Seven things I'm learning about transgender persons

OPINION MARK WINGFIELD | MAY 13, 2016 BAPTIST NEWS

I don't know much about transgender issues, but I'm trying to learn.

How about you? How much do you really know about this subject beyond all the screaming headlines and concerns about who goes to the bathroom where?

The truth is that I don't know any transgender persons — at least I don't think I do. But with the help of a pediatrician friend and a geneticist friend, I'm listening and trying to learn. This is hard, though, because understanding the transgender experience seems so far outside what I have ever contemplated before. And the more I learn, the more theological questions I face as well. This is hard, even for a pastor.

Here's some of what I'm learning from my friends who have experience as medical professionals dealing with real people and real families:

1. Even though LGBT gets lumped together in one tagline, the T is quite different than the LG and B. "Lesbian," "gay" and "bisexual" describe sexual orientation. "Transgender" describes gender identity. These are not the same thing. Sexual orientation is about whom we feel an attraction to and want to mate with; gender identity is about whether we identify as male or female.

2. What you see is not always what you get. For the vast majority of humanity, the presence of male or female genitalia corresponds to whether a person is male or female. What you see is what you are. But for a small part of humanity (something less than 1 percent), the visible parts and the inner identity do not line up. For example, it is possible to be born with male genitalia but female chromosomes or vice versa. And now brain research has demonstrated that it also is possible to be born with female genitalia, female chromosomes but a male brain. Most of us hit the jackpot upon birth with all three factors lining up like cherries on a slot machine: Our anatomy, chromosomes and brain cells all correspond as either male or female. But some people are born with variations in one or two of these indicators.

3. Stuff happens at birth that most of us never know. It's not an everyday occurrence but it's also not infrequent that babies are born with ambiguous or incomplete sexual anatomy. In the past, surgeons often made the decision about whether this child would be a boy or a girl, based

on what was the easiest surgical fix. Today, much more thought is given to these life-changing decisions.

4. Transgender persons are not “transvestites.” Far too many of us make this mix-up, in part because the words sound similar and we have no real knowledge of either. Cross-dressers, identified in slang as “transvestites,” are people (typically men) who are happy with their gender but derive pleasure from occasionally dressing like the opposite gender. Cross-dressing is about something other than gender identity.

5. Transgender persons are not pedophiles. The typical profile of a pedophile is an adult male who identifies as heterosexual and most likely even is married. There is zero statistical evidence to link transgender persons to pedophilia.

6. Transgender persons hate all the attention they’re getting. The typical transgender person wants desperately not to attract attention. All this publicity and talk of bathroom habits is highly disconcerting to people who have spent their lives trying not to stand out or become the center of attention.

7. Transgender persons are the product of nature much more than nurture. Debate the origins of homosexuality if you’d like and what role nature vs. nurture plays. But for those who are transgender, nature undeniably plays a primary role. According to medical science, chromosomal variances occur within moments of conception, and anatomical development happens within the nine months in the womb. There is no nature vs. nurture argument, except in cases of brain development, which is an emerging field of study.

This last point in particular raises the largest of theological questions. If Christians really believe every person is created in the image of God, how can we damn a baby who comes from the womb with gender dysphoria? My pediatrician friend puts it this way: “We must believe that even if some people got a lower dose of a chromosome, or an enzyme, or a hormonal effect, that does not mean that they got a lower dose of God’s image.”

I don’t know much about transgender issues, but I’m trying to learn — in part because I want to understand the way God has made us. For me, this is a theological quest as much as a biological inquiry or a political cause. How about you?

Painful lessons from a pastor's viral transgender post

OpinionMark Wingfield | May 31, 2016

"Does God still love me?"

That is one of the most painful questions I have been asked in the past two weeks after writing a commentary that went viral and made me a most unlikely spokesperson for the transgender community and their families. As a result of that post being read by more than 1 million people either online or in print, I have heard the personal stories of people from all over the country. In two weeks' time, I have exchanged personal correspondence with more than 400 people.

Surprisingly, the vast majority of those conversations have been positive — and not just positive but filled with emotion and gratitude — and a fair amount of pain. I have heard from transgender persons, from the parents and friends of transgender persons, from clergy, doctors, teachers, counselors and lots of average people.

One transgender woman wrote to tell me her story and signed off with these words: "Sincerely, a woman who hopes that God still loves her."

Most transgender persons are not against God; many just fear that God is against them. Or, more specifically, they believe the church is against them. Many of them — a vast number in fact — have grown up in the church and are people of deep faith. But they are people who have been asked not to come back, have been removed from membership, have been shunned.And so have their families.

One of the most heartbreaking messages I received was from a single mom with four kids, including one who is transgender. This entire family recently was kicked out of their church. The mom — who had been accused of child abuse by her pastor for letting her boy dress as a girl — wrote me to ask for help in finding another church in her city where they would be accepted.

Another new friend, as a youth, had been a deeply devoted Bible study leader in his church but was asked not to attend that church anymore after coming out with a non-conforming gender struggle.

And so it is no wonder that people who shared my post on social media often said something like this:I can't believe I'm sharing something written by a Baptist pastor, but you've got to read this." Sadly, the church of Jesus Christ is most known today for what we're against rather than who God is for.

The following excerpt from an email represents a common sentiment: "You are a pastor from the most conservative, Bible-thumping part of the country. Your quiet words go a long way to helping those who have had no voice. … I cry when writing this because of what you are doing and how much it helps and means the world to me."

As the original post indicated, I set out to learn more about transgender persons, to get beyond the headlines and to plunge into something deeper than the toilet wars. And it turns out that in some ways corporate America is doing a better job of addressing the essence of a person's whole self than

the church. This is not to say that all of American business has this figured out, but many corporations are trying to learn, trying to do the right thing for their employees. One of the key phrases being used — there even was a TED Talk about it — is this: "Bring your whole self to work." The idea is that employees perform better if they don't have to live in fear at work.

Why is corporate America ahead of the church on this? It seems to me Jesus would say, "Bring your whole self to church."

Embracing that idea, though, would require churchgoing folks to be honest in ways that transcend far more than transgender persons. In polite church culture, we have been conditioned to understand that it is dangerous to be our true selves at church — especially if we don't fit the image of a perfect Christian. We say, "Come as you are," but we really mean, "Come as we are."

In fact, few among us probably feel free to bring our whole selves to church. We all are fearful of talking about the ways our children have deviated from the norm, our struggles with depression or financial insecurity or even food insecurity. One of the other things I've learned through the years as a pastor is that most church members wait until they're facing foreclosure before asking for help with keeping a house due to unforeseen financial disasters. Most of us only feel like we can talk about the happy stuff, the easy, fluffy stuff, when we come to church.

And in all these conversations of the past two weeks, I have found myself weeping and shaken. I have learned more than I ever imagined — not only about the details of transgender life but also about what it means to be human.

As my commentary went viral, I discovered that the transgender community was immediately kinder to me than the church has been to them. In the commentary, I confessed that I didn't know any transgender persons, or at least I didn't think I did. Immediately upon publication, I began hearing from folks who said this: "I will be your transgender friend." Tears came to my own eyes as I read these lines over and again and realized that I was hearing from strangers who were willing to open their lives to me in much greater proportion than they feared the church would be willing to open itself to them. This is painful and convicting.

One of my new transgender friends told me about attending a church in a very conservative Texas college town and hearing for the first time that God loves him specifically. In this church, the pastor made a point to say not just that God loves everyone but that God loves you, whether you're young or old, male or female, gay or straight, Republican or Democrat, Aggie or Longhorn. And to my new friend, sitting on the back pew of that church, these words sparked a journey back to the faith that had been recently lost.

As a pastor, I'm pretty sure of this one thing: The story of Jesus is much more about who's included rather than who is excluded. "For God so loved the world" includes everyone.

So as my 15 minutes of fame in the national spotlight fades, here's the most important thing I want to say about all this: God loves you, whoever you are, wherever you are. Whether you're a conservative or a liberal, a traditionalist or a progressive, a Protestant or a Catholic, a male or a female, gay, straight, trans, whatever. God loves you. Now, what are you going to do with that love?

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NOTES FROM THE EDITOR OF THE TRANS-CHRIST-IAN BRIDGE MINISTRY

This booklet is a lay collection of Scripture, science, cases of gender alteration situations, worksheets, editorials, letters, and articles describing the complicated social dynamics of gender alteration. It is intended to assist both gender altered people and "cis" (ie. traditionally gendered) people understand endocrine disruption better, including the effects that chemicals and toxins are able to exert on humans, birds, fish and animals.

Endocrine disruptors and gene mutating substances can contribute to numerous conditions such as breast cancer, osteoporosis, thyroid issues, neuroendocrine cancers, birth defects, and reproductive and developmental disorders. Included in these effects are a multitude, literally a rainbow, of gender and attraction related alterations.

May this information add clarity to difficult, complicated situations, be a help to affected persons, families and churches, and honor Christ.

Starter resources include this excellent understandable overview by Dr. Warren Porter, University of Wisconsin, Madison Professor of Zoology and Environmental Toxicology:

http://www.theglutensyndrome.net/MOSES15-Porter_Benbrook-GMOWhatDoWeKnowPlus2010Q&AFinal.mp3

Here is the powerpoint for the above lecture.
Www.theglutensyndrome.net/Risk_Management-15.pdf

www.theglutensyndrome.net/TransgenderHandout.pdf

www.theglutensyndrome.net/GenderAlterationResources_C_04062019.pdf

www.theglutensyndrome.net/AWomansBrain07-09-2019.pdf

www.theglutensyndrome.net/EndocrineDisruptionAbstracts.pdf

The Trans-Christ-ian Bridge is available as a closed group on both Facebook and MeWe and a more organized presentation is available at the following website:

https://tinyurl.com/TheTransChristianBridge-html or
www.TheGlutenSyndrome.net/TheTrans-Christ-ianBridge.html

Respectfully submitted comments and contributions can be directed to:
The Trans-Christ-ian Bridge Mrs. Olive Kaiser
jka8168@gmail.com

630-808-2079 text or call

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Section 1 – Editorials and Articles

This section contains articles that discuss and explain the complicated dynamics of gender alteration, both on a personal level for affected persons, their social experience, and the wider social cultural dynamics in a wider perspective particularly from the faith based viewpoint. This collection is in progress and contributions are welcome.

The purpose of this section is to present a realistic perspective with input learned from persons who have lived the experience. This is usually quite different from perceptions and misperceptions usually held by the “cis” community.

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PERSPECTIVES I HAVE LEARNED FROM MY GENDER ALTERED FRIENDS

This is a one page summary. Detailed comments follow on the next pages.

- **In the Lesbian, Gay, Bisexual, Transgender, Questioning, intersex and Agender communities, LGBTQIA, T is a different, separate category.** I refer to "transgender/intersex" as "gender altered" since this is reality in many varieties of alterations, often unwittingly triggered by chemicals we spray on our school lawns and public spaces, and serve in our school and college cafeterias.
- **The gender altered community in general does NOT appreciate Bruce/Caitlyn Jenner.**
- **The gender altered community is much MUCH larger than commonly believed.**
- **The gender persona transition process often but not always all the time, relieves the dysphoria these people suffer a great deal. However, then family and friends usually desert them, at least for a time, which creates significant loneliness and heartbreak.**
- **Suicide attempt rate among the gender altered is about 42%. 1/3 are successful.**
- **When the bathroom bills became a political football the suicide hotline calls tripled!**
- **Bathroom bills exacerbate gender altered folks true fear of arrest/danger/murder.**
- **Gender altered people are much more likely to be murdered than the general population.**
- **In most states of the USA, if someone murders a gender altered person, they can use the "transgender panic" defense to avoid or downgrade the murder charge.**
- **The gender altered community is not statistically known to attack women in bathrooms or at all, rather they are the ones who are attacked.**
- **Their chosen name and correct pronouns are very important to gender altered people.**

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Details of the summary above:

In the Lesbian, Gay, Bisexual, Transgender, Questioning, Intersex, Agender community, LGBTQIA the TIA is a different category in most cases. In most cis folk's minds, "transgender" conjures up the perception of a dangerous sexually variant individual. In most cases this is inaccurate. Transgender is not behavior. It is who the person IS. Most/many hermaphrodite/transgender/intersex, aka gender altered individuals are quiet, law abiding and insightful persons who suffer and try to get through life as best they can with their alterations with very little comfort or support other than in their own communities. For that reason I will use the term "gender altered" in this paper. This avoids the "perception of threat" that the term "transgender" evokes, and reminds us of environmental factors. Gender altered people do not like to publicly specify if they trans or intersex/hermaphrodite.

The gender altered community in general does NOT appreciate Bruce/Caitlyn Jenner. They say this person inaccurately represents who they are, and has plenty of money for bodyguards, medical treatments, to look pretty and has no idea what the rest of them suffer. This may change in time.

The gender altered community is much MUCH larger than commonly believed. Many of them are not recognized at birth, because the alterations may be internal and/or functional in the endocrine system or in structures in the head, and other systems that are undiscovered/not understood. For years many of them may have sensed but not fully understood that their misery really was because they were gender altered. Some may privately cross dress to relieve their dysphoria and therefore may initially assume that they are cross dressers. Later they conclude that they are truly gender altered. Some may not have money for medical diagnosis or treatment, and may suicide eventually without the help they need, although more information is available today.

The attempted suicide rate in the gender altered community is 42-46%, and 33% of those attempts are successful. They really do experience gender dysphoria, and are often rejected socially due to their mix of male and female characteristics, with or without the completion process. If they complete to one gender or the other medically they may be very much relieved in many ways, but their family and friends usually desert them, many churches reject them, and now they cannot even use the bathroom safely. They trade significant physical and psychological relief only to become worse social outcasts.

When the bathroom bills became a political football the suicide hotline calls tripled. My friend helps work the phones, and has talked people off bridges, called the police, and spent up to 18 hours with a suicidal person getting them to hospitals. She grieves very much when she loses a caller. A few weeks ago her best friend committed suicide. She believes the bathroom bills were the final straw for her friend.

The completion process often but not always relieves the dysphoria. In most cases the completion process helps them tremendously but like all other processes in life, not in every single case. They are still both male and female. However, the claim that there is a 30% regret rate is not accurate in the real community. An author who has introduced that statistic was not himself gender altered..

No one I know who works with this community sees even close to a 30% regret rate. It still remains though that fully transitioned people still suicide much more often if their family rejects them. Family and friends' support appears to normalize the suicide rate.

Gender altered people are much more likely to be beaten or murdered. In most states a person who murders a transgender is allowed to use the "transgender panic" defense to avoid or downgrade the murder charge! This is one reason why a normally quiet community that wishes to blend in has become very vocal. They are in danger.

Gender altered people are not a notable threat in bathrooms. They wish to use the restroom matching their persona, as we all do, and leave quietly, for their own protection. They live in fear of being murdered. Unfortunately old fashioned peeping toms have always been around, but with heightened awareness, and cell phones, might this crime be less probable?

True gender altered people dress in the persona that matches the restroom they quietly use. Cowboys in women's rooms taking advantage of bathroom bills would stand out and likely quickly scatter any women who happen to walk in.

Bathroom and other antitransgender bills exacerbate gender altered people's true fears of arrest or physical danger. They sometimes do not have funds to physically or legally complete transition, and even if they do, the process takes time. Therefore they may carry identification that does not yet match their persona. This is dangerous for them as they may be jailed or worse if someone "clocks", (recognizes) them. A gender altered person was recently jailed when the person checked into a hotel and a clerk noticed a discrepancy in the driver's license.

Unfortunately some gender altered people struggle to survive financially. Gender altered persons of color are at high risk for homelessness. True, some may turn to prostitution, as "cis" persons may also. However, the gender altered community does not have a record for violence in restrooms.

Mandated public family bathrooms, or lockable single stall rest rooms make a lot more sense than multiple stall gender neutral ones. Small businesses such as gas stations already are so equipped. Larger facilities with multiple stall restrooms can afford renovations. When the Americans with Disabilities Act was passed years ago, it cost to convert public spaces, curbs, parking lots, but America got it done.

- **It is an insult to anyone to be misgendered, misnamed, or misidentified with incorrect pronouns.** This is especially important to gender altered people. It is a prime insult to intentionally "dead name" a gender altered person or use the wrong pronouns. They will be patient with mistakes but not intentional ones.

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Helpful information about gender altered people?

What is the difference between Transgender and Intersex people?

This is a debated topic. Medically they are most likely both categories of intersex, meaning they all suffer gender related injury usually from environmental endocrine disrupting chemicals and toxins. Uninformed cis persons may accept intersex as valid due to provable presence of male and female anatomy but accuse transgender persons of mental illness. They may also confuse the term "transgender" with cross dressers and drag queens who are cis gender but perform as opposite gender for entertainment or onstage.

A number of transgender people have bodies that are "pink" from the neck up and "blue" from the neck down, or vice versa. These persons may identify female but otherwise have a male body. This particular alteration is hard for cis people to accept. They understand "mixed up" body anatomy below the neck but choke on anatomy and function that is "mixed up" between the brain and the rest of the body.

It's worth remembering there are 3 reproductive glands in the brain, the pituitary, pineal and hypothalamus . The brain is a reproductive/gender organ and it can be altered and out of sync with the rest of the body just as other gender related organs and structures may be out of sync with each other.

It is not yet understood for sure where the identity piece of gender resides, but the hypothalamus has been suggested. In any case, it is thought to be in the brain, and true transgender people usually know from early childhood who they are or are not, regardless of mismatched anatomy.

