



[SKEPTICAL INQUIREE] BENJAMIN RADFORD

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BMI Skeptics

Q:

I'm always wary whenever I see BMI (body mass index) used as a calculation for general health. I hear that the BMI system is inherently flawed since most professional athletes are considered overweight or even obese by BMI standards. What's the real deal?

—R. Bolger

A:

The BMI is a simple formula: (weight in pounds / [height in inches]²) X 703. A score of 18.4 or lower indicates underweight; 18.5 to 24.9 indicates normal weight; 25 to 29.9 is overweight; and a BMI of 30 or higher suggests obesity. Last year, the U.S. Preventive Services Task Force, a government health panel, recommended that every adult should be screened for obesity during checkups, and physicians should routinely calculate their patients' BMIs.

This seemingly sensible recommendation received derision in many circles, and in fact the BMI has been attacked and ridiculed for years. Just how reviled is the BMI among the public? Type into Google "BMI is. . ." and the top three suggested searches are "bullshit," "wrong," and "a joke." Why such hate for an otherwise boring, uncontroversial medical formula?

Part of the reason is that the BMI has come under attack—not by medical professionals (who use it on a fairly regular basis¹) but by fat acceptance activists who believe that the BMI unfairly discriminates against overweight people. Author and Salon.com blogger Kate Harding (2007), for example, created a slideshow explaining why BMI is

badly flawed. Many other bloggers and writers have echoed her complaints, including at Jezebel, Slate, *Huffington Post*, and elsewhere.

By far the chief complaint is that BMI doesn't give accurate readings for everyone and that it overemphasizes the role of weight in health. An article provided by *Men's Health* magazine for the *Huffington Post* notes "The next time you happen to catch a Minnesota Vikings game, take a look at Adrian Peterson, the team's 6'1", 217-pound running back. Now ask yourself: what kind of physical characteristics would you attribute to him? Athletic? Lean? Fit? All of these certainly sound like valid answers to us—but his clinical classification might surprise you. By any normal standards, Peterson is one of the fittest men on the planet. But by our country's system of measuring body fat, he's overweight" (*Men's Health* 2010).

For other social activists the issue is not really about a height-weight ratio formula but instead what they believe the BMI represents: judgment against overweight women (and men), and an attempt to impose high beauty standards on women. As a blogger for Change.org asks in a piece typical of anti-BMI pieces, "If the BMI doesn't . . . take into account any distinctions of age, race, and sex, than [*sic*] perhaps its

[*sic*] at best an outmoded, ineffective, and ultimately demoralizing standard by which to judge a woman's health?" (Menkedick 2010).

There are several problems with this characterization. The questions of whether the BMI is outmoded and ineffective will be addressed shortly, but suggesting that the measure is a "demoralizing standard by which to judge a woman's health" is bizarre: The BMI is not a "standard [of] health" (for men or women); it is a measure of adiposity (fatness). Though there is a strong positive correlation between excess weight and poor health, it is quite possible to be overweight (or even obese) and healthy. Thus the suggestion that the BMI is a measure of health is patently false. And any medical measure can be "demoralizing" in some way if it does not give its user the desired results, from a blood sugar strip to a bathroom scale. The purpose of any weight scale or measure is to be accurate, not to provide comforting assurances (like the magical mirror in *Snow White*, proclaiming that its user is the fairest—or thinnest—of them all).

It is absolutely true that the BMI overestimates the amount of body fat (mistaking muscle for fat) in some people such as football running backs. However, critics gloss over the fact that

most of us are not professional football running backs; the vast majority of people are not in categories where the BMI's validity is skewed. The limitations of the BMI are well known to doctors; the measurement was developed as a general guideline. No competent doctor would classify a patient as underweight, normal, or obese based only on a BMI score; it's a starting point, a general guideline, not a strict rule that correctly predicts overweight in everyone.

To use another medical example, doctors issue guidelines to the public about warning signs of a stroke (including arm weakness, speech difficulty, and face drooping). These guidelines are not perfect (people experience these symptoms without having a stroke), and are not a substitute for a doctor's medical diagnosis. Like the BMI, the guidelines were not designed to be—and never claimed to be—the best diagnostic tool out there, but instead a general rule of thumb to give the layperson a guide to their health status. Nobody would suggest getting rid of the simple stroke checklist because it does not correctly diagnose stroke in everyone (and has the potential for false positives), yet many suggest getting rid of the BMI for exactly the same reason.

SKEPTICAL INQUIRER columnist Dr. Steven Novella (2011), writing about the BMI on his *Science-Based Medicine* blog, notes, "It is widely recognized and admitted that BMI is problematic as applied to individuals. Muscular and athletic people may have a high BMI and not have excess adiposity, for example. Also at the extremes of height the BMI becomes harder to interpret. But this does not mean the BMI is useless. In fact, for most people BMI correlates quite well with adiposity. . . . BMI is a rough but useful estimate, good for large epidemiological studies where more elaborate fat percentage measurements are not practical."

Novella adds that any "controversy" about the BMI "has nothing to do with size acceptance. We can separate the

question of social stigma from the medical facts. It is also folly to tie a social/ethical issue to a specific factual premise—because when the facts don't come out the way you wish that either weakens your ethical stance, and/or forces you to deny the scientific facts."

Another criticism is that the BMI was developed over 150 years ago, and its longevity somehow discredits it. What would become the BMI was developed around 1850 by a Belgian statistician named Adolphe Quetelet, and has been used more or less since then. Of course, germ theory has been around since at least 1815 and no one suggests that germ theory is "outmoded" or incorrect merely because it's been around for nearly 200 years.

Ironically, efforts by critics to challenge the BMI's validity often undermine the very research they promote. By challenging the validity of the BMI, they are also indirectly (but significantly) challenging the instrument validity of research that uses BMI in its methodology—often research they themselves cite in support of their claims. If the BMI really is an invalid measure as is often claimed, the validity of countless studies that use that measure must be questioned. This problem has received little if any attention, likely because most people promoting social agendas don't actually read the original studies they cite in support of their arguments and claims.

Another reason the BMI is useful is that many people do not notice weight gain. Contrary to the popular idea that most people (especially women) weigh themselves constantly in fear of gaining an ounce, studies show that a significant number of women evaluated at six-month intervals did not recognize recent gains in weight. Nearly one-third of women did not notice a weight gain of approximately 4.5 pounds over a six-month time, and one-quarter of women did not notice a weight gain of nearly nine pounds over the same period. Such findings concern researchers because if people don't realize they are overweight,

they won't make efforts to lose weight (Radford 2012).

The BMI is also useful in that it is a calculation that anyone can make and does not require medical knowledge or a doctor's office visit. Not everyone has access to quality medical care and private physicians, and the BMI helps poor and underprivileged people determine whether or not they are at a healthy weight.

Many of the BMI critics' complaints are straw man arguments stemming from a fundamental misunderstanding of what the BMI is and what it claims to do. It is not a tool used by the patriarchal medical establishment for oppressing women, or for pressuring them to conform to impossible standards of beauty. It is instead a generally useful, accurate guide to helping average men and women determine their weight status. ■

Note

1. In his "Science Watch" column "Obesity Redux: A Response to Readers" (SKEPTICAL INