

## Intro

Metaphysics of Physics is the much needed and crucial voice of reason in the philosophy of science, rarely found anywhere else in the world today. We are equipped with the fundamental principles of a rational philosophy that gives us the edge, may make us misfits in the mainstream sciences but also attracts rational minds to our community.

With this show, we are fighting for a more rational world, mostly by looking through the lens of the philosophy of science. We raise awareness of issues within the philosophy of science and present alternative and rational approaches.

We are your hosts and guides through the hallowed halls of the philosophy of science. Dwayne Davies, my husband, is the founder, primary content creator and voice for Metaphysics of Physics. I am Ashna and I help out however I can. You can find out more about us on the About page of the website.

You can also find all the episodes, transcripts, subscription options and more on the website at [metaphysicsofphysics.com](http://metaphysicsofphysics.com).

Hi everyone! This is episode twenty-one of the Metaphysics of Physics podcast. Today we are talking about homeopathy, how it is fraudulently sold and what should be done about it.

## What is Homeopathy?

Homeopathy is based on the principle of "like cures like". That is, you treat an ailment with something that causes the symptoms of the ailment. So, if you want a homeopathic "treatment" for watery eyes, you start with onion juice. Or, if you want to treat the flu you can apparently use belladonna.

What homeopaths do is consider the symptoms of a disease. And then try to find natural remedies which cause reactions which look like symptoms of the disease. Things which also seem to cause reactions like the symptoms of the ailment in question. Which they then pretend is the same thing as finding a treatment for the disease.

When asked, a homeopath recently said that what they do is look at a *picture* of the affected body part and look at the symptoms. And then use stuff which would replicate those symptoms.

So, if a patient has a bee-sting, they might look at a picture of the patient's foot. And then find something that causes inflammation. They then proceed to try to treat the bee sting with that. And possibly some other things that cause other visible symptoms.

We are not making this up, this is what an actual homeopath has said!

This is clearly non-scientific. Even if belladonna causes some flu-like symptoms, that does not mean that it has any effect against the flu itself or its symptoms.

They are trying to treat an ailment with something that also causes some of the same symptoms.

It does not matter since we know that "like cures like" is nonsense. You do not treat an ailment by exposing patients to the causes of the symptoms of ailment.

Ah, but homeopaths claim that what this does is build up the patient's immunity to the ailment, or at least its symptoms. In the words of one such charlatan: "Homeopathic remedies aim to stimulate your body to respond to symptoms being experienced".

No, not really. This is not vaccination we are talking about. This building up of resistance would not work.

But there is one major issue which makes all this invalid. Even if "like for like" cures worked. Even if we bought this nonsense about the remedies stimulating natural responses to symptoms.

What is this issue? It is that the ailment causing substance is not present in the so-called treatment!

Now, some of you may be scratching your head at this. Why did I tell you any of this if the substance in question is not in the treatment? If it is not there, how does the treatment work? What IS in the treatment?

They will use almost anything they think helps. Such as arsenic trioxide. Yes, I said arsenic trioxide! About now you are probably wondering whether these people are out to poison people. Or at least make them sick.

Well, apparently, they figured out that giving someone ailment causing substances might be a bad idea. Oddly enough, people do not want to be treated with arsenic compounds!

In that case, how does the medicine work? This is where it becomes completely stupid and devolves into entirely magical, woolly thinking.

What you do is you dilute the substance in a vial of water in a 1:100 ratio. So that for every part of the substance there are 100 parts of water. Or, there is 100 times as much water in the vial as the "active ingredient".

Now, I say water, but sometimes alcohol is used. And if you are taking pills, then probably most of what you are taking is sugar. But, for now lets just talk about water. You will see that it does not make much difference.

That might not sound that bad. There is still some of the ingredient left. It is just in minute quantities. We are not done yet, not by a long shot. This kind of dilution is not nearly dilute enough to be truly homeopathic!

No, this 1:100 dilution is simply the start. That is "1C". But you can get a lot more dilute than that. 2C is where you dilute that 1:100 dilution a further 100 times. Now there is 10,000 times as much water as there is the substance! And with every increasing point on the C scale, you dilute the previous number by a further 100 times.

