

Transgender Health AMA Series: I'm Joshua Safer, Medical Director at the Center for Transgender Medicine and Surgery at Boston University Medical Center, here to talk about the science behind transgender medicine, AMA!

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Abstract

Hi reddit! I'm Joshua Safer and I serve as the Medical Director of the Center for Transgender Medicine and Surgery at Boston Medical Center and Associate Professor of Medicine at the BU School of Medicine. I am a member of the Endocrine Society task force that is revising guidelines for the medical care of transgender patients, the Global Education Initiative committee for the World Professional Association for Transgender Health (WPATH), the Standards of Care revision committee for WPATH, and I am a scientific co-chair for WPATH's international meeting. My research focus has been to demonstrate health and quality of life benefits accruing from increased access to care for transgender patients and I have been developing novel transgender medicine curricular content at the BU School of Medicine. Recent papers of mine summarize current establishment thinking about the science underlying gender identity along with the most effective medical treatment strategies for transgender individuals seeking treatment and research gaps in our optimization of transgender health care. Here are links to 2 papers and to interviews from earlier in 2017: Evidence supporting the biological nature of gender identity Safety of current transgender hormone treatment strategies Podcast and a Facebook Live interviews with Katie Couric tied to her National Geographic documentary "Gender Revolution" (released earlier this year): Podcast, Facebook Live Podcast of interview with Ann Fisher at WOSU in Ohio I'll be back at 12 noon EST. Ask Me Anything!

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Transgender Health AMA Series: I'm Joshua Safer, Medical Director at the Center for Transgender Medicine and Surgery at Boston University Medical Center, here to talk about the science behind transgender medicine, AMA!

DR_JOSH_SAFER [R/SCIENCE](#)

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Dr_Josh_Safer , r/Science ,

How do you think medical professionals should work at increasing trust between themselves and trans patients, if at all?

An issue I see a lot in the community is the feeling from trans people that lying is a necessity in order to access care, and that indeed people who are completely honest to doctors are sometimes at risk of being denied access to transition-related care over those who simply rattle off the things they think the therapist/doctor/medical team want to hear.

Some examples of what I mean: non-binary people pretending they are binary in order to fit the expected narrative is a common one, but also things such as downplaying struggles with concurrent mental illnesses so that they won't be cut off when they most need it (eg, a person struggling with strong suicidal urges who will not bring them up because they fear being denied hormones, the loss of

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which would increase dysphoria and worsen the depression), or lying about sexual history because the medical team is known for refusing people with a history of sex work or are not heterosexual (awful, but something I've seen discussed concerning one of the official transition teams in my country).

Perhaps this is less of an issue in places where informed consent clinics exist, but it is certainly a problem I've seen crop up from a lot of places. It's regrettable and seems to be putting everyone at risk, but I find it difficult to blame trans people who try to navigate the very few resources they have in order to maybe one day be able to live comfortably.

[ghostydog](#)

My personal view is the more conventional medical people become involved, the more conventionally medical this becomes.

The medical establishment was very conservative for many years but as it becomes clearer that gender identity is a biological reality that requires an approach customized to the patient, I am hopeful that the disconnect you describe will go away.

Transgender treatment is relatively safe. There is no reason to make people fit in rigid boxes to receive treatment for being transgender any more than for any other medical issue.

At the same time, I don't like the extreme informed consent clinics either.

My job as a doctor is not to give a patient whatever the patient wants if the patient signs a form. Real medical informed consent means I provide the standard approaches with the risks/benefits of each and the patient decides what makes sense. I'm not being a gatekeeper for some arbitrary rigid protocol but I'm not serving meds a la carte either. Why come to me if you don't want my expertise? For example, there will be breast development when the testosterone goes from the male range to the female range. It is not very predictable and might be very significant (that is "binary") even with small treatment doses. My job as a doctor might be to "inform" my non-binary patient of that reality which might be a "risk" for someone who was hoping to be more androgynous. Then we proceed.

There's no form to sign for most medicines and at Boston Medical Center (the main BU teaching hospital) we don't make our trans patients sign forms to get their logical medications either.

I want my patients to be as honest as possible so that I can counsel them as well as I can regarding what the data show and how things seem to be working with the meds available.

One of the most common questions/points of confusion I see is from people who are confused about what qualifies as a mental illness with respect to being transgender / suffering from gender dysphoria. Could you speak a little about the difference between a transgender person and someone who suffers from gender dysphoria?

A related question to this is the shift to being transgender no longer being classified as a mental disorder. Can you speak as to the reasoning as to why this change was done, and how the change can effect transgender individuals?

Thank you for coming here to answer questions about an area where there is substantial confusions and misconceptions.

[kerovon](#)

Although we're far from understanding the details, the key point is that gender identity contains a biological component (perhaps there's a gene, or a group of genes, or some structure in the brain).

For most people, gender identity and other sex characteristics are aligned. For some people, one or

some sex characteristic(s) are not aligned (they have a different gene(s) -- or other factor -- and therefore have one or more parts of their body develop differently from the sex/gender of the rest of their body). Gender identity is one of those things.

We are beginning to call that Gender Incongruence .. which for all practical purposes means the same thing as Transgender .. that is, someone whose gender identity does not match other body parts.

This calls into question if we need to even have the term Gender Dysphoria. Do you need a mental health diagnosis? Perhaps the mental health diagnosis should be reserved for those who need mental health support for transition, etc.

You can be transgender without being dysphoric .. then we're not really treating the dysphoria but the gender incongruence (the fact that your identity and body parts are not aligned). How we treat that becomes a collaboration between the patient and the medical people. Some will do nothing, some hormones, some surgery, etc. .. the same as for many medical conditions.

Hey Dr. Safer! Thanks for being here. Can you tell us a bit about the biological etiology of transgender people? We often hear messages like, "it's just in their heads"- what has research shown that can help us understand the mechanism that leads some people to be transgender?

[p1percub](#)

The medical consensus is that gender identity includes a major biological component. We have no idea what the details are (a gene, multiple genes, etc?) -- but we have pretty strong data that it's something durable and biological.

In my view the data categories in order of strength are

1. The attempts by the medical establishment to surgically change body parts of intersex children based on what seemed easiest surgically. The thinking was that gender identity was not biological. When the data are carefully collected, a majority of kids treated this way have the predicted gender identity that goes with their chromosomes .. not with their surgically created body parts or with their upbringing. That is, we cannot change the gender identity someone already has innately.
2. Twin studies show that identical twins are more likely to both be transgender than fraternal twins.
3. A minority of people have gender identity clearly influenced by intra-uterine exposure to androgens (male hormones).
4. Some brain studies do show differences associated with gender identity rather than with external body parts - even though none of these studies are good enough to be use to actually diagnose a person.

At what age do you think gender transition is appropriate?

[Automaticus](#)

There is much good discussion of this question. What we can say based on best data as of 2017 is as follows (and many have made these points already so that I am reinforcing:

1. Some children are well able to articulate gender identity. However, it's also true that many trans individuals only feel confident articulating gender identity in their 20's. My sense is that late adolescence and young adulthood are the norm for now.
2. There is no reason for any medical intervention until puberty. So there is no real harm (if we can be

relaxed as a society), in allowing a child to go to school and live according to his/her gender identity.

3. At puberty, puberty blockers can be used as many have pointed out .. in order to gain time for confidence to determine the long term plan. The regimen has been used for kids with something called precocious puberty. While I would expect that there must be some theoretical harm to bone density with the treatment, studies of kids treated this way for precocious puberty cannot detect a harm (meaning it's very small if it exists).
4. For the older adolescents (and the young adults who I see), the overwhelming majority are very clear in their gender identities and the only question is what they want to do about it.

I have a few friends who were born with [androgen insensitivity syndrome](#). At the time of their birth (70s / 80s), medical professionals were ill-prepared to deal with the aspects of this condition. They were assigned "girl" at birth, cosmetic surgery was performed at birth and during adolescence, the parents were instructed to never tell the child, and all three figured it out on their own in their 20s / 30s.

