department of Psychology and Psychotherapy, Medical Psychology, Ulm University, Ulm, Germany

Amygdala activity to fear and anger in healthy young males is associated with testosterone

Birgit Derntl^{a,b,c,*}, Christian Windischberger^{a,d}, Simon Robinson^{a,e}, Ruben C. Gur^f, Ewald Moser^{a,d,f}, Ute Habel^c

ELSEVIER

Testosterone administration impairs cognitive empathy in women depending on second-to-fourth digit ratio

Jack van Honk^{a,b,1}, Dennis J. Schutter^{a,2}, Peter A. Bos^{a,2}, Anne-Wil Kruijt^c, Eef G. Lentjes^d, and Simon Baron-Cohen^e

BIOLOGICAL REVIEWS

Biol. Rev. (2015), pp. 000–000.
doi: 10.1111/brv.12175

Oxytocin, testosterone, and human social cognition

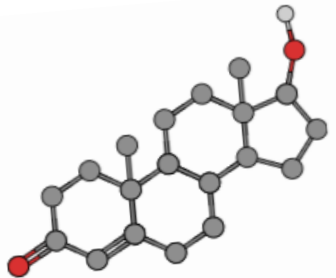
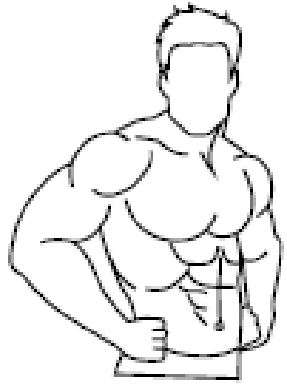
Bernard J. Crespi^{*}

Research Reports

Testosterone Reduces Conscious Detection of Signals Serving Social Correction: Implications for Antisocial Behavior