Once you start getting to even just 4C or 5C, you have all this water but still just the little bit of the "active" ingredient. And now you must make pills or liquid preparation out of what is almost pure water!

Good luck scooping up that tiny trace of the so-called active ingredient. Good lucking getting it in any of the preparation!

What do you think the chances of any particular pill having any of the active ingredients is? Essentially zero! At the lower concentrations, a typical dosage will have none of the active ingredients.

At 12C, which is not nearly dilute enough for most homeopathic products, there is a 60% probability of one molecule of the original substance being present. Assuming you used one mole of the original substance.

Homeopathic products are typically diluted to 30C or more. At this point, you could ingest an entire box of pills and the chances that you will ingest any of the "active ingredients" is effectively zero. You could eat an entire shipping crate and get none of it!

In fact, you would require giving two billion doses per second to six billion people for 4 billion years to deliver a single molecule of the "active" ingredient to any patient.

So, imagine you are taking some homeopathic water at 30C. The chances are that you will die of water toxicity long before you ingest a single molecule of the substance in there which is meant to help you. Or, if you are taking pills, you will die of sugar toxicity before you get any of the so-called ingredients.

Homeopathy preaches that the more dilute a preparation the better! And that this is *higher* potency! Yes, the more dilute your preparation is, the stronger it is! The less of the substance present in the preparation, the stronger it is! With homeopathy, less really is more. Or, so they believe.

There are [other measurements](#) of homeopathic "potency" using systems other than the C scale. But they all amount to the same thing: ultra-dilution to the point where the so-called ingredients will not be present in any given dosage of the preparation.

Now, given that at some point the active ingredient will not be present in the treatments given out, how is this meant to work? How do they get away with this?

By claiming that water has memory! They say that water remembers that it had the active ingredient in it. And that when you drink the water, it will magically impart the healing power of the active ingredient upon you. A power that the active ingredient does not have in the first place, but which they pretend it does have.

Yes, they know that the substance does not contain any of the active ingredients! But they tell you that it does not matter. Since the water takes on magical healing properties as a result of the dilution process. And that this is how you will gain this resistance to the ailment.

Remember how I mentioned that they use arsenic? Well, usually they talk about something called Arsenicum album. This is their term for "Arsenic trioxide diluted so that you won't get any". It is diluted to a pretty

safe 12C or often an ever safer 30C. Or sometimes as much 200C, the same dilutions used by many homeopathic flu preparations.

Remember how dilute 30C is? And how it would require giving two billion doses per second to six billion people for 4 billion years to deliver a single molecule of the original material to any patient?

Well, with 200C those six billion people could have started at the Big Bang and still not have found a single molecule! I would need to consume a mass well over  $10^{320}$  times that of the observable universe to get a single molecule of the original substance!

I don't know about you, but that I think if you have to consume that much of this stuff, then it might just be unfit for purpose! Which definitely breaches trading laws in New Zealand, the United States and surely most of the world!

Good thing too, since arsenic trioxide is highly toxic.

We are still not done. Homeopathy gets still more stupid. Homeopathy also claims that it matters how you dilute the "active ingredients". You should engage in further superstitious rituals. Which they call "succussion". Rituals which could not possibly have any effect upon the dilution process.

=Such as banging the vial of water against a special wooden striking board covered in leather on one side and stuffed with horsehair. The diluted substance is "struck ten times" against this board, to "activate the medicinal substance".

As if such magic rituals could possibly activate the magical properties of the water. Obviously not. This is just an extra layer of magic ritual to try to make the practice sound more rigorous. As though MORE magical, pointless nonsense could possibly make the process any more rational!

Notice that it serves as a handy way to excuse the failures of homeopathy. If a treatment does not work, you can always blame the failure to properly perform the proper magic rituals. Instead of accepting the fact that every single aspect of homeopathy is non-scientific nonsense that dooms the process to abject failure.

Alright, this gives you a good idea of how stupid homeopathy is. They are pretending to give you poison...

Sorry, they are giving you water which remembers the properties of poison such as *arsenic*. But just enough to help treat you, not kill you.

Does it sound idiotic and far-fetched? It should. This is obviously utter nonsense and goes against how we know reality works.

## **Dwayne: My Experience with Homeopathy**

I have never taken homeopathic products. Nobody showed that they are effective. So, I never had any reason to think that they were. And once I found out what homeopathy was, I knew that they could not possibly be effective.

