Hormonal Sensitivity to Competition Among Adolescent Boys
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Background
- What factors influence the development of competitive behavior?
- In men, testosterone levels shift during competition in line with outcome and context (Mazur and Booth, 1998)
- Testosterone increases markedly during adolescence (Elmlinger et al, 2005)
- Do adolescents also show testosterone shifts during competition? What factors influence these shifts?

Methods
Participants:
- Experiment 1: 89 middle school boys aged 10-14
- Experiment 2: 106 high school boys aged 14-18

Procedure:
- Maze competition, randomly assigned to outcome group
- PANAS-C (Laurent et al, 1999) pre- and post-competition
- Saliva collection before and 15 minutes after competition
- Testosterone levels assessed via enzyme immunoassay

Design – 4 conditions:
- 1v1: Compete against another individual
- 2vTime: Work with partner to compete against clock
- 2vAll: Work with partner to compete against others (Exp. 2)
- Control: No competitive interaction

Young adolescents (Exp. 1) – Affect
- Levels of positive affect increase in winners, decrease in losers (Repeated measures ANOVA, p<0.01)
- Analogous, reverse effects in negative affect (p<0.01)
- Effects consistent across competitive contexts

Older adolescents (Exp. 2) – Affect
- Testosterone levels consistent across contexts and outcomes
- Variance in testosterone levels best accounted for by identity of female experimenter (Repeated measures ANOVA, p<0.05)

Young adolescents (Exp. 1) – Testosterone
- Testosterone levels vary by context: increase in 2vTime, decrease in 1v1 and control (Repeated measures ANOVA, p<0.05)
- Effects consistent across winners and losers

Older adolescents (Exp. 2) – Testosterone
- Testosterone levels consistent across competitive contexts

Conclusions
- Competitive interactions are associated with testosterone shifts even in early adolescence
- Outcomes of minor competitions produce significant changes in affect across adolescent age groups
- For young adolescents, testosterone levels vary according to competitive context
- For older adolescents, presence of female experimenter masks effects of competition on testosterone

References

Acknowledgments
- Funding: Harvard University Mind/Brain/Behavior Initiative
- Thanks to Peter Ellison and Susan Lipson in the Harvard Reproductive Ecology Laboratory, as well as Kerrie Pieloch and Warneken Lab Research Assistants for their help in data collection.

V. Wobber, SRCD, April 2013