Jack van Honk and Dennis J.L.G. Schutter

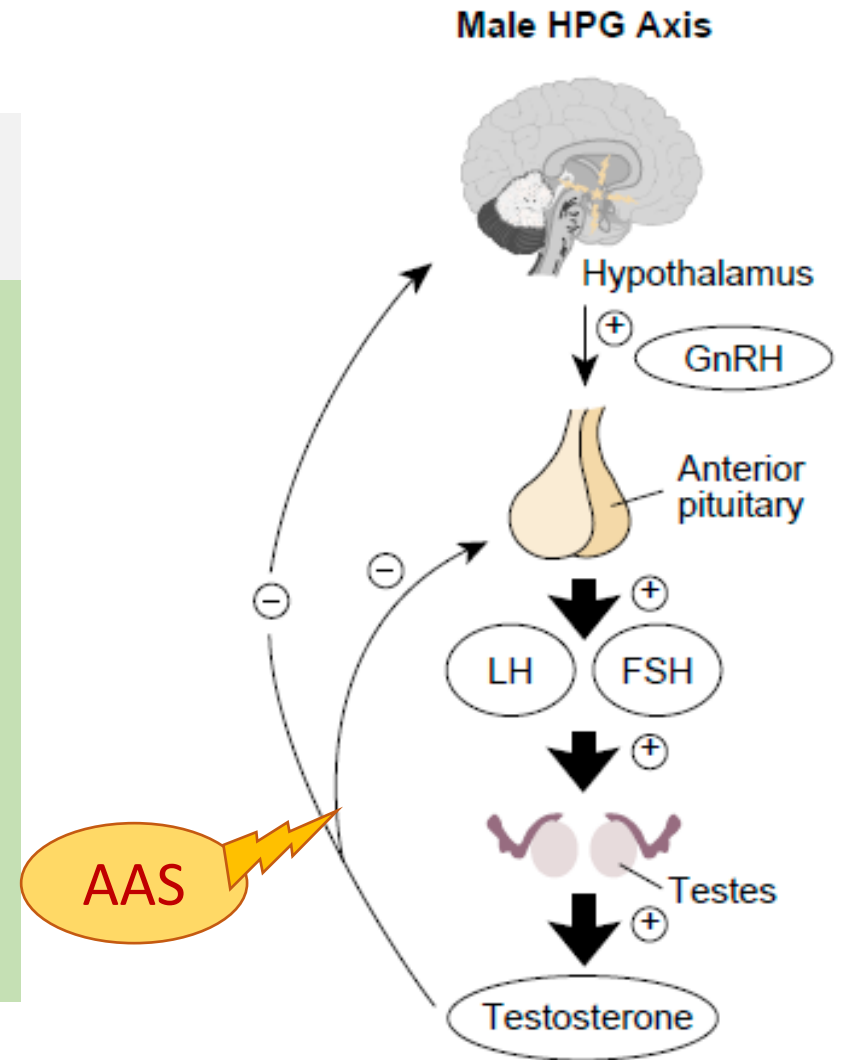




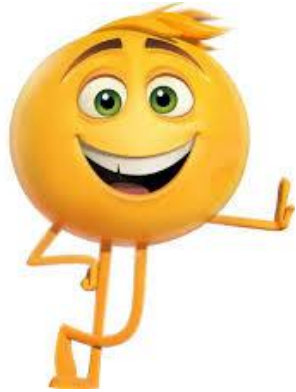
Patterns of use



- AAS = testosterone and synthetic compounds of T
- Supraphysiological doses
- “Stacking”
- AAS use will lead to suppression of testosterone production
- Cycles



AAS temporal effects



On cycle

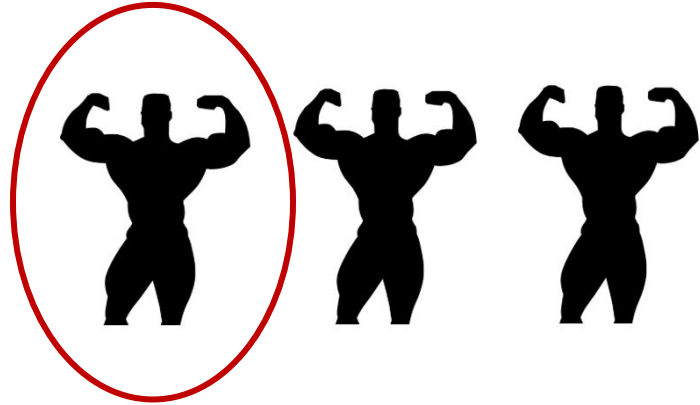
Feels good
More energy
Withstands more training
Increased libido
Better self-confidence

Off cycle

Depression
Lack of energy
Anxiety
Decreased libido
Poorer self-esteem



AAS dependence



Personality pathology



Higher aggression and history of violence



Social cognitive skills - one factor underlying the interpersonal problems reported with AAS dependence?

