Episode 5 – Does testosterone make you horny?
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Music and audio by Jeremy Dahl

Note: This is the script used to create the episode with references added. It has typos. It is not a transcript, but the audio sticks pretty close to the writing.

Intro

Welcome to Do We Know Things? A podcast where we examine things we think we know about sex.

Content warning: This podcast will include discussions about sexual desire and testosterone.

Hi everyone! I am Dr. Lisa Dawn Hamilton, professor of psychology and sex educator. Today on Do We Know Things, does testosterone make you horny?

Austin Powers clip

Testosterone is such a mythical hormone. We ascribe to it virtually everything that has to do with masculinity. It makes men strong, hairy…and virile, but what if I told you that everybody has testosterone coursing through their blood stream? It's true. Yes, it is linked with physical markers of masculinity, like low body fat and higher muscle mass on average, but what about the sexual and psychological stuff. Does testosterone make us horny? The answer is actually pretty complicated, and on this episode of I will walk you through what we actually know about testosterone and sexual desire.

That's coming up on Do We Know Things.

But first!

Feedback about Episode 4

In episode 4, I talked about the use of SSRIs to treat rapid ejaculation, which is the new name for the problem formerly known as premature ejaculation. SSRIs are a type of antidepressant, and one listener emailed a question. And that listener happened to be my script wizard Matt. Matt is here today to ask his question:

Matt's question: Are SSRIs are prescribed for rapid ejaculation even when the person is not depressed or anxious?

Summary of answer: And the answer is yes! It is a pretty drastic measure for a relatively minor problem, but SSRIs are prescribed all the time for this issue. Like most of the things we worry about with sex, rapid ejaculation doesn't have to be a big deal. One great reference for working

with premature ejaculation is a book by Ian Kerner called She Comes First (Kerner, 2004). Kerner is a psychologist and someone with premature ejaculation, and the book is tips to be an excellent lover for men who have sex with women. Basically, the gist is, if she comes lots before penetration even happens, then rapid ejaculation doesn't even matter.

I also got some peer review feedback about the SSRI episode from depression and sex expert Dr. Tierney Lorenz. Dr. Lorenz is an assistant professor of Psychology at the University of Nebraska – Lincoln. She is such an expert on this topic that her twitter handle is @depresssex.

Dr. Lorenz explained in more detail how SSRIs work beyond the level of reuptake. She noted that while serotonin reuptake can happen right away, it is often weeks before therapeutic effects happen. This is because there are many more changes in the brain that happen as a result of taking these drugs. You can hear more about the neuroscience details by going to Episode 4 on the website doweknowthings.com. Dr. Lorenz provided two key reasons why understanding the full effects of SSRIs is important.

Dr. Lorenz: (1) It's important for folks to know that these meds take a while to work and rely on consistent dosing, so we have to take them consistently. Unfortunately, the worst arousal and orgasm side effects happen within 1-2 weeks of starting an SSRI, long before they feel like they are working for your mood. You have to push through that awkward phase to really know what your final result is going to be - like Lindsey says, the effect on your mood might cancel out the effects on your sexual function. And research consistently shows that side effects (sexual or otherwise) are worse for folks who are inconsistent with their meds (e.g., folks who take drug holidays), as their body is constantly trying to "re-adjust", so one of the very best things people can do to improve their sexual side effects is to take the medication as prescribed. Which is not a welcome message to someone trying to reduce their side effects - it's counter-intuitive - "if this med is causing me problems, then surely taking it every other day would make things better" - but that's not how these meds work. So my first recommendation to patients is always: work on taking your meds as consistently as possible - we all forget from time to time - but find a system that works for you, whether it's a reminder app, or a pretty pill case you like carrying with you (Etsy is amazeballs for this), or an accountability buddy.

