

XLogP3-AA

-2.6

Computed by XLogP3 3.0 (PubChem release 2021.05.07)

Hydrogen Bond Donor Count

1

Hydrogen Bond Acceptor Count

15

Computed by Cactvs 3.4.8.18 (PubChem release 2021.05.07)

Rotatable Bond Count

17

Computed by Cactvs 3.4.8.18 (PubChem release 2021.05.07)

Exact Mass

1006.43648793

Computed by PubChem 2.1 (PubChem release 2021.05.07)

Monoisotopic Mass

1006.43648793

Computed by PubChem 2.1 (PubChem release 2021.05.07)

Topological Polar Surface Area

69.4

Computed by Cactvs 3.4.8.18 (PubChem release 2021.05.07)

Heavy Atom Count

69

Computed by PubChem

Formal Charge

0

Computed by PubChem

Complexity

1870

Computed by Cactvs 3.4.8.18 (PubChem release 2021.05.07)

Isotope Atom Count

0

Computed by PubChem

Defined Atom Stereocenter Count

0

Computed by PubChem

Undefined Atom Stereocenter Count

0

Computed by PubChem

Defined Bond Stereocenter Count

0

Computed by PubChem

Undefined Bond Stereocenter Count

0

Computed by PubChem

Covalently-Bonded Unit Count

1

Computed by PubChem

Compound is Canonicalized

Yes

Computed by PubChem (release 2021.05.07)

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## **Table of contents**

1. Cover
2. Table of contents
3. Cryptosporidium
4. Water softeners
5. Hydration
6. Birthwork traditions
7. Scaling
8. Water, Lactation, and Access
9. Water Quality Info
9. Nitrates
9. How do we trust who regulates the water?
9. How do we check the water quality of our wells?
10. Filtration

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**Rachel Stewart**

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wastewater treatment

### **Book recommendation:**

What The Eyes Don't See by Dr. Mona Hanna Attisha

"She was a doctor in Flint, and she had patients, moms, new moms coming to her and saying 'can I make formula with this water even if it looks weird?' She was a great pioneer in bringing forth action for the Flint water crisis."

- Rachel Stewart

Disclaimer: the content of this zine is unedited dialogue from community members, and as such reflects the contributors' thoughts and beliefs. It is not intended to be an educational resource, but a snapshot of community perception based in a particular time.

# CRYPTOSPORIDIUM

It only takes one time to lose public trust.

- Rachel

I don't know if anybody remembers the cryptosporidium- when that first hit the scene my entire family got sick with it. My mother was not a fan. I was probably like 8 or 9 years old when we first got sick from the water. My parents came over from London in the mid 70s and I was born in 79, but they were born in St Lucia, where in their time there has never been an issue with water and water quality. So when they moved here to Wisconsin from London they never trusted the water here. Growing up, my mother would boil water. Especially after we got sick with cryptosporidium. So that's what I always remember, my mother at that point saying we're not even boiling water, we're going with bottled water, and she is still the same to this day. It definitely had an impact on me, and after I left home I was still that diligent, I still don't trust the tap water. And I grew up in Milwaukee. Cryptosporidium was a bacteria that was bred in the water system, the filtration system in Milwaukee, prior to them doing a complete rehaul of their water. I remember it being in the news for years. It contaminated a lot of the water supply and a lot of people got sick. I remember getting sick and having to go to the doctor and them saying yeah, it was because of the water, and just hearing about it in the news. Even after that overhaul my mom was like we're not trusting it ever again. -Dale

Growing up in Racine, or anyone who grew up on Lake Michigan, at least in the Wisconsin area, you're going to know about cryptosporidium. That's because the water source for drinking water along the eastern coast of WI is the Great Lakes, and we have a lot of water systems combined. Stormwater and sewer systems sometimes overflow into Lake Michigan- that's going to breed that cryptosporidium. We have much better ability to deal with it now than we did back in the 90s and the one thing I'll say is anyone who camps and finds water sources in nature, that's typically why they recommend you filter your water instead of drinking from a stream. A deer or some other animal's feces can get in the water and that's where cryptosporidium lives. It's common in nature, we just don't want it in our drinking supply. Anyone who pulls water from the great lakes and has combined storm and sewer systems is going to have cryptosporidium at some point. The key is knowing it's happening so when you actually pull the water for drinking water you're able to deal with it correctly so people don't get sick. I think a lot of the issue is that people don't know and then people get sick and then everyone is like oh, we've got cryptosporidium! So it's a little backwards. I think we do a much better job now of realizing ahead of time so we can put precautions in place. - Martye

It's a protozoa that's highly resistant to chlorine, which is how our water is disinfected, so it's removed during the filtration process. I believe during the cryptosporidium outbreak the filters in the Milwaukee plant weren't operating correctly, so now we have better standards for how a water filtration plant has to be operating to better avoid cryptosporidium breaking through. - Rachel



## WATER SOFTENERS

You said that drinking hard water wasn't necessarily dangerous but is there a benefit, health or otherwise, to using something like a water softener?