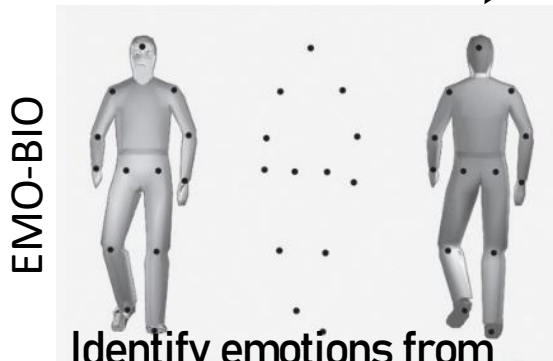


Examination of social cognitive abilities related to AAS use and dependence



Emotion recognition

Perspective taking



Identify emotions from body movement



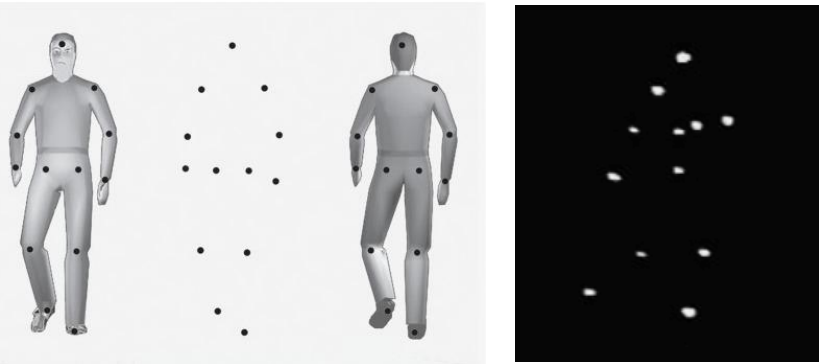
Identify emotions in facial expressions



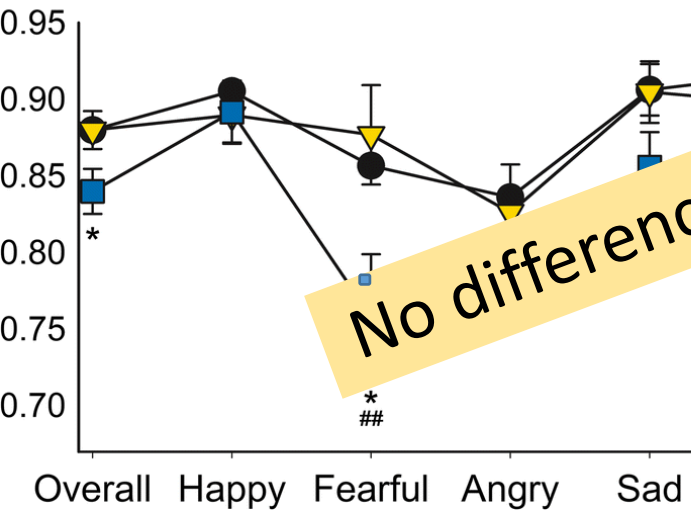
Theory of mind; inferring the mental state of others

AAS dependence is associated with lower social cognitive performance on two different social cognitive task

I: Impaired emotion recognition from body movement, fear in particular



● Non-using weightlifters
 ▼ AAS non-dependent
 ■ AAS dependent

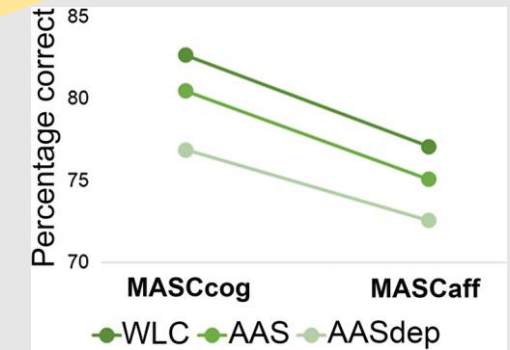
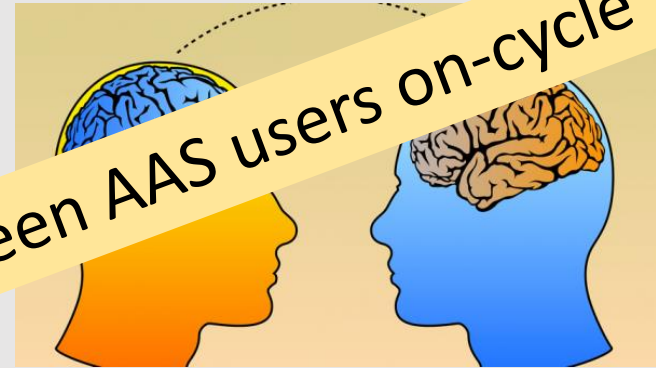


No differences were seen between AAS users on-cycle versus off-cycle

* = AAS dependents different from non-weightlifters
 ** = AAS dependents different from AAS non-dependents

II: Impaired theory of mind; the ability to infer the mental state of others

- Male and female weightlifters who were dependent on AAS had reduced ToM abilities compared with non-weightlifters.



Does high-dose AAS use negatively impact on emotional facial recognition ability (via hormone dysregulation?)