Has there been any progress since the 1980s in raising awareness of this issue among medical professionals? If a child is born with AIS today, how would it be dealt with compared to in the 70s / 80s?

Thanks.

[AtariBasic](#)

At the time, the medical establishment thought gender identity could be manipulated and that this "brainwashing" would prove best. Medical professionals devote their careers to helping people. Obviously, the treatment these kids received was wrong. As science minded folk who want to help people, we must learn from what happened and change our practice.

Many medical centers are much more sensitive to these sorts of things than in the past. The entire recognition about the biology of gender identity has helped clarify the need to be more careful with these kids.

Still, the need for education and culture shift among medical institutions remains large.

First off, thanks for doing the AMA! My question is how often do you find patients regret making decisions regarding gender reassignment and is it more or less common at certain age ranges?

Edit: Auto correct making awkward suggestions

[2Tall2Fail](#)

Very few regrets are noted.

Here are my personal stats among my patients as an example:

As of right now, among the 200-300 patients on my panel, I have one patient who is wondering if the transgender diagnosis was correct. This is not someone who I personally diagnosed and the end result of this person's questioning may just be that the diagnosis is correct.

I have nobody else even coming in to report a question in their original diagnosis.

I have many patients who go on and off treatment .. but that is always for other reasons .. they still are confident of their transgender identity.

I have the impression that many activists currently are pushing a message saying that gender identity exists exclusively in relation to gender roles, which are social construct. And, for what I've understood, this was the fact that led to the introduction of the concept of gender identity as a separate thing from sex. This seems to be different from what your research found, of gender identity as a biological thing.

To give an example, a couple of years ago I knew a couple of people who underwent transition and used to say that their mind said that their sex was wrong, so they transitioned. This seems like what you describe with "gender identity as innate". At that time the word was "transsexual". Now, I don't really understand what "transgender" truly means and how it related to the previous, much clearer, concept of transsexual.

Could you clarify these concepts a bit, and the shift in terminology?

[lucaxx85](#)

Let me try my best ..

Gender and Sex are the category in general. To me they mean the same thing. They're both broad and a bit vague.

When people say "sex" I think they mean external body parts or sexual anatomy in general. I prefer to use those terms-- trying to be clear -- and leave sex/gender as a broad category that includes gender identity.

Gender identity is a perception. The medical establishment thought it could be manipulated for many decades. The failure to manipulate people's gender identities medically despite robust efforts is our best evidence in my view of the durability of gender identity.

Gender roles are indeed a social construct. I have patients who are trans women but who prefer male gender roles. They are clear that they are women -- that's gender identity - has nothing to do with the constructed gender role.

As I said part of the confusion is that sex and gender mean the same thing (with people sometimes mistakenly using the former when they mean genitals, etc and people sometimes mistakenly using the latter when they mean gender identity).

Transgender and transsexual also are overlapping.

Transsexual is the older term that was thought to mean someone who "completely" transitioned. Now that we're clearer that there is no universal definition for "complete" transition, transsexual has lost its meaning a bit and we've coined a new, broader term "transgender" to reference everyone whose gender identity is not aligned with the external sexual organs they had at birth. A transgender person might have hormones, surgery, or no treatment .. the term refers to the lack of alignment of gender identity, not to any treatment.

My understanding is (and please correct me if I'm wrong), transitioning is the most effective way of treating gender dysphoria. This is in effect trying to change the physical body to agree with how the mind perceives its gender.

Has there been research into the inverse of that, that is changing the mind to be okay with, and identify with, the biological sex of the individual?

For example if there was a drug one could take to make one identify as their biological gender, this seems far less traumatic than surgery to superficially alter the body to make it appear different.

A question I'd have following that though is can a cis person take that same medication to artificially identify as the opposite biological sex?

Thank you for your time!

[ts73737](#)

I think there has been much good discussion on this point.

I would add further, that playing with the brain is not necessarily "less traumatic" than playing with the body.

Right now, there is no idea of what part of the brain to treat .. so the entire idea is essentially science-fiction. There are really only 2 options currently: 1. Treat the body or 2. Don't treat the body. For those trans individuals who come forward for treatment, treating the body is overwhelmingly more successful.

If in the theoretical future, we had a brain treatment that worked - it might still be the case that the "less traumatic" choice would be to take hormones - which are pretty safe -- and/or some modest surgery.

[Reading through your review of the literature](#), made me curious about overall models:

It seems like there is a some-most divide in a number of the studies. For instance, out of 23 monozygotic twin pairs, "9 were concordant for transgender identity compared to no concordance among dizygotic twin pairs;" or DSDs with "78% of all female-assigned 46 XY patients were living as females." Doesn't that suggest a much more complicated picture than "there is a biological basis for gender identity?" I read your review and come away thinking it is certainly a substantial factor. Could you help me understand the inflection points and their weight in a model of the causal chain that leads to the outcome we label transgender?

[gnothi_seauton](#)

All I can say is what you've noted .. it's at least substantially biological... a biological basis .. even if the biology doesn't explain everything.

Hi, thanks for doing this AMA. Something I've seen a bit of lately is questioning transgender in sports. There are conflicting things I've read about whether or not someone who had transitioned late had an advantage/disadvantage in sports. An example of this is Laurel Hubbard, a trans woman Olympic weightlifter who outperformed other girls in her category by quite a lot.

<http://m.washingtontimes.com/news/2017/apr/30/transgender-weightlifter-sets-new-zealand-records/>

Edit - I realise this is a fairly controversial topic and I'm not qualified to weigh in on rulings of federations as to what should/shouldn't be allowed; however I feel the topic is often dismissed as transphobic or as 'of course there is an advantage' with little talk of actual science.

[cheesetoastie16](#)

We don't know the answer in detail. What we can say is that the biggest factor in athletics that is identified is testosterone .. especially its action on muscle mass. Therefore, athletic associations at elite levels are likely to use a testosterone measurement to determine what seems fairest.

Of course, transgender women who transition after puberty will have gone through a male puberty and will have bigger bones than they would have had. Whether that's an advantage is debatable. In a weight based sport (like weight lifting), the fact that a trans woman has bigger bones may be a

disadvantage.

Hormone therapy typically decreases testosterone for trans women and therefore muscle mass. However, bones would not be changed significantly. Thus a trans woman following a typical regimen would have big bones and would have less muscle in the same weight class as a non trans woman with smaller bones.

What do you make of the recent Johns Hopkins study from social, psychological, and biological sciences that puts into dispute some tenets from the LGBT camp?

EDIT: [Here is the study](#)

Excerpt from the abstract: *Examining research from the biological, psychological, and social sciences, this report shows that some of the most frequently heard claims about sexuality and gender are not supported by scientific evidence. The report has a special focus on the higher rates of mental health problems among LGBT populations, and it questions the scientific basis of trends in the treatment of children who do not identify with their biological sex. More effort is called for to provide these people with the understanding, care, and support they need to lead healthy, flourishing lives.*

And a [link to the executive summary](#). Relevant points:

- The hypothesis that gender identity is an innate, fixed property of human beings that is independent of biological sex — that a person might be “a man trapped in a woman’s body” or “a woman trapped in a man’s body” — is not supported by scientific evidence.
- Studies comparing the brain structures of transgender and non-transgender individuals have demonstrated weak correlations between brain structure and cross-gender identification. These correlations do not provide any evidence for a neurobiological basis for cross-gender identification.
- Compared to the general population, adults who have undergone sex-reassignment surgery continue to have a higher risk of experiencing poor mental health outcomes. One study found that, compared to controls, sex-reassigned individuals were about 5 times more likely to attempt suicide and about 19 times more likely to die by suicide.
- Children are a special case when addressing transgender issues. Only a minority of children who experience cross-gender identification will continue to do so into adolescence or adulthood.
- There is little scientific evidence for the therapeutic value of interventions that delay puberty or modify the secondary sex characteristics of adolescents, although some children may have improved psychological well-being if they are encouraged and supported in their cross-gender identification. There is no evidence that all children who express gender-atypical thoughts or behavior should be encouraged to become transgender.