(2) The fact that the real effect of SSRIs seems to be downstream of their main chemical action on serotonin might also explain why some folks continue to have sexual side effects even as they go off the meds (and in some cases, for a long time afterwards) (Bala et al., 2018). In simple terms, because these meds are changing the way the brain works (which is why you can eventually go off them and still have benefits), they may cause long-lasting changes that continue to impact sexual function long after they wash out of your system. The vast majority of folks do not have lasting effects severe enough to qualify for a diagnosis of PSSD but, many people do say it takes months or even a year for their sexual function to be back to normal. Incidentally, I just had a paper accepted looking at women who took SSRIs as teens, who now as adults say they have lower solitary sexual desire than women who had the same kinds of mental health problems but didn't take meds for it (Lorenz, 2020).

Interstitial music

Testosterone for everyone!

To begin, let's have a crash course in testosterone. Testosterone is an androgen. The word Androgen means substance that promotes maleness, but everyone has testosterone in their bodies. Androgren is a category of hormones classified as sex steroids. Often when we talk about steroids, people immediately think of anabolic steroids that people take to increase muscle mass, but steroid just means a molecule it has a specific core structure. And there are tons of those. Steroid hormones are a category of steroids that are derived from cholesterol. And sex steroids are a sub-category of steroid hormones. The sex steroid hormones include estrogens, progestogens, and androgens. Sex steroids can be thought of as hormones that are released from the gonads, the testes and ovaries, but they are also synthesized and released from other places in the body. Testes produce the most testosterone, so people with testes have the highest levels of the hormone.

There are two things to know about hormones in general. These are some of the first things I remember being taught in my first Hormones and Behavior class, taught by Neil Watson, who is a psychology professor at Simon Fraser University. Keep in mind that this was about 17 years ago, so this is just my memory of what I learned and what stuck out most to me.

The first is that hormones only increase the likelihood of a certain behavior occurring. Even giving someone a direct injection of testosterone isn't going to MAKE them feel certain things or engage in certain behaviors. It just makes related behaviors more likely.

The second is that there is a reciprocal relationship between biology and behavior. What this means is your behavior and your social interactions with others change your hormone levels, just as your hormone levels can change your behavior and interactions with others. When most people think about hormones, I think they forget this part of the equation. Testosterone is linked with behaviors related to competition, sex, and status. So, having sex can increase your testosterone, and winning a competition can increase testosterone. It works both ways.

Sexual Desire

Defining sexual desire is much harder because it doesn't have a clear chemical structure. If you have experienced sexual desire, you probably know exactly what it feels like for you. It's harder to pin down when we are trying to define it for research purposes. Different fields of study define it differently. Very broadly, it is a motivated state or drive towards something sexual. But as researchers such as Marta Meana and Sari van Anders have asked, desire for what, exactly (Chadwick et al., 2017; Meana, 2010)? It really depends on the person and the situation. It could be desire for physical release through orgasm, or desire for affection, or desire for physical contact with another human. It could be fantasies about sexual things with no behavior attached.

In terms of psychology research, probably the most common measure of sexual desire is the Sexual Desire Inventory (Spector et al., 1996). This questionnaire asks about people's desire for both solitary sexual activity (masturbation) and partnered sexual activity. It asks about how often they want to engage in solo or partnered sexual activity, how often they think about sex, and how strong their desire is for sex in different scenarios. Researchers then add up the answers to the

questions to get a measure of sexual desire. Sometimes it is split up into solitary desire vs. partnered desire.

Although many of you know what it means to be horny, I thought I should clarify that as well. Often in English, we colloquially call sexual desire "horniness." Most people don't walk around saying "I am experiencing sexual desire;" they say, "I'm horny."

Testosterone and desire

Ok, so now I have gotten to the part we have all been waiting for. What is the relationship between testosterone and sexual desire? Does testosterone make you horny?

The first area of research that can help answer this question is correlational studies of naturally occurring testosterone levels and self-reported sexual desire. These studies involve researchers measuring research participants' testosterone in either blood or saliva and having research participants answer questions about their sexual desire.

