COMPARING PERFORMANCES: A RESEARCH-BASED REBUTTAL
By Dan Wagman, PhD, CSCS

I was recently contacted by several people who alerted me that one of Sanjiv Gupta's blogs referred to my work and that I should check it out. Since I have not been following the blog for quite a while, I decided to catch up. While Sanjiv's blog appears to have been well-intentioned and fueled by his passion for all-round, it contains misrepresentations that deserve attention.

Age Correction

In addressing USAWA's age corrections, Sanjiv claims that my 2020 6-part blog series titled *Aging and Strong* presents, "the scientific case for a decline in athletic performance with age." That is misleading because, a) the series did not talk about athletic performance but specifically muscle strength, b) it does not recognize that the age at which strength production actually starts taking a hit is around 65 to 70, and c) it can be interpreted to mean that USAWA's approach of giving a 1% age correction for every year starting at 40 and double that starting at 66 not only enjoys scientific support but also my endorsement. Nothing could be farther from the truth. First, as a scientist I do not endorse anything, I only look at the evidence to support or refute a concept or belief. Here my research review revealed that chronological age will only start to impact a healthy person who trains based on scientific principles at about 65, the earliest. Second, the series clarified that losses in strength prior to 65 are due to implementing unscientific training practices and not aging. I invite you to learn more via these links: Part I, Part II, Part III, Part IV, Part V, and Part VI.

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Body Weight Correction

You have to understand that at its foundation, body weight correction formulas aim to answer an imaginary question: Who is the best lifter regardless of body weight? To some, this is important because it appears that the heavier the person, the more weight can be lifted. However, even a cursory review of USAWA's Record List challenges that. While the List demonstrates many instances of heavier lifters holding records of higher weight than lighter ones, there are also many instances displaying the opposite. In addition, several lifters hold records in a lift in multiple weight classes while having lifted more weight in a lower weight class. And yes, here, too, are instances of the opposite. What all this indicates is that the concept of more body weight resulting in heavier weights lifted lacks reliability in all-round.

Research into body weight formulas also found lack of validity. And if you think about it, it's rather obvious why. You see, a person's strength is not predicated upon body weight alone. Besides, just because one lifter is heavier than another, that does not mean he/she has more muscle. Instead, strength performance also depends on technical proficiency (which varies in importance depending on the lift), ability to generate high rates of impulse and/or force (differing levels of contribution depend on type of lift), biomechanical considerations (advantages for one set of lifts can be disadvantages for another set), flexibility, the type of programming a person applies in training, to include and not limited to various mental considerations highlighted in the sport psychology literature. Clearly, simply looking at how much a lifter weighs and trying to apply a weight correction for comparison purposes is far too simplistic.

Sanjiv mentions that some "weight corrections are…based on…world records." That practice is prevalent in weightlifting but is not a "weight correction" per se. It's termed Robi points, where a lifter is assigned points depending on the percentage of the world record in his/her weight class. So two lifters in two different weight classes who both lift 89% of the respective world record garner the same points. There are, however, documented problems with that approach in the scientific literature. Perhaps that's why weightlifting also allows for the use of the Sinclair formula. It relies on a quadratic regression model and log-transformed data to correct for body weight. Either way, weightlifting does not place lifters in competition based on the Sinclair or Robi but rather on total weight lifted in each weight class.

Also worth noting is that the majority of body weight correction formulas have been developed for weightlifting's snatch, clean and jerk, and total. That means even the most highly advanced formula, such as the Q-points formula, only applies to those three categories in that sport. As the type and number of lifts change, so must the mathematics, which still does not mean it ends up being a perfect and fair comparison. As an example, research on powerlifting's Wilks formula found it to only be applicable to the squat, bench press, and total in men, and bench press and total in women. The good news is that in an effort to be progressive and increase fairness, the International Powerlifting Federation no longer uses the Wilks formula. The bad news is that the new GL coefficients did not undergo peer review and still lack validity. But that may not be a major issue as these coefficients are only to be used "in certain cases" for the purpose of a "relative evaluation" of performance (*The IPF GL Coefficients for Relative Scoring*, May 2020).

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This brings me to the final consideration: None of these formulas should be implemented in all-round, including the Lynch that USAWA uses. This, because no formula exists that addresses the complexity, varying number and type of lifts in competition, and huge total number of contested lifts found in all-round. And in light of the concept of body weight correction lacking validity, considering including a sex correction only adds to an already unfair situation because sex differences are infinitely more complex than what Sanjiv would have you believe. As but one example related to body weight corrections in weightlifting, researchers have found that body mass holds less of an impact in female lifters compared to male lifters.

Bottom Line: Because fairness in competition is paramount, USAWA's approach requires a reset. Fairness cannot be attained by employing body weight corrections because in general the concept lacks validity and specific to all-round it's also unreliable.

Courage

Sanjiv's closing statement, that "we are not truly contesting maximum muscular strength in any given sanctioned event," is sadly true and should therefore give all of us pause…for obvious reasons. Clint Poore stated in his March 5, 2024 blog entry, "change can be good, but it's often a challenge to see the light at the end of the tunnel." Indeed, change is good—if it's based on evidence. But such change also requires courage. Can USAWA muster the courage to meet the challenge of increasing competition fairness?

Suggested Body Weight Correction Readings

1. Batterham A and George K. Allometric modeling does not determine a dimensionless power function ratio for maximal muscular function. *J Appl Physiol.* 1997;83(6):2158–66.

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4. Kauhanen H, et al. Standardization and validation of the body weight adjustment regression equations in Olympic weightlifting. *J Strength Cond Res*. 2002;16(1):58–74.
5. Marković G and Sekulić D. Modeling the influence of body size on weightlifting and powerlifting performance. *Coll Antropol.* 2006;30(3):607–13.
6. Perperoglou A and Huebner M. Quantile foliation for modeling performance across body mass and life span in Olympic weightlifting. *Stat Model*. 2021;21(6):546–63.
7. Sauerbrei W, et al. State of the art in selection of variables and functional forms in multivariable analysis—outstanding issues. *Diagn Progn Res*. 2020;4:3.
8. Vanderburgh P and Batterham M Validation of the Wilks powerlifting formula. *Med. Sci. Sports Exerc.* 1999;31(12):1869–75.