All developing baby boys have a "pink" brain until the testicles begin secreting testosterone at about the 8th week. This sends a wash of testosterone over the baby's brain and prunes away a lot of the neural connections that have formed. From that moment on, it becomes a male brain. This is one reason men tend to be more "digital/logical" and women are more "analog/emotional".Women have more neurons.

However if the baby is exposed to an estrogen mimic chemical when the testosterone wash occurs, the receptors may be filled or there may be other reasons they do not accept the testosterone. Essentially the brain stays "pink". The baby may continue to develop a male body but retain a female brain. It is a good female brain. It is not mentally ill. It's just still "pink". Many chemicals may be responsible for this phenomenon. DDT and DES (Diethylstilbestrol) are early examples of artificial estrogens and similar chemicals which may explain the number of transgender people in their 40's, 50's and older. This particular situation is generally termed "transgender".

Many cis people claim that the transgender configuration of gender alteration is a mental illness but they recognize other obvious intersex mismatches that are more visible! While identity is still under study and not yet well understood, this assumption seems outlandish given what we do know of endocrine disruption and fetal development. There is no need for cis people to make the situation worse simply because every detail of endocrine disrupted development is not yet nailed down. How much better to extend grace to those whose process or diagnosis of injury may or may not be totally

understood or available. True transgenders are not making claims for fun. We need to believe them and let science progress to more firm explanations and better diagnostic processes.
A supporting argument for this more gracious approach is the distressing number of very little children, some still toddlers, who vehemently insist from the time they can speak that they are the opposite gender from their visible anatomy. These children do not understand transgender issues, nor are their parents coaching them to be transgender as they are often accused. The parents are themselves distressed and agonize over the necessary decisions they must consider for such a young child, including future pubertal unknowns, long term side effects etc.

It is commonsense to use the precautionary principle and assume that disruptive environmental factors cause the transgender category of alteration as just as much as they do other intersex variations.

What about Agender (Asexual), Gender Fluid, and Wanna Be's?

Agender people are just that. They do not identify as male or female, regardless of their anatomy. For instance an agender person may find breasts distressing and wish to have them removed.
Gender fluid persons literally identify female part of the time and male at other times. This category of transgenderism is hard for even other transgender people to understand.
In both cases it's not hard to suspect environmental factors have disrupted normally stable processes.
Wanna be's are people who "wanna be" the opposite gender but they do not display the characteristics that qualify true transgender persons . They may not experience dysphoria, or just want to change genders because they think the opposite gender has an easier life style. Their word choice often indicates that they are "wanna be"s. They may say that they "want to be" the other gender. People who are farther on the spectrum will state that they "are" the opposite gender, and they may also say they "want to be" as in they want to transition to their true persona. Some "Wanna bes" might be helped by lifestyle changes such as diet, counselling, meds, and such. Others may appear to qualify as transgender but the transition hormones don't help them. It may be that they are on a spectrum of alteration that is not 100% male or female but not to a degree that transition treatments are helpful.

How does the diagnosis and treatment process work?

A person who wishes to explore the transition process under credible medical supervision is required to medically/psychiatrically qualify for treatment. The person undergoes a strict diagnostic process, therapy, and counselling before hormones are prescribed. The final test of candidacy for transitional treatment is to try the hormones and see if they are "right". This will be obvious to themselves within a few days, weeks, hours or minutes, usually. Later, surgery may or may not be performed. Driver's license and birth certificate corrections require medical clearance. These processes take time and are not legal in all states. This may cause problems if a transitioning transgender person is "clocked" meaning recognized as transgender, in a restroom or other situation before they have obtained matching identification. Some have gone to jail or been beaten or killed, with or without proper ID.

In the case of children who are insistent, consistent, and persistent, most of the time there is no medical treatment before puberty. The parents simply switch the child's environment and persona. At puberty the child is treated with hormone blockers in order to delay development of secondary sex

characteristics. This gives more time to decide if full transition is right for that child. Hormones may not legally be started until age 16. Surgery is not legal before 18. True transgender children experience major distress at the prospect of possibly growing a beard or developing breasts if they insist they are opposite gender, hence the hormone blockers to delay these secondary characteristics from developing and buy time for a decision. Parents and medical personnel worry about the long term effects of these treatments that have not had many years of long term study. But they must balance those concerns with the very real danger of suicide.

Not all transgender people choose to have corrective surgery. Many cannot afford it. Most of them want surgery, as incorrect anatomy causes a lot of dysphoria and distress. Others are satisfied to leave that option untreated permanently. Transgender persons do not appreciate questions about this matter, understandably. It is inappropriate to ask them about surgery.

Financially challenged transgender persons may not have funds for diagnosis or any treatment, therapy, hormones, surgery or ID corrections. Their only option may be to adopt the persona with which they identify. Some may pass better than others, and this may be dangerous for them. Trans people of color in lower income brackets with less medical help are the most likely to be murdered.

Who are cross dressers, drag queens and other similar categories?

Cross dressers are “cis” (fully male or female) people who simply enjoy dressing as the opposite gender for personal entertainment, or are drag queens who cross dress for onstage performance. Cross dressers usually parade in areas away from their own neighborhood, and if they run into trouble they are back home in their suits and ties (most cross dressers are male). They are unwilling to put up with the 24/7 danger and rejection that true transgender people face. Many cis people confuse transgender people with cross dressers.

Are Same Sex Attracted people the same as Transgender and Intersex people?

Same Sex attracted people are not at all the same as transgender or intersex people. Their differences are connected to their sexual attractions. Their brain/body/identity anatomy match, but their attraction based anatomy and hormones are same sex vs opposite sex.

By contrast, Transgender/Intersex terms refer to who a person is, male or female. They are separate from the person’s attractions. Same sex attraction and Intersex/Transgender should never be equated.

It is also important to distinguish between same sex attraction and same sex behaviors. People who are heterosexual or bisexual may choose behave in a homosexual manner, and conversely some same sex attracted people may never behave in a homosexual manner. Attraction is attraction and may be inborn. Behavior is behavior, a choice. They should not be assumed to go hand in hand.

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Hypermachoism, Bathrooms, Names and Pronouns, and Communication No-no's and Expectations

Hyper machoism

In our society, butch girls are accepted reasonably well as tomboys. However, effeminate males are despised, abused, even killed. Therefore an actual boy who is misidentified as a girl will likely behave as a boy but folks will mistakenly consider him to be a female tomboy and he will not necessarily be rejected.

However, children who are actually girls, but who are misidentified as boys are often abused due to their feminine behaviors. They learn to try very very hard to be "boys" to avoid abuse and rejection. They may take on male projects, lex. fixing up a car, or enter professions that are male dominated, ex. first responders, carpenters, etc. This is called hyper machoism. Eventually, in spite of their best efforts to be boys and men, these girl's true femininity may prevail and they may transition to their true female persona, much to the surprise and puzzlement of those around them, particularly if hyper machoism is a piece of the previous history.

Of course on top of these dynamics is also the truth that all these children are actually both female and male on a spectrum of degree, and it should not be a shock if they display some characteristics of both genders.

Brain anatomy/Identity ("I am a girl", or "I am a boy") is a piece of gender that still in most cases* is "set in stone". even if it does not always match lower body anatomy. When gender is disrupted by environmental toxins, it might be wise to let these people tell us who they are! With children, "Insistent, consistent, and persistent" is key.

* The exceptions are "gender fluid" and "agender". Gender fluid is just that. The normally stable core brain anatomy/identity function appears to change, and is very difficult to understand. Even most intersex people do not relate to gender fluid persons. It makes some sense that an environmental influence has affected a normally stable unknown factor to become dynamic.

Agender people are also just that. Their brain anatomy/identity is neither male nor female, and does not match their body's configuration either way. They may be distressed by their gender specific physical characteristics such as breasts. They, and others, can be accepted for who they are, and leave the gender piece out.

Bathroom issues

Family bathrooms or separate stalls or curtains in locker rooms seem safer for gender altered people since they are often beaten or killed in bathrooms. Most small businesses already have single stall family bathrooms and larger public facilities have the cash to install them or already have done so. This seems to be a workable way to meet in the middle for both gender altered people and cis people.

Statistically, the gender altered community does not cause trouble in bathrooms. They do their business quietly and leave before they get hurt, and they worry about the children in their community. Laws allowing gender altered people access to bathrooms according to their brain anatomy/identity are not as dangerous as many fear. These people have been there all along anyway, quietly doing their business, dressed in their core persona. Cis" cross dressers who are there to gawk have been there all along too, also intentionally blending in, so nothing is really changed except that the fake cross dressers don't have to blend in anymore (if they want drama).

If a woman enters a ladies' room and finds a macho cowboy lounging around taking advantage of transgender laws, at least now she knows, and hopefully can leave or call for help if she suspects mischief. No one sends children into public restrooms alone anyway, and cell phones may deter some crimes. Centuries ago, apparently bathrooms were not segregated.

Names and Pronouns

Gender altered people are usually patient with mistakes as others process name/pronoun changes. However, intentionally naming a gender altered person by their "dead name" or choosing wrong pronouns is a prime insult, and a terrible way to attract them to Christ. Remember these people suicide frequently.

C**ommunications**

Gender altered people can be very very self occupied and overly sensitive for a long time while transitioning. They may communicate endlessly with fairly private details, but, rather inconsistently, vary in their tolerance for personal questions from others. The one question to never ask is whether the person has undergone "bottom surgery". Also NEVER "out" them or say "transgender" or other such terms within earshot of other humans in public.

They fear for their lives and wish to "fly under the radar". They term this "going stealth",and is understandable.

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“We need to let these people tell us who they are.”

Spoken by the Christian brother of a Christian transgender sibling

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Help for churches and families who wish to avoid "bad actor" chemicals.

"Repentance means change!" Years ago we did not know the dangers of these estrogen mimics. (The manufacturers knew and among other strategies covered it up in the safety studies with a strain of rats that were insensitive to estrogen!!! Wicked!!!) Now,.. we know, and there are moral implications, particularly at church where Scriptural principles are supposedly upheld. For consistency at least, might it be time to rethink church kitchens, menus, lawns where children play, and avoid endocrine disrupting substances???

Will this help? Is it too late??? Perhaps, perhaps not! Nonetheless, it's hard to counsel mixed up kids to be celibate for life with a plastic water bottle in our own hands! Increasingly, these young people will know what happened to them. ☹ Not to claim that every case of homosexuality (particularly) involves endocrine disruption, but one injured young person may influence others who are not physically affected.

Plastics - We cannot avoid every exposure, but avoidance in the kitchen makes a lot of sense. We can steer clear of hot or fatty food in plastic and plastic food storage containers. New and old plastics leach and outgas problem chemicals. Sadly, BPA free items may use BPF or BPS, both which are now implicated as endocrine disruptors, possibly even worse. Today, most plastics are implicated for endocrine disruption.

How did folks handle life before they had plastic??? Usually that question prompts ideas for substitutes, often found at Goodwill or the basement (glass canning jars work for food storage and usually are easily obtained from older relatives). Old or pretty socks work well for transporting glass beverage containers or food. If something breaks, the entire sock can be tossed, glass contained within. Other materials include wood, wicker, glass, non-lead ceramic, bamboo, stainless steel (no tin or aluminum for food!), cardboard, paper, parchment, beeswax, jute, hemp, linen, silk, cotton (estate sales often have nice company linens from the pre gmo cotton era), banana leaves, corning ware with glass lids, rubber, and so on. Homemade reusable "plastic wrap" can be made from thin cotton or cheesecloth dipped in hot beeswax, or can be purchased commercially (Abeego).

The Dirty Dozen/Clean 15 list of chemicals on food is available free at https://www.ewg.org/foodnews/

Churches or families can form wholesale co-ops and split cases of veggies or a purchase a whole animal at lower prices for members' freezers. Older retired members can help with the real work of managing the details, drive for pickups, share garden produce and help financially stressed families manage costs. Sometimes church or family members enjoy getting together to prepare bulk food ahead and save.

Church event menus can be simplified to stretch the budget for chemical free food. Desserts can be limited to fewer, healthier versions, or a juicy pesticide free watermelon, in season. Healthy fats such as avocado, nuts, coconut, full fat dairy, and fattier animal based dishes etc., help fill folks up. Serve filtered water! In smaller groups, the men or teenagers can wash the dishes, and save on foam and plastic disposables

Organic lawn care products and services are available now. Even TruGreen type companies offer organic alternatives, or DIY. Dr. Porter mentions several inexpensive strategies for weed and pest control in the audio lectures listed on the next page.

Some farms are uncertified organic/biodynamic and usually they are cheaper if the farmer can be trusted. Some Amish farms are reasonably priced. (Others are not! ☹)

Bottom line, there are many ways to cut costs and still avoid the bad actor substances.

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Section 2

Science Papers,

Input from Independent Researchers,

Anatomy/Physiology of the Endocrine System,

and

Government Regulation

of

Environmental Endocrine and Genetic Disruptors

and other

Gender Altering Influences

For a full color clickable link to these resources go to

TheGlutenSyndrome.net/TransgenderHandout.pdf

RESOURCES

Dr. Warren P Porter, Professor of Zoology and Molecular and Environmental Toxicology, University of Wisconsin, Madison Dr. Porter studied pesticides and herbicides.

Here are 2 lectures by Dr. Warren Porter and the Powerpoint for the first lecture
2010, M.O.S.E.S. conference lecture

www.theglutensyndrome.net/MOSES2010-58_Effects_of_Common_Pesticides_Warren_Porter .mp3
http://theglutensyndrome.net/Assess_Env_Impact_10.ppt   (Powerpoint)

Dr. Porter's 2015 update to the 2010 lecture. Both are worth the time
http://www.theglutensyndrome.net/MOSES15-Porter_Benbrook-GMOWhatDoWeKnow.mp3
http://www.theglutensyndrome.net/Risk_Management-15.pdf   (Powerpoint)
~

Frederick vom Saal, Ph.D.
Curators' Professor Emeritus of Biological Sciences

Sexual differentiation, maternal-fetal physiology, hormones and behavior. University of Missouri, Columbia Dr. Vom Saal and his group particularly studied BPA in plastics

Check You Tube for lectures by Dr. Fred vom Saal, now retired
http://e360.yale.edu/feature/a_warning_by_key_researcher_on_risks_of_bpa_in_our_lives/2344/

http://www.pbs.org/wgbh/pages/frontline/shows/nature/interviews/vomsaal.html

DES research - Dr. Bruce S. McEwen

http://www.theglutensyndrome.net/McEwen_Steroid hormones_brain develop_87.pdf

Heritability of epigenetic gene mutations in male fertility - Dr. Michael Skinner
http://www.theglutensyndrome.net/Anway et al 2005.pdf
Atrazine and aromatase upregulation – endocrine disruption
http://www.theglutensyndrome.net/Atrazine and aromatase induction.pdf

Dr. Tyrone Hayes of U of Berkeley, CA Effects of Atrazine on breast cancer and gender disruption see You Tube

Dr.Theo Coburn, (late)author of Our Stolen Future, and www.endocrinedisruption.org

Dr. Lou Guillette - toxin endocrine disruption in alligators - check you tube.

Dr. Theresa Deisher and Marcella Piper-Terry on aborted fetal cells in vaccines   see vaxtruth.org and youtube for both speakers https://www.youtube.com/watch?v=RU2BDZL3OFY&t=12s   www.cogforlife.org

~~~~~~

In Memory:

Love you ______
~~~~~~

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WOW! OH WOW! RoundUp(glyphosate), and Hermaphroditism [Transgender]!

Dr. Don Huber – "Well, you see a lot of the physiological changes, You also see it from just a direct effect of the high concentrations of glyphosate in our feeds [and other endocrine disruptors], so that there's one country that last year…passed a law that you no longer have to declare the sex of your child at birth.

You say well, that's kind of a dumb law, isn't it? Can't you just look at the plumbing and tell whether it's a male or a female?

The truth is, you can't. Because with the endocrine disruption, there are many situations where there's not a clear delineation of what the sex is."

Dave Asprey "What country is that?" Don Huber "That's one of the European countries."(Germany)

Dave Asprey - "You've got hermaphrodites, human hermaphrodites increasing in percentage!???"

Dr.Don Huber - "You have that, or neither one is predominant." Dave Asprey - "Asexual!"

Dr. Don Huber - "What they did then was give them six months so they could do the genetic testing and see whether they have the XY chromosome before they rushed into surgery to dictate what that child was going to, phenotypically be, for the rest of their life.

It changes everything that we value, everything that we hold dear in our entire system. Whether it's the environment, whether it's our soil health, human health, animal health, crop health. This very simple compound and the GMO crops that [it] is applied to 95% of them. All have a very far reaching long-term basis, it's not just now or tomorrow. We're talking generation effects, when you talk disruption of the endocrine hormone system."
https://www.bulletproofexec.com/don-huber-318/ at about the 51 minute mark

Dr. Don M. Huber, Professor Emeritus, Purdue University

Also Chairman of the USDA National Plant Disease Recovery Program. Retired. Retired colonel. 26 years in military intelligence. He monitored the world's plant diseases.

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Dr.Warren Porter, U of Wisconsin, Zoologist, Environmental toxicologist - Some effects,of Endocrine(glandular/hormone) Disruption

"If you have a male fetus and you feminize it by increasing the amount of estrogen, [with estrogen mimic substances, agricultural chemicals, plasticizers, etc.] You can have:

- Lower sperm production, [and damaged sperm]
- You can have both ovaries and testes in the same organism
- You can have mammary [milk producing] tissue in male breasts
- **And perhaps most significantly we can have changes in sexual orientation [and gender disruption]**

In the case of females, we know that a syndrome called polycystic ovarian syndrome is a masculinizaton of female fetuses and when those females reach puberty:

- They start putting on facial hair,
- They cannot ovulate like a normal function would be,
- They also have a tendency to put on weight.
- They have a tendency to Type 2 diabetes, atherosclerosis,and a whole suite of other things associated with obesity.