For cisgender women, the evidence is all over the place – some studies showing high testosterone is related to higher desire, some showing no relationship and at some finding high testosterone is related to less desire. Part of the issue in doing correlational research is that usually, there are other factors that usually contribute to any relationship you might see. The context really matters when talking about sex and hormones. As the research advances, we look at those other factors and differing contexts in more detail. For example, people's stress levels can change the relationship between testosterone and desire. Also, what people are actually desiring, (orgasms, affection, etc.) can also determine whether testosterone is linked to desire (Raisanen et al., 2018; van Anders, 2012).

For cisgender men, most research does not find a relationship between testosterone and desire. If they have testosterone levels that are in the normal range for human males, there doesn't seem to be much of a relationship a relationship between testosterone and desire. This can vary when researchers look at factors like stress, but in general for young, healthy men, there isn't a link.

People with ovaries have lower levels of testosterone on average compared to people with testes. As such, they are more sensitive to fluctuations in testosterone. This means that changes in testosterone can have potentially more of an effect for people with ovaries.

An analogy that can illustrate this phenomenon might be to think about adding red food colouring to a glass of fruit punch (people with testes and lots of testosterone) vs. to a glass of water (people without testes and lower testosterone). If you add red food colouring to fruit punch that is already red, you won't notice any change in colour. If you add it to a glass of water, the change is much more apparent.

However, we do know that for people not taking hormones, levels of testosterone and other androgens decrease as we get older. Levels of sexual desire also decrease as we get older. In cisgender men in particular, there is a link between aging, lowered testosterone, and lower sexual desire. However, there are lots of other things happening to our bodies as we age as well! It's hard to know what other variables contribute to this link.

I also want to note that there are other androgenic hormones that affect sexual desire. Two of them are dehydroepiandrosterone (DHEA), that seems to be particularly relevant for cisgender women's sexual desire, and dihydrotestosterone (DHT) that is linked to men's sexual desire. It is likely all of these hormones have some effect on sexual desire.

Another critical component in this research that often gets ignored both by researchers and by the general public is the effect of sexual desire on testosterone. As I mentioned at the beginning of the episode, hormones and behavior have a reciprocal relationship. So having sex can increase testosterone, and even thinking about sex can increase testosterone (Goldey & van Anders, 2011).

What happens when we mess with testosterone?

Another line of research looks at what happens to sexual desire when we mess with testosterone.

One of the best sources of evidence for the link between testosterone and desire is prostate cancer patients. One treatment for prostate cancer is Androgen Deprivation Therapy (ADT). ADT involves taking drugs that block testosterone (bc T promotes prostate cancer). Patients who take these drugs report drastic decreases in sexual desire (Mazzola & Mulhall, 2012). From the research with prostate cancer patients, it is apparent that having some testosterone is an important contributor to sexual desire in men. These men may still experience desire for sex, but most report a decrease.

Of course, when we are talking about cancer patients, there is a lot of stuff going on in their lives, since they have a life-threatening disease. There is also often a loss of erections as a result of ADT or other prostate cancer treatments. All of the changes that go along with having cancer, including other treatment can also affect desire. One interesting thing to note is that taking estrogen, another sex steroid, is a way to potentially restore some desire (Wibowo & Wassersug, 2013). I will talk more about that in a future episode.

Another area of research that speaks to the links between testosterone and desire is trans people who take testosterone. One of the first times I read about a trans person taking testosterone was back in 2004 in Patrick Califa's book Speaking Sex to Power: The Politics of Queer Sex (Califa, 2002). I read this book at a time when I was first starting to study testosterone, so I knew something about it but not much. In one of the chapters Califa says something along the lines of, after I started taking testosterone, so much changed, I suddenly liked sports! Every time I throw a ball of paper in the trash, it went in perfectly, I suddenly understood the lyrics of heavy metal music! I remember reading this and being like, "Woah, I can't believe testosterone has such a huge effect!" In the next paragraph, Califa says he was just kidding about those things, and then I was embarrassed for being so gullible!