It's supposed to remove those excess ions. - Rachel

Our groundwater comes from rock well below the surface, like limestone, sandstone. Rocks that are porous have water in them, so we get water from there. It's pumped up and it comes to our homes. These water softeners will take out the calcium and magnesium so that it doesn't precipitate out in your water, but we normally don't soften our cold water. What you're drinking isn't softened. People don't like the taste of softened water. The cold tap water isn't softened. Calcium and magnesium kind of end up like a chalky substance but they're not harmful to us- it's more of a nuisance. The things we don't really know about we tend to be more fearful about. The water softener isn't really treating the water to make it any different for drinking, it's just trying to keep that stuff from coming out. - Kathy



# HYDRATION

My connection with water is myself. We're mostly made up of water- hydration is so important to me, hydration is key. I have my water bottle with me all the time. - Dale

The first thing that I pack in my birth bag when I go to a birth is bottles of water, because I need to be hydrated throughout all of this, and part of our job as a doula is to make sure that our clients are hydrated. We're seeing that they're taking all of the water that they need, signs of dehydration mimic signs of infection so we are very pushy about them drinking water. If my water is not enough and I sometimes don't have a break from when my client needs me, I usually stop at the Kwik Trip and get a bottle of water, put that in my bag and go. For the postpartum period I may face some more barriers especially if I want to bring my clients infusions. I like to make something with pineapple skin, I do that with nettle leaves and red raspberry leaf and cinnamon so they don't have high blood pressure and brew and bring that for my postpartum visit. That usually happens the day that they come home from the hospital. I cannot use tap water for that so I usually have to pay for the water at Woodmans. I have to pay for these treats that I wanna do and this is not something I can do at their house because it takes a lot of time. - Rabsaris

Did you say treats? Yeah? To me, they're treats, yes, but I think they're also necessary. In order to promote that healing postpartum. I'm gonna echo the hydration, there's one thing that I always talk about and I always push or encourage my clients to make sure that they hydrate. Especially during the last trimester and when you get closer and when you start feeling contractions a little bit more. Not necessarily like you're going into labor but hydration and dehydration can spur on contractions. Because you're dehydrated, your uterus becomes more irritable. So again drinking water is one of those things that can calm that down so you don't get that crampy feeling, the pressure, and then the opposite when you're actually in labor and making sure you're hydrated because dehydration can cause the contractions to slow down. So make sure that you're intaking and eliminating. These are things that push labor along. It's just so important to stay hydrated throughout pregnancy, especially the last part of pregnancy, especially labor and delivery and all of the postpartum. And so when you're talking about access, when you are living in a poor community and it's a food desert in and of itself, right, not just first food but also a food desert, so there's no accessible grocery stores, you have to be able to drive to get water. And if you have a doula hopefully the doula can drive and get that water for you. We used to live over in this area on the west side by Fitchburg and they closed down the Cub Foods and the Target and Hy-vee are miles away. So all they had is a gas station. They even closed down the Walgreens that was near. So there's no access to bottled water. So then you are reliant on the tap water and have to trust that again. Put this trust in the Madison filtration system. What if you say [to your client] "Oh yeah, it's okay to give your baby the water" and then they get sick? Are they gonna relate that back to the water? Are they gonna blame you? But you have to feed your baby, so there are barriers to access and that's the biggest hurdle in trying to help. Getting a doula and having somebody be able to bring you bottled water and clean water is priceless. I want everybody to have that access and that's like the biggest thing. Pregnancy and hydration. That's my connection with water, hydration. The fact that we are made up of water and we need it to survive and being able to make sure that my clients- it's more than just surviving, you wanna thrive. You wanna thrive during pregnancy and you wanna thrive during postpartum because that's then how your babies can thrive and having access to clean water is crucial in all of it. - Dale