It turns out that their biochemistry has been fundamentally manipulated by that androgen exposure in utero."
Also, Infertility, miscarriage, lack of mammary [milk producing] tissue are other effects. Also breast cancer, osteoporosis, etc.

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Other quotes from Warren Porter's 2015 lecture:

"What do these data show you?

That we are giving daily doses of nerve poison to our children!"

"What have we learned? The data suggest we may be sexually assaulting our children in utero.

Possibly altering their sexual preferences or aborting them prematurely."

~~~

Quote from God's Word to AnyChurch, Anywhere

Rescue those being led away to death;
Hold back those staggering toward slaughter.

If you say, "But we knew nothing about this," (Ho Hum!)
Does not he who weighs the heart perceive it?
Does not he who guards your life know it?
Will He not repay everyone according to what they have done?

Proverbs 24:11,12

Matthew 18:16, Mark 9:42, Luke 17:2

"If anyone causes one of these little ones--those who believe in me--to stumble, it would be better for them to have a large millstone hung around their neck and to be drowned in the depths of the sea.

(NLT – to fall into sin) (KJV – offend one of these little ones)

James 4:17 (ESV)

So whoever knows the right thing to do and fails to do it, for him it is sin.

http://www.theglutensyndrome.net/MOSES15-Porter_Benbrook-GMOWhatDoWeKnow.mp3
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Basic Information:

Cholesterol

is used to make

Testosterone

and

Aromatase

(an enzyme),

converts some of the testosterone to

Estrogen

This is a one way trip.

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Cholesterol

↓

Testosterone

How can common herbicides at environmentally relevant concentrations masculinize females?

↓ Some herbicides, including RoundUp*, can shut down

↓ <<<<<<< aromatase (a worker enzyme) in the body [1]

↓ Low aromatase = too much unconverted testosterone

Estrogen

Too much testosterone can:

Masculinize females, cause Polycystic Ovarian Syndrome

Reduce or prevent ovulation, (reproductive impairment?)

No mammary tissue in breasts,

Create changes in sexual orientation

Cause aggression in males, etc.

*** Roundup contains glyphosate and is used on PR-GMO soybeans**

[1] Richard et al, 2005, Environmental Health Perspectives

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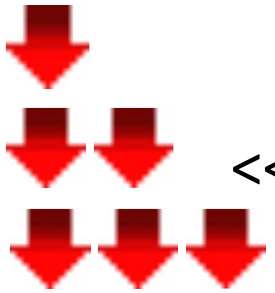
Cholesterol

Testosterone



How can common herbicides at environmentally relevant concentrations feminize males?

Some herbicides including Atrazine, cause too much

<<<<<<<<< aromatase (a worker enzyme) in the body[1]

Too much Aromatase creates too much estrogen

Estrogen

Too much estrogen can:

Feminize males,

Lower sperm count, (reproductive impairment?)

Cause mammary tissue in male breasts,

Cause both testes and ovaries to be present,

Create changes in sexual orientation

Cause breast cancer in women

Cause osteoporosis

PPO (Pesticide producing) GMO crops such as PP-GMO corn, commonly use Atrazine as a weed killer

[1] Fan et al, 2007, Environmental Health Perspectives

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SUMMARY - THE "OH WOW" LIST OF EPA CHEMICAL REGISTRATION OMISSIONS

The EPA registration process does NOT consider the following issues:

- Epigenetic/Developmental problems
- Endocrine disruption
- Immune function
- Neurological effects
- Combinations of chemicals that can synergistically enhance adverse effects
- Toxins store in fat, including the brain, nervous system, bone marrow, around organs and in the yolk/nucleus of eggs, before or after birth.
- Chemically induced epigenetic changes that occur during a lifetime can be passed to the next 4 generations (the limit of the Michael Skinner studies)
- Atrazine, used on corn and many other crops, abnormally increases the enzyme "Aromatase", which *converts testosterone to estrogen*., It's a one way trip! Can potentially feminize males and trigger breast cancer and reproductive problems in girls. Glyphosate inhibits aromatase, and can masculinize females and produce alpha and possibly violent, males.

The EPA PERMITS/ALLOWS :

- Chemicals to be registered by themselves, *not* including the "inert" ingredients that cause penetration of skin, lung, brain and placental barriers.
- Only *high* doses of chemicals typically checked in safety studies. *Low* doses (ppb-ppt) that are often very active biologically and can falsely mimic our own hormones, are not considered.
- Typically only young mature male rats are used in chemical safety studies (they excrete chemicals well)

  The following categories of rats are NOT USED in safety studies

  Female rats are not checked for adverse effects.
  Pregnant rats are not checked for adverse effects.
  Elderly rats are not checked for adverse effects.
  Baby male rats are not checked for adverse effects.
  Baby female rats are not checked for adverse effects.
  Teenage (pubertal) rats are not checked for adverse effects.
  Immune compromised rats are not checked for adverse effects.
  Sleep deprived rats are not checked for adverse effects.
  Malnourished rats are not checked for adverse effects.

The EPA: Underestimated the effects of low doses of estrogen mimicking endocrine disrupting chemicals by 10,000 times!!! (vom Saal & colleagues)

The FDA: According to Michael Taylor, FDA's deputy commissioner for food safety until June 1, 2016 (and a lawyer and former Monsanto Vice President of public policy 1996-2000). The FDA doesn't even know many new substances exist. "We simply do not have the information to vouch for the safety of many of these chemicals,"

Why doesn't everyone suffer obvious adverse effects immediately?

The wide variety of individual effects of toxic exposure can depend on many factors including:

* Local environments * Delayed effects * Individual susceptibility
* Timing and length of exposure, * Condition of immune system * Diet, stress, sleep, lifestyle, emotions
* Dose and tissues affected * Ability to excrete toxins * Huge variety of mutated genes

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Oh WOW! More details – EPA CHEMICAL REGISTRATION OMISSIONS

I didn't know the EPA does NOT look at epigenetic developmental problems when it evaluates and registers new chemicals. (Ie., intrauterine, childhood development, healing, etc.)

~

I didn't know the EPA does NOT look at endocrine disruption (thyroid, pituitary, hypothalamus, adrenals, gonads, etc., which includes polycystic ovarian syndrome, osteoporosis, gender injury issues and hosts of other glandular/hormone conditions) when it evaluates and registers new chemicals.

~

I didn't know the EPA does NOT look at immune function (which affects conditions such as asthma, allergic diseases, autoimmune disease, infectious disease, ineffective vaccine response, cancer, cystic fibrosis, male sterility, polycystic ovary syndrome, and hosts more), in the evaluation and registration process for new chemicals.

~

I didn't know the EPA does NOT look at neurological effects when it evaluates and registers a new chemical.

~

I didn't know that only young mature male rats are used in chemical safety studies. (They are the most able to excrete/pee or poop out/detoxify), the chemicals.

Female rats are not checked for adverse effects.
Pregnant rats are not checked for adverse effects.
Elderly rats are not checked for adverse effects.
Baby male rats are not checked for adverse effects.
Baby female rats are not checked for adverse effects.
Teenage (pubertal) rats are not checked for adverse effects.
Immune compromised rats are not checked for adverse effects.
Sleep deprived rats are not checked for adverse effects.
Malnourished rats are not checked for adverse effects.

~

I didn't know that the EPA allows chemicals to be registered by themselves, not including the "inert" ingredients (soaps and surfactants) that are added when we buy them off the shelf. The "inert" ingredients break surface tension or penetrate the waxy barrier on the outside of cells (and our skin, lungs, brain and placental barriers, etc), so the killer chemical can get inside.

~

I didn't know that the EPA only considers high doses of chemicals for toxicity. It does not consider the effects of very low doses of chemicals, in the parts per trillion range for instance, in the registration process.

Many endocrine disruptive chemicals on the market today are injuriously active at very low concentrations. They can mimic our own hormones and may confuse the body.

~

I didn't know that research indicates the EPA underestimated the effects of low dose effects of endocrine disrupting chemicals in the food supply by 10,000 times!!!

~

I didn't know that the Washington Post stated that "the FDA doesn't even know of the existence of new additives, which can include chemical preservatives, flavorings and thickening agents, records and interviews show.

"We simply do not have the information to vouch for the safety of many of these chemicals," said Michael Taylor, the FDA's deputy commissioner for food until June 1, 2016, (and a lawyer and former Monsanto Vice President of public policy 1996-2000).

Therefore many substances in the environment and food supply have never been evaluated for safety.
https://www.washingtonpost.com/national/food-additives-on-the-rise-as-fda-scrutiny-wanes/2014/08/17/828e9bf8-1cb2-11e4-ab7b-696c295ddfd1_story.html

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I didn't know that combinations of chemicals can enhance the adverse effects of each (a synergistic effect) and create even worse outcomes. The EPA does not and simply cannot track most of these combinations nor do they consider them in the registration process.

~

I didn't know that toxins that are not excreted (peed or pooped or sweated out) quickly enough are stored mainly in the fat of the body, including the brain, bone marrow, around organs and in the yolks of eggs even in utero and after birth also. Particularly in tiny amounts, endocrine disrupting chemicals are very very actively injurious biologically and can interrupt normal development in countless ways when that baby girl has her own babies years later.

Endocrine disrupting chemicals are often estrogen mimics and can confuse our hormones and glandular system, interfering with myriads of body functions, including bone development, breast cancer, polycystic ovarian syndrome, and can change gender identity, sexual orientation, and in some cases actual gender related anatomical structure..

I didn’t know that chemical injury to genes and how they work (gene mutations), that occur, not only in utero, but during a lifetime, have been observed in research to be heritable (passed to the next generation) to 4 generations, (the limit of the research study) through the male germ line. This information has not been considered in the EPA registration process.

Here is a short interview Dr. Michael Skinner, an author of a paper which reports these issues.
http://archive.sciencewatch.com/ana/st/epigen/09marEpiSkin/

Anway MD, et al., "Epigenetic transgenerational actions of endocrine disrupters and male fertility," Science 308(5727): 1466-9, 3 June 2005.
Source: Essential Science Indicators fromThomson Reuters.http://www.evolocus.com/publications/Anway2005.pdf

~

I didn’t know that Atrazine, a very common chemical (and others in the chloro - s - triazine family), used on corn and many other crops causes an enzyme, aromatase, which converts testosterone to estrogen. This is shown in research to potentially feminize males and can cause reproductive cancers (ovarian, breast, etc.) and various other serious hormone imbalances in females. Such endocrine disrupting effects are NOT considered in the EPA registration process.

These effects vary with precise timing of exposure, dose, individual susceptibility to toxin exposure, ability to excrete toxins, methylate and other factors.
http://www.theglutensyndrome.net/Atrazine and aromatase induction.pdf

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This space reserved for information and research on Aborted Fetal Cells and Insertional Mutagenesis in a number of vaccines, meds and food and personal care products. These aborted fetal cells are being fingered as associated with Gender identity disorder issues as well as autoimmunity and cancer. Little children and teens are being vaccinated with products that contain fragmented aborted fetal cells from both male and female babies. Contrary to Dr. Paul Offit's claim that this is no worse than a blood transfusion, Researcher Theresa Deisher explains a blood transfusion is whole cell and that it is the fragmentation of the dna in the vaccines and other products that makes these aborted cells so dangerous.

http://vaxtruth.org/2017/06/pro-life-you-cant-be-pro-vaccine/

https://www.youtube.com/watch?v=RU2BDZL3OFY&t=13s Latter half of the video addresses fetal cell vaccines

There is not a lot of research on the link between aborted fetal cell vaccines and Gender Identity disorder. But what is there is very troubling. The link between aborted fetasl cells and autoimmunity and cancer is more studied. There is more research available and as it is procured it will be added. Dr. Theresa Deisher research is easy to find on Youtube. Here is a search link

https://www.youtube.com/results?search_query=theresa+deisher

https://www.facebook.com/pg/SoundChoicePharm/posts/

http://soundchoice.org/scpiJournalPubHealthEpidem092014.pdf

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U.S. Aborted Fetal Products - Updated June 2016

Senomyx Partner/ Products Developed & Discovered With Aborted Fetal Cell Lines

Pepsi Beverages

No longer on the boycott list! Senomyx will not use aborted fetal cells in any of the PEPSICO research & development.

Kraft - Cadbury Adams LLC

No longer on the boycott list! As of December 27, 2011 Kraft ended their contract with Senomyx and no product was brought to the market.

Firmenich: FreezeStorm products

Ajinomoto:

North America spices and seasonings

- Aji-No-Moto – Umani seasoning
- Hondashi – Flavor Seasoning
- Techno-A – Savory Seasoning

Nestles Products

- All refrigerated coffee creamers
- Maggi Brand instant soups, bouillon cubes, ketchups, sauces, seasoning, instant noodles

Products That Contain Aborted Fetal Cells, Proteins, DNA

Neocutis Anti-Aging Skin Creams

This company produces anti wrinkle creams that contain cells from a 14 week gestation aborted male baby. Following is the list of the creams:

- Bio-Gel, Prevedem, Journee
- Bio-Serum, Lumiere
- Bio Restorative Skin Cream

Vaccines Containing Aborted Fetal Material And the Manufacturers:

- Adenovirus 5,7 (Barr Laboratories)
- MMR II: Measles + Mumps + Rubella (Merck)
- ProQuad: MMR + Chickenpox (Merck)
- Varivax: Chickenpox (Merck)
- Pentacel: Polio + DTaP + HiB – (Sanofi Pasteur)
- Vaqta: Hepatitis-A (Merck)
- Havrix: Hepatitis-A (Glaxo SmithKline)
- Twinrix: Hepatitis-A and B combo (Glaxo)
- Zostavax: Shingles (Merck)
- Imovax: Rabies (Sanofi Pasteur)
- Acambis 1000: Smallpox (Acambis)

Other medicines:

- rhFVIII, rhFVIX: Hemophilia (Octapharma)
- G-CSF: White blood cell stimulant(Octapharma)
- Pulmozyme: Cystic Fibrosis (Genentech)
- Enbrel: Rheumatoid Arthritis (Amgen)
- Abciximab/Repro (Eli Lilly)
- Aranesp, Procrit Darbepoetin alfa Epogen, Epoetin alfa (Amgen)

Note: Moral options exist for Rabies, Polio, Cystic Fibrosis, Rheumatoid Arthritis and Smallpox. Separate moral options currently not available for Measles and Mumps. See the complete US/CANADA list of vaccines and medicines and any moral options at: http://www.cogforlife.org/vaccineListOrigFormat.pdf

1521-009X/12/4003-481–485$25.00 DRUG METABOLISM AND DISPOSITION Vol. 40, No. 3 Copyright © 2012 by The American Society for Pharmacology and Experimental Therapeutics 42366/3749633 DMD 40:481–485, 2012

Inhibition of Genistein Glucuronidation by Bisphenol A in Human and Rat Liver Microsomes

□S Janis L. Coughlin, Paul E. Thomas, and Brian Buckley Environmental and Occupational Health Sciences Institute, Piscataway, New Jersey (J.L.C., P.E.T., B.B.); Joint Graduate Program of Toxicology (J.L.C., P.E.T., B.B.) and Laboratory for Cancer Research (P.E.T.), Rutgers University, Piscataway, New Jersey; University of Medicine and Dentistry of New Jersey, Piscataway, New Jersey (J.L.C., P.E.T., B.B.); and Department of Chemical Biology, Ernest Mario School of Pharmacy, Piscataway, New Jersey (P.E.T.) Received August 15, 2011; accepted December 6, 2011

ABSTRACT: Genistein is a natural phytoestrogen of the soybean, and bisphenol A (BPA) is a synthetic chemical used in the production of polycarbonate plastics. **Both genistein and BPA disrupt the endocrine system in vivo and in vitro. Growing concerns of altered xenobiotic metabolism due to concomitant exposures from soy milk in BPAladen baby bottles has warranted the investigation of the glucuronidation rate of genistein in the absence and presence (25 M) of BPA by human liver microsomes (HLM) and rat liver microsomes** (RLM). HLM yield Vmax values of 0.93 0.10 nmol min1 mg1 and 0.62 0.05 nmol min1 mg1 in the absence and presence of BPA, respectively. Km values for genistein glucuronidation by HLM in the absence and presence of BPA are 15.1 7.9 M and 21.5 7.7 M, respectively, resulting in a Ki value of 58.7 M for BPA. Significantly reduced Vmax and unchanged Km in the presence of BPA in HLM are suggestive of noncompetitive inhibition. In RLM, the presence of BPA resulted in a Ki of 35.7 M, an insignificant change in Vmax (2.91 0.26 nmol min1 mg1 and 3.05 0.41 nmol min1 mg1 in the absence and presence of BPA, respectively), and an increase in apparent Km (49.4 14 M with no BPA and 84.0 28 M with BPA), indicative of competitive inhibition. These findings are significant because they suggest that BPA is capable of inhibiting the glucuronidation of genistein in vitro, and that the type of inhibition is different between HLM and RLM.

Introduction Glucuronidation is a major form of phase II xenobiotic metabolism, which is catalyzed by isoforms of the UDP-glucuronosyltransferase (UGT) family. UGTs are promiscuous enzymes capable of conjugating structurally diverse substrates. UGTs are constitutively expressed in a tissue-specific manner, with their expression and activity altered by genetic and environmental factors (Tukey and Strassburg, 2000). Whereas some UGTs exist only in extrahepatic tissues, most UGTs are expressed abundantly in the liver (Tukey and Strassburg, 2000; Miners et al., 2006). Although UGT isoforms vary between species, several interspecies homologs have been identified.