Throughout the book, though, Califa does talk about his experiences with increased libido when he started taking testosterone. Research shows that increased libido is something that trans people taking testosterone report. Of course not everyone will have that experience, since hormones only increase the likelihood of things, but it is commonly reported. So that is another piece of evidence linking increased testosterone with increased desire.

Because of the strongly assumed association between testosterone and desire, drug companies also have sought to capitalize on this for people experiencing low levels of desire. There are a number of drug companies that have developed testosterone patches, gels, and injections designed to treat low sexual desire. For cisgender women, in North America, testosterone treatment for low sexual desire is not approved officially, but it does get prescribed off label. Testosterone patches are approved for postmenopausal women in Europe. It wasn't approved in the U.S. because of concern over health risks. Research has been done on this, and for postmenopausal women, testosterone can increase sexual desire (Kingsberg et al., 2007). Of course, taking testosterone can also come with other side effects, such as increased body hair.

For cisgender men, testosterone supplementation doesn't really have an effect if their testosterone levels are already in the normal range, but for men with abnormally low levels of testosterone, there is some evidence that taking testosterone can increase sexual desire (Corona et al., 2012).

Non-sex things that T affects

Something that often gets overlooked in studies where testosterone is administered is its widespread effects. Testosterone is a social hormone and doesn't just affect our sexuality. It can affect all sorts of social interactions and other cognitive processes. Messing with testosterone can mess with people's perceptions of others, their relationships, their impulsivity, and other aspects.

Conclusion

While testosterone is heavily mythologized as the masculinity hormone, and we often link masculinity with unbridled sexual desire, the reality is much more complicated. Testosterone does seem to be necessary for cisgender men to experience sexual desire, but as long as it's in the normal range, more T doesn't seem to mean more horniness. For men outside the normal range, taking T as a medication does seem to increase their self-reported desire.

As usual in science, we have less knowledge about women's biology because men are often seen as the standard. Women and non-human female animals were often left out of research because the hormone changes from estrus and menstrual cycles were deemed "too complicated" and "too messy" to include in research. Estradiol, a form of estrogen, also plays a role in female desire, but there is not much research on this in humans. Making things even MORE tricky is that testosterone can be converted to estradiol in the body, so it's hard to tease apart what hormone is doing what in humans.

For women, testosterone does seem to be linked to desire, perhaps moreso than men. Because women's testosterone is lower, the variability that occurs across women likely has more of an effect. Men are saturated in T, so a bit more or a bit less doesn't change much.

Also, I want to again reiterate that there is a reciprocal relationship between hormones and behavior. hormones. Your behavior and your interactions with others also change your hormones.

This episode was all about how testosterone affects sexual desire. The fact is testosterone does matter for sexual desire… at least a little. What is important to keep in mind about humans is that we have these powerful brains and complex social systems that all work together to make things much more complex than just testosterone equals desire. Sexual desire comes from a variety of sources and has a ton of influences. How you are feeling on any given day can affect desire, the social messages about what kinds of desire are acceptable can affect desire, the messages about what kinds of people are desirable can affect your desire, your access to privacy for solo or partnered sex can affect your desire, being mauled by children all day can affect your desire, how much sleep you got yesterday can affect your desire. You get the point.

The point I am trying to make here is that while testosterone has some influence on desire, and desire has some influence on testosterone, there is a lot more to sexual desire than just a hormone.

That's all for this week's episode. If you have any feedback or peer review of this episode, I am always excited to hear from you. You can email me at doweknowthings@gmail.com

On the next episode of Do We Know Things?, I will continue talking about desire and tackle the age old question of who desires sex more? Cultural stereotypes tell us that men want sex more than women? But is that true? I will delve into the research on the topic and discuss the controversies and complexities of answering this question, next time on Do We Know Things?