[Theomancer](#)

Just briefly to the 5 bullets:

1. This is wrong. The data do support gender identity being biological. What the data do not show are the details of the biology. That is the part that requires further study (in a big way).
2. The first sentence is right "studies have demonstrated weak correlations between brain structure and cross gender identification." Indeed, I find these data the weakest evidence for the biological nature of gender identity. But they do support the biological thesis.
3. This is true. But the point missed with the statement is that their mental health outcomes are even worse without treatment. With treatment at younger ages we are seeing even better mental health outcomes .. but still nowhere near where we should be.
4. I don't know if it's a minority .. those are old statistics - but some children may seem trans at young ages who end up not being trans. In any case, we should not use medicine on pre pubertal children

- letting them dress and act how they want should be plenty -- and we should limit ourselves to puberty blockers as children enter puberty until it's clear how to proceed with any given child.

5. For this last bullet, it's the second part that's correct.

"some children may have improved psychological well-being if they are encouraged and supported in their cross-gender identification."

-- I'd change "some" to "most"

The third part is also fair enough:

"There is no evidence that all children who express gender-atypical thoughts or behavior should be encouraged to become transgender."

-- exactly. we shouldn't be encouraging people to become anything .. we should simply respect the kids as they are .. transgender, gender-atypical but not transgender, and everything else they might naturally be.

Are there any known studies about the **long-term effects of testosterone on the female reproductive organs** (other than breast tissue), i.e. the uterus, the fallopian tubes, ovaries, etc. **in terms of a risk for cancer?**

[kynarion](#)

I have to run to another meeting but will come back later in the afternoon or early evening to try to answer more of these .. great questions.

Hello, thank you for being here. This topic is very close to me, my wife recently transitioned male-to-female. She only realized it was gender dysphoria at the age of 37, after a life of trying to accept her male body. It's been a helluva thing.

My question is: how big of a role do you think genetics play in the likelihood of gender dysphoria / becoming transgender? I have two small children with my wife, and sometimes I'm concerned that they might develop gender dysphoria. What's the likelihood of that?

My wife has two siblings, both of whom do not identify completely with their assigned birth gender. How likely is it that an entire generation of siblings all turn out to be transgender? How much could their upbringing have impacted their gender identities and desire to transition?

Thank you.

Edit: poor wording, my mtf wife has been presenting as a lovely lady for almost a year now.

[_CottonCandyMelody_](#)

Because this is biology, it would make sense that there should be more gender incongruence in some families.

Still for your own children and for any given relative, the likelihood is low. I say that based on twin studies. While identical twins have a 40% chance of both being trans, for none of the trans individuals in the most recent article with non-identical twins was the sibling also trans.

Is gender a social construct or is gender some innate immutable part of you?

I hear both and they seem totally at odds with each other. What does the evidence point to from a biological perspective? How about from a sociological perspective?

[PM_ME_REACTJS](#)

I think this is a terminology problem. Gender and sex are the broad category even though people accidentally say gender when they mean gender identity and sex when they mean external sex organs.

Elements of our gender roles/expression are social constructs (e.g women wear pink, boys play with trucks).

Gender identity is apparently a biological phenomenon just like the visible sex organs are.

People who say "gender" when they mean "gender roles/expression" and people who say "gender" when they mean "gender identity" are causing the confusion.

Biologically speaking how do hormones effect a transgender person when administered at different ages (i.e. during puberty or around mid to late adult hood). How big of an effect is there if any.

[Skazryk](#)

The below answers are great and detailed .. I don't have anything to substantive to add.

Hi Dr. Safer, thanks for the AMA!

To contrast with the validity of treating trans individuals with cross sex hormones can you postulate the effect that the same cross sex HRT would have on a non trans identifying person using terms that said demographic might be able to understand?

I find it difficult to share the importance of these meds on my mental balance and clarity in a way that a normally integrated person might be able to appreciate.

[thegreenhundred](#)

I suppose it would make the non-trans person have body opposite of his/her gender identity .. which would be a bad thing.

One of the guys who was also interviewed with Katie Couric about her Doc seemed to say that the only reason we notice an increase in transgender kids is because doctors and parents "have the language" to discuss it now.

