

# Power Balance Technology

## *Pseudoscientific Silliness Suckers Card-Carrying Surfers*

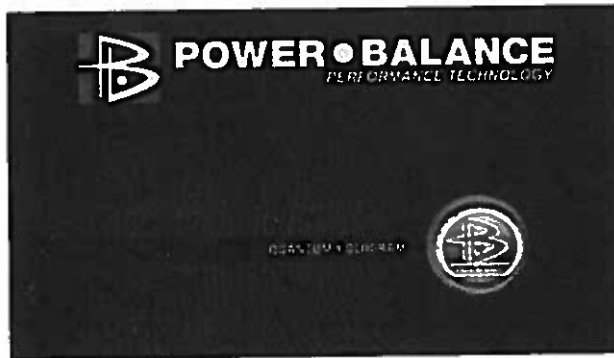
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*Carrying a Power Balance card in your pocket will supposedly improve your athletic performance and cure what ails you. The alleged mechanism ("frequencies" in an embedded hologram) is laughable pseudoscientific bunk.*

HARRIET HALL

Remember when professional golfers were wearing Q-ray bracelets to improve their game? The Q-ray folks recently had a run-in with the courts. They admitted their product was only a placebo but argued that it was acceptable to lie to elicit the placebo response. The judge disagreed: they were convicted of fraud, forced to pay back \$16 million, and required to remove the deceptive claims from their advertising. Now they have a new competitor: Power Balance Performance Technology. Like the Q-ray bracelet, it is based on "resonance." It doesn't even have to come in contact with your body: one version is a card that you simply put in your pocket.

Power Balance representatives demonstrate their products in sports stores at malls. They test your strength and balance and then give you a Power Balance card to hold or put in your pocket. When they retest you, you miraculously do better. There are some revealing videos on YouTube, including a short clip that shows the subject standing on one foot with arms outstretched ([www.youtube.com/watch?v=8e6DnNARz60](http://www.youtube.com/watch?v=8e6DnNARz60)). The salesman pushes down on the subject's arm near the wrist, and the subject starts to fall over. After the subject puts a Power Balance card in his pocket, the salesman repeats the test but this time pushes down near the elbow, creating a shorter lever arm that of course reduces the effect of the force applied, so the subject doesn't fall over. In other demonstrations, they use other simple biomechanical tricks like this to create false impressions of improved strength. The amount of force applied is subjective, both parties know when the card is in use, and they know what is expected to happen—it's a recipe for self-deception.



What's in these magic cards? I will quote at length from their Web site for the entertainment value:

POWER BALANCE Performance Technology has been embedded with naturally occurring frequencies found in nature that have been known to react positively with the body's energy field. This helps to promote balance, flexibility, strength and overall wellness.

For thousands of years, eastern medicine has been using the same techniques for personal wellness through finding things in nature that react positively with your body, such as rocks, minerals, crystals, etc. Through kinesiology we have learned that certain foods cause the body to react either positively or negatively as well. Although not all substances found in nature work the same on everyone, we have narrowed it down to a few that we believe are highly beneficial and have put them together to create Power Balance Performance Technology.

It's hard to argue with nature and the fact is that everything in nature resonates at a particular frequency. That is what keeps it all together. We react with frequency because we are a fre-

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quency. Most simply, we are a bunch of cells held together by frequency. If you hold processed sugar or a cell phone in your hand and hold your arm straight out to your side and have someone push your arm down while you resist, it goes down pretty easily because processed sugar and cellular telephones do not react positively with the human body. Basically, the frequencies in sugar and cell phones create a reaction that makes your body weaker. Adversely, if you put certain vitamins or minerals in your hand and do the same test with your arm, you will find it is much harder for that person to push your arm down. Your body's energy field likes things that are good for it and craves to be around those things. At Power Balance, we have taken a few of those items and through advances in technology, have been able to duplicate those positive energies and imprint them onto our holographic media.

**Why Holograms?** We use holograms because they are composed of Mylar—a polyester film used for imprinting music, movies, pictures, and other data. Thus, it was a natural fit. In fact, the hologram is so complex with such infinite depth and minimal surface area, that many companies are now using them as hard drives. Along those same lines, we felt that it would be a lot easier to get someone to put a hologram in there [sic] shoe rather than [sic] a Power Balance equipped rock or apple.

Power Balance products include a ten-pack of stick-on embedded holograms (\$59.95), a pendant (\$39.95), a wristband (\$29.95), and an eight-pack of pocket cards (\$59.95).

The company targets athletes, particularly surfers. According to numerous testimonials, Power Balance seems to improve performance. One surfer claims he can even sense the presence of the card: "I can feel it on me." Another testimonial is from Tommy Grunt, United States Marine Corps. Maybe Grunt is real, but ads for quack products have been known to feature fabricated testimonials, and I can easily imagine a copywriter putting tongue in cheek and creating a name like that to relieve the boredom. There are reports of the products' effectiveness in animals, from horses to birds. The products allegedly relieve headaches, menstrual pain, and all kinds of other symptoms. The testimonials give the impression that if you feel unwell in any way, the magic card will restore you to normal. If you already feel well, it will make you better than normal.