However, I have seen many homeopathic products for sale at various pharmacies. Virtually every pharmacy I have been to during the last few years has at least a few homeopathic products. Which are placed alongside pharmaceutical medicine as though it too was somehow equivalent to medicine.

Recently, I decided that I should try to do something about this. But first I decided to try to find out what the pharmacies would tell me if I asked them what these homeopathic products are and how they work.

So, one day I took a packet of homeopathic jet lag pills to the counter and asked the salesperson what homeopathy is. I knew what it was, but I pretended that I did not.

She was clearly not sure herself. Nonetheless, she told me that she thought it was like a natural medicine.

I found this to be appalling! So, I confronted her and said that is not at all what it is. That in fact, it is not medicine. I told her what it actually is and that she should not be telling anyone that it is medicine. And that she is misleading customers and should know what homeopathy is. And that she should know better than to mislead her customers.

She took offense at this and told me to calm down and that if I did not, I should leave. Even though I was in no way abusive or threatening. Although I was clearly angry that they were selling such magic potions as if it were real medicine.

I have since contacted several other pharmacies by phone and asked them what homeopathy is. Most of the staff there just think it is a natural

remedy. Although some of the managers know it is not. But they are no more honest about it than their staff.

Nor was the homeopathic consultant working at one pharmacy I contacted. Or any other homeopathic practitioner I have spoken to.

The staff mostly seemed to think it was a natural remedy. It seems that they may all be told to say this. Even when some of these companies' managers know better.

I have caught at least one manager aiding and abetting lies! When I talked to this branch manager and it turned out she knew what homeopathy was. I told her that her staff did not and told me it was a natural remedy. Which she knew it is not. She gave me an accurate summary of how it works.

Did she care that her staff was telling me falsehoods? No. she assured me she would tell her staff and that if I went in another time they would know. I intend to find out. But, for now, I do not believe her.

The homeopathic consultant working at one particular pharmacy took offense at me pointing out that her claims are rubbish. And tried to evade explaining how "minute" a quantity of the "ingredient" was in the homeopathic preparation.

When confronted, she attempted to further evade and pretend that I was at fault. As though I was the one at fault for her lies and evasions and should not point out that they are lies and evasions.

I have talked to pharmacists at one company that sells a lot of this crap online and she tried to defend homeopathy. Even after I got her to admit that it is not science. I got her to admit that it is not medicine either. She tried to insist that it is nonetheless not magic and that it works.

But it is magic. If it is not based on science and is not actual medicine, then it is alternative medicine without any basis in reality.

Is it similar where you live? I would bet so. I know for a fact that many pharmacies in the US do not train their staff to inform customers on what homeopathy is. Many of these staff also seem to think it is natural medicine.

Do companies in your country give the same kind of defense of homeopathy as I have talked about here? You can bet they do! I know

for a fact that others have encountered this kind of indefensible nonsense.

Now, let us look at how much homeopathic stuff there is in pharmacies in New Zealand: Not a great deal in most places. It seems that most pharmacies do not see much value in selling many homeopathic products. Most of the ones which are sold are for relatively mild conditions such as a cold or jet lag.

New Zealand has an organization known as the Pharmacy Council. This enforces the Health Practitioners Competence Assurance Act.

In fact, the Pharmacy Council has a Code of Ethics which requires pharmacies not to mislead their customers about alternative medicine, including homeopathy.

My understanding, which the Council seems to back up, is that the Code of Ethics requires that pharmacies not allege efficacy which cannot be supported. But I know in practice that pharmacies do allege efficacy which cannot be supported.

This is what I intend to investigate. And see if the Council will crack down on pharmacies selling homeopathic products in a misleading manner. Especially when they are lying to their customers.

There is also the Commerce Commission, which deals with false and/or misleading claims made in regards to commercial products or services. But, in my country they tend to only investigate issues when enough people have complained.

I wonder if there are similar options in other regions of the world. It might be. And if you want to combat this kind of thing where you are, then this might be something you want to investigate.

We will return to what we should do about it in a little bit.

So, that is my experiences and some of what I figured out I need to do. I will hand it back to my lovely wife now.