Emotion Recognition Task (ERT) task CANTAB Cambridge cognition



Total sample
(N=177)

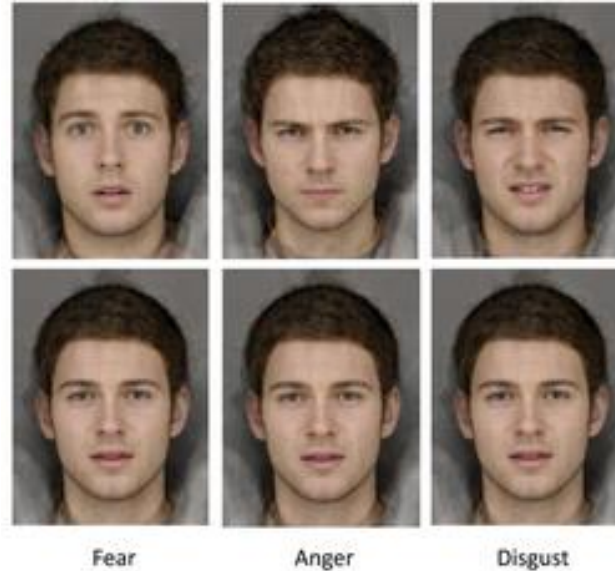
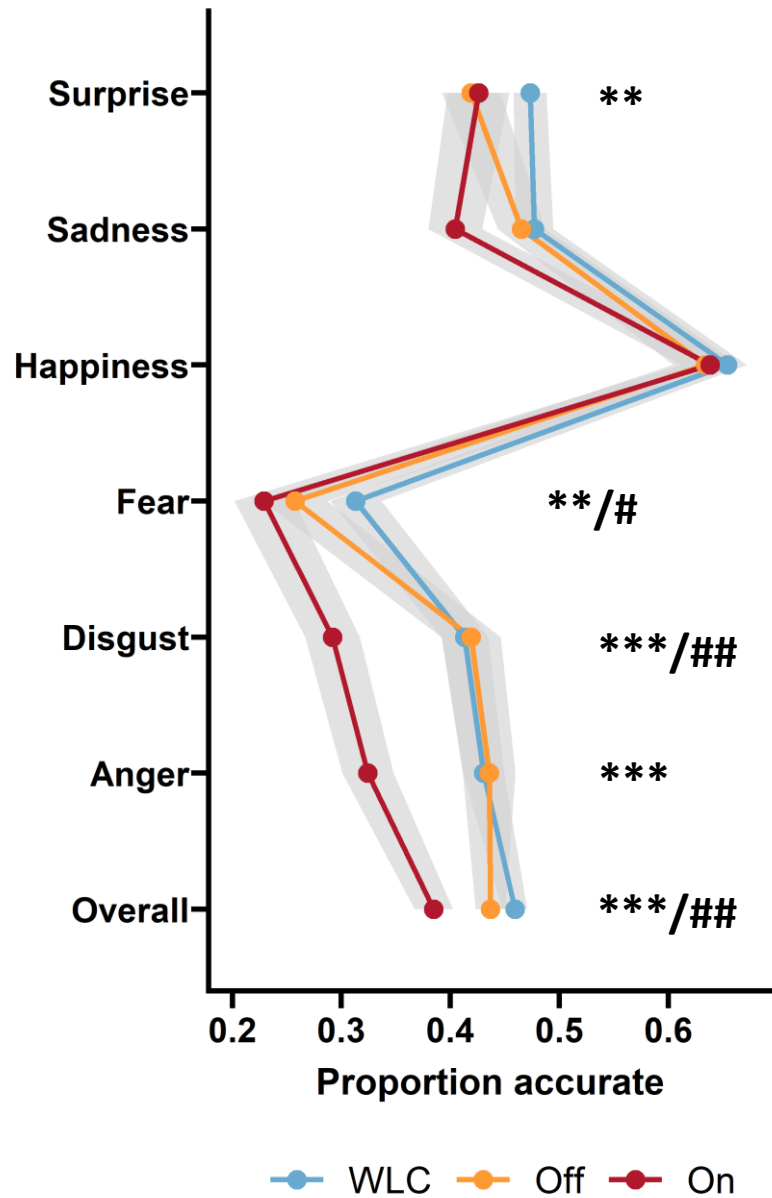
AAS
(n=94)