"A primitive form of this technology was discovered when someone, somewhere along the line, picked up a rock and felt something that reacted positively with his body." I don't doubt that someone believed he felt something, but I seriously doubt it was due to the frequency of the rock resonating with the frequency of his body.

For resonance to occur, something has to vibrate. You may be able to make a rock resonate, but the rock doesn't create its own vibrations. Crystalline structures can be made to vibrate. The tympanic membrane and the vocal cords vibrate, but the whole body doesn't. When a soprano wants to break a glass with her voice, she can first listen to the sound made by tapping it with a spoon; if she can match that sound frequency, the glass will resonate and possibly shatter. How can you tap a cat to see what its frequency is? Can you imagine a soprano shattering a cat?

This whole resonance and vibration business is pseudoscience emanating from the myth of the human energy field—

not the kind of energy physicists measure but some vague life energy like the acupuncturists' *qi*, the chiropractors' Innate, and the imaginary fields that Therapeutic Touch practitioners claim they are smoothing down with their hands. "We are a frequency" and "We are a bunch of cells held together by frequency" and "Your body's energy field likes things that are good for it" are statements so incoherent, so much at odds with scientific knowledge, that they "aren't even wrong."

The definition of *frequency* is "the number of repetitions of a periodic process in a unit of time." A frequency can't exist in isolation. There has to be a periodic process, like a sound wave, a radio wave, a clock pendulum, or a train passing by at the rate of  $x$  boxcars per minute. The phrase "33 1/3 per minute" is meaningless: you can't have an rpm without an  $r$ . A periodic process can have a frequency, but an armadillo and a tomato can't. Neither a periodic process nor a person can "be" a frequency.

Pushing down on the arm is a bogus muscle testing technique known as applied kinesiology. It is supposedly used to diagnose allergies: if you hold a sealed vial of an allergen, your strength supposedly diminishes. It only works if the doctor and patient know what substance is being tested; when double-blind controls have been used, kinesiology has failed every test.

Omitting for a moment the crucial question "Frequencies of what?" how did the Power Balance creators determine which frequencies to use? "We have narrowed it down to a few that we believe are highly beneficial." Okay . . . how exactly did they measure the frequencies, and what criteria did they use to narrow them down? I think the wording of the ad is revealing: the company says they "believe" they are highly beneficial, not that they have any *evidence* that they are—assuming there really are any frequencies and that they have somehow put them in a hologram. I e-mailed the company and asked simple questions like "How do you measure the frequency of a rock?" They didn't answer.

In online discussions, one man "tested" the product by having one hundred athletes try it, with no controls of any kind; not surprisingly, all of the athletes reported improvement. A man watching a demonstration suggested a real test, blinding the subject as to whether the card was present, but (not surprisingly) the salesman wouldn't cooperate.

This would be so simple to test properly. Take five Power Balance cards and five credit cards, put them in opaque envelopes, shuffle, number the envelopes 1 through 10, have a third party slip an envelope in the subject's pocket, and then challenge the salesman to tell which envelopes had the real card. I could not find evidence that they have ever done such a test, presumably because they know it would fail.

These products may actually do some good. Modern versions of an amulet or rabbit's foot (without harm to rabbits), they elicit a placebo response, giving people confidence and possibly making them try harder. They are not exorbitantly expensive and even come with a money-back guarantee.

The marketing is pure genius. If I were a professional scam artist, I don't think I could come up with anything better. The company has an impressive trick demonstration that easily

fools most people. They spout a lot of pseudoscientific hooey that sounds impressive to the scientifically illiterate, but they are careful to make only vague claims that the Federal Trade Commission can't object to. The harmless products are inexpensive to manufacture, but the company charges enough to afford a money-back guarantee and still make money. They package the cheaper cards and stickers in multiples so they can charge more, but the prices are still low enough that the average person is willing to take a chance. Who knows what is actually in the products? If it were my scam, I'd put in any old hologram or none at all. No one is likely to investigate your production line to see how you get all those "beneficial frequencies" into the Mylar.

Tell me you use the Power Balance card and it makes you feel better, and I can readily believe you. Tell me your performance improves when you carry it, and I will believe you. But that won't convince me that the improvement has anything to do with bioresonating frequencies in the holograms—or even with the cards themselves.

It's like the tooth fairy. Tell me money appears under your pillow, and I will believe you. But that won't convince me that the tooth fairy did it.

**The Power Balance phenomenon is easily explained by suggestion, confirmation bias, the placebo response, and other well-known aspects of human psychology that conspire to persuade people that ineffective things work.**

The tooth fairy phenomenon is easily explained by human psychology and parental behavior. The Power Balance phenomenon is easily explained by suggestion, confirmation bias, the placebo response, and other well-known aspects of human psychology that conspire to persuade people that ineffective things work.

Before writing this article, I discussed with CSI Research Fellow Benjamin Radford whether the Committee for Skeptical Inquiry might want to do a simple double-blind test. We decided not to because it is just too silly to bother with. As Radford put it, "This sort of scientific testing should be done by the company; it is not the skeptics' job to spend time and money testing outlandish claims for which no reliable evidence has been offered."

We're not going to bother setting up a video camera to catch the tooth fairy either. □