Humans and rats have several orthologous UGTs, including UGT1A1, UGT1A3, UGT1A6, and UGT1A10. In general, rats have an overall greater capacity for glucuronidation than humans (Elsby et al., 2001; Vo¨lkel et al., 2002). Along with the required cofactor UDP-glucuronic acid (UDPGA), UGTs catalyze the synthesis of a -D-glucuronide conjugate. Glucuronide conjugates are generally less biologically active and are more readily excreted than their parent substrates, making UGTs key players in the regulation of xenobiotic metabolism and toxicity. Genistein [4 ,5,7-trihydroxyisoflavone] is a natural phytoestrogen abundantly present in soybeans. Because nearly 60% of processed foods contain soy, humans consume a nearly continuous supply of genistein in their everyday diet (Patisaul and Jefferson, 2010). The pleiotropic effects of genistein remain controversial. Whereas some laboratories report therapeutic effects of genistein such as chemoprevention, improved bone health, and amelioration of menopausal symptoms (Goldwyn et al., 2000; Evans et al., 2011), **other groups emphasize the phytoestrogen's adverse health effects, namely endocrine disruption** (Casanova et al., 1999; Jefferson et al., 2005; Wisniewski et al., 2005). In both humans and rats, **genistein causes precocious puberty and altered menstrual cycles (Casanova et al., 1999; Strom et al., 2001). Additional adverse effects of genistein in rats include inhibited embryonic development and impaired spatial learning** (Ball et al., 2010; Xing et al., 2010). Bisphenol A [(BPA); 4,4 -isopropylidenediphenol] is a synthetic monomer used in the synthesis of polycarbonate plastics and epoxy resins. **BPA is a fairly ubiquitous compound, found as a common component in plastic baby bottles, as well as food and beverage containers. BPA can leach from plastic containers into contents, especially when containers are exposed to heat and/or excessive wear, placing humans at a direct risk of exposure (Brede et al., 2003). BPA has estrogenic activity both in vitro and in vivo across numerous species (Kuiper et al., 1998; Perez et al., 1998; vom Saal et al., 1998). Endocrine disrupting properties of BPA are routinely reported and include inhibited embryonic development, altered postnatal growth rate, and induction of precocious puberty** (Howdeshell et al., 1999; Xing et al., 2010). See link below for full free article
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3286267/pdf/zdd481.pdf

This work was supported by the National Institutes of Health National Institute of Environmental Health Sciences [Grants T32-ES007148, ES05022]; and the Environmental and Occupational Health Sciences Institute. Coughlin JL (2011) Characterization of the Inhibition of Genistein Glucuronidation by Bisphenol A in Human and Rat Liver Microsomes. Master's thesis, Rutgers University, Piscataway, New Jersey. Article, publication date, and citation information can be found at http://dmd.aspetjournals.org. http://dx.doi.org/10.1124/dmd.111.042366. □S The online version of this article (available at http://dmd.aspetjournals.org) contains supplemental material.

ABBREVIATIONS: UGT, UDP-glucuronosyltransferase; UDPGA, UDP-glucuronic acid; BPA, bisphenol A; HLM, human liver microsomes; RLM, rat liver microsomes; BPA gluc, bisphenol A -D-glucuronide; genistein gluc, genistein 4 - -D-glucuronide; HPLC, high-performance liquid chromatography; SPE, solid-phase extraction; MS/MS, tandem mass spectrometry. 1521-009X/12/4003-481–485

HTTP://E360.YALE.EDU/FEATURE/A_WARNING_BY_KEY_RESEARCHER_ON_RISKS_OF_BPA_IN_OUR_LIVES/2344/

24 NOV 2010: **INTERVIEW**

A Warning by Key Researcher On Risks of BPA in Our Lives

The synthetic chemical, BPA — found in everything from plastic bottles to cash register receipts — is a potent, estrogen-mimicking compound. In an interview with Yale Environment 360, biologist Frederick vom Saal harshly criticizes U.S. corporations and government regulators for covering up — or ignoring — the many health risks of BPA.

BY ELIZABETH KOLBERT

The chemical Bisphenol A, or BPA, has been much in the news lately. BPA is the building block for polycarbonate plastic — the sort of hard, clear plastic often used in water bottles — and it is found in everything from linings of metal cans, to the thermal paper used for cash register receipts, to the dental sealants applied to children's teeth. The chemical mimics estrogen, and in studies involving lab animals, exposure to BPA, even at very low doses, has been linked to a wide variety of health problems, from an increased risk of prostate cancer, to heart disease, to damage to the reproductive system.

Frederick vom Saal, a biologist at the University of Missouri's Endocrine Disruptors Group, is one of the world's leading researchers on the ill health effects of BPA in humans and animals. He is also one of the most outspoken critics of U.S. businesses and regulators for glossing over, or concealing, the major impact that BPA exposure is increasingly having on human health. Vom Staal is irate that even though BPA is quite similar to another

rsity of Missouri

Frederick vom Saal

synthetic hormone — DES, or Diethylstilbesterol — that caused myriad health problems in thousands of women in the 1940s and 1950s, federal regulators are only now beginning to take seriously the threat from BPA.

In an interview with *Yale Environment 360* contributorElizabeth Kolbert, vom Saal excoriated the U.S. chemical industry for attempting to quash research showing the dangers of BPA and for threatening him and other researchers. Vom Saal was equally critical of regulators from the U.S. Environmental Protection Agency (EPA) and other agencies, whom he says have relied on outdated studies, often funded by industry, to support claims that BPA is safe.

Vom Saal adamantly believes that BPA should be removed from all products as soon as possible, as was done a decade ago in Japan. Although the U.S. Food and Drug Administration (FDA) said earlier this year that the health effects of BPA represent "reason for some concern," the chemical still remains unregulated. Vom Saal maintains that the regulatory system has failed to protect U.S. consumers, adding, "It is a lie. It is a fraud. It is absolutely intolerable that this kind of thing is going on."

Yale Environment 360: Everyone's heard of BPA, but I really don't think people know what it is. What is it?

Frederick vom Saal: Bisphenol A is derived from petroleum. You take benzene, this sort of basic building block that corporations like Exxon produce, and they sell this to corporations like Dow Chemical. And they're the ones that turn this, through a manmade chemical reaction, into this

chemical called Bisphenol A. And this is an extremely reactive chemical that has the shape that any biochemist will look at and say, “This chemical will act as an estrogen-mimicking hormonal chemical.”

e360: This chemical was originally investigated by…

vom Saal: Charles Edward Dodds. He was a British chemist, one of the leading chemists of the 1930s and 40s, and he won the Nobel Prize for synthesizing a chemical — people would love to dig him up and take the prize away from him — called DES, diethylstilbesterol, which was given to millions of women and has destroyed the lives of many of them. They were looking for synthetic, orally-active estrogens. Bisphenol A is highly absorbed, unlike the natural hormones that are degraded almost immediately in the stomach. And DES is highly absorbed. DES is, both structurally and functionally, very similar to BPA. There are lots of other, much more sophisticated, 21st century molecular assays that show BPA is actually as potent, and in some cases more potent, than DES.

e360: And why can’t we use BPA, for example, as a birth control hormone?

vom Saal: For the same reason we can’t use DES. It’s a cancer-causing chemical. When fetuses are exposed to it, we now know that it is related to increasing body weight. Also obesity, diabetes, heart disease, immune dysfunction including asthma and allergy, damage to every part of the reproductive system, including uterine fibroids, ovarian cysts in women,

That is such a staggeringly small drop in an Olympic-sized swimming pool, and it’s causing breast cancers.”

breast cancer. In men, low sperm counts, prostate cancer, abnormalities of the urethra that as they age, men can’t urinate normally — a major reason men go to the doctor. We are talking about billions of dollars of medical costs. And then from a neuro-biological point of view, attention deficit hyperactivity disorder, some learning disabilities, social behavior disruption. It causes the brain of a young animal to look like a senile, aged adult, old person, and is part of impaired memory. This chemical is related to many of the epidemics in the world — diabetes, obesity, neural behavioral problems, reproductive abnormalities, decreases in fertility, early puberty in girls.

e360: So you have this estrogen-mimicking chemical. Why do we put it into so many products?

vom Saal: The idea that a chemist would study biology is new. Chemists who do chemical synthesis would look at that molecule and not see estrogen, okay. And they wouldn’t be aware that somebody had published that this was being considered to be a hormonal drug.

e360: But why is it in everything?

vom Saal: Well, this is a molecule that when you put it together, you make my hard and clear glasses. This is a great-looking product. The problem is that if you put it into hot material, put it in a base of a little bit of an alkaline environment, then the bonds break apart. When it’s in chain-linked form, its polymer form, these molecules are not hormonally active. But when they break away and they’re free, it’s a hormone.

e360: But let’s say I took the BPA out of this chemical. Why not just take it out?

vom Saal: Think of polycarbonate as a steel chain. And what you’re asking is — what if I take the steel out of that? You don’t have a steel chain. You can make that chain with something else, but it’s not going to have those characteristics. Now, actually they are making other polymer blends that have hard, clear characteristics. It’s taken them a long time to do that. In the 1950’s when they did this, they were euphoric. They had made something that superficially they thought looked like glass.

Now, as anybody who's had any kind of polycarbonate item knows, after washing it a hundred times or so, you can't see through it. Water starts penetrating it, breaking it down; it's dissolving. And under extreme conditions, you can take polycarbonate and put it in a saltwater solution and heat it up, and within 20 or 30 days, most of it is completely dissolved. It's just gone.

e360: So how did you identify it as something of concern?

vom Saal: We were studying estrogens and their effects on fetuses, because we know that your natural hormone, estradiol, the International Cancer Registry labels that as a Class I carcinogen. Your lifetime risk of breast cancer is best described by your lifetime exposure to your own

Dow Chemical said, 'Can we arrive at a mutually beneficial outcome, where you don't publish this paper?'"

natural hormone, estradiol. You need that to reproduce. But humans didn't used to live to 50 or 60. That wasn't part of evolution, and — oops, you're exposed to it that long, and then it's involved in causing cancers in your body. And all of these other estrogens contribute to the estrogen load, because your body doesn't know whether DES is estradiol or one of these other myriad of chemicals that can trick the body into thinking it's being exposed to estrogens. Bisphenol A is on a list of chemicals that had been shown very clearly to mimic the efficacy of the natural hormone, estrogen.

The mantra about Bisphenol A is, "Even if it is an estrogen, it's so weak, you don't need to worry about it." But that's like saying Arnold Schwarzenegger is weak relative to Superman. Because estradiol can act below a part-per-trillion. That is such a staggeringly small drop in an Olympic-sized swimming pool, and it's causing breast cancers. We are between 10 and a hundred to a thousand-million times lower than whatever toxicologists were thinking about. And what we did was, using human breast cancer cells, we were studying estrogen chemicals for their potency. And Bisphenol A lit up like a Christmas tree. We said, "Holy mackerel. What is it that would ever make anybody think this is weak?"

And we did an experiment, and we started off using a dose 25,000 times lower than anybody had ever studied. There had been one major NIH study on it. No one had really done a detailed examination of exposure during fetal and neonatal stages and childhood, when development's occurring, when estrogens really damage the programming of the way your body's going to function for the rest of life. This is what happened to the DES babies. At 20, they're showing cancers nobody had ever seen before. The problem is, you don't see them right away. Now, when you get into their uterus, it's shaped like an hourglass; the fallopian tubes are all damaged. And now at age 50, they have over a three-fold increase in breast cancer. It took 50 years to see that. This is the signature of endocrine disruption.

We published that, and the chemical industry came after us, threatening us. All of the manufacturers called us up, threatened us.

e360: What year are we in?

vom Saal: 1996. Then Dow Chemical sent somebody down and said, "Can we arrive at a mutually beneficial outcome, where you don't publish this

None of the regulatory agencies, which are heavily dominated by chemical industry interests, knew what to do with this."

paper?" — which had already been accepted. I got a call a few weeks later, from somebody who said, "I'm aware that the chemical manufacturers are gearing up for a multi-million-dollar campaign about how great BPA is for babies," borrowing a page out of Dutch Boy Paints, where, knowing lead

kills babies, they targeted it as making your baby happy. So what you do is you target the product at the sub-population it's actually going to seriously harm. These people are really sick. I mean somebody who would do that is, from my perspective, a sociopath.

e360: But now we're 14 years on, and how many studies later?

vom Saal: Okay, over 1,000. And what you have is regulatory agency after regulatory agency, locked into procedures decades out of date. And unable, they claim, due to their rules, to acknowledge the existence, literally of any modern science. It's like if you were to develop polio, we'd have to put you in an iron lung because our regulatory system doesn't allow any kind of modern approach to deal with this. But that's our chemical regulatory system.

None of the regulatory agencies, all of which are heavily dominated by chemical industry interests — they just didn't know what to do with this. And the choice is, they've got 100,000 chemicals in commerce. They actually have regulatory authority over a small number of them, because in the 1970's with the Toxic Substance Control Act, they grandfathered in 62,000 chemicals, including BPA, that are totally outside the regulatory system. So there's no regulation of BPA.

But in January, 2010, the FDA did something remarkable — it reversed its position that BPA is safe, and said we agree with our science advisory agency that there is reason for concern for prostate cancer, for early puberty, for a variety of things. This was a huge breakthrough. Now we actually have a government agency that has accepted that this is a chemical to be avoided. But they said, "We're sorry, but we do not have the authority to do that. We don't even have the authority to go to the chemical industry and say, 'What's this in?' We can't even find that out." It's a grandfathered chemical.

e360: What could [the FDA] do?

vom Saal: What the FDA said is, "We are working with Congress to try to get laws changed." But changing the rules that we operate by, if we had a compliant industry, would take five to 10 years. And this is one extremely non-compliant industry. It's almost a $10 billion-a-year product. You know, people don't give up that kind of money.

And 100 percent of chemical industry-funded studies say this chemical is completely safe. Have you heard this before? Every chemical, every drug

Every chemical you look at, follow the money and it will tell you the outcome of the research."

you look at, follow the money and it will tell you the outcome of the research. Independent scientists find harm. People either overtly or covertly working with chemical industry's interests are finding no harm. None of the industry and corporate labs have any standing whatsoever in the scientific community. And their research is pathetic because it's so totally out of date, and uses techniques that nobody would use in an experiment, and are 40, 50 years old.

e360: Could you just describe one of the experiments that your lab did?

vom Saal: The first finding we had was that it created an abnormal prostate in a mouse fetus. And then we published in the *Proceedings of the National Academy of Sciences* that you could actually, using a very sophisticated technique, take out the organ, you section it and scan it into a computer. You can say how many dorsal ducts there are, what are the characteristics of these ducts. Then we take these ducts coming out of the urethra and we stain them with special stains that identify exactly which types of cells are in there, and whether they're dividing or not. And what we found is the stem cells — worst of all things, because these are the cells that in adulthood transition and become the

cancer cells — and they're the target of Bisphenol A. And they're growing abnormally; the ducts are all grossly malformed.

We also fed BPA to a pregnant mouse, at a dose that was a thousand-fold difference between what could cause any effect, and then took her sons and identified that there were abnormalities in prostate development. Another group picked that up and treated rats with Bisphenol A. And in adulthood, they developed early stage prostate cancer. And this group was able to relate that to a change in programming of genes that were associated with the transition into prostate cancer in humans.

e360: So on a practical level — as a woman who fed all three of her infant sons out of plastic bottles — how worried do all of us parents have to be, and what can people practically do to avoid this ubiquitous chemical?

vom Saal: What we know is that estradiol and estrogens are risk factors for disease. And that means that if you take a hundred people, you know, seven or eight may get the disease, or ten, or more. And the other thing is that we know that among women, there's a hundred-fold variation in the degree to which women respond to oral contraceptives, for instance. So what you cannot say is the fact that you did this to your children means automatically they're going to have all these diseases. But it does increase

One of the things that I've done in our household is get rid of any kind of polycarbonate plastic."

their risk of various abnormalities that you would want to keep an eye on. But all of the diseases we're talking about are multi-factorial, and with BPA, the whole rest of an individual's lifestyle interacts with that. I mean, in our animals it is leading to obesity with no increase in eating. But it means that if you've been exposed to this and you start to show symptoms of obesity, you would want to take counter measures, recognizing that just having the person having eat what you eat, doesn't work — because this chemical, we find that it's reprogrammed genes in fat cells, to function differently. And they're putting more fat into their fat cells. Their fat cells are huge, compared to normal fat cells. They're just socking away more lipid in there. And there's nothing that person can do about it. But you can still control that person's diet and not allow that to happen. One of the things that I've done is, in our household, my wife and I, first of all, have gotten rid of any kind of polycarbonate plastic.

e360: Which means any kind of those hard plastic bottles?

vom Saal: Hard, clear that do not say BPA free. They contain other chemicals that I would not recommend being exposed to. And the water in there is not pure, nor is it regulated. The best thing you can do for your water supply is buy a good in-house filtering system, and use public water that's run through a reverse osmosis, carbon filter. And within a few months, relative to buying bottled water, you will be financially ahead. And you will be guaranteed to be drinking pure water. Okay. So the other thing is, any kind of water I put in a container, I put in a stainless steel container.

e360: And I once read you've said you only drink your beer out of bottles; we should not be using cans.

vom Saal: There is no canned product in the United States that does not have BPA, with a very few exceptions. So we use no canned products at our house. When the Japanese changed their can lining — which NAMPA, the National Association of Metal Packagers Association, claims that life on Earth would end if we took away BPA. Well, guess what? The Japanese did that. You don't find BPA in can linings in Japan.

There are a zillion alternatives to baby bottles [with BPA], and there are already alternatives to cans. So what [U.S. Senator Diane] Feinstein wants to do in the BPA bill is give the canning industry a finite amount of time to get it changed.

The other thing is when you change the can lining, you'd better change it to something that's gone through not the traditional regulatory agency nonsense, with out-of-date testing methods. You'd better get the experts in this field together and say, "How do I determine whether this has endocrine disrupting activity?" Other people in this community can tell you that. But you will not get that out of the U.S. EPA.

e360: All this raises rather alarming questions about whether we can really be confident of anything, or any chemicals that we're consuming. But your story suggests that even when we have very clear evidence that something is harmful, we can't get rid of it. So what faith should we have in this system at all? Any?

vom Saal: None. The system has fossilized to the point that it is absolutely perverting the sense that they are engaging in any kind of rational process

The system has fossilized to the point that it is perverting any rational process of evaluating the health effects of chemicals."

of evaluating the health effects of chemicals. A group of us from the Endocrine Society, representatives of a large medical society, told the head of the [EPA] Office of Chemical Safety, "You people have spent over $100 million; you do not have a credible set of assays, you have accomplished nothing except wasting a lot of money on non-bid contracts, for which you got no data. And the contract labs you're using are providing you garbage that are so out of range of acceptable performance limits. And you're declaring them usable."

And he rejected this. He got mad. We told him, "You don't know what you're doing. And unless you bring in endocrinologists who know how to study hormonally-active chemicals, you're going nowhere." And he didn't want to hear that. And he's going around telling people they have this wonderful program. It's a lie; it is a fraud; it is absolutely intolerable that this kind of thing is going on.

e360: Now, you must get this all the time, but people must say, "Oh, you're just being an alarmist." What do you say to those folks?

vom Saal: Look at the data. I mean, as a scientist, if you go beyond what the data show, you lose credibility and you're finished. One of the reasons that I have credibility in this field is that I have never done more than explained when I read that list of what this does, each of them are supported by piles of publications, from different laboratories. And that is the process of validation of scientific findings. If these studies were only done once in one place and nobody could replicate them, I would not be including them in a list of harm caused by this chemical. This is the highest volume endocrine-disrupting chemical in commerce. We don't know what products it's in. We know that in animals, it causes extensive harm. There are now a whole series of human studies finding exactly the same relationship between the presence of Bisphenol A and the kind of harm shown in animals.

That scares me. I don't think that's alarmist. This is a chemical about which we know more than any other chemical with the exception of dioxin. Right now, it is the most studied chemical in the world. NIH [National Institutes of Health] has $30 million of ongoing studies of this chemical. Do you think that federal officials in Europe, the United States, Canada, and Japan, would all have this as the highest priority chemical to study, if there were only a few alarmists saying it was a problem?

Commentary

An Extensive New Literature Concerning Low-Dose Effects of Bisphenol A Shows the Need for a New Risk Assessment

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Bisphenol A (BPA) is the monomer used to manufacture polycarbonate plastic, the resin lining of cans, and other products, with global capacity in excess of 6.4 billion lb/year. Because the ester bonds in these BPA-based polymers are subject to hydrolysis, leaching of BPA has led to widespread human exposure. A recent report prepared by the Harvard Center for Risk Analysis and funded by the American Plastics Council concluded that evidence for low-dose effects of BPA is weak on the basis of a review of only 19 studies; the report was issued after a delay of 2.5 years. A current comprehensive review of the literature reveals that the opposite is true. As of December 2004, there were 115 published in vivo studies concerning low-dose effects of BPA, and 94 of these report significant effects. In 31 publications with vertebrate and invertebrate animals, significant effects occurred below the predicted “safe” or reference dose of 50 µg/kg/day BPA. An estrogenic mode of action of BPA is confirmed by in vitro experiments, which describe disruption of cell function at 10– 12 M or 0.23 ppt. Nonetheless, chemical manufacturers continue to discount these published findings because no industry-funded studies have reported significant effects of low doses of BPA, although > 90% of government-funded studies have reported significant effects. Some industry-funded studies have ignored the results of positive controls, and many studies reporting no significant effects used a strain of rat that is inappropriate for the study of estrogenic responses. We propose that a new risk assessment for BPA is needed based on a) the extensive new literature reporting adverse effects in animals at doses below the current reference dose; b) the high rate of leaching of BPA from food and beverage containers, leading to widespread human exposure; c) reports that the median BPA level in human blood and tissues, including in human fetal blood, is higher than the level that causes adverse effects in mice; and d) recent epidemiologic evidence that BPA is related to disease in women. Key words: bisphenol A, dose response, endocrine disruptors, low dose, nonmonotonic, risk assessment scientific integrity. Environ Health Perspect 113:926–933 (2005). doi:10.1289/ehp.7713 available via http://dx.doi.org/ [Online 13 April 2005]

Bisphenol A (BPA) is a known environmental estrogen that is used as the monomer to manufacture polycarbonate plastic, the resin that is used as linings for most food and beverage cans, as dental sealants, and as an additive in other widely used consumer products. BPA is one of the highest-volume chemicals produced worldwide; global BPA capacity in 2003 was 2,214,000 metric tons (> 6.4 billion lb), with 6–10% growth in demand expected per year (Burridge 2003). Heat and contact with either acidic or basic compounds accelerate hydrolysis of the ester bond linking BPA molecules in polycarbonate and resins. Specifically, heating of cans to sterilize food, the presence of acidic or basic food or beverages in cans or polycarbonate plastic, and repeated washing of polycarbonate products have all been shown to result in an

increase in the rate of leaching of BPA (Brotons et al. 1995; Consumers Union 1999; Howdeshell et al. 2003; Kang and Kondo 2002; Kang et al. 2003; Olea et al. 1996; Raloff 1999). In addition, another potential source of human exposure is water used for drinking or bathing. Studies conducted in Japan (Kawagoshi et al. 2003) and in the United States (Coors et al. 2003) have

shown that BPA accounts for most estrogenic activity that leaches from landfills into the surrounding ecosystem. Convincing evidence that there is widespread exposure to BPA is shown by the finding of Calafat et al. (2005) that 95% of urine samples from people in the United States examined by the Centers for Disease Control and Prevention (CDC) have measurable BPA levels [range, 0.4 ppb (10th percentile) to 8 ppb (95th percentile); median = 1.3 ppb]. As described by Calafat et al. (2005), these levels are consistent with findings from other countries. For example, levels of unconjugated (parent) BPA in human blood and tissues are also in the same 0.1–10 ppb range (Ikezuki et al. 2002; Schonfelder et al. 2002) detected by Calafat et al. (2005) in urine. Because there is evidence that BPA is rapidly metabolized (Volkel et al. 2002), these finding suggest that human exposure to significant amounts of BPA must be continuous and via multiple sources. A relationship between blood levels of BPA and body fat in women has been reported (Takeuchi et al. 2004). In this commentary, we document for the scientific, public health, and regulatory

communities that exposure of experimental animals to “low doses” of BPA, which result in tissue levels within and even below the range of human exposure, has been related to adverse effects in a large number of recently published studies. A recent case–control study reporting that blood levels of BPA are related to ovarian disease in women (Takeuchi et al. 2004) adds to our concern. A large number of in vitro studies show that effects of BPA are mediated by both genomic and nongenomic estrogen-response mechanisms, with disruption of cell function occurring at doses as low as 1 pM or 0.23 ppt (Wozniak et al. 2005). Although the focus of most studies of effects of BPA has been on its estrogenic activity, recent reports indicating the potential to disrupt thyroid hormone action (Moriyama et al. 2002; Zoeller et al. 2005) mean other modes of action must also be considered. Very low part-per-trillion doses of BPA also cause proliferation of human prostate cancer cells via binding to a mutant form of the androgen receptor expressed in a subpopulation of prostate cancer cells (Wetherill et al. 2002), although BPA acts as an androgen antagonist in the presence of the wild-type androgen receptor (Lee et al. 2003; Paris et al. 2002) and can also block testosterone synthesis (Akingbemi et al. 2004). A comprehensive document containing all of the low-dose BPA references, as well as information concerning mechanisms of action, pharmacokinetics, sources of exposure, and exposure levels in humans, is available online (Endocrine Disruptors Group 2005). Our current conclusion that widespread exposure to BPA poses a threat to human health directly contradicts several recent reports from individuals or groups associated with or funded by chemical corporations [Association of Plastics Manufacturers in

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Self-fertilization in human: having a male embryo without a father.

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Author information

Abstract

Chimeras are the result of fusion of two zygotes to form a single embryo, producing an individual with genetically different kinds of tissue. If the fused zygotes are of different sex, the individual develops both ovarian and testicular tissues. The majority of these people are best reared as females and many pregnancies with living offspring have been reported in persons reared as females, and several cases has fathered a child. During ovulation, a negative pressure occurs in the lumen of the oviduct and it produces a vacuum effect which has made several pregnancies possible in subjects lacking an ipsilateral ovary by allowing the transperitoneal migration of oocyte from the contralateral gonad. Self-fertilization was reported in many flowering plants, in a kind of fish and in a case of rabbit. They have both eggs and sperms in their body and at fertilization, one sperm cell fuses with oocyte to form an embryo. Self-fertilization may also occur in human. A scenario is presented here for a woman to have a son without a father: she is a chimera of 46,XX/46,XY type resulting from the fusion of two zygotes of different sex types and she develops both ovary and testis in her body. Since XX cells tend to gather on the left side while XY cells on the right, she develops an ovary on the left side with a oviduct and a testis on the right side located in an ovarian position with no duct. Müllerian duct regression on the right side is mediated by the antimüllerian hormone derived from the ipsilateral testis and testosterone secreted from Leydig cells does not prevent the regression of the Wolffian duct. Therefore, neither an oviduct nor an epididymis and vas deferens is present next to the testis on the right side, and lumens of a well-developed rete testis have an open access to the abdominal cavity allowing the sperms to be picked-up by the contralateral oviduct. Both gonads are functional and produce spermatozoa and oocyte respectively after puberty. At the time of ovulation, estrogens increase the motility of the oviduct on the left side which results in a negative pressure in the tube and oocyte and sperms are picked-up into the tube with the help of this vacuum effect, taking both gametes to the fertilization site in the oviduct. Since the sperm contains a Y chromosome, this fertilization gives rise to a XY male embryo.

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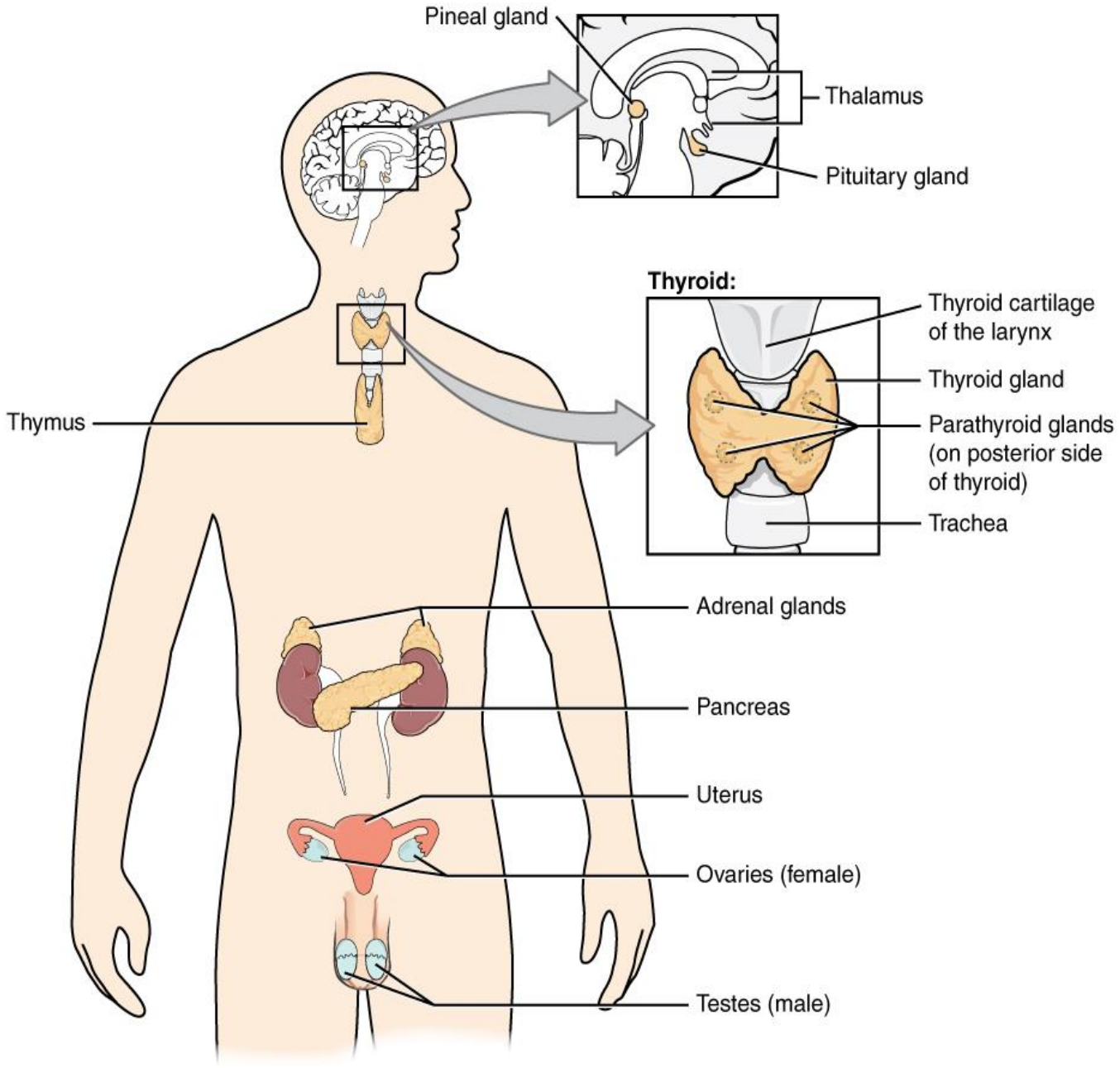
Structures of the Endocrine System

The endocrine system consists of cells, tissues, and organs that secrete hormones as a primary or secondary function. The **endocrine gland** is the major player in this system. The primary function of these ductless glands is to secrete their hormones directly into the surrounding fluid. The interstitial fluid and the blood vessels then transport the hormones throughout the body. The endocrine system includes the pituitary, thyroid, parathyroid, adrenal, and pineal glands (Figure 1). Some of these glands have both endocrine and non-endocrine functions. For example, the pancreas contains cells that function in digestion as well as cells that secrete the hormones insulin and glucagon, which regulate blood glucose levels. The hypothalamus, thymus, heart, kidneys, stomach, small intestine, liver, skin, female ovaries, and male testes are other organs that contain cells with endocrine function. Moreover, adipose tissue has long been known to produce hormones, and recent research has revealed that even bone tissue has endocrine functions.

https://opentextbc.ca/anatomyandphysiology/chapter/17-1-an-overview-of-the-endocrine-system/



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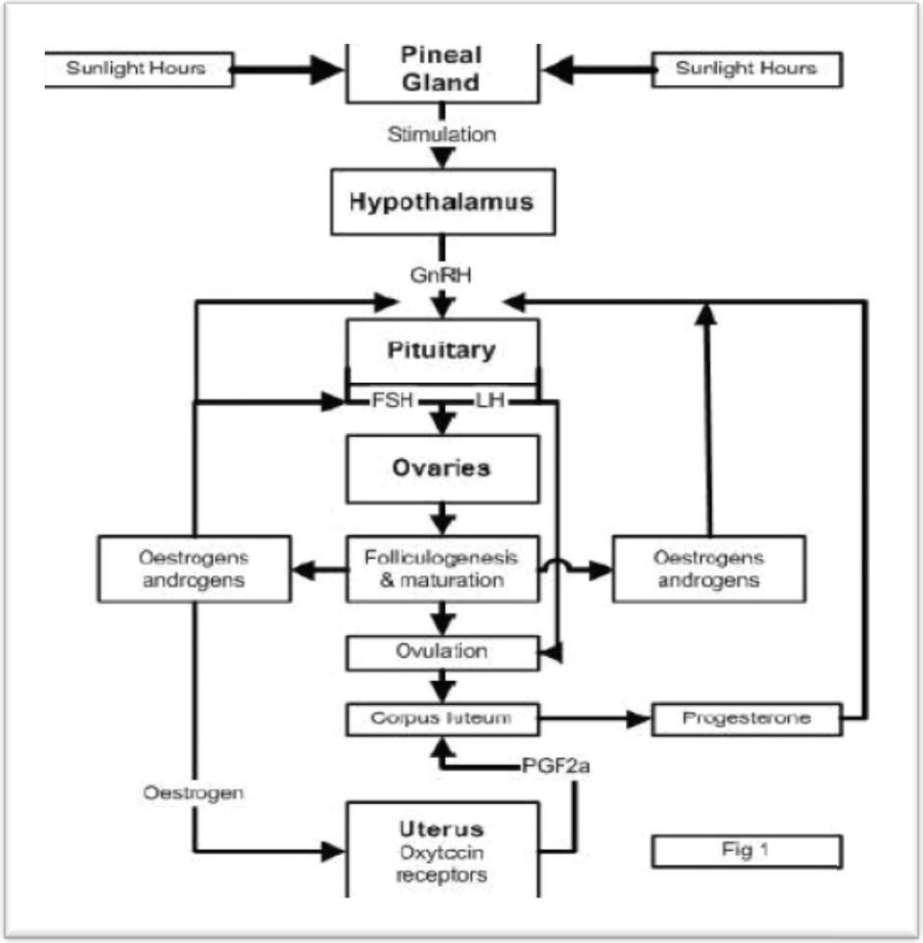
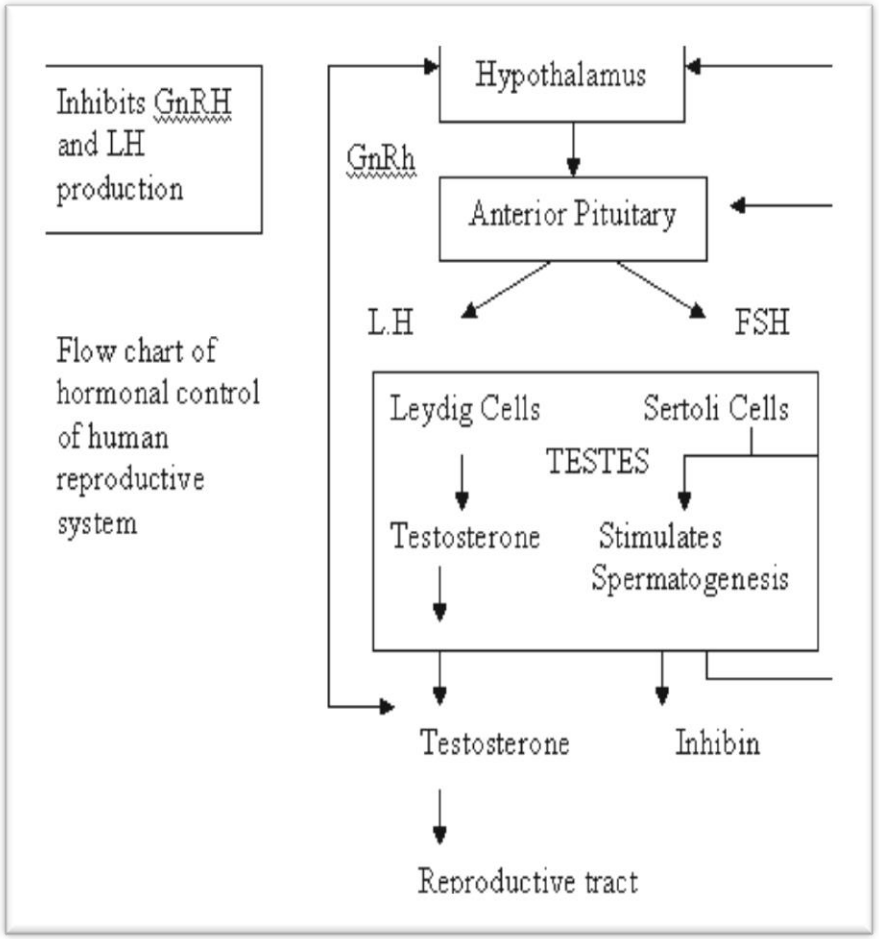
Schematics of the Male and Female Reproductive Hormones and Organs that Control Them.

FEMALE



MALE



These diagrams are included in this collection to particularly represent the role of the BRAIN *and organs contained in the brain* in gender related processes. Identity is suggested to be housed in the hypothalamus but this is not confirmed. https://steinhardt.nyu.edu/appsych/opus/issues/2011/spring/gender_identity_development

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More research on gender related endocrine disruption issues,

Mainly contributed by Dr. Warren Porter,

Environmental toxicologist, zoologist, U of WI, Madison

http://www.theglutensyndrome.net/Gonad_hormones_and_brain_develop_78.pdf

http://www.theglutensyndrome.net/Disruption_of_androgen_receptor_signaling_in_males_by_environmental_chemicals_11.pdf

http://www.theglutensyndrome.net/Estrogenic_env_chemicals_Mechs_for_effects_on_the_developing_male_urogenital_system_11.pdf

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Section 3

Cases of Gender Alteration

with a simple worksheet to chart the alterations noted in the preceding cases

The purpose of this section is to demonstrate the variety of alterations, visible or otherwise, that may occur in our children. Many persons struggle with the issue of how to correctly identify/accept a gender altered child or an older person's true gender.

These cases and others represent that it is possible for every facet of gender to be altered. In the end the only constant is the identity that the affected persons themselves know they are or are not, even in the case of gender fluid.

The worksheet is a reminder that gender relevant anatomy is above as well as below the neck.

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A Genetic Male Gives Birth

Hayley Haynes, Woman Born Without A 'Womb,' Gives Birth To Twin Girls Via Hormone Therapy

Feb 2, 2015 05:55 PM By Lizette Borreli @lizcelineb l.borreli@medicaldaily.com

An English woman born without a "womb" and told by doctors she would never conceive defied all odds and gave birth to not one but two girls. Hayley Haynes, then 19, was told by specialists she had been born with XY chromosomes, meaning she was genetically male with no reproductive organs. Now, Haynes and husband Sam, both 28, are overjoyed to have become parents via hormone therapy after a tough nine years of what they thought would be a childless future.

The mother of two gave birth naturally on Christmas Eve. Although they were premature, the girls were healthy, and Haynes is ecstatic about the successful birth. “Becoming a mother was the single most amazing moment of my life. When I held the babies in my arms for the first time I was overwhelmed. I had spent nine years coming to terms with the fact this might never happen, but in that moment all the pain just washed away,” said Haynes, the *Mirror* reported.

