Subject: Body Resonance
Posted by Reggie on Mon, 24 Jun 2019 14:48:50 GMT
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I watched a video wherein they taught people how to break a wine glass with their voice through resonance. Is there a possibility that our body parts will get damaged if the correct resonance is applied?

Subject: Re: Body Resonance
Posted by Wayne Parham on Tue, 25 Jun 2019 14:18:54 GMT
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There are applications where acoustic resonance is used to affect the human body. As an example, lithotripsy is a procedure that uses sound to break up kidney stones.

Subject: Re: Body Resonance
Posted by Groot on Tue, 25 Jun 2019 14:26:54 GMT
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That is amazing to know. Are the organs not affected in a negative way when lithotripsy is used? I hope someday that someone will invent something that will break down tumors with acoustic resonance, so we don't need surgery, chemo, or radiation to remove the tumors.

Subject: Re: Body Resonance
Posted by Wayne Parham on Tue, 25 Jun 2019 14:41:15 GMT
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The density of the stone is so different than the soft tissue that the sound that resonates the stone will not resonate the soft tissue.

Subject: Re: Body Resonance
Posted by Reggie on Thu, 27 Jun 2019 03:47:11 GMT
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I'm learning new things every day. I'm glad that we can use sound to break up kidney stones.

With Wayne's answer, can I conclude that acoustic resonance won't affect our organs because they are made of tissue? How about the bones?

Subject: Re: Body Resonance
Posted by Wayne Parham on Thu, 27 Jun 2019 15:50:55 GMT
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The acoustic pulses are directional and are focused on the area of the kidneys. So bones do not receive much energy.

Also, I don't know if the density of the bones is similar to kidney stones or not. While I think common sense says bones are more similar to stones than to soft tissue, I'm not sure that is actually the case because of the marrow and total structure. I just don't know.

I do know this though: While lithotripsy makes acoustic pulses that are optimized to create stress fractures in the stones, the soft tissue isn't totally unaffected. Even if an object doesn't resonate from acoustic energy, it will still vibrate from that energy. Resonance is a condition that magnifies the energy's effects, so things that become resonant are much more affected than things that aren't.

An example is the famous Tacoma Narrows bridge in Washington State. It collapsed on November 7, 1940 from a form of resonance called aeroelastic flutter. The excitation energy was a 40-MPH wind acting upon its surface. This 40-MPH wind obviously affected other structures too, but the Tacoma bridge was most affected because its support structures allowed it to develop a resonant condition.

So objects that aren't resonant by a particular energy because of their size or shape may still be affected by the energy. It's just that resonance is a condition that tends to magnify the effects of the energy.

Subject: Re: Body Resonance
Posted by Reggie on Sun, 30 Jun 2019 13:17:45 GMT
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Thanks for that explanation. The acoustic resonance that our organs or bones received might not be strong enough or consistent enough for them to get damaged. Still, there might be side effects with the vibrations that they received.

Subject: Re: Body Resonance
Posted by Rusty on Sun, 30 Jun 2019 14:20:17 GMT
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Since bone is living tissue actually, I'd say that the kidney stones are of a different density and composition of matter. Although I found out that kidney stones can be formed by varying types of substance from the food and drink we ingest. My older sister had to have one kidney removed that became inactive. The other fortunately is viable. But both had become full of stones. The stones were removed surgically. Best remedy for kidney stones. Drink lots of water.

Subject: Re: Body Resonance
Posted by Groot on Mon, 01 Jul 2019 06:29:24 GMT
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I agree with you Rusty that the best cure is prevention. I hope your sister is getting better.

I believe that there will be a side effect of lithotripsy, which might not be serious. However, our body can be resilient if we maintain a healthy lifestyle.