

Letter to Editor

## Can the Power Balance<sup>®</sup> bracelet improve balance, flexibility, strength, and power?

Dear Editor-in-chief,

Athletes are constantly searching for something that will give them a competitive edge. Performance jewelry is one of the latest products on the market designed to improve athletic performance. The most common claims are that wearing this performance jewelry will improve flexibility, balance, and strength. There is considerable marketing of these products, including testimonial evidence by high profile athletes, in support of the purported benefits. In demonstrations designed to validate the performance enhancing benefits of these products, however, companies typically conduct the testing in the following sequence: The first trial is done *without* the bracelet on and the second trial is performed *with* the bracelet on. Invariably, subjects perform better on the second trial. This brings into questions whether the improvement on the second trial is due to 1) a benefit of the bracelet, 2) the fact the subjects were warmed-up (Maud et al., 2006a; 2006b), 3) subjects being habituated to the task (Benson and Friedman, 1996; Wright et al., 2009), or 4) a placebo effect (Beedie and Foad, 2009).

One of the most popular performance enhancing bracelets currently on the market is sold by Power Balance<sup>®</sup> (www.powerbalance.com). The Power Balance<sup>®</sup> bracelet has two dime-sized holograms; one on either side of the bracelet. The holograms within the Power Balance<sup>®</sup> bracelet are designed to “resonate with and respond to the natural energy field of the body”. This purportedly improves flexibility, balance, and strength. To our knowledge, no randomized, double-blind, placebo trials have ever been conducted evaluating the validity of these claims. Thus, the purpose of this study was to evaluate whether wearing of the Power Balance<sup>®</sup> bracelet can improve trunk flexibility, balance, strength, and lower body power.

Forty-two NCAA Division III athletes (22M: 20.1 ± 1.4 years, 1.82 ± 6.4 m, 82.0 ± 12.6 kg; 20F: 19.5 ± 1.3 years, 1.66 ± 6.8 m, 63.2 ± 8.1 kg) completed four tests: trunk flexibility, balance, strength, and vertical jump. The trunk flexibility, balance, and strength tests were the same tests that are presented on the Power Balance<sup>®</sup> website (www.powerbalance.com/test-video). The vertical jump test was added as a test of lower body power. Subjects performed two trials of each test, without warm-up: During one trial subjects wore a Power Balance<sup>®</sup> bracelet and for the other trial subjects wore a placebo bracelet. The order of bracelets was randomized and the testing was conducted in a double-blind fashion. Neither the subject nor the examiner knew which bracelet the subject had on for each trial.

Comparisons between the Power Balance<sup>®</sup> and placebo bracelet are presented in Table 1. There was no

significant difference in flexibility, balance, strength, or vertical jump height between the Power Balance<sup>®</sup> and placebo conditions. Comparisons between Trial 1 and Trial 2 scores are presented in Table 2. Flexibility, balance, strength, and vertical jump height were all significantly greater for Trial 2 compared to Trial 1, regardless of which bracelet was worn for the second trial.

**Table 1. Comparison of the Power Balance<sup>®</sup> versus placebo conditions. Data are means (±SD).**

	Power Balance	Placebo
Flexibility (°)	118.6(19.3)	118.9(17.3)
Balance (kg)	11.6(2.7)	12.1(3.3)
Strength (kg)	37.4(9.5)	36.8(10.0)
Vertical Jump (cm)	57.4(12.4)	56.9(12.2)

**Table 2. Comparison of Trial 1 versus Trials 2 scores. Data are means (±SD).**

	Trial 1	Trial 2
Flexibility (°)	114.2(15.7)	123.3(19.6)*
Balance (kg)	11.0(2.9)	12.7(2.9)*
Strength (kg)	35.9(10.4)	38.3(8.9)*
Vertical Jump (cm)	56.1(11.9)	57.9(12.6)*

\*Significantly greater than Trial 1 (p < 0.05)

This study found that under the testing conditions used in the current study, there were no significant performance benefits when wearing the Power Balance<sup>®</sup> bracelet compared to the placebo bracelet. Trial 2 scores were significantly greater than Trial 1 scores for all of the testing measures. Because the order of bracelets was randomized and balanced, these improvements were attributed to the fact that subjects were either: 1) more warmed-up (Maud et al., 2006a; 2006b) or 2) habituated to the task (Benson and Friedman, 1996; Wright et al., 2009). In either case, these findings help to explain why the public demonstrations of this type of product appear to have a beneficial effect on flexibility, balance, and strength.

There are many ways to design a study such as this. This study was specifically conducted in the fashion it was, in order to mimic the way the tests are conducted by companies who try to show that their products enhance athletic performance (i.e., Trial 1 *without* the bracelet and Trial 2 *with* the bracelet). Thus, this study demonstrates that the holographic bracelets do not work as advertised. It should be noted that while this study investigated the Power Balance<sup>®</sup> bracelet, it is presumed that results investigating other performance enhancing jewelry would be similar, under similar testing circumstances. To fully evaluate any potential benefit of these products, future studies, in addition to being conducted in a randomized, double-blind, placebo fashion, should incorporate a warm-up prior to all tests, as well as a sufficient number of trials so the learning effect is removed from all testing

measurements. Additionally, even though most manufacturers claim that the improvement in performance when using holograms is instantaneous, future studies may want to have subjects wear the bracelet for a longer period of time to see if there is any effect under those circumstances.

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