

Neurobiological correlates of Disruptive Behaviour Disorder in a normal population; differences between boys and girls

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Introduction

Disruptive Behaviour Disorders (DBD) have been associated with decreased cortisol levels, the main stress hormone produced by the Hypothalamic-Pituitary-Adrenal (HPA)-axis^{1,2}. In normal population samples however, results are inconclusive³, as normal population studies are hampered by a low prevalence of DBD. This is especially true for girls, who have consequently remained under-investigated.

This study aims to elucidate the relation between disruptive behaviour and cortisol in a normal population sample, by: over-sampling high-risk boys *and* girls differentiating disruptive behaviour; parent vs. self reported, and type of behaviour.

Methods

Participants

Normal population
219 boys
153 girls
Over-sampling: 43% at high risk of developing DBD
Mean age: 14,0 years \pm 0,5

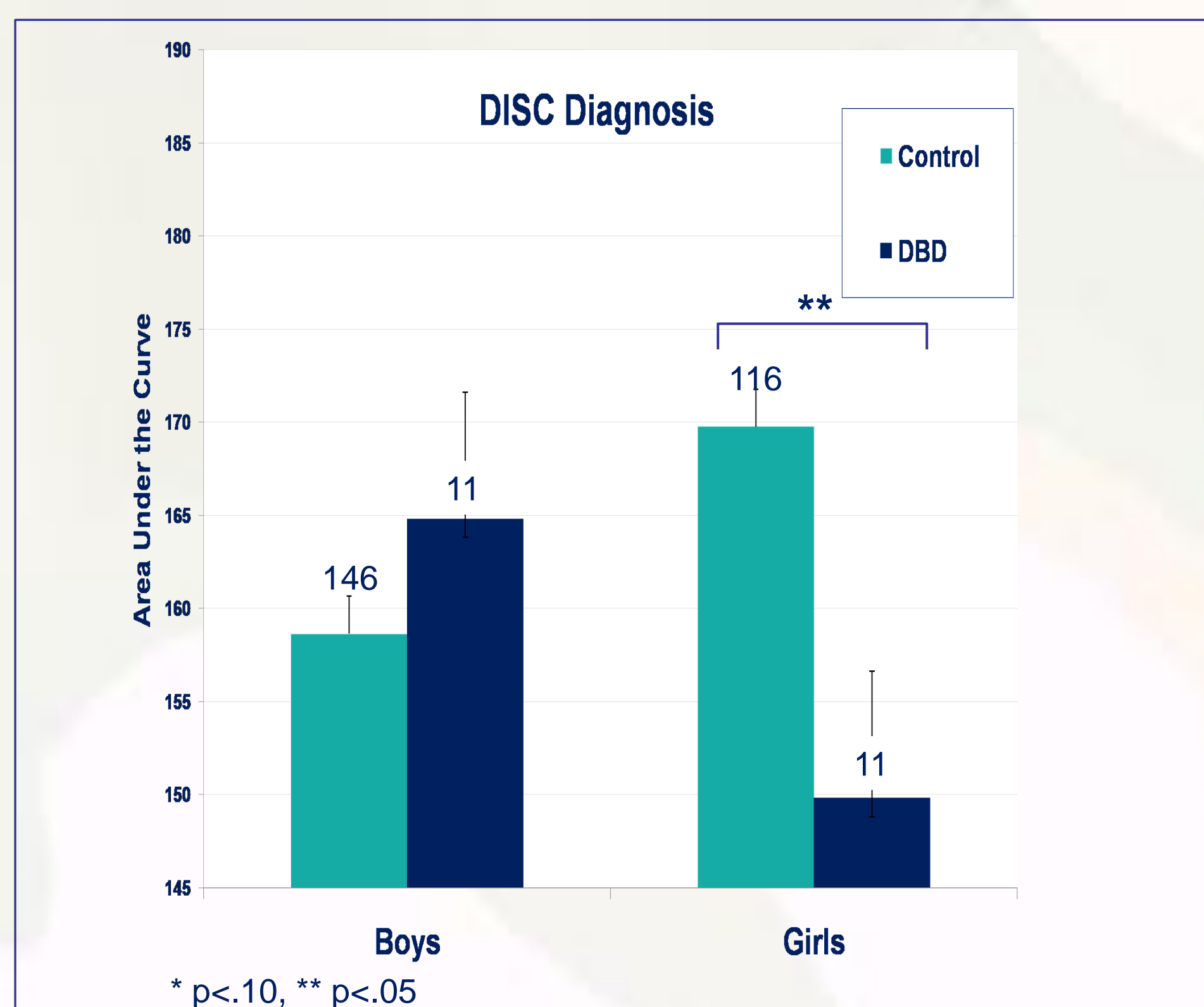
Disruptive behaviour measures

Diagnostic Interview Schedule for Children – Parent version (DISC-P)
• Diagnosis DBD
Child Behaviour Check List (CBCL) & Youth Self Report (YSR)
• Aggression and delinquency score