The new mother did not know she was growing up differently until she was 19 and had not started her period, despite going through other signs of puberty. Haynes was diagnosed with androgen insensitivity syndrome, a genetic condition, inherited (except for occasional spontaneous mutations) where a person is genetically male but is resistant to male hormones, according to Medline Plus. In other words, the person, like Haynes, has some or all of the physical traits of a woman but the genetic makeup of a man.

Haynes's hopes of being a mother were shattered until specialists found a tiny womb missed on previous scans in 2007. Although she couldn’t conceive naturally, she could have the option of in vitro fertilization (IVF), which her womb was ready for in 2011. Haynes had a 60 percent chance of being pregnant through IVF.

The couple successfully conceived after using Sam’s sperm and harvesting 13 eggs, two of which were viable. Six weeks later and pregnant, Haynes found out both eggs had taken and she was expecting non-identical twins. “I couldn't believe it. I freaked out, but I was over the moon at the same time. I had the chance to have a complete family,” Haynes said. Sam added: “I felt numb with excitement. It was two for the price of one.”

The twin girls were born on Christmas Eve prematurely but healthy, with Avery (5 pounds, 3 ounces) and Darcey (4 pounds, 6 ounces).

Now more than ever, it seems women have had medical help to have their babies. The latest annual report from the Society for Assisted Reproductive Technology showed doctors in in vitro fertilization clinics in the U.S. performed 165,172 procedures, including IVF, with 61,740 babies born as a result of those efforts in 2012. Doctors recommend women to give birth to a single baby because even with medical advances like IVF treatment, multiple births can still be risky for mothers and babies alike.

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Endocrine disruption examples:

A genetic XX female who presented as male and fathered daughters only

Dr. Don Huber: My genetics teacher at Michigan State University had all girls so he decided to test his chromosome composition and found out that he was XX and could only have girls genetically. This may have been from his mothers use of DES or other anti morning sickness prescriptions used at the time he was still in the womb. We know that the situation is reaching almost epidemic proportions from research on pigs in Denmark (Ib Pederson), people in Argentina (Doctors reports of (glyphosate) on sprayed towns), and reports in this country. When I was in Germany, I was told that the German Parliament had recently passed a bill that parents no longer had to list the sex of the child at birth, but had some time after to record it. This would give them time to do the genetics testing before rushing into surgery where both, neither or variable phenotypes were manifest. When you consider the high rates of infertility and other reproductive failures (miscarriage, abortion) common today along with this type of damage and it's implications for the future, humanity is well on the way to becoming an endangered species.

Questioner: I have a question about your professor who had XX chromosomes. Did this person have characteristics that suggested a female orientation, (build, habits, mannerisms, etc.) or did this person appear as a fully masculinized male ?

Dr. Huber: "He was within the broad range of masculine phenotype appearance although on the lighter and shorter side."

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The extraordinary case of the Guevedoces

- 20 September 2015

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The discovery of a small community in the Dominican Republic, where some males are born looking like girls and only grow penises at puberty, has led to the development of a blockbuster drug that has helped millions of people, writes Michael Mosley.

Johnny lives in a small town in the Dominican Republic where he, and others like him, are known as "Guevedoces", which effectively translates as "penis at twelve".

We came across Johnny when we were filming for a new BBC Two series Countdown to Life, which looks at how we develop in the womb and how those changes, normal and abnormal, impact us later in life.

Watch the second episode of Countdown to Life: The Extraordinary Making of You, Against the Odds, on BBC Two at 21:00 on Monday 21 September, or **catch up afterwards on iPlayer**.

Like the other Guevedoces, Johnny was brought up as a girl because he had no visible testes or penis and what appeared to be a vagina. It is only when he approached puberty that his penis grew and testicles descended.

Johnny, once known as Felicita, remembers going to school in a little red dress, though he says he was never happy doing girl things.

"I never liked to dress as a girl and when they bought me toys for girls I never bothered playing with them - when I saw a group of boys I would stop to play ball with them."

When he became obviously male he was taunted at school, and responded with his fists.

"They used to say I was a devil, nasty things, bad words and I had no choice but to fight them because they were crossing the line."

We also filmed with Carla, who at the age of seven is on the brink of changing into Carlos. His mother has seen the change coming for quite a while.

"When she turned five I noticed that whenever she saw one of her male friends she wanted to fight with him. Her muscles and chest began growing. You could see she was going to be a boy. I love her however she is. Girl or boy, it makes no difference."
Image copyright

So why does it happen? Well, one of the first people to study this unusual condition was Dr Julianne Imperato-McGinley, from Cornell Medical College in New York. In the 1970s she made her way to this remote part of the Dominican Republic, drawn by extraordinary reports of girls turning into boys.

So why does it happen? Well, one of the first people to study this unusual condition was Dr Julianne Imperato-McGinley, from Cornell Medical College in New York. In the 1970s she made her way to this remote part of the Dominican Republic, drawn by extraordinary reports of girls turning into boys.

When she got there she found the rumours were true. She did lots of studies on the Guevedoces (including what must have been rather painful biopsies of their testicles) before finally unravelling the mystery of what was going on.

When you are conceived you normally have a pair of X chromosomes if you are to become a girl and a set of XY chromosomes if you are destined to be male.

For the first weeks of life in womb you are neither, though in both sexes nipples start to grow.

Then, around eight weeks after conception, the sex hormones kick in. If you're genetically male the Y chromosome instructs your gonads to become testicles and sends testosterone to a structure called the tubercle, where it is converted into a more potent hormone called dihydro-testosterone This in turn transforms the tubercle into a penis. If you're female and you don't make dihydro-testosterone then your tubercle becomes a clitoris.

When Imperato-McGinley investigated the Guevedoces she discovered the reason they don't have male genitalia when they are born is because they are deficient in an enzyme called 5-alpha-reductase, which normally converts testosterone into dihydro-testosterone.

This deficiency seems to be a genetic condition, quite common in this part of the Dominican Republic, but vanishingly rare elsewhere. So the boys, despite having an XY chromosome, appear female when they are born. At puberty, like other boys, they get a second surge of testosterone. This time the body does respond and they sprout muscles, testes and a penis.

Imperato-McGinley's thorough medical investigations showed that in most cases their new, male equipment seems to work fine and that most Guevedoces live out their lives as men, though some go through an operation and remain female.

Another thing that Imperato-McGinley discovered, which would have profound implications for many men around the world, was that the Guevedoces tend to have small prostates.

This observation, made in 1974, was picked up by Roy Vagelos, head of research at the multinational pharmaceutical giant, Merck. He thought this was extremely interesting and set in progress research which led to the development of what has become a best-selling drug, finasteride, which blocks the action of 5-alpha-reductase, mimicking the lack of dihydro-testosterone seen in the Guevedoces.

My wife, who is a GP, routinely prescribes finasteride as it is an effective way to treat benign enlargement of the prostate, a real curse for many men as they get older. Finasteride is also used to treat male pattern baldness.
A final interesting observation that Imperato-McGinley made was that these boys, despite being brought up as girls, almost all showed strong heterosexual preferences. She concluded in her seminal paper **that hormones in the womb matter more than rearing when it comes to your sexual orientation**.

This is still a controversial topic and one I explore later in the film when I meet Mati, who decided from the earliest age that though "he" looked like a boy, Mati was really a girl.

As for Johnny, since he developed male genitalia he has had a number of short term girlfriends, but he is still looking for love. "I'd like to get married and have children, a partner who will stand by me through good and bad," he sighs wistfully.

The number of children aged 10 and under who have been referred to NHS support services to help deal with transgender feelings has more than quadrupled in the last six years, the Victoria Derbyshire programme has learned. Here is the story of two of the youngest transgender children in the UK - with permission from their parents and with the support of the children's schools.

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Inside the Beltway, Under the Radar

Dr. Dana Beyer

April 3, 2011

Sex (gender) is not just an anatomical condition rooted in our genitals.

Sex (gender) is determined in our brains.

So says Dr. Dana Beyer and I'm inclined to believe her. She's been through a lot.

However, we live in a society in which the anatomical part, that is to say the existence of a penis or a vagina, determines our sex. People like a definitive answer, "boy or girl," "yes or no," "true or false," "black or white." The vast majority of our culture finds it impossible to see that sometimes the answer may be gray.

We seem to need to set our children up from the very first breath when, with the bend of a doctor's head, the words "It's a girl!" or "It's a boy," are declared. It is at that point, just seconds after birth, that the raising of a certain kind of child usually begins.

It's what happened to Dr. Dana Beyer, a retired eye surgeon and future candidate for District 18 of the Maryland State Legislature, when she was born.

The problem for Beyer, who is also vice-president of Equality Maryland, was that she was declared a he. In all fairness to the obstetrician, it was the early 1950's and Beyer did have a penis. But after that, fairness has nothing to do with Beyer's story. It would be 50 years before Beyer would hear the words, "It's a girl!" celebrating the birth of her real self, the person she always knew she was even though she appeared to be a boy and then later a man. Dr. Beyer's story is by all means unbelievable, overwhelming, wrought with complexity, heart wrenching and worst of all, muddled with political and social complexities.

Beyer's story begins in utero when her mother began taking a drug that turned out to be highly poisonous. Though the drug was eventually taken off the market, it was used for two more decades, until 1971, wrecking havoc on thousands and thousands of lives. Though Thalidomide got loads of press because its side effects were visible -- physically deformed children -- the drug Beyer's mother took, DES, had invisible side effects that took decades to uncover. It appeared to be a miracle drug, helping curb the onset of miscarriage, but "DES was the worst drug disaster in history," Beyer says. "Thalidomide everyone knows, but DES is really the worst mistake in history. It was marketed as a wonder drug. My mother, who was Phi Beta Kappa, was a smart woman. She took the drug and regretted it. She knew it was wrong but her doctor told her to take it. There was no informed consent," says Beyer.

It was 1951 and Beyer was a growing fetus in her mother's uterus. The problem was, that Beyer had an X and a Y chromosome; she was actually a male fetus, growing male body parts. Testicles had already begun to develop when Beyer's mother flooded her own body with DES and the drug crossed the placental barrier and entered Beyer's growing fetal body and brain. "I was flooded with estrogen. It over-determined my life. I blamed my mother for 50 years. I had a penis at birth and so I was called a boy, I was raised as a boy and I felt awful all my life. Most kids know their gender identity by the age of 3. I remember feeling that I wasn't a boy when I was 7. It took me some time to recognize I was a girl, but it was hard given that I had a penis. I spent years unobtrusively observing my mother and the other women in my life, as well as the girls in school. When I finally came out to my parents, they threatened to have me institutionalized in the local state mental hospital. This was a decade before de-institutionalization and these facilities were often horrendous. Electroshock therapy was common. There is a wonderful book by Dylan Scholinski, entitled, "The Last Time I Wore a Dress, which deals with this time in a similar situation in the 80's."

While puberty is hard on any teenager, imagine what is must have been like for Beyer who didn't know that while she had a penis on the outside she also had a partial uterus on the inside. "Having to go through one normal puberty is hard enough. To go thro' the wrong puberty is so difficult. When I was 12 I started menstruating through my penis. I had gotten my period. I hid the bloody clothing from my mother for months, until the pain became excruciating. I underwent months of repeated weekly medical treatments, silver nitrate being injected retrograde into my penis is a futile attempt to cauterize the bleeding. There was no ultrasound or CT scanning in those days; an IVP, or Intravenous Pyelogram, showed distended kidneys. Soon I went into renal failure, followed by septic shock and a near-death experience. After a surgical procedure and three weeks of IV antibiotics, I was sent home to undergo more months of the same treatments, which I came to understand as both rape and torture. I paid a very heavy price, but my growth spurt and the pubertal hormones finally shut down the bleeding."

Dr. Beyer survived her teen years as a boy: high school, college, etc. and went off to medical school. It was there that the world came crashing down, a Messianic moment you could say, when Beyer found out about DES during a medical school rotation. "I first heard

about DES during my Gynecology rotation in 1976 (I was graduated in 1978), though the drug had been removed from the market in 1971 and catalyzed the women's health movement, including the publication of books like, "Our Bodies, Ourselves." The information just sat there, and I brought it up with my mother on my next visit home. She matter-of-factly remarked that she had taken it, and even though she wished she hadn't, it was clear she hadn't miscarried me. She knew the drug was no longer being prescribed because of the cancer link, but since we were not speaking about my gender variance, the issue just did not arise for another decade, until 1986 when the Edelman book, "Diethylstilbestrol – New Perspectives," was published."

In 1976, a year after high school, Beyer got married and confessed the belief she'd held all her life, that while she looked like a man, she was really a woman. While they both were confused by this reality, they ended up having two boys. "I was fortunate that my sperm were functional enough." Though Beyer and her first wife eventually divorced, it was not the gender issue that caused their marriage to dissolve.

Beyer came clean long before her second marriage, too, explaining that she wanted to have a transgender operation, to finally be the woman she had always known she was. Beyer says wife number two said, "'If you want to do this, I'll be there with you,' but in the end she didn't want to live with a woman," Beyer says, and the second marriage ended too. Beyer had continued to live like a man knowing that one day she would have the courage to go through with the operation. As for her boys, from the onset she had always planted the seed in her children's heads hoping that one day her children would no longer call her Dad. "I prepared my kids early on. I said 'Daddy is a little different than other Daddies. Your Daddy likes girl things."

It was after 9-11 that Beyer finally summoned the courage to go through with the transition. It was September 20th, 2001, just days after 9-11. "All my friends from elementary school were going to be at a friend's wedding and I decided to stop thinking of myself as a victim. I decided to have the courage to finally be myself. When I told my kids, they were fine. The younger one said, 'C'mon, Mom, let's go to Target and buy some jeans." Her boys were concerned about how DES might have affected them because it does have third generational effects, but once Beyer asked her boys how they felt about themselves and their sexuality, she let them know they had nothing to worry about.

Beyer's story and the story of all transgender individuals makes people uncomfortable. Asked what people fear, Beyer says candidly, "they fear the loss of the certainties that underpin their world. They become comfortable with the familiar, and soon learning new ideas and meeting new people becomes arduous. Surprises, once welcome to the child, become anxiety-provoking to the adult. This holds across the board for some people regarding modernity, and the loss of those certainties regarding sexuality, which were never there in the first place but were artfully hidden by society, frightens those with a certain mindset."

Think like a man, Think like a woman:

The transgender operation is a major undertaking, both physically and emotionally. From the physical, or surgical standpoint, transitioning from male to female is easier, Beyer says, because it's "easier to dig a hole than build a pole, but it's more difficult presenting as a woman in society," Beyer adds. There is "much heavier scrutiny." As for female to male transformation, "bearded, balding trans men fit right in because no one looks too closely. Their voices drop, they put on the uniform and slide into male society. When they act assertively they are welcomed, unlike the women who are shunned as bitches for being too masculine."