Are parents at the risk of confirmation bias and how much can they trust their kids to know what's true and best for themselves?

How do you reconcile your answer to the previous question with the fact that Dr. Paul McHugh, former head of psychiatry at Johns Hopkins University, found that 70-80% of all children with "transgender" feelings eventually grew out of them?

What is the risk of parents encouraging what ultimately could become dangerous and harmful behavior with their children?

[chompnstomp](#)

Now that we're clearer that gender identity is biological, we can relax a bit about this. Parents who allow their children to express a gender identity opposite of their external body parts won't make their children transgender. That's the point. We can't change gender identity. Those kids who are not really transgender will be clearer as they are better able to articulate themselves. There's no medical treatment for young children and so nothing permanent happens.

The 70-80% statistic is from a Dutch study where the questions asked were too vague. With better questions, most of those children who the investigators thought were expressing transgender feelings were not.

The current approach is to delay irreversible interventions until things are clear. So.. no medicine for younger children (clothes and hair styles are easy to change).. puberty delaying agents for early puberty (also reversible even if there may be some very small risk) .. transgender hormones when things are clear.

What do you think about the low concordance of transgenderism among [identical twins](#)? Does this imply that the nonshared environment is a strong factor in gender identity?

[RickAndMorty101Years](#)

It means that identical twins are not identical. We see this with other medical conditions (for example, Type 1 diabetes is shared by about 1/2 of identical twins .. similar to being transgender).

What is the most common misconception about transgender medicine/treatment that you can dispel right now?

[Gekokapowco](#)

Myth: gender identity is a construct

Truth: gender identity is biological (at least mostly).

So, I am a transgender man and I began testosterone back in 2015 when I was 16. I have gotten top surgery and at this point that is the extent I want my transition to go so far.

However, I have heard that trans men may start feeling pain in their female reproductive organs after being on testosterone for years, and sometimes /need/ to get them removed. How credible is this and should I look into surgery? Also, will me being legally male get in the way of me getting typically "female" surgeries?

[Maxsick](#)

Most of my trans guys do not choose to have their female reproductive organs removed and are happy with that call. It's a personal decision - those who do are usually happy with their decision also. As insurance gets more oriented to the actual existence of transgender people, having the "wrong" organs for your listed sex should go away as problem. Right now the headache is state dependent (we're good in Massachusetts)

Do you think that the ICD-11 will be adopting the WPATH informed consent guidelines and if it does, do you think we'll see broader implementation of it outside of the US?

It's absolutely heartbreaking to see so many countries falling back on gatekeeping methods like requiring real life experience before starting HRT and it would be great to see that change.

Also, do you think that as transition becomes more commonplace that medical professionals in all fields will become more aware of it and comfortable with the process? I currently have to drive 3 hours to find a doctor who will accept a trans patient because the endocrinologists where I live are absolutely clueless.

[jungletigress](#)

I certainly hope that WPATH and countries outside the US will adopt conventional medical approaches rather than the gate keeping you reference.

To your last point.. I am an optimist.. so yes.

What's the most common issue/side affect of someone transitioning? Either with just hormones or top/bottom surgery? People talk about getting sick on the hormones, but what are the common complications?

[ieatcheese1](#)

Mostly people do very well and don't have significant complications.

Estrogens carry a small increased risk of blood clots. Testosterone increases the number of cells in the floating in the blood stream .. but almost never in a dangerous way.

The biggest side-effect of trans treatment is decreased fertility (or destruction of fertility).

How has the increased visibility of transgender celebrities like Laverne Cox and Caitlyn Jenner affected the way others perceive your work?

[SurfacingPurpose](#)

It has definitely made it easier now that more people know at least a little bit on the subject.

Do you have any insight on why male to female transgender patients do so much better than female born women in [athletic competitions](#)?

[TheDevilWins](#)

I don't know this to be true. It could also depend on the sport. The only study out there is a small study of 8 trans female long-distance runners who ranked the same among women after their transition as they had among men before their transition.

In a weight based sport, trans women with bigger bones wasting their weight might be at a disadvantage.