**Ashna:** Here is the template he will use when he complains to the Pharmacy Council. It summarizes many of the key issues here.

Homeopathic products are typically packaged in a very misleading way. Often their packing is designed to suggest it is somehow equivalent to

actual medicine. Or at least some viable alternative pharmaceutical medicine. Often the packaging presents the homeopathic product as a viable natural remedy.

Sometimes it vaguely mentions "clinical trials". Without mentioning that no valid trial or scientific study of homeopathic medicine has ever had positive results indicative of any efficacy of homeopathic products. And several have shown that they are no more effective than a placebo.

The product web pages and pamphlets are often more misleading. They are prone to allude to studies and trials too. But evade the reality that no such studies support their claims.

This is highly misleading and should be considered false advertising. Homeopathy is not a "natural medicine". It is water which allegedly has magic powers. They are effectively packaging a magic healing potion and then trying to give the impression that it is equivalent to medicine.

It is equally misleading to refer to trials or studies as if they support their case. When no such things have ever existed when it comes to homeopathy. And given homeopathy is pseudoscience, we know that no such study or trial ever will.

In reality, homeopathy does not and cannot work. Except as a feel-good placebo.

Does the packaging say that? No. It talks about active ingredients. Which is a lie. The "active ingredients" are either not present in the product or present in such small quantities as to have no possible effect on the patient.

That is what it means to be homeopathic. Either the "ingredients" have been diluted to the point that they are not present, or it is not truly homeopathic.

So, which is it? Is this stuff homeopathic or does it contain the active ingredient? If it is homeopathic it does not contain the ingredient and it is a lie to call it an ingredient. If it contains the ingredient, then it is not homeopathic!

So, either way, the packaging is a lie.

It pretends that there are some magical means by which it can have any non-placebo effect. And then claims to have ingredients that it could not possibly have in any useful quantities if it is truly homeopathic!

Why is this allowed? It is fraud and should not be allowed.

But, if these products are to be sold, then the people selling them must be honest about them. And this includes pharmacies. They need to tell their customers what they are selling them. But this does not happen.

If you ask the staff at a pharmacy what "homeopathy" is, they will most likely say "oh, it is natural". Well, no, it isn't. It is a magic potion and magic does not work.

Even though the ingredient is not in the product, the water remembers that it was there. But that is not how reality works. We know this. We know water does not have memory.

If it did, it would remember all the poo, arsenic, lead, mud, deadly pathogens and other substances. Not just the stuff we claim treats ailments. And it would probably be highly unsafe to drink almost all the water on the planet!

If water did have memory, then all these arsenic trioxide dilutions you are giving people would have killed someone by now. If water has memory, then it will not remember only the healing properties you pretend arsenic trioxide has, but the deadly properties too. The fact that people do not seem to die after taking this stuff seems to suggest the memory effect is not real.

Either something has memory it does not. It cannot have selective memory for only the properties you want it to have. Water cannot remember only the useful properties of a substance, while failing to remember the toxic properties.

We know water has no properties which allow water memory. And water memory would violate almost everything we know about atomic physics and chemistry. It is entirely impossible.

Remember when I said that they use alcohol sometimes? Well, alcohol does not have memory either. Nor does the sugar which makes up homeopathic pills. It does not matter what your treatments are made of, no substance has this magical power of memory. And we know it is not possible that any substance ever could.

Also, homeopathy is based on the premise that you can treat the ailment with the same things that cause its symptoms. It is a "cure like with like" form of "treatment".

This has no basis and we know it never works. You don't treat watering eyes with onion juice. Or the plague by exposing you to tiny traces of the bubonic plague.

Don't forget that according to homeopathy, it matters *how* you dilute the active ingredient away. You should bang the vial against horse leather and the like. Well, sorry, but magical rituals do not help make medicine or have any kind of effect on reality.

Therefore, we know homeopathy treatment has no mechanism to do what it claims. Not unless the patient taking water tablets feels better and gets better due to the placebo effect.

Are people sold homeopathic products told this? Of course not! They are told that it is "natural medicine". Or some other falsehood.

It is not medicine! You might as well give the patient water and tell them it will help them.

There is nothing natural about alleging water has supernatural powers of healing! So, it is neither natural nor medicine? So, nobody should be pretending that it is.