WLC
(n=77)

On-cycle
(n=57)

Off-cycle
(n=37)

Mean values ERT accuracy

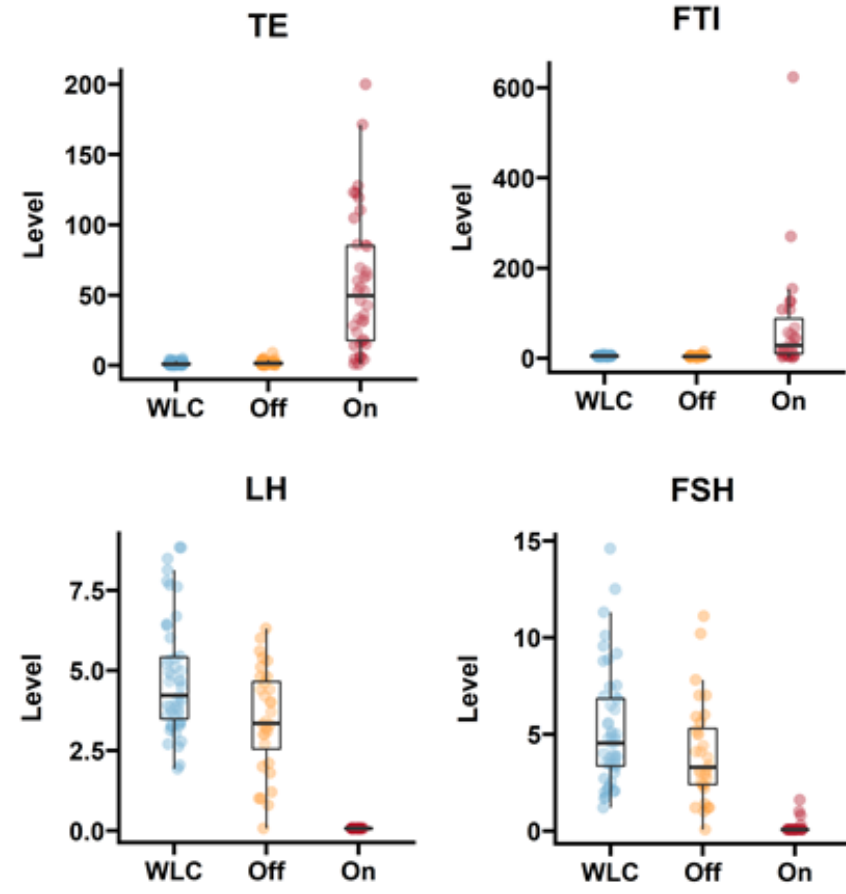
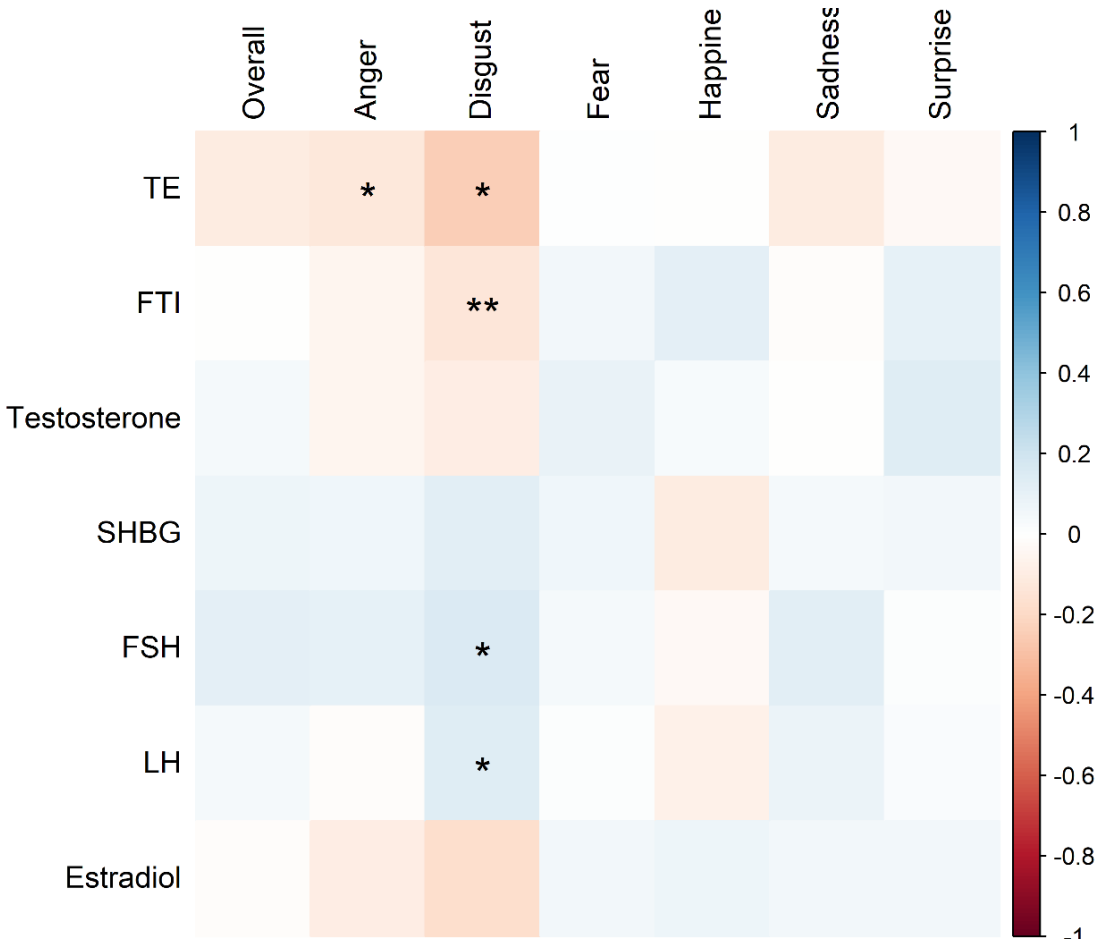