## BIRTHWORK TRADITIONS

I don't know if anyone knows the situation in Venezuela but things there are really not okay, economically and politically, and haven't been for a really long time. It shows up back there with infrastructure, especially in the cities and the little towns and everywhere. They cut off access to water. So you actually have available running water about twice a week in some cases, if you're really far from the city maybe once a week. It's a really common thing to store it in buckets and use that to wash yourself, flush down the toilet, cook or wash the dishes and everything else. It's also very common to go to your neighbor's house for a shower. I've also had the privilege of living in many different places in the states. I've lived in LA, San Francisco and New York, and I've had many different experiences there when it comes to water. And as a birth worker, implementing traditional care especially in the postpartum period, we're definitely tied to water when it comes to formula making, the water people drink, traditions like making chicken feet soup requires water, traditions like bathing and putting things in your hair, all of that is very tied to the postpartum period and birth and pregnancy.

The traditions revolve around caring for the birthing person and the whole family, and especially in Latin America we have traditions of eating things in soups and stews (chicken feet soup). People here make bone broth, we make infusions with herbs and all of that requires water. I personally still buy bottled water. I may be new to Wisconsin but I found out really fast that I cannot trust the tap water here. It corroded all my kettles and left this film of like, salt, and it freaked me out. So I buy bottled water. We also do baths for the birthing person to support the baby. In Venezuela, we boil the water we bathe the baby in and just like here we take extra precautions. Sometimes even boiling all of that water does absolutely nothing, I don't know all of the names of the bacteria we have. I know cholera is prominent. As a baby, I was sick with amoebas. And there's just an endless supply of diseases that come from water and from bathing in it as well. When I was living in New York there was cut off access to clean water, and this really affects the postpartum period. Even if the city is going to supply clean water they're doing it in a specific spot where you have to go and get it. After you have a baby you're in no shape to go to just a specific corner or a specific building to go pick up something. A lot of people especially in Newark rely on low end jobs, they don't have a lot of support, and it is very difficult when you just give birth, you have a child in your arms and then you have to go and get bottled water for free. It's in the two weeks that you may have off from work. It's sad and it's frustrating the consequences are endless. I wanted to say too that I didn't know that you could drink tap water until maybe four years after I left Venezuela, I saw people doing that and it freaked me out and really scared me. To this day, my husband, who's from Massachusetts and has been lucky to have clean water, will go to the tap and drink from the tap and I almost get a heart attack when I see that.

There is a river that runs through Caracas, my city, where all of the waste goes to. I used to think as a little girl, watching American movies, finding out that I live in a third world country, and I was thinking that in the first world they do not have this gross brown disgusting river. I used to hate it so much. Right now, not being able to go back home and see it, I think of it as it must have been such a beautiful river running through that city, and how we treat it and the fact that I am just relating to it so much. We did not have access to running water, and then we didn't have access to clean water, and the thing we had access to the most that we were in contact with was that river of waste water that runs through the city. I hadn't thought about it, that the wastewater has to go somewhere. - Rabsaris

## SCALING

Both Rabsaris and Dale mentioned the hardness of the water and the scaling that comes [from it]. I'm from Nashville and our drinking water comes from surface water. We get ours from the Cumberland River that runs through Tennessee, but here in Madison the drinking water comes from groundwater, and there are really big differences [depending on] where you get your water and how you treat it and the final product. The scaling is because of how hard the source of the water is, which is an aquifer that I believe is underneath the city. It's groundwater so the water has filtered its way through the earth, picked up different ions, materials that are in the soil, that aren't necessarily bad for us but make the water taste weird or different. They make our pots scale up. Magnesium and calcium are the ions that make the water hard. When I came here from Nashville I could tell the difference between the taste of the water [in Nashville and Madison] and that's because of those ions that it's picking up from the earth. You can remove them through water softeners, but they're only so good. It's not necessarily harmful, it's more of a nuisance. The water in Madison tastes slippery and weird. - Rachel