Cortisol

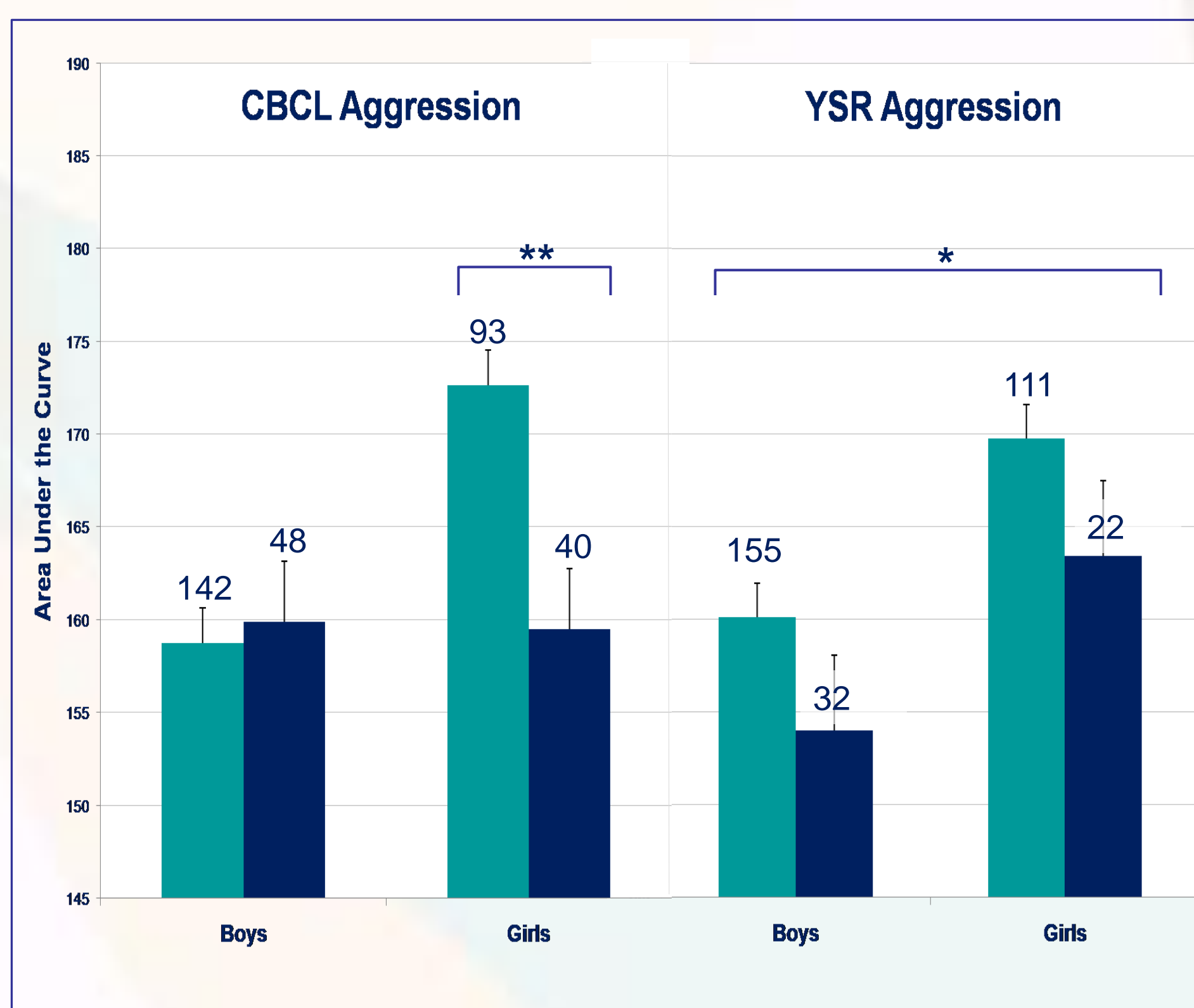
Cortisol Awakening Response (CAR)⁴
• Area Under the Curve_{GROUND} (AUC_G)⁵

