



Power Balance or Power of Persuasion?

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The first time I heard about these so-called performance-enhancing bracelets I was at a cycling event. As a fellow rider and I walked along checking out the booths with various biking apparel and gear, a pitchman lured us over claiming this little rubbery bracelet would immediately improve our balance, flexibility and strength.

The man proceeded to give us an obviously well-rehearsed spiel about the tiny holograms imbedded in each bracelet. He explained that our bodies have a natural energy field and our molecules vibrate at a preset frequency. But due to the notion that we're being bombarded daily by other types of energy from cell phones and TVs and computers and such, our frequencies get changed—they get out of whack. And that, in turn, supposedly throws off our balance and degrades our potential athletic performance. Bummer.

Well, thankfully, said the man, the Mylar holograms in these bracelets are programmed with special frequencies designed to restore our energy balance and, you guessed it, improve our strength, flexibility and balance. He could tell I was immediately skeptical, so he swooped in on my friend

instead. The man asked him to stand on one foot with his arms outstretched.

"Now, I'm going to try to push you off balance," he said. And with that, he easily sent my friend stumbling.

"Here, now hold this bracelet in your hand and let's try again."

This time the man struggled to topple my friend, but he seemingly could not.

"Did you feel more balanced that time? Stronger?"

Personally, the only I was feeling was that we'd somehow been transported into the past to a carnival where some snake oil salesman was preying on a crowd of unsuspecting would-be customers. I wasn't buying it, or the bracelet for that matter, so I yanked my friend out of there and we left.



Later on that weekend, I started noticing lots of people wearing these bracelets, and others like them. At home I did some quick research and discovered there are many similar bracelets on the market claiming comparable benefits including brands like Power Balance™, EFX, iRenew®, Trion:Z® and more. There were photos upon photos of pro athletes and movie stars wearing this “performance jewelry,” as it has been called. And one of the most popular brands, Power Balance (powerbalance.com), even sponsors a team stacked with high-profile athletes like basketball icon Shaquille O’Neal and NFL quarterback Drew Brees.

With all of these followers and performance-boost claims, it’s easy to see why so many people have bought these bracelets, which cost up to \$30 apiece. “Everyone is looking for a quick fix, especially athletes. They want what’s going to give them the edge over someone else,” explains Rachel Hazuga, M.S., a researcher from the University of Wisconsin. “Even if it makes them only slightly better, it still means they’re better.”

And people have been buying them indeed. Power Balance reportedly sold three million units in the past three years.

The Study

To test Power Balance’s claims, ACE tapped a team of exercise scientists from the University of Wisconsin, La Crosse Exercise and Health Program, led by John Porcari, Ph.D., and Hazuga. Together they recruited 42 college-aged volunteers, roughly half men and half women, all of

whom were NCAA Division III athletes.

Each subject completed two trials of four tests: trunk flexibility, balance, strength and vertical jump. The first three tests mimic the tests used on the Power Balance Web site (www.powerbalance.com/test-video) to demonstrate the efficacy of their performance jewelry. The vertical jump test was added to gauge lower-body power. The tests were presented in the same order for all subjects, without a warm-up, and subjects were required to not have done any exercise prior to testing on that day.

For one trial, subjects wore a Power Balance bracelet (\$30) and for the other trial they wore a placebo (\$0.30 rubber bracelet). The order of bracelets worn was completely randomized and double-blinded so that neither the subjects nor the examiners knew which bracelet was being worn for which trial. Half of the subjects wore the Power Balance bracelet for their first trial while the other half wore the placebo bracelet for the first trial.



The Tests

Flexibility: To measure trunk flexibility, a stick was placed on the participant’s shoulders (at the back of the neck) and he or she was asked to slowly rotate clockwise as far as possible. The amount of trunk rotation was measured in degrees using a calibrated grid.

Balance: Subjects were instructed to stand with feet together and arms extended straight out to the sides, and lift the right foot approximately 15 centimeters

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off the ground. Once the subject was in position, the examiner pushed straight down on his or her arm with a Lafayette Manual Muscle Tester (MMT—a device that measures the amount of force exerted by the examiner) until the subject lost his or her balance or broke form. The amount of force required to disrupt the subject’s balance was recorded.

Strength: Each subject stood with feet together and arms close to the torso, while the examiner placed the Lafayette MMT in the palm of the subject’s cupped right hand. As the examiner exerted force straight down, the subject tried to resist. The amount of force required to cause the subject to either move his or her feet or break form was recorded.

Vertical Jump: Subjects were asked to jump as high as possible, touching the highest vane they could reach on the Vertec Vertical Jump Tester. Jump height was measured in centimeters.