I'm glad to hear that it's not dangerous because that's the correlation I always make. The first time I ever saw it happen- the scaling- I was at work, when I used to work at Encore Studio for the Performing Arts, and [in our lunchroom] I would boil water for my ramen cup, and I would see the little white specks. I had the same electric kettle at home but I would change the water out frequently so I would never see that buildup. So I knew the Madison water was really really hard but at work, you know, this was an older kettle so I would see the little white specks and I would be like- "Are we, what is, should I get a new kettle?" and they'd be like "Oh no, that's fine, that's just from the hard water," and I'd be like "what, but what's going on on the inside if we ingest it?"-- Talk about generational impacts. This is from that mistrust that my mother had when she came over to the United States and to Wisconsin and dealt with it, so that mistrust is now in me. So I want to make sure that my clients are getting the healthiest, cleanest water that they can. Seeing things like that always freaks me out. It's good to know though that this is not necessarily dangerous, it's just what happens because of where our water is sourced from. So thank you for that information. I'm gonna take that and try to not be - because like you said it only takes one time for that mistrust to be there and for it to not ever change, but I also do want to learn what is safe and what isn't. For myself I don't know if I will ever be able to drink tap water. I'm privileged, my husband, we're able to afford one of the Culligan things, those water jugs. So that's how I get my water. And I just found out last week- my daughter went to drink some of my water before something and she was like "Oh ew, gross," and I was like "What do you mean, what's wrong with my water?" and she was like "It's filtered!" She prefers tap water. I didn't know! The entire time she's been drinking tap water and she prefers that taste. So again, like, generational- I've always had bottled water, that's what we have to have, and my daughter can't stand filtered water. She loves the taste of tap water, and that shocked me. I can't change it now because she already has the taste. But I was like, "Wait a minute, no, don't drink the tap water!" just because that's ingrained in me. - Dale



I was an intern at Public Health Madison Dane County and I worked with their lactation department for first food deserts, which are places that don't have access to a place to pump for breast/chest/bodyfeeding people. There's no access to privacy, no access to water in order to clean pump supplies after you're done, no place for it to be- like let's breastfeed in public, but some people want privacy so that should be available. It's not just like "oh a baby's born and you feed baby". There's a process to it and some people (baby and parent) can easily get that relationship, some people it takes them weeks, months in order to be able to build up a supply of milk. So then you need to take the time off, you need to be able to pump to make sure you have a supply, and if you don't have a supply because you're not creating enough then you have to get access to food somehow. And thankfully we do have donor associations where you can get donor milk which is really good especially now during the formula shortage, but like formula is going to be the most accessible. And then you have to worry about how are you gonna make the formula? Are you going to use tap water and just hope for the best? If you're in Milwaukee or a place where cryptosporidium might be a problem are you going to hope for the best because there's no other access to clean water? There's first food deserts so there's no place for you to go and pump, your child is crying and they don't breastfeed and you need to be able to feed them. Clean water and having access to water is extremely important. - Dale Gardner

## WATER, LACTATION, AND ACCESS

I have a client now who is a breast cancer survivor, so like breastfeeding is not an option for her. I find what Kathy said very concerning about how we don't know whether the bottled water has been tested [compared to public water sources] and personally I'm freaked out because that's the water that I buy. So where do we get information, and who do we actually believe? I never really thought until I came here of water as a human right, and what a huge privilege access to water was, especially for lower income folks and people who are going through hardships. You always feel like oh it's your fault, you don't do enough, you don't work enough, this is why you can't afford all of these things or live in a place where you have better access to water. You can't afford bottled water, you can't give your kids the same thing. And also, time, because this ties into the formula shortage. Not everybody has the time to breastfeed your kid. I see it on social media how breastfeeding is free- it is not free. I am a doula. If I don't work I don't get paid. If I have a kid and I need to breastfeed it means I will not be able to work. And I'll need to pump and need access to a bunch of other things and it's definitely not free. Some of my clients are working as waiters, you get paid by the hour, you want to go back to work almost immediately and you need to rely on formula. Maybe you can sneak in a 15 minute break to pump but even then, it's a very complex situation and water is definitely tied to how you feed your baby. - Rabsaris



## Water Quality Info: How do we know what the quality of our water is?



[Clean Water Act of 1972](#) [National Pollutant Discharge Elimination System Permit](#) [Safe Drinking Water Act](#) [Madison Water Quality Report](#)

"These links will show you the standards for our water and our drinking water. Public water supply is governed by the Safe Drinking Water Act, but it's harder to get information from private companies." - Rachel Stewart

### What are nitrates?

Nitrates are a form of nitrogen. Nitrogen is everywhere and goes through many different cycles: some of these processes happen through chemical changes and some through biological changes. Nitrates, NO<sub>3</sub>, are one of these forms. When in the water supply, they can cause blue baby syndrome. They reduce the amount of oxygen in your bloodstream. Nitrates get into the water mainly through agricultural sources, like fertilizers and animal waste. - Rachel Stewart