Beyer says she doesn't know what it's like to think like a man. "I don't know what it is like to be a man because I was never a man in my mind. In my brain I've always been a woman." But she does know what it's like in the proverbial men's locker room and that is as much a curse as it is a blessing. "I know what the men say and I know how afraid women are. As a man I was welcomed to stand up and make my a point known. Now as a woman I'm a pushy bitch … it's awful for women."

Gender identity and sexual orientation

Gender identity is who you are: We are who we are based on our brain sex. Brain sex manifests as gender identity, our consciousness of our sex. We have nuclei in our hypothalamus that make us feel like we are women or men.

Sexual orientation is whom you love: Though reactionaries "lump us all together, lesbian, gay, bi, transgender," the reality is transgender is very different than gay, says Beyer. "In order to get their objectives to move forward, the gay community has needed to marginalize transgender. In fact, the gay movement says that transgender women are actually men who don't want to admit that are really gay and want to sleep with men but can't admit it. Again, they have reduced sex to sexual relations."

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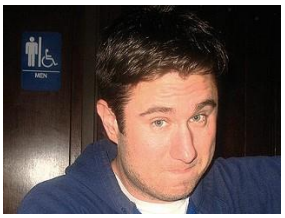


Jim Bruce was born with XY male chromosomes but ambiguous genitals. Doctors couldn't be sure if he had a large clitoris or a small penis and were convinced he could never live a "satisfactory life" as a man. So shortly after his birth in 1976, Bruce's external organ and testes were surgically removed and he was raised as a girl.

He struggled for years, preferring "rough and tumble" play and being attracted to girls.

"I was unhappy, but it was really difficult to ask questions," said Bruce, now a 34-year-old writer from California.

At 12, Bruce was given female hormones so his body would feminize. Then, at 18, he prepared for a vaginoplasty -"designed to allow me "to have sex with my husband."

But he knew something was wrong and, battling depression, sought his medical records when he was 19. "I knew that I wasn't a girl," he said.

Bruce's discovery was horrifying. "I was sterilized at birth -- and no one ever told me,"

An estimated 1 in 2,000 children born each year are neither boy nor girl -- they are intersex, part of a group of about 60 conditions that fall under the diagnosis of disorders of sexual development (DSD).

Once called hermaphrodites, from the handsome Greek god who had dual sexuality, they are now known as intersex.

Standard medical treatment has been to look at the genitals, determine the gender and then correct it surgically. But now, many are challenging the ethical basis of surgery, knowing that gender identity is complex, and doctors can sometimes get it wrong, not knowing how a child will feel about their gender assignment when they grow up.

Advocates argue that surgery is irreversible and can have tragic consequences. In Bruce's case, he has been rendered infertile.

In some surgeries on virilized girls with ambiguous genitalia, removing sensitive tissue and vessels can ultimately rob them of sexual sensation as adults.

Bruce was born with a DSD that prevented his body from producing enough testosterone to properly develop his genitals. After discovering the truth, he transitioned back to a man, taking testosterone shots and having his breasts removed.

Today Bruce works with Advocates for Informed Choice, a legal group to that promotes the civil rights of those who are born with sex variations.

Jim Bruce, a 34-year-old writer from California, was born with ambiguous genitalia.

"It wasn't that long ago, and parents were often led to believe they were doing the best thing for the child," he said. "They still don't know anything now, and they don't do any follow up."

At first he blamed his parents, but later realized, "they were only kids, 27 and 29, and they were scared. I never had any doubt my parents loved me very much."

As little as a decade ago, the medical community thought of gender as a slate that could be erased and then redrawn.

Today, gender identification is still not well understood, but experts say that when sex cannot be determined, it's better to use the best available information to assign gender, then to wait and monitor the child's psychological and physical development before undertaking surgery, if at all.

Waiting until puberty also allows the child to participate in the decision.

"Our chromosomes don't tell us who we are," said Dr. Arlene Baratz, a Pittsburgh breast radiologist who has two intersex daughters. "We expect XX is pink and a girl and XY is blue and a boy, but we know from children with gender identity conditions that is not always the case, even when their bodies are perfectly typical."

Assign Gender, But Wait for Surgery

"Today, we anticipate how the child will feel as an adult and what they feel inside," said Baratz. "That is called gender identity and the gender role is how we live in society as a man or a woman. So gender assignment is aimed at putting gender identity and role in sync with each other as the child grows older."

Baratz's daughter Katie was born with male chromosomes, but has a DSD called complete androgen insensitivity syndrome (cAIS). Because her androgen receptors are faulty, Katie developed female characteristics. She has a vagina, but no uterus or ovaries. When she was 6, doctors discovered small testes in a hernia sac.

Today, at 26, Katie is married and in medical school hoping to one day be a child psychiatrist. Though she is infertile, she hopes to become a parent through adoption or gestational surrogacy.

"These girls look completely female and they are girls," said her mother. When these cAIS babies are gender assigned as female, 99 percent of them go on to feel like women when they grow up.

But in a similar disorder, partial androgen insensitivity syndrome (pAIS), doctors can't always be sure. Because they have been affected by some androgen, about 50 percent of them do not accept the gender that is assigned to them.

Baratz, who works with advocacy groups like the Accord Alliance pushes for more support for parents and children dealing with intersexuality.

"They are made to feel ashamed," she said. "It would be good for families if someone said there may be an issue, but there is support for this. They are made to feel, even by the medical community, as something shameful." "A lot of urologists argue strongly for surgery," she said. "There is a place for waiting and allowing children to have some voice in the decision and wait for long term effects or until something better is available. It's important to talk to them about what we don't know."

Stanford University has set up a multidisciplinary committee to explore these ethical issues and hopes soon to launch a DSD clinic.

Dr. Hsi-Yang Wu, a pediatric urologist at Stanford, sees a case of intersex about "once or twice a year," but endocrinologists may consult with two or three families a month.

"The surgical approach has become much more nuanced in terms of who needs surgery," said Wu. "Early on, we assumed all children with DSD got surgery. But things have changed."

The spring issue of Stanford Medicine magazine describes a baby with a potentially life-threatening form of the endocrine disorder, congenital adrenal hyperplasia.

Born with XX female chromosomes, the baby had ovaries, a uterus and fallopian tubes, a clitoris that looked more like a penis and partially fused labia.

The condition accounts for about 60 percent of all DSDs. The adrenal glands lack an enzyme to make the hormones cortisol and aldosterone, and so the girls' bodies create more androgen.

As a result, their genitals, and some say their brains, are masculinized and they must take daily hormone medication to stay alive.

At the age of 6 months, the baby had surgery to reduce the size of her clitoris and open her labia. She'll need another one at puberty to widen the vaginal canal.

Wu said doctors no longer use a surgical technique that pulls the clitoris under the pubic bone, which can cause painful orgasms in adulthood. He uses a nerve-sparing technique that removes the erectile portion of the clitoris.

"In this kind of case, she didn't fit into the typical DSD classification and it made it challenging," he said. "We try to predict what the gender identity will be, and three or four years later, the child psychologist can give us some kind of idea."

Parents are also confused. "It's so hard to accept that my child will look different to anyone who changes the diapers," said Wu. "Some parents are so torn by the fear that they will make the wrong choice and mess up the child forever."

Hormones are identical in children until they reach puberty, but by the time they are about 12 their bodies can change.

"The thing we worry about is if something starts to kick in when they age and they are not the sex we raised the child," he said. "What do we do then?"

Who Protects the Child's Rights? Anne Tamar-Mattis, executive director of Advocates for Informed Choice, worries about the legal side of this complicated issue, especially when it involves sterilization without a child's consent.

"We don't weigh in on what medical decisions people should make," she said. "We weigh in on children's rights. If the decision involves sterilization, the child has a right to court oversight."

And when parents are making these complex decisions to remove the child's reproductive organs, they must be fully informed. Often, they are not, she said.

Katrina Karkazis, senior research scholar at Stanford's Center for Biomedical Ethics and author of "Fixing Sex: Intersex, Medical Authority and Lived Experience," agrees that "the child can't speak for him or herself."

The American Academy of Pediatrics' Consensus of Care was established in 2006 to address treatment of intersex disorders.

"Everyone agrees there must be gender assignment," she said. "In a good scenario, the physician makes a decision with a lot of reflection and without rushing in to anything and in consult with the parents."

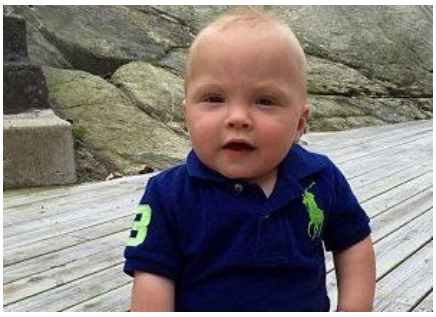
The number of children who don't accept their gender assignment is small, according to Karkazis. (This is no longer believed to be necessarily true. Many older patients attest to a wrong medical decision at their birth) "What's missing is these families and kids don't get the appropriate social and psychological support."

She recommends that doctors "check in" with the child over his or her life span and "find out what they are feeling."

Behavior is not always the best indicator. "Pay attention to what child a child is ***telling*** you -- there may be a switch which needs to be evaluated with expertise," she said. "Plenty of kids go through phases -- I am a girl or I am a boy -- and it ends after a year. But one thing that is irreversible is surgery."
"Once you've removed the tissues, you can't put them back," she said. "It's infinitely more complicated and for the most part, you cannot replace a phallus."

Lancet. 2015 Feb 14;385(9968):607-616.
doi: 10.1016/S0140-6736(14)61728-1.
Epub 2014 Oct 6.

Livebirth after uterus transplantation.



Brännström M[1], Johannesson L[2], Bokström H[3], Kvarnström N[4], Mölne J[5], Dahm-Kähler P[2], Enskog A[6], Milenkovic M[2], Ekberg J[4], Diaz-Garcia C[7], Gäbel M[4], Hanafy A[8], Hagberg H[9], Olausson M[4], Nilsson L[2].
Author information

Abstract

BACKGROUND: Uterus transplantation is the first available treatment for absolute uterine infertility, which is caused by absence of the uterus or the presence of a non-functional uterus. Eleven human uterus transplantation attempts have been done worldwide but no livebirth has yet been reported.

METHODS: In 2013, a 35-year-old woman with congenital absence of the uterus (Rokitansky syndrome) underwent transplantation of the uterus in Sahlgrenska University Hospital, Gothenburg, Sweden. The uterus was donated from a living, 61-year-old, two-parous woman. In-vitro fertilisation treatment of the recipient and her partner had been done before transplantation, from which 11 embryos were cryopreserved.

FINDINGS: The recipient and the donor had essentially uneventful postoperative recoveries. The recipient's first menstruation occurred 43 days after transplantation and she continued to menstruate at regular intervals of between 26 and 36 days (median 32 days). 1 year after transplantation, the recipient underwent her first single embryo transfer, which resulted in pregnancy. She was then given triple immunosuppression (tacrolimus, azathioprine, and corticosteroids), which was continued throughout pregnancy. She had three episodes of mild rejection, one of which occurred during pregnancy. These episodes were all reversed by corticosteroid treatment. Fetal growth parameters and blood flows of the uterine arteries and umbilical cord were normal throughout pregnancy. The patient was admitted with pre-eclampsia at 31 full weeks and 5 days, and 16 h later a caesarean section was done because of abnormal cardiotocography. A male baby with a normal birthweight for gestational age (1775 g) and with APGAR scores 9, 9, 10 was born.

INTERPRETATION: We describe the first livebirth after uterus transplantation. This report is a proof-of-concept for uterus transplantation as a treatment for uterine factor infertility. Furthermore, the results show the feasibility of live uterus donation, even from a postmenopausal donor.

FUNDING: Jane and Dan Olsson Foundation for Science.

Comment in:

- Uterine transplant: new medical and ethical considerations. [Lancet. 2015]
- Re: Livebirth after uterus transplantation. [J Urol. 2015]
- Livebirth after uterus transplantation. [Lancet. 2015]
- Livebirth after uterus transplantation. [Lancet. 2015]
- Livebirth after uterus transplantation - Authors' reply. [Lancet. 2015]
- Legal and ethical issues of uterus transplantation. [Int J Gynaecol Obstet. 2016]

PMID: 25301505 DOI: 10.1016/S0140-6736(14)61728-1 [Indexed for MEDLINE]

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Gender Worksheet					
Female XX	**Male XY**	**Chromosomal Mutations**	**Asexual**	**Gender Fluid**	**7 Aspects of Personhood**
					Genetics
					Anatomy
					Hormones
					Attraction
					Identity
					Role
					Spiritual

"To the eunuchs (transgender/intersex) who keep my Sabbaths,
choose what pleases Me and hold fast to My covenant --
5 to them I will give within My temple and its walls
a memorial and a name better than sons and daughters;
I will give them an everlasting name that will endure forever. Isaiah 56:4,5

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Approximate stats on gender injuries.

Not XX and not XY 1 in 1,666 births

Klinefelter (XXY) 1 in 1,000 births

Androgen insensitivity syndrome 1 in 13,000 births

Partial androgen insensitivity syndrome 1 in 130,000 births

Classical congenital adrenal hyperplasia 1 in 13,000 births

Late onset adrenal hyperplasia 1 in 66 individuals

Vaginal agenesis 1 in 6,000 births

Ovotestes 1 in 83,000 births

Idiopathic (no discernable medical cause) 1 in 110,000 births

Iatrogenic (progestin administered to pregnant mother) no estimate

5 alpha reductase deficiency no estimate

Mixed gonadal dysgenesis no estimate

Complete gonadal dysgenesis in 150,000 births

Hypospadias (urethral opening in perineum or along penile shaft) 1 in 2,000 births

Hypospadias (urethral opening between corona and tip of glans penis) 1 in 770 births

Total people whose bodies differ from standard male or female 1 in 100 births

Total people receiving surgery to "normalize" genital appearance 1 or 2 in 1,000 births

~~

Chimerism is not listed. If twins are conceived and the two "zygotes" (fertilized ovum) fuse instead of developing separately, or if one child dies early on and the living twin absorbs the dna from its sibling, a chimeric baby may develop. The child will possess two sets of dna that may each appear randomly in various tissues and organs. If the twins were opposite gender the child may develop some tissues that are male and some that are female. This may be visible or not depending on the tissues affected. The incidence of chimerism is hard to estimate since mom usually has no idea she originally carried twins. Endocrine disruptor chemicals are capable of creating twins and also shown to be capable of killing babies in utero so chimerism may more prevalent than previously appreciated. Here is a documentary of such examples.
https://www.youtube.com/watch?v=dFf5gKiTGlo&t=8s

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August 08 update

More transgender persons have been murdered! Seventeen (17) transgender/intersex/transsexual* persons so far this year 2017.

Murder rates are very high among persons with this serious, usually environmental alteration. Most states allow their murderer to use the "transgender panic" defense to avoid the murder charge.

~

Transgender suicide attempt rates are also incredibly high.

42.5% = 46% !!

About 32% actually die in the attempt. That's 14 in 100 transgender persons die of suicide, compared to 4.6% in the general population.

These numbers do not reflect additional suicides among the many more uncounted or unidentified (and miserable) transgender people.

These people have very difficult lives that they would NEVER choose or wish on others. And, like all of us, they crave love, acceptance and family.

Pray that these sweet babies being born into our families will be spared these increasingly common, often initially hidden and usually chemically related, endocrine disrupting injuries. And pray for those already born, this whole community.

You may unwittingly pray for someone you know and love.

* Transgender/transsexual/intersex persons are born both male and female in countless variations between their genetics, anatomy, hormones, attractions,and gender identity. ~~ Often this happens in utero. Can these injuries occur after birth from environmental exposures? Some scientists suspect "yes" particularly from aborted fetal cell vaccines.

Chemicals implicated in these horrific gender related injuires include many common pesticides and herbicides, most plastics including some BPA substitutes, sunscreens, flame retardants, dry cleaning chemicals, artificial fragrances, some hair chemicals, mercury, and vaccines that contain fragmented human DNA from fetal cells obtained from male and female aborted babies who are dissected alive.

To view vaccine ingredients, see tinyurl.com/excipientlist

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Section 4 – Resources and Definitions

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Gender Alteration Resources

Compiled by Mrs. Olive Kaiser with scientific support from Dr. Warren Porter, Dr. Fred Vom Saal, and others