You can find a script for this episode with references and extra info on the website at doweknowthings.com

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Of course, I would love it if you could subscribe and rate and review the podcast on iTunes. Thanks for listening. I will talk to you next time on Do We Know Things?

References

Bala, A., Nguyen, H. M. T., & Hellstrom, W. J. G. (2018). Post-SSRI sexual dysfunction: A literature review. *Sexual Medicine Reviews*, *6*, 29–34. https://doi.org/10.1016/j.sxmr.2017.07.002

Califa, P. (2002). Shelter from the storm. In *Speaking sex to power: The politics of queer sex* (pp. 155–181). San Francisco, CA: Cleis Press.

Chadwick, S. B., Burke, S. M., Goldey, K. L., Bell, S. N., & van Anders, S. M. (2017). Sexual desire in sexual minority and majority women and men: The Multifaceted Sexual Desire Questionnaire. *Archives of Sexual Behavior*, *46*, 2465–2484. https://doi.org/10.1007/s10508-016-0895-z

Corona, G., Gacci, M., Baldi, E., Mancina, R., Forti, G., & Maggi, M. (2012). Androgen deprivation therapy in prostate cancer: Focusing on sexual side effects. *The Journal of Sexual Medicine, 9*(3), 887–902. https://doi.org/10.1111/j.1743-6109.2011.02590.x

Goldey, K. L. & van Anders, S. M. (2011). Sexy thoughts: Effects of sexual cognitions on testosterone, cortisol, and arousal in women. *Hormones and Behavior*, *59*, 754–764. https://doi.org/10.1016/j.yhbeh.2010.12.005

Kerner, I. (2004). *She comes first: The thinking man's guide to pleasuring a woman*. New York: HarperCollins.

Kingsberg, S., Shifren, J., Wekselman, K., Rodenberg, C., Koochaki, P., & DeRogatis, L. (2007). Evaluation of the clinical relevance of benefits associated with transdermal testosterone treatment in postmenopausal women with hypoactive sexual desire disorder. *Journal of Sexual Medicine*, *4*, 1001–1008. https://doi.org/10.1111/j.1743-6109.2007.00526.x

Lorenz, T. K. (2020). Antidepressant use during development may impair women's sexual desire in adulthood. *Journal of Sexual Medicine, Online Early*. https://doi.org/10.1016/j.jsxm.2019.12.012

Mazzola, C. R., & Mulhall, J. P. (2012). Impact of androgen deprivation therapy on sexual function. *Asian Journal of Andrology*, *14*, 198–203. https://doi.org/10.1038/aja.2011.106

Meana, M. (2010). Elucidating women's (hetero)sexual desire: Definitional challenges and content expansion. *Journal of Sex Research, 47*, 104–122. https://doi.org/10.1080/00224490903402546

Raisanen, J. C., Chadwick, S. B., Michalak, N., & van Anders, S. M. (2018). Average associations between sexual desire, testosterone, and stress in women and men over time. *Archives of Sexual Behavior, 47*, 1613–1631. https://doi.org/10.1007/s10508-018-1231-6

Spector, I. P., Carey, M. P., & Steinberg, L. (1996). The sexual desire inventory: Development, factor structure, and evidence of reliability. *Journal of Sex & Marital Therapy*, *22*(3), 175–190. https://doi.org/10.1080/00926239608414655

van Anders, S. M. (2012). Testosterone and sexual desire in healthy women and men. *Archives of Sexual Behavior*, *41*, 1471–1484. https://doi.org/10.1007/s10508-012-9946-2

Wibowo, E. & Wassersug, R. J. (2013). The effect of estrogen on the sexual interest of castrated males: Implications to prostate cancer patients on androgen-deprivation therapy. *Critical Reviews in Oncology/Hematology*, *87*, 224–238. https://doi.org/10.1016/j.critrevonc.2013.01.006