A Special Interview with Clint Ober, Part 1
By Dr. Mercola

DM: Dr. Joseph Mercola
CO: Clint Ober

Introduction:

DM: This is Dr. Mercola. Today, I'm here with Clint Ober. We're here to demonstrate the science behind a really powerful principle called grounding or earthing.

Like many things in life, you can't feel this. So you really need some objective documentation to really demonstrate what's going on here. To do that we've put together some really easily available tools such as a low voltage electronic meter that you can pick up pretty much anywhere.

Clint will describe it in more detail for under $10. So you can see this for yourself. We just put it together in one centralized location so you can see it. But if you don't believe it you can replicate this and perform this observation for your own analysis.

Thank you Clint for coming and joining us and helping us understand how this whole science of grounding and earthing – the principles are based on.

CO: Thanks for the opportunity. It's a real pleasure to be here and share this. I'm not sure where to start.

I think the first thing we'll try to explain is the EMFs. Everybody has heard about them. Most people don't quite understand them. To a large degree people are somewhat in denial that they exist because they don't know how to deal with them.

DM: It's somewhat like smoking. Most people are not going to have a negative impact initially. It's only over a long time exposure that you'll have a problem.

CO: I think what we'll do is start with the main thing. We have a lamp here that's plugged in and the thing that everybody needs...

DM: This is just a conventional halogen lamp not necessarily the healthiest lamp from a light perspective around but nevertheless an example of something that's plugged in that isn't an appliance that we're typically exposed to.

CO: Right. We could use a toaster, hair dryer, a lamp, any type of lamp. As long as they're plugged in they're going to radiate an electric field. Most people are unaware that these exist. What they're most unaware of – if I can have you hold your hand flat out here this way. You're sitting next to the lamp. Put this hand closer to the lamp. You
can see that your body is a conductor. You are an antenna. If you’re ungrounded in free space meaning…

**DM:** I’m not grounded now.

**CO:** Yeah. If you’re ungrounded in free space – free space meaning you’re above the ground – then these electric fields are going to be attracted to your body and there is lines of force that try to pull you under compliance so it creates a surface charge on your body, a voltage.

**DM:** This is not new. This is actually well established and recognized within many industries like the medical field and surgery. A surgeon is not going to operate on you in the operating room unless you’re grounded for these principles and also electronics.

**CO:** That’s correct. Anybody who works on software, chips in the factories, they have to be grounded so that they don’t build up any static electricity or charges on their body so when they touch something they don’t harm the software or blow the chip.

**DM:** This is for the very reasons that we’re describing now that you can easily demonstrate yourself if you don’t believe it.

**CO:** Right. Grounding the body to prevent these charges goes back to the dynamite industry in the very beginning and the gasoline industry. Because if you have a static spark and you’re unloading gasoline you’ll have an explosion.

**DM:** And you’re dead.

**CO:** If you have a spark in a fireworks factory or a dynamite factory it’s up in smoke. It’s a very real phenomenon. Huge amounts of money are spent annually protecting equipment and just protecting environments and so on.

Anyhow, the main thing is, this is what’s called a low voltage electric field detector. They have a high voltage. The low voltage will work best for what we’re trying to identify here. These are sold in all the hardware stores, any electronic store. They usually run anywhere from 6 to 10 to 12 dollars.

It’s really nothing more than to demonstrate – the reason these exist is for an electrician or somebody working with electrical wiring, they can go into the wall and identify where the wires are before they drill holes or to make sure their wire is actually energized. That’s all they’re really for is just to identify that an electric field exists.

**DM:** It’s an interesting gadget to have for yourself to show and demonstrate. It’s really inexpensive. It’s only under $10.

**CO:** The main thing that we wanted to do next is, I mean, this is the field. What we want to do is measure the effects of the field on a human body. What I’m going to ask you to
do is put let’s say this hand here. I’m just going to put an electrode patch here so we have a good connection. You can just be comfortable.

What we’re doing here is we’re going to set – this is our regular conventional volt meter. Are we getting an image of the volt meter here in the screen? It should be reading about 1 volt. If you put your hand a little closer to this lamp you’ll see the voltage starts to increase. It goes up to 2 volts.

One thing that’s important to know about these fields is its proximity. The closer you are to an electrical device or an electrical cord, the more charge that’s going to be created on your body. If you move away it drops to near zero.

What we’ve done here just to illustrate the effect of grounding from what we’re talking about earlier with the dynamite is this particular mat here is grounded. It’s similar to something that is commonly used in the electrical environment. This is grounded to the Earth.

So I’m going to ask Joe, if you’re watching the voltage here to reach over and put your other hand right here. We’ll see that the voltage dropped from I think a little over 1 volt down to two thousandths of a volt.

**DM:** Essentially insignificant. At what point does the voltage level become significant biologically, I mean as a range?

**CO:** There are many different thoughts on it. To me zero is perfect because that’s where we would be in nature.

**DM:** If you’re out on the forest or the ocean you’re going to be pretty close.

**CO:** Yeah, you’re going to be zero. There will be background noise on the Earth. But you know living environment if you can get this down below 100 millivolts, 20 millivolts.

**DM:** So 1 is 1000 millivolts.

**CO:** Yeah. 1 volt is 1000 millivolts.

**DM:** That’s my normal exposure just sitting there 8000 millivolts and up to 2000 when I go to the…

**CO:** If you’re in a typical home. Where I have done most of my measurements is in the bedroom because you got the lamps. The thing that’s really important to know is during sleep is probably when people are more exposed to electric fields than any other time. You would think it’s the computer.

**DM:** It’s the most vulnerable time to be exposed because your body is in repair and regeneration mode.
CO: Exactly. You would think it would be the computer. The computer is second. It’s high. What’s happening when you go to bed at night, first of all, if you were to see your home being built – I know here in Chicago they have metal clad conduit in all the walls on all the homes.

DM: One of the few communities in the country where this is actually code.

CO: Yes.

DM: Most communities aren’t like that.

CO: Santa Monica, California is (indiscernible 8:19) but the majority of communities in the United States are not. Anyhow, when they build your house they are only 2x4s up and down. So if you were to go into your bedroom before they put up the wall board you would see these 2x4s running all over and then the electrician comes by waste high and drills the holes in the 2x4s and then they run the wire from the outlets and run through the holes and then down to the outlets up to the switches and back to the mains and wherever.

After they put the wall board up and you have the outlets here so you put your bed up against the wall. And then you got an outlet on each side. You put in your lamps or your night stands and put your lamps. Many people have cellphone chargers, you know, various devices electrical. There has been a lot of concern about that over the last two decades. Everybody is saying unplug your lamp, unplug this, do this.

But the real problem probably is more when you put your bed up against the wall and you put your pillow on the bed and you go to bed at night and you put your head on the pillow, you are within 6 inches of this bundled raw max behind the wall going back and forth to outlets and switches and on. To me, you can unplug everything in your home but this is probably one of the more…

DM: So if we’re hooked up to one of these volt meters what would the typical range be for someone sleeping in a bed which is the type of environment that 99% of the people in this country are exposed to. What would you think the range would be?

CO: I have measured hundreds and hundreds of homes from Florida to Washington, California to New York.

The average probably is a little over 2 volts.

DM: So 2000 millivolts. So literally 20 times higher than it should be.

CO: Yes. I really hate to tell people about this sometimes but it’s important. The reason it’s important if you think just unplugging the lamp is going to solve your problem, it may
or may not. There are other issues. It’s not misleading people from what I am really trying to...

**DM:** Those are big issues. We’re going to go to that discussion at some of the other interviews that we’re going to go in detail in another video. Let’s continue with this system because you have some software setup here. It’s actually an oscilloscope. If you can discuss what that is. I just want to continue here.

**CO:** We’re through with the voltmeter so I’m just going to disconnect you from that. You can buy a voltmeter at any of the hardware stores and electronic stores.

**DM:** What do those typical run?

**CO:** The one I recommend to most everybody is like $29.

**DM:** Still really inexpensive.

**CO:** It needs to read in millivolts. It needs to be a digital display. Usually Radio Shack is the one I buy the most because it’s easier for most people. The only thing you need with it is they come with a red probe that’s got a pointer on it. I usually don’t recommend people do that.

**DM:** Some might injure themselves.

**CO:** Yeah. I don’t encourage people to play with voltmeters if they don’t know what they’re doing because you’re measuring electricity. If you know what you’re doing no issues and no problems. You need to take a little time and learn what they are and how they work. But for what we’re doing here, body voltage, they’re very simple. We have a wire here that’s probably a 40-foot wire that you can go outdoors and throw a little ground that you actually stick in the Earth.

**DM:** You have to ground the voltmeter before you do the measurements otherwise you’re not going to get a valid reading.

**CO:** Yeah. What you’re doing is you need a reference. You need to ground it to the Earth because what you’re trying to do is know what I would be on the Earth and now I’m here in space.

**DM:** Space meaning separated from the Earth. It could be a few inches not outer space.

**CO:** It could be 1 inch or it could be several feet. Anyhow you can buy the meters very inexpensively. Wire is not expensive. Getting a little ground rod configuration. For the people who want to play with this, it’s very simple and very straightforward.
DM: Yeah, I would encourage you to do that. A lot of times we need to demonstrate this to ourselves and not trust anyone we’re seeing in a video. But we’ll give you the details on how you can validate that for yourself with your own tools.

CO: What we have here is a scope or a spectrum analyzer. What we’re going to do here is to show you these frequencies. Again, what I’m going to do is I’m going to connect you right here. Now you’re connected to the scope. This scope I think is between 1 hertz. A hertz is the time it takes a frequency to go around the surface of the Earth. We’re 1 to 5000. If you take 1 hertz of the Earth and chop into 5000 that would be the frequencies that we’re looking at here.

DM: Important here is the amplitude.

CO: Yeah. What we’re going to do is I’m going to turn the scope on. This is like 60 hertz which is the most common frequency in our environments.

DM: Electrical frequency.

CO: Electrical frequency because it’s everywhere – all the cords, everything, the lighting, everything on our homes.

DM: This was actually developed by Thomas Edison, wasn’t it?

CO: Yes.

DM: They made a decision to come up with this for whatever reason. Perhaps you understand why they chose that but that’s what we’re stuck with now.

CO: Right. There is a whole story there. For the moment we’ll just go here. Basically, what we have here is a 60 hertz. In order to make this go away completely I would have to turn off everything, all the cameras.

DM: Essentially cut all the power off.

CO: I would have to cut all the power off.

DM: And we wouldn’t show you the video.

CO: And then you wouldn’t be able to see the video. Anyhow, again, with the spectrum we’re seeing more of the different frequencies. But most of these frequencies here are harmonics of the 60 hertz. They’re divisions. This would be 60, that would probably be 120, 180, 240 and so on and so on in cascades. There are frequencies hidden down in here which are more noise than anything but this is the most predominant and the highest energy that you’re exposed to.

DM: Electrically.
CO: Electrically. So basically again, we’re going to have Joe ground himself and you can see that it drops.

DM: It’s quite dramatic change.

CO: Anything below 50 DV, usually this is what we call…

DM: What are those numbers? Where is it at now?

CO: We’ve had a drop of about, in real terms, a hundred times.

DM: So this is 99% lower exposure just by simply putting my hand on this grounding mat. I can take my hand off and you can see what happens. I put it back on and it goes right back down.

CO: What we’re really trying to illustrate here is that if you were outdoor standing on the Earth barefoot, if you had both your bare feet there would no voltage.

DM: Is there any difference if I use two hands versus one?

CO: Probably.

DM: The more surface area of your body that is grounded the better you’re going to be able to diminish the impact of the electrical fields on your body.

CO: What we’re just trying to illustrate here is these fields are real. When you are in an environment that has electric fields in it that your body is being charged. What happens when you are grounded the charge on your body is reduced. Many people think when I ground my body this charge goes through my body and drains down to the Earth and dissipates into the Earth which is not the case.

DM: It’s a logical assumption.

CO: No, it’s very logical. What really happens is it’s like, again, we were going to talk about the computers for a minute. The computers are the same thing but most computers are grounded, you know, the towers. There is a metal housing around it. If you look at the cord on the end of your computer you’ll see there is three prongs and one of them is a ground. So when you plug it in that ground wire is connected to the Earth and then it’s connected directly to the chassis. It’s not involved with the electrical.

What happens is when you plug it in, Earth’s energy, the surface of the Earth has a negative surface charge, as soon as you plug the ground wire in to the Earth to a ground rod or to the electrical Earth ground then Earth’s energy comes up this wire.

DM: Electrons.
**CO:** Electrons and its electric field come up this wire and they energize this pad. They energize the housing of your computer, the housing of a refrigerator or any device that is grounded. Basically, what happens the Earth’s energy comes up. And the Earth is infinitely large. As soon as you touch this then your body becomes energized by the Earth. You are now electrified by the Earth rather than the electric field.

**DM:** It dwarfs the electric fields.

**CO:** When you’re in free space then your body is infinitely small compared to the Earth. So these electric fields can perturb electrons in your body, create voltage, create charge on your body.

**DM:** This may not seem like a big issue but what you may not appreciate is that our bodies are for a large part has an electrical component to it. That’s the way that we work. If there was no electricity we would be dead.

**CO:** That true. That’s how when you pronounce somebody dead.

**DM:** That’s a flat line.

**CO:** No electricity left. But the point is that when you touch this you become electrically one and the same as the Earth. You are the Earth. The Earth is infinitely large. It can give up energy, electrons and whatever. It actually pushes and prevents…

**DM:** Against these types of fields.

**CO:** Yes. So it removes the charge from your body.

**DM:** Actually, you see a bit more when I am exposed closer to it. It’s twice as big.

**CO:** Yeah, it’s all proximity. Anyhow, we’ll get into that more in one of the other sessions. I really want to make that point that electricity is not – I mean, electrons are not coming from that wire going through your body and down to the Earth. It is not the way it happens. It’s the exact opposite.

**DM:** As long as we’re setup. We have demonstrated the exposure to the lamp. Would it be also useful to demonstrate exposure to a cellphone or a computer, if we’re typing in a computer?

**CO:** Yeah. A cellphone here wouldn’t – I mean we’re only measuring between 0 and 5000 hertz. I would need a different scope that measures radiofrequencies and microwaves and so on.
DM: Would it be a similar type of process though? Because you’re exposed to the infinite capacity of the Earth’s electrons relatively to that radiation source. Would you still see a similar decrease like a hundredfold decrease in the effects?

CO: No. The higher up you go in frequency the shorter the frequency. The Earth can’t work that fast. You cannot ground radiofrequency. You cannot protect the body from radiofrequency. You do in the lower frequencies but as you go up…

DM: So it’s mostly for electrical exposures that’s the primary benefit?

CO: Yes. Again, this takes a lot of explanation. This is a very challenging area to explain without some fundamental background. What we’re measuring here is the wattage charge that’s being created on your body. It’s like when we go outdoors and we’re standing in sunlight. We feel heat. But yet if you go up a hundred miles in space there is no heat. I mean this is radiation coming from the sun exciting electrons on the surface of our body and on the surface of the Earth. It’s a similar phenomenon here.

If you stand in the sun too long what’s going to happen?

DM: You get sunburned.

CO: You’re going to get a sunburn. Really, that’s the whole concept here is reducing your exposure to anything that has any wattage to it. When you get into these low frequencies, the wattages really are very very low but when you get into cellphones and higher frequencies – I could go on and on…we would have to get into the sympathetic response more than anything.

What’s happening is when people hold a cellphone next to their ear and put it up to the head that’s probably when you’re most dangerously exposed.

DM: It’s in proximity.

CO: It’s always proximity. For instance, every time you double the distance from a point of radiation you reduce your exposure 50%. An electric field will go to infinity but it will be strongest at the point and then an inch away it’s going to be half; 2 inches, it’s going to be a quarter; at 4 inches, it’s going to be a 12th; at 8 inches, it’s going to be a sixth.

DM: It becomes biologically insignificant.

CO: Yeah. If you have to use a cellphone just get in the habit of making sure you got an inch, two inches.

DM: Or you use a speakerphone or use a safe headset?

CO: That’s where I’m headed. If you have to use it, use it in that fashion. But get further away use the headsets, use the appropriate things if you want to reduce. Again, this is
radiation because you’re going to get a sunburn. It’s very important that that knowledge surfaces and it continues to surface especially with the children. The texting is much much better.

**DM:** Much lower radiation.

**CO:** Much lower radiation.

**DM:** Unless you’re driving.

**CO:** Right.

**DM:** And then you’ll have a separate issue. You could crash and kill yourself or someone else.

**CO:** The main thing about the cellphones, I’ve been in the communication industry most of my life. I can assure you there is going to be 10 times more cellphone towers and signals in 10 years.

**DM:** Than we have right now.

**CO:** Than we have right now.

**DM:** Probably more than that.

**CO:** Because everybody wants video on demand. I mean, we’re going to be wireless totally. You’re going to be able to watch TV on your handhelds. The world is changing. The only way they can create enough bandwidth is they have to reduce the area at which they’re broadcasting. Meaning they have to double, triple, or quadruple the amount of cellphone towers. There is no way that anybody is going to be able to stop it. It’s a freight train. It’s coming.

The main thing people have to learn is, first of all, is this biologically active. I think there is sufficient data to say there is in certain instances. Then you have to learn, get up to speed and learn how to use a cellphone, learn how use these technologies so that they’re safe or safe as you can because that’s the way the world is.

We want to take a quick look at a handheld. This is one of the things that – I’m going to reach over here and grab something.

**DM:** iPad?

**CO:** Yeah.

**DM:** Perfect.
CO: This is yours. We’re going to play this…

DM: My favorite gadget the iPad.

CO: I have nothing against any of these devices except there is one thing I have learned – using an iPad by itself – what I did is I unplugged this lamp over here so that field is gone. Now, using an iPad by itself…

DM: I’m still hooked up to the oscilloscope.

CO: Yes. What we’re seeing on the scope here right now is more of what’s in the environment. There is no radiation coming off this. It is not plugged in.

DM: So it’s relatively safe to use as long as it’s in battery mode.

CO: Here is one thing that I have found.

DM: We’re going to plug it in in charging mode. Fortunately, you don’t have to do that too frequently with an iPad because it lasts 10 hours, the battery, which is really one of the neat benefits.

CO: But what we find is – and again I should…

DM: Now it’s plugged in.

CO: I would have to turn the volt meter on. Let’s just do this because it’s really worth it.

DM: Okay sure. Take me off.

CO: Take this one off and we’re going to take you off the scope. We’re going to connect you to the volt meter.

DM: Okay. Now I’m connected to the volt meter.

CO: We’ll turn it to AC. Right now we’re at 1.2 volts. These voltages move around depending on how close you are to different things. Right now we have about a half a volt. If you pick the iPad up and hold it in your hand, the voltage doesn’t change. It’s about 470 millivolts. If we plug this in…we don’t have a lot of cord here to play with. The only reason I’m showing this…

DM: Now it’s plugged in.

CO: Now we go up to 2.7 volts.

DM: On me which is 2700 millivolts. Remember the ideal is less than a hundred.
**CO:** The voltage we were seeing that 470 millivolts, half a volt, that’s more from the ambient. That voltage will be here no matter whether you’re touching this or not. When we hold this on our hand we’re at about 2.7 volts right now. The only reason I mentioned this is because all too many times, I have seen kids they have used it all day. They go to bed at night and they have their tablet with them. They plug it in while they’re sleeping and it’s on the bed. It’s sitting there being charged up all night or they are using it when it’s plugged in. This is the same with a lot of the games.

We can see the voltage disappear. Voltage, you have to be very precise and you have to watch everything in the environment.

**DM:** Control the variables.

**CO:** In a lot of the computers that we have found is any computer, any laptop, any computer, laptop or computer that only has two prongs, it does not have a ground, these are probably the hottest devices.

**DM:** Which is what the iPad is. All the Apple products – I love the iPad – but all the Apple products are not grounded when you charge them. It’s a two-prong plug not a three-prong plug.

**CO:** I think a lot of the Apples now they’re starting to put ground cords on the chargers.

**DM:** The traditional ones they haven’t.

**CO:** Yeah, the old ones they didn’t.

**DM:** Certainly the new iPads don’t.

**CO:** Right. Whenever a child is playing with these computers and they are ungrounded, that is your problem. We’re looking at voltage here in the 2.7. The average voltage on an ungrounded computer, a laptop plugged in while it’s being used is more like 20 to 30 volts.

**DM:** Ten times higher than this.

**CO:** Yes. If there is an issue out there that is the issue. The second issue is in about 40% of the homes in America do not have electrical ground in the bedroom. These homes are built before the 70s, before the 60s, and we didn’t use ground systems back then. Over the last 10-20 years what’s happened is people will remodel their homes and they go on by the outlets that have the ground…

**DM:** Three prongs but it’s not hooked up.
CO: But when you replace the old outlet there is no ground wire in the building so there is really no ground there. When you plug something in and think that it’s grounded, it’s not necessarily…

DM: The only way to know is to actually check. There are testers that you can find out if something is grounded or not.

CO: Again, 4 or 5 dollars at the hardware store you can get an outlet configuration checker and will tell you whether or not the outlets are grounded.

The main thing we were trying to do here is just to show that electric fields exist. This is uncommon in the history of man and that’s what we kind of demonstrate when we’re grounded because this is our natural state standing barefoot on the Earth with no man-made electric fields around us. It’s real simple. It’s black and white.

CO: So we can actually and objectively demonstrate the electrical measurements when we are exposed to electrical stimuli and we’re grounded versus ungrounded. You can easily produce that measurement yourself.

The next question which we’ll discuss in other videos, what is the biological significance of this exposure? What does it mean? What does it do to our bodies? That’s a whole other area of question and requires a lot of basic information to help you understand what that exposure means.

DM: There is one other word of caution for the guys who are going to go out and play with this is when you ground yourself all of the ground cords that we put out and all the ground cords used in any electronics industry they all have a resistor in the cord. The resistor what it does is for protection. So that somebody doesn't accidentally ground themselves and touch a live wire or just anything that could happen out there.

CO: Accident protection.

DM: Yeah, it’s an accident protection. What a resistor does is it’s like if you turn on a water hose all the way, the water is pouring out and shoot halfway across the yard. When you turn the faucet way down and so there is just a dribble of water coming out. The faucet is in essence a resistor.

What we do with anything electrical where humans are involved you have to have a resistor to slow the flow down so there is less than 1 millivolt or 1 milliamp of current if you would accidentally touch a live wire so there could be no harm. This protection built in to everything that in the industry, in everything that we play with. The number one thing a lot of people try to do is they run out and get some grounded wire and a ground rod or something.

DM: Which does not have the resistor.
**CO:** And then they bring it in the house and tie it around their toe or their foot or whatever and play with voltmeters. Resistors only cost a couple of pennies. So if you’re going to be grounding yourself while you’re doing this it’s best to use a conventional cord.

**DM:** Right. You still can do it and the experiment would work but there is a risk there. If you touch a live wire, you could kill yourself.

**CO:** Most people just don’t understand electrical. I mean safety is built in all over the place. Anybody in electrical is going to build safety in to their devices and products. But there is a lot of do it yourselfers today with all of the do-it-yourself hardware and they do their own electrical wiring. They do a lot of things. That’s why we build all these protection now.

**DM:** Thank you for those words of caution. For those of you who want to validate this demonstration yourselves just make sure you do it safely.