This is a work in progress. More information is welcome on any related topic.

Please contact Mrs. Olive Kaiser jka8168@gmail.com 630-808-2079 cell, text

The goal of this project is to promote understanding and awareness of gender alteration, a few of its less known causes, challenges, and environmental factors.

TYPICAL USES OF TERMS

Hermaphrodite – a person anatomically both male and female. This does not refer to sexual attraction or behavior.

Intersex – a current replacement term for hermaphrodite and covers a broader scope of anatomical alterations. Most intersex people identify either male or female but possess characteristics of both genders. This term does not refer to sexual attraction or behavior.

Transgender.- Likely a subset of "intersex". Literally means "across gender" – describes someone who appears to be anatomically male or female but who identifies opposite in the core of who they "are". There are disrupted developmental processes that can account for this dissonance between body anatomy and brain anatomy/function and likely more to discover. This category is often wrongly accused of mental illness or demon possession. "Transgender" does not refer to sexual attraction or sexual behaviors, but to "identity" vs. body anatomy.

> **Gender fluid** – a difficult transgender category in which apparently normally stable functions become dynamic and the person's core identity changes or is fluid. It is not hard to suspect an environmental influence (chemical) is responsible.
>
> **Agender** – a transgender category in which the person does not identify male or female. Gender specific characteristics such as breasts may be very distressing to the person.

Same sex attraction or homosexual attraction – A person whose identity is in sync with their anatomy but who is sexually attracted to their own gender, ie, male attracted to male, or female attracted to female. Same sex attraction is not behavior, and same sex behavior should never be assumed to follow same sex attraction. Environmental chemicals have been shown to interfere with male to female attraction and create homosexual attractions in laboratory animals and in the wild.

Same sex behavior – commonly termed homosexuality, gay (male) or lesbian (female) is sexual behavior between persons of the same gender.

Cis gender – normal fully male and female persons in every way, dna, hormones, anatomy, identity, and attractions

Cross dresser_- This is a cis gender male or female, usually male, who for entertainment dresses in opposite gender persona and parades usually in a distant neighborhood. These people are happy in their true cis gender, and if they run into trouble they are back home in their suits and ties. They have no interest putting up with the social rejection endured by true gender altered people. However it is not unusual for true gender altered people to first believe they are cross dressers and then realize they are truly gender altered. Truly gender altered people as children and adults both often privately cross dress to their true gender to relieve their dysphoria for years before they reluctantly conclude they are actually intersex. A quote in the intersex community is that the difference between a cross dresser and intersex/transgender is about 5 years. (or 10 or ???)

Drag Queen – Drag queens are cross dressers who perform onstage for pay.

LGBTQIA – Lesbian= female to female attraction **Gay**= male to male attraction, **Bisexual**= male and female attraction, **Transgender** = Opposite Identity and sexual anatomy, **Questioning** is just that, **Intersex**= varied male and female characteristics, formerly termed hermaphrodite , **Agender** = Identity is neither male nor female

Sex = Reproductive anatomy **Gender** = Male/Female Identity or other

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One page Cliff's Notes version of gender alteration resources for lay persons

Here are starter resources on 3 known causes of gender alteration

1. Endocrine disrupting chemicals

Below is a key lecture by Dr. Warren Porter. It is probably the best one lecture I have found for basic physical information on the effects of chemicals on our bodies and our children's development. It helps for lay persons to print the powerpoint and sit down to listen with the slides in front of you. Later the lecture can be replayed over and over while in the kitchen, car, etc. until the more sciencey points are easier to understand.

a. Dr. Warren Porter - University of Wisconsin, Madison professor of Environmental Toxicology/zoologist

   http://www.theglutensyndrome.net/MOSES15-Porter_Benbrook-GMOWhatDoWeKnowPlus2010Q&AFinal.mp3

b. Here's the powerpoint for the above lecture - **http://theglutensyndrome.net/Risk_Management-15.pdf**

c. Dr. Fred Vom Saal, plastics - **www.pbs.org/wgbh/pages/frontline/shows/nature/interviews/vomsaal. html**

   Here is Dr. Vom Saal's call for a new risk assessment of BPA, see page 14 for methods corporate scientists used to hide the estrogenic effects of their chemicals, including using a special strain of rat that was bred to be insensitive to the effects of the chemicals being safety studied.
   www.theglutensyndrome.net/VomSaal_RiskAssessment_ehp0113–000926.pdf

Endocrine disrupting chemicals include many pesticides and herbicides including RoundUp, atrazine, dioxins, DDT, many plastic additives including BPA, and BPA substitutes BPS, BPF and similar, phthalates, polycarbonates, artificial fragrances, sunscreens, dry cleaning chemicals, flame retardants, chlorine, fluoride, mercury and more.

2. Chimerism

Chimerism may occur when male/female twins are conceived and one dies early on in the pregnancy. The living opposite gender twin may absorb and incorporate dna from its deceased sibling. This may but not necessarily, cause the living twin to be both male and female. Here is a documentary on chimerism, (neither case in this documentary caused intersex in the living twin, but it explains chimerism and mentions another case of a chimeric hermaphrodite child)

https://www.youtube.com/watch?v=dFf5gKiTGlo

3. Aborted fetal cells in vaccines and insertional mutagenesis

A possible connection between gender identity disorder and aborted opposite gender fetal dna in vaccines has been raised by Marcella Piper-Terry, a vaccine investigator and autism mom. (She brings up possible gender identity disorder at the end of this short clip.) **https://www.youtube.com/watch?v=RU2BDZL3OFY&t=14s**
Her website is **vaxtruth.org** and her video **http://vaxtruth.org/2017/06/pro-life-you-cant-be-pro-vaccine/** contains research in the powerpoint that suggests this concern.

The Transgender Handout

Finally here is a work in progress lay collection of various resources on understanding gender alteration, gender altered people, and their unique and yet increasingly common situations.

http://theglutensyndrome.net/TransgenderHandout.pdf.

This is a one page Cliff's Notes resource. The following pages are Deep Dive resources and links.

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Deep Dive Resources for Gender Alteration

Here are books I have found helpful so far.

Our Stolen Future by Theo Colburn https://**endocrinedisruption**.org

Toxic Bodies by Nancy Langston Detailing the DES (diethylstilbestrol) disaster

Raising Ryland by Hillary Whittington (raising a transgender child)

The Female Brain, and The Male Brain by Dr. Louann Brizendine, (male/female brain/body differentiation in utero)

Here is a list of outspoken scientists who are on available on YouTube and there are many others internationally who are reporting similar research.

Dr. Warren Porter – agricultural endocrine disrupting chemicals – U of Wisconsin Madison
Dr. Tyrone Hayes - Atrazine and frogs - Berkeley
Dr. Lou Guillette - alligators in polluted Florida lakes (Lou is now deceased)
Dr. Fred Vom Saal - plastics (Dr. Vom Saal is now retired) – ZU of Missouri Columbia
Dr. Theo Colburn - endocrine disruptors in general – she is now deceased https://**endocrinedisruption**.org
Dr. Don Huber - agricultural chemicals – Military colonel, professor emeritus Purdue
Dr. Theresa Deisher - aborted fetal cells https://cogforlife.org/
Dr. Louann Brizendine – differentiation of female and male brains, corresponding fetal development and factors that interfere.

Here is the vaccine excipient list. several vaccines contain various cell lines of aborted human diploid fibroblast fetal cells. (WI-38 is lung tissue dissected from an aborted baby girl, MRC-5 from an aborted baby boy, WALVAX 2 from a 3 month living aborted baby girl) **https://www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/b/excipient-table-2.pdf**
Here is an overview - **https://informedchoicewa.com/human-fetal-cells/**

Here is a **pubmed.gov** search of simply the words "endocrine disruption". There are over 6 thousand hits. Usually gender alteration appears on the first page of the search.
https://www.ncbi.nlm.nih.gov/pubmed/?term=endocrine+disruption

Dr. Louann Brizendine, MD has written A Woman's Brain and The Male Brain, and several of her lectures are on Youtube. She explains how male and female brains are differentiated in utero around the 8th week of development. She mentions at least one of the factors that can interfere and cause the brain and rest of the body to be out of sync with each other in one of her lectures.

Here are two landmark articles written by a Baptist pastor, Mark Wingfield of Dallas, Texas..
https://baptistnews.com/article/seven-things-im-learning-about-transgender-persons/#.WzA9LKdKjIU
Followup article: **https://baptistnews.com/article/painful-lessons-from-a-pastors-viral-transgender-post/#.WzA9VKdKjIU**

A more recent article by Mark Wingfield
https://baptistnews.com/article/why-being-transgender-is-not-a-sin/#.XDdxaVxKjIU

We can learn the facts and reality and experience of gender alteration and help these precious people live loved, accepted lives of significance and honor.

Emails from Dr. Warren Porter, Professor of Zoology and Environmental Toxicology, U of Wisconsin, Madison

Hi Olive,

Here are 4 new papers on Roundup that you should see.

Also will send you a link to an important new video in the next email. I meant to say it is suspected that there is mammary tissues in male breasts in the Yaqui Valley children, who in puberty have large, very tender breasts. The girls do not have mammary tissue in their breasts, only fat. That was determined by palpitation.

Best wishes, Warren

Dear Olive,

I [am] happy to … speak about neurological, endocrine and immune effects of pesticides. I would like to show … some of the massive global changes that are occurring in each of those three categories and also educate …about the potential threats of genetic and epigenetic modifications due to exposure to them. The feminization or masculinization that can occur due to the two most common herbicides currently in use, roundup and atrazine, do not result in partial gender changes, but rather the whole body-brain and gonads are influenced by the balance of testosterone to estrogen (see the second slide) which is what can get shifted and lead to changes in sexual behavior. Tyrone Hayes has demonstrated this very well with frogs and Bruce McEwen showed how pseudo-estrogens can alter human sexual preferences in 1987

Hope this helps you some.

Best, Warren

Hi Olive,

Here are some scientific papers on issues of interest to you. By "whole body/brain and gonadal changes" I was trying to point out that sex hormones affect more than just the gonads' development. The sex center of the brain and its development can also be modified as Tyrone Hayes has shown for frogs and as Bruce McEwen has shown in people with his studies of diethylstilbestrol, a pseudo-estrogen.

Sex hormones are particularly important in affecting embryonic development and they are effective in the parts per trillion-parts per quadrillion range, as Fred Vom Saal has been shown in rats

.I am still teaching and researching full-time. Hope these papers help illustrate the breadth and complexity of low levels of chemicals in our bodies, especially during embryonic development.

Best regards, Warren (wpporter@wisc.edu)

The role of the church?

Dear Olive,

Thank you so much for taking all the time not only in the conversation but in forwarding all of this rich supply of research to me!

I hated that I had to leave so abruptly but I suddenly realized how close the time was to my next session. I appreciated your last point and have pondered it since we hung up. So many things change when we know the stories of other people along with their accompanying emotions and pain.

We certainly do have a huge assignment as the church to begins to deal with all of this differently.

Thank you so much for being faithful to the call of God on your life not to overlook what He set before you in the lives of each person dealing with an aspect of this issue.

I look forward to future contacts!

Blessings to you,
XXX

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• A Woman’s Brain - https://www.dobsonlibrary.com/resource/article/d582579a-c379-4784-a393-bd6739c8becf

• The testosterone surge occurs when the newly developed testicles begin secreting testosterone. Timing is split second and crucial in fetal development. Estrogenic substances and hormone disruptions can block or disrupt this event. (Dr. Warren Porter speaks of this phenomenon in the lecture below.

• http://www.theglutensyndrome.net/MOSES15-Porter_Benbrook-GMOWhatDoWeKnowPlus2010Q&AFinal.mp3
PowerPoint slides - http://theglutensyndrome.net/Risk_Management-15

• Name correction - Dr. Louann Brizendine, MD Publications http://www.drlouannbrizendine.com/#publications

• Front Neuroendocrinol. 2011 Apr;32(2):214-26. doi: 10.1016/j.yfrne.2011.02.007. Epub 2011 Feb 18.
Sexual differentiation of the human brain: relation to gender identity, sexual orientation and neuropsychiatric disorders. Bao AM1, Swaab DF.

During the intrauterine period a testosterone surge masculinizes the fetal brain, whereas the absence of such a surge results in a feminine brain. As sexual differentiation of the brain takes place at a much later stage in development than sexual differentiation of the genitals, these two processes can be influenced independently of each other. Sex differences in cognition, gender identity (an individual's perception of their own sexual identity), sexual orientation (heterosexuality, homosexuality or bisexuality), and the risks of developing neuropsychiatric disorders are programmed into our brain during early development. There is no evidence that one's postnatal social environment plays a crucial role in gender identity or sexual orientation. We discuss the relationships between structural and functional sex differences of various brain areas and the way they change along with any changes in the supply of sex hormones on the one hand and sex differences in behavior in health and disease on the other.

PMID: 21334362 DOI: 10.1016/j.yfrne.2011.02.007 [Indexed for MEDLINE]

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Excerpts with comments from "A Woman's Brain"

By Dr. James Dobson

BOYS

"The brains of both sexes appear to be "female" until

about the eighth week of gestation,...when a baby boy's brain is washed by a huge surge of testosterone" (when the newly formed testicles begin secreting that hormone.)

"It is then transformed radically and even takes on a different color. This,...has major implications for future masculine behavior." It is now a male brain.

GIRLS

"To understand...girls, it is important to understand...a period *between six and thirty months of age* when the ovaries produce huge amounts of estrogen...

Just as testosterone marinates baby boy's brains in early gestation, estrogen bathes the female brains of girl babies and toddlers."*

What happens when these crucial testosterone and estrogen brain baths don't happen properly? or are blocked by chemicals that are hormone mimics or that mutate the dna, or ??

Answer - Babies sometimes end up with "pink" brains but "blue" bodies, or vice versa. They are not mentally ill, their brains are fine, but are opposite gender to their bodies. In our toxic, polluted world, we need to let these dear people tell us who they are. We can accept their persons and help them live beloved moral lives of significance and honor.

It helps to understand what might have happened to our gender altered children, especially since the 1940's when DDT, DES, dioxins, and now many others were in use. These include RoundUp, Atrazine, other pesticides and herbicides, phthalates, BPA, BPS, BPF, and other plastic additives, flame retardants, artificial fragrances, sunscreens, mercury, chlorine, soy, dry cleaning chemicals and others.

*This fascinating article in its entirety can be found on Dr. James Dobson's digital library, A Woman's Brain, quoting Dr. LuAnn Brizendine, Yale University

Dr. Warren Porter - University of Wisconsin, Madison professor of Environmental Toxicology/zoologist

http://www.theglutensyndrome.net/MOSES15-Porter_Benbrook-GMOWhatDoWeKnowPlus2010Q&AFinal.mp3

Powerpoint slides - http://theglutensyndrome.net/Risk_Management-15

- http://www.theglutensyndrome.net/MOSES15-Porter_Benbrook-GMOWhatDoWeKnowPlus2010Q&AFinal.mp3

  PowerPoint slides - http://theglutensyndrome.net/Risk_Management-15
- A Woman's Brain - https://www.dobsonlibrary.com/resource/article/d582579a-c379-4784-a393-bd6739c8becf
- The testosterone surge occurs when the newly developed testicles begin secreting testosterone. Timing is split second and crucial in fetal development. Estrogenic substances can block or disrupt it.
- Name correction - Dr. Louann Brizendine, MD Publications http://www.drlouannbrizendine.com/#publications

* Front Neuroendocrinol. 2011 Apr;32(2):214-26. doi: 10.1016/j.yfrne.2011.02.007. Epub 2011 Feb 18.
Sexual differentiation of the human brain: relation to gender identity, sexual orientation and neuropsychiatric disorders.
Bao AM1, Swaab DF.

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Military Service

Transgender people are blessed to fully comprehend that
this body does not define our spirit.
Just to be able to accept ourselves,
to live our truth in a society
that still to this day falsely sees us as an abomination
or as lost souls.
And be proud [confident, valiant] of our reality
takes the heart of a warrior,
whether in the service or not.
To ban these soldiers only weakens our troops
and creates a distraction
from the goals
that are claimed to be the focus.
If you truly care about the direction of our country,
I encourage you to examine the other side of this coin,
not by going on the word of a man you have never met.
or by reading some post a friend of yours shared
Actually reach out
to individuals in your circle of *real life* friends
that you know have a better understanding.
You may be enlightened."

~~

Written by a beloved gifted gender altered person