Why shouldn't we be honest about what we are selling people? Why should we lie about what it is when people ask?

We shouldn't. Nobody should. Telling people homeopathy is medicine or natural medicine is misleading.

Telling people that it is somehow going to help them, when they know what homeopathy is, is outright fraud. And should be illegal. Just as it would be if I sold someone a car and told them it can fly.

Because it is not medicine, they are allowed to do this. Why? Selling fake medicine, if anything, is worse than the car example. As it preys on sick and vulnerable people.

If I must accept people selling homeopathy at all, then I demand honesty. I demand salespeople tell people what it is, certainly when asked about it. And not tell them outright falsehoods or *lies*.

Pharmacies must not be allowed to sell homeopathy without making it clear that it is not medicine.

But this goes far beyond pharmacies. Homeopathic practitioners pretending that homeopathy is anything other than a placebo pill should be prosecuted as frauds. Because that is what they are.

If they tell customers that homeopathy is scientific, or that it contains the ingredients it does not have, then that is fraud. If they pretend that water has magical powers or that homeopathy has any proven non-placebo effect, then that is fraud. And it must be treated as such.

There should be no "Oh, but they don't know better" excuse. So, what if they don't know better? They are still peddling nonsense while pretending it is something it is not. The fact that they are too stupid to know better should not be an excuse.

But in my experience and research, homeopathic experts know what homeopathy is. They know it is not science. They know that what they are promising has no provable basis in reality. But they either avoid this fact. Or they make believe in magic. Even though on some level they know that they are lying or making claims which they cannot possibly support.

## **What Should be Done About It**

We will do our best to see that pharmacies and medical professionals in this country are not permitted to spread misinformation regarding homeopathy. Some of you may want to consider doing the same.

This should include homeopathic specialists and clinics. Just because they might not claim to be medical professionals with a medical degree, does not mean they should get away with peddling snake oil. If they do have a medical degree it only makes it worse.

Anyone selling homeopathy should be required to tell their patients what it is. Let us prosecute them for fraudulently misrepresenting the efficacy of homeopathy. No matter who they are.

This includes doctors that prescribe homeopathy as though it was medicine. If they are going to do that, they should point out it is just a placebo and cannot possibly have any other effect.

What can I do? What can others do? Write letters to the editor of your paper. Write to your council or congressmen and demand that they take steps. Complain to doctors, pharmacies and other medical organizations selling this stuff. Complain to any legal bodies that oversee these people.

Raise public awareness of what homeopathy is and what it is not. It is not medicine. Neither is it effective. Nor is it a natural remedy. It is medieval witchcraft. Which people like to pretend is medicine.

Make people aware of the misinformation regarding homeopathy. Make them aware that homeopathic clinics, "doctors" and other people practicing ritual magic are nothing but dishonest charlatans. Expose these people whenever reasonably possible.

Fight any public funding of homeopathy. Fight public studies of the effectiveness of it. We do not need these studies to show it does not and cannot work. Any such studies performed should be privately funded.

Any qualified doctor should be able to convince anyone considering legislation against homeopathy that it is a scam. If enough doctors also discuss this, then it should not be too hard to get this point across.

Do whatever you consider reasonable to fight homeopathy. Even if it is almost none of these things. I get it, we do not all have time for this.

But, if you see anyone being misinformed about homeopathy, the least you should do if you care about medical science, is correct the misinformation. And condemn the people spreading misinformation. Even that little bit really does help battle the irrational mysticism that is homeopathy.

Alright, that brings us to the end of this episode.

Before we get out of here though, let's give a shout-out to our subscribers, Arkadiusz and Casey! Thank you for helping us make the world a more rational place and enjoy your access to bonus content!

Alright, so now we are done. Thanks for listening!

## **Outro**

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And as always, you are welcome to send in questions to [questions@metaphysicsofphysics.com](mailto:questions@metaphysicsofphysics.com). Or you can also contact us via [contact@metaphysicsofphysics.com](mailto:contact@metaphysicsofphysics.com) if you want to talk to us about physics, philosophy of science, any of the other sciences or anything relevant at all. We are always looking for more people to interview or appear on the show!

Please tune in for the next episode and start thinking of some questions! Until then, stay rational!