On-cycle AAS users were poorer on recognizing emotions in facial expression compared with WLC and off-cycle users. Reduced recognition were seen on several emotions **anger, disgust and fear**, and on the **overall ERT score**.

* AAS on cycle \neq WLC; unadjusted model,
 # AAS on cycle \neq WLC, adjusted for *age, education and IQ*



- The findings suggest temporary effects of AAS use on emotional processing, where hormonal perturbations caused by high-dose AAS use impair the ability to recognize emotional faces.



Summary

- AAS dependents show impaired emotion recognition from body movement, fear in particular & impaired theory of mind.
- Emotional facial recognition were lower in users on-cycle. The findings suggest temporary effects of AAS use on emotional processing.



Thanks to contributors

All the extremely **strong men** who **participated in the study**



← **Lisa Evju Hauger**, PhD – data collection and analyses

Morgan Scarth, Phd student – analyses and writing →

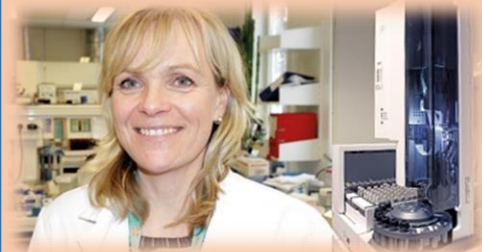


Per Medbøe Thorsby, MD., PhD. Hormone laboratory - Hormone analyses and expertise guidance →

← **Ingunn Hullstein**, Norwegian Doping Control Laboratory - doping analyses



← **Anne Ravndal**, research assistant – data collection



Thanks for your attention!