Results



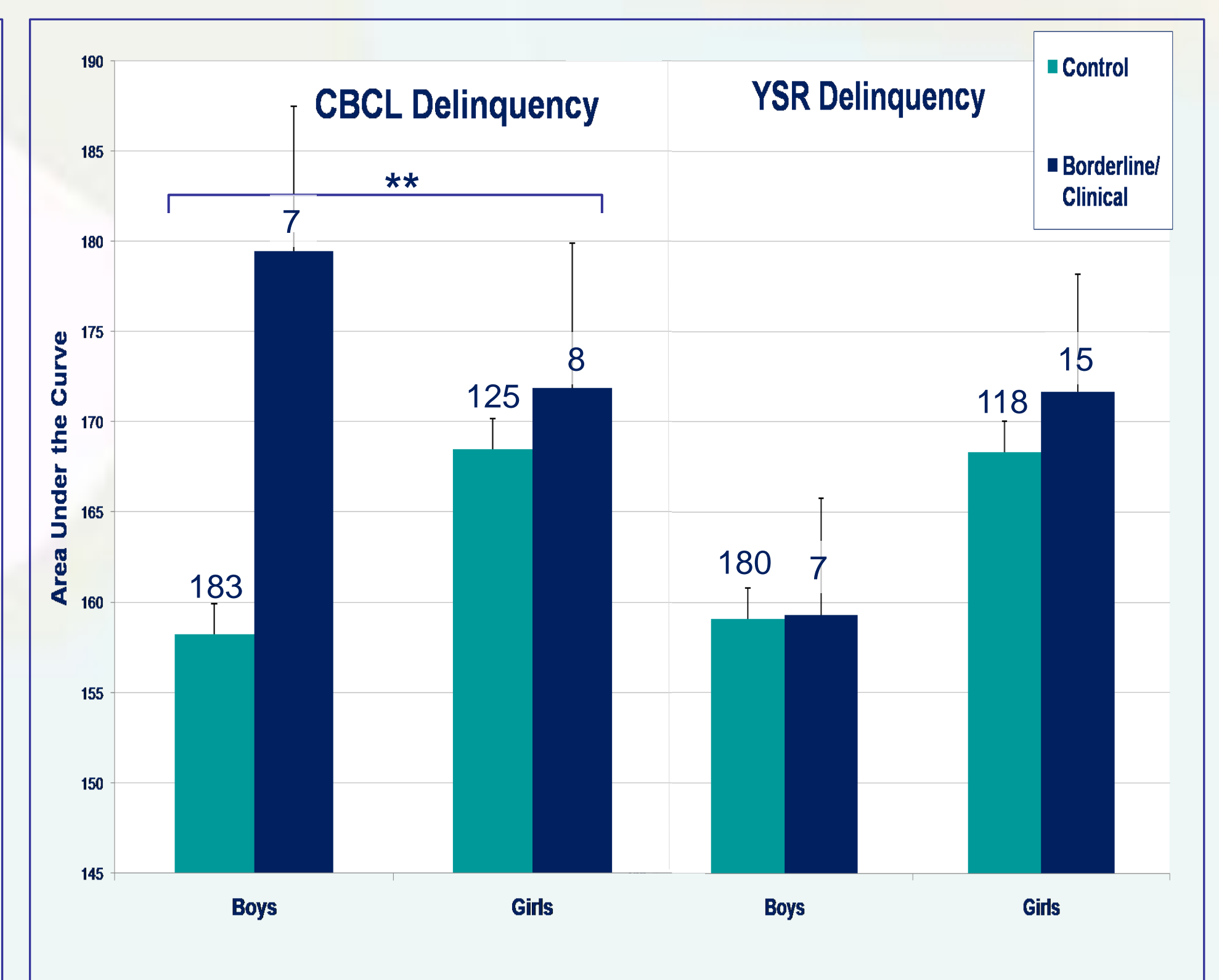
Disruptive Behaviour Disorder – diagnosis

- DBD girls show a lower AUC_G than control girls (F=6.995, p<.05).
- DBD boys do not differ in AUC_G from controls (F=.838, ns).



Aggression

Parent reported (CBCL):
• Only decreased AUC_G for aggressive girls compared to controls (F=8.571, p<.005).
Self reported (YSR):
• Both for aggressive boys and girls trend towards decreased AUC_G (F=3.207, p<.10).



Delinquency

Parent reported (CBCL):
• Delinquent boys and girls increased AUC_G compared to controls (F=4.156, p<.05).
Self reported (YSR):
• No differences in AUC_G (F=.107, ns).

Discussion

- Disruptive Behaviour Disorder is only associated with decreased cortisol levels in girls. Suggesting that in the normal population disruptive behaviour in girls may be more strongly associated with neurobiology, than in boys.
- Particularly aggression, but not delinquency, is related to decreased cortisol levels.
- Disruptive behaviour should be, in relation to basal cortisol, assessed more distinctively.
- The DBD and borderline/ clinical groups are small, in spite of over-sampling of high-risk youth, suggesting that even stronger over-sampling methods may be needed in future research.

References

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