Status, prestige, and social dominance

➤ Does status have fitness benefits?
➤ Status-seeking and costly signalling
➤ Sex differences in competition and dominance
➤ Hormones, competition, and status
Status and reproductive success: Traditional societies

Is status – and things that lead to it (resources, mates, respect) a route to higher fitness?
Status and reproductive success: Traditional societies

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Age-specific fertility rates for Turkmen of Persia 1973-1974:

(Irons, “Cultural and biological success” 1979)
Status and reproductive success: Industrial societies

In modern industrial societies
Do high-status people have higher reproductive success?
Status and reproductive success: Industrial societies

In modern industrial societies
Do high-status people have higher reproductive success?

Some differences:
- Birth control?
- Costs and benefits of children?
- The welfare state?
- Legally-enforced monogamy?
Status-striving, risk, and costly signalling

AND THIS IS WHY WOMEN LIVE LONGER THAN MEN
Costly signalling

Why do they do it???
Costly signalling

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Risk-prone behavior that is not directly fitness-enhancing may be a signal (like a peacock’s tail).

How to keep a signal honest, hard-to-fake?
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How to keep a signal honest, hard-to-fake?

1. An intrinsic feature of the trait (deep croaks in large bullfrogs)
Costly signalling

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How to keep a signal honest, hard-to-fake?

1. An intrinsic feature of the trait (deep croaks in large bullfrogs)
2. A signal that is more costly for the low-quality individual
All signallers gain the same benefits, low-quality individuals pay more. Optimal signal intensity is less for low-quality individual.
Optimal signalling intensity: Differences in need

All signallers pay the same costs, low-need individuals benefit less. Optimal signal intensity is less for low-need individual.
Status signals: Who is the audience?

If risky displays are signals, what are they signalling?

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A dominance signal to males? A mate-attraction signal to females? how would we know?
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how would we know?

Some examples:

- Risky driving - who is in the passenger’s seat?
- Meriam turtle-hunting
Masculine signals: Who is the audience?

Masculine secondary sexual characteristics are also signals

(from David Puts, 2010)
Do women and men differ in status-seeking?

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- BUT women and men express dominance in different ways
Are men more competitive than women? Cultural differences

Proportion of people who adopted the competitive payoff choice in two societies, the matrilinial Khasi and the patrilineal Maasai

(from Gneezy et al. 2009)
Does testosterone make you dominant?

What gets a guy “pumped” in anticipation of competition? Testosterone rises in anticipation of competition.

Why not have high T all the time? What are the costs?
Does testosterone make you dominant?

What gets a guy “pumped” in anticipation of competition? Testosterone rises in anticipation of competition.

Why not have high T all the time? What are the costs?

“Challenge hypothesis” predicts strong associations between hormones and aggression only in context of competition.

Correlations between T and aggression found when males are actively competing for territory, dominance or mating access.
Testosterone and competition in males

Mazur and Lamb 1980: Does winning a $100 prize get your testosterone up? Yes for a tennis match, not for a lottery
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Booth et al 1989 (study of 6 tennis matches):

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Testosterone feedback:
- Winners with rising T had higher T before next game
- Losers with falling T had lower T before next game

(results for females inconsistent across studies)
Hormones and occupation

Occupation is a marker of status in our society. Do men in high-status occupations have higher testosterone?
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Why not?
Testosterone and vicarious competition

Men’s testosterone dropped for backers of the losing “team.” No such effect for female viewers. (from Stanton et al. 2009)
Testosterone and inter-group competition

Men compete in groups. Who do you want as a team-mate? A high-T or low-T person?
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Is testosterone associated with competitiveness in women?

Harder to see and study:

- women and men compete over different things
- women compete with more cryptic methods ("indirect" aggression)

Women higher in testosterone were more likely to compete using verbal (but not physical) aggression.

Women high in testosterone were less likely to respond that "nothing overt happened, I just felt competitive without expressing it".

(Cashdan 2003)
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Hormones and dominance in women: Peer ranks

Does this greater assertiveness translate into higher status?
Hormones and dominance in women: Peer ranks

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No. In a peer-ranking task, high-status women had lower testosterone levels:

<table>
<thead>
<tr>
<th></th>
<th>E</th>
<th>A</th>
<th>T</th>
<th>free T</th>
</tr>
</thead>
<tbody>
<tr>
<td>overall status</td>
<td>−.26</td>
<td>−.54**</td>
<td>−.35*</td>
<td>−.30†</td>
</tr>
<tr>
<td>popularity w/ women</td>
<td>−.34†</td>
<td>−.51**</td>
<td>−.28</td>
<td>−.22</td>
</tr>
<tr>
<td>leadership</td>
<td>0.08</td>
<td>−.39*</td>
<td>−.23</td>
<td>−.11</td>
</tr>
<tr>
<td>caring</td>
<td>−.43*</td>
<td>−.42*</td>
<td>−.21</td>
<td>−.21</td>
</tr>
</tbody>
</table>

E=estradiol  A=androstenedione (an androgen)  T=testosterone

Correlations between hormones and rank by peers. (No association of hormones with rank on popularity with men, toughness, or athleticism.)
Hormones and dominance in women: Over-ranking

But the higher the hormone levels, the more they ranked themselves higher than they were ranked by peers:

<table>
<thead>
<tr>
<th>Over-ranking on:</th>
<th>E</th>
<th>A</th>
<th>T</th>
<th>Free T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean over-ranking</td>
<td>.61***</td>
<td>.41*</td>
<td>.37*</td>
<td>.32†</td>
</tr>
<tr>
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Correlations between hormones and magnitude of over-ranking by peers. (No significant association of hormones with rank on popularity with men, toughness, caring, or athleticism.)

(Cashdan 1995)
Hormones and dominance hierarchies in women

Why were high-T women low in status in these groups?

- Women with high testosterone levels also had more sexual partners, and more unrestricted sexual attitudes. Perhaps other women were mistrustful of them?
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- Might get a different result with a group of assertive women like the Asante market women
Conclusion

- Does status have fitness benefits? In traditional societies yes.
- How to know whether someone is faking it? Attend to costly signals that low-quality individuals can’t afford to display.
- A lot of male high-risk behavior is about status among males.
- Women tend to suppress their competitive ability around men.
- Testo associated with assertive behavior in both sexes.
- Testo facilitates competition in men (rises in anticipation).
- Many routes to high status: testosterone not always associated with high rank.