The Results

After the numbers were crunched, researchers found there was no significant difference in flexibility, balance, strength or vertical-jump height between the Power Balance and placebo trials (Table 1).

“Invariably,” explains Porcari, “the subjects always did better on the second trial, and it didn’t matter which bracelet they were wearing.” He attributes these results to what he calls the “order effect,” as in the order in which the trials were administered (Table 2).

Table 2
Comparison of Trial 1 Versus Trials 2 Scores

	TRIAL 1	TRIAL 2
Flexibility (degrees)	114.2 (±15.71)	123.3 (±19.57)*
Balance (kg)	11.0 (±2.87)	12.7 (±2.85)*
Strength (kg)	35.9 (±10.43)	38.3 (±8.93)*
Vertical Jump (cm)	56.1 (±11.91)	57.9 (±12.62)*

*Significantly greater than Trial 1 ($p < .05$)

Trunk flexibility was 9.1 degrees greater on the second trial compared to the first trial. Since no warm-up was given, this improvement in flexibility was attributed to the subjects being warmed-up for their second trial.

For the balance test, it took 16 percent more force to throw the subjects off balance on the second trial. And for the strength test, 7 percent more force was required to cause a break in form on the second trial. Anecdotally, many of the subjects said they did better on the second trial because they “knew what was coming.” The subjects consciously (or subconsciously) seemed to prepare themselves for the second trial, compensating for how the examiner was going to try to push them off balance.

“If I knock you down once, your body learns what to do for the next time,” explains Hazuga. “This is the learning effect and it’s a fundamental principle of human performance.”

During the vertical jump test, subjects jumped nearly 2 centimeters higher on their second trial. According to other published research, subjects typically will continue to improve their vertical jump performance over the first one-to-four trials of a test. With that in mind, researchers attributed the boost in jump height in the second trial to the fact that subjects were already warmed up.

The Bottom Line

“We tested the bracelets the exact way they were advertised,” says Porcari. “They simply don’t work as advertised. To me, it’s just an absolute scam.”

Table 1
Comparison of the Power Balance™ Versus Placebo Conditions

	POWER BALANCE	PLACEBO
Flexibility (degrees)	118.6 (±19.29)	118.9 (±17.34)
Balance (kg)	11.6 (±2.69)	12.1 (±3.26)
Strength (kg)	37.4 (±9.54)	36.8 (±10.01)
Vertical Jump (cm)	57.4 (±12.42)	56.9 (±12.19)

Because the order of bracelets was randomized during testing, the improvements in the second trials were attributed to the fact that subjects were either: (1) more warmed up, or (2) habituated to the task. This would explain why the public sales demonstrations of Power Balance and similar performance-jewelry products appear to have beneficial effects on flexibility, balance and strength. But in reality, these sales demonstrations are essentially carnival tricks. By altering the way you apply force to the body, explains Porcari, you can easily change the outcome. "If I'm pushing a certain direction, and then I change the angle of pull or push a little bit, I can get you to lose your balance easily," he says.

But how do you account for the testimonials of people who swear that Power Balance improves their own performance? It's the placebo effect. "The power of the human mind to believe something works," says Porcari. "If they think it's going to work, it's going to work to some extent."

"Everybody is looking for the magic bullet," he says. "The Power Balance salesmen do these demonstrations, and people want to believe it might work. Shaq wouldn't lie. Lamar Odom wouldn't lie. There's got to be something to it, right?"

The Australian government recently took Power Balance to task because the company has no credible scientific evidence to back up the claims they make. As a result, the Australian manufacturer of Power Balance bands

was forced to publicly apologize and admit there is zero scientific backing to their claims. Here is part of their written apology:

"We admit that there is no credible scientific evidence that supports our claims. Therefore we engaged in misleading conduct." You can view the rest of the letter here: www.powerbalance.com/australia/ca.

Meanwhile, in the U.S., Power Balance continues selling their performance jewelry with the same claims as before. When approached about ACE's findings, the company simply released a statement saying: "Power Balance has lived and thrived in the ultimate testing environment, the real world."

The U.S. government has yet to address Power Balance's marketing claims or those of other bracelet makers like them, but several class action suits have been filed throughout the U.S. against the company citing false advertising and unfair business practices. Given the growing body of evidence discrediting their claims, along with the threat of impending lawsuits, it seems likely that the success of Power Balance and its contemporaries has reached its peak and that inevitably these bracelets will meet the same fate as other lauded magic bullets and quick fixes—gathering dust in clearance bins across America.

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