### How do we trust who regulates the water? How do we keep the people in charge accountable? - Rabsaris Arreaza

"This goes back to holding elected officials accountable. If you live in a municipality you have an alder or someone who represents you. You may not trust your local utility but you can hold your elected official accountable, and they can then hold your utility accountable. There is strength in numbers, so find someone you do trust, a neighbor, a friend, physician, doula, and take these people who have the same questions as you to speak to the elected officials. Flint was a tragedy, but it did empower citizens to hold their elected officials accountable. All of the awareness and change happened because of the people. And over time you can build that trust back up. I work for a wastewater utility, so you can hold me accountable." - Martye Griffin

### Does the water in Maple Bluff taste better because it's a richer neighborhood? - Rabsaris Arreaza

"Good question. Good question. Water is neighborhood specific. The City of Madison has multiple drinking water wells and they all pull water from different areas of the aquifer. There might be different geologies or different things happening, so the water across the city might be slightly different. Different areas of the city pull from different wells, sometimes multiple wells, based on population size. If I had to guess I would think we would see situations where richer, lower population areas pull from one well, and poorer, denser areas pull from multiple. On the east side of Madison we get water from 3-4 different wells, and it constantly changes." - Martye Griffin

"You've given us all of these websites and resources, but it's a lot of technical things. Is there a way to condense that information and make it accessible for people to find out which well they are serviced by and what the water quality from that well is?" - Dale Gardner



[Madison Well Water Quality Reports](#)

[Madison Well Tours](#)

[Wastewater Plant Tours](#)



# FILTRATION

There's a reason that water utilities add chlorine and that is to protect against pathogens, so that is the disinfectant that they use to keep the water clean. - Kathy

When I came to Wisconsin I didn't have a place to live. I was living in a van. And I was at the parks- they have great access to showers and running water. And that is not the case everywhere we were. The places that we stopped, in order to get running water we had to stop at cemeteries, for dead people they actually have running water all of the time and it is available and we could stock up on water to wash dishes and wash ourselves and everything else. It was always available in every state and city. Here [in cemeteries] it was the only place where they don't charge you money to stop and shower. In order to meet people and get an apartment you had to be clean. - Rabsaris

The under sink filter- does that affect chlorine or fluoride?

Any filter, the reverse osmosis or carbon filter will filter out organic compounds, so that is a yes to chlorine and a no to fluoride. - Martye

I have a question about reverse osmosis. Doesn't that remove all the minerals that you actually need from drinking the water? - Rabsaris

Yeah. It's membrane technology. There's different types of membranes (and a membrane is just like a coarse sheet), and reverse osmosis removes anything big to small to ions. So it can remove calcium and magnesium. I have a professor who has a reverse osmosis system in her house because she doesn't like how hard the water is. So she then has to add back the necessary nutrients, because reverse osmosis water if you drink it straight out of the system? It tastes nasty because there's nothing in there. So she'll add just the right amount she likes to taste. You would have to add some things back into the water after reverse osmosis. It's pretty much pure water but it's very energy intensive which is why it's expensive. You have to apply a lot of pressure to force the water through the membrane. But that may be the new way to go with some places where there's not any fresh water, just saline or sea water. I think on the west coast some drinking water plants use RO because they're lacking water/fresh water out there. - Rachel

What do you recommend? - Rabsaris

I'm not sure what would be something easily accessible other than reverse osmosis and water softening. I use a normal Brita filter but that doesn't remove everything. So I don't know. - Rachel

That's a hard one and just to follow up, Rachel used a brand name Brita, that's essentially a carbon filter. You can get those, screw them on your tap, or you can get it so you fill up the pitcher of Brita and it filters through, but it's a carbon filter so it's not going to be as robust as an RO system but it still might meet your purpose depending on what you're using it for. - Martye

How effective are Lifestraws? - Nipinet

I don't know the tech on that. I know people use them for camping. They actually are amazing, I actually, I don't know the filter tech but I do know that it is an inexpensive, accessible way to filter small amounts of water. - Martye

What's a Lifestraw? - Dale

I've used one actually, but I was using it for water when camping, it had already been filtered. It's a bottle, I believe it's also a carbon based filter so it's going to filter out mostly organic things in the water, but it's a commercial thing you can buy at like camping stores. - Rachel

Iodine drops? A little bit harder because a lot of them leech into the taste of the water and you also have to wait a while after putting in the iodine drops. - Rabsaris

What about Birke filters? - Nipinet

I'm not familiar with that brand. - Martye

Some people swear by those and they also have a little travel camping version. - Rabsaris

Do a lot of your clients use water filters or is more of a bottled water only kind of thing? - Nipinet

My most recent client has a Birke filter. We did the herbs that we do for postpartum with the water from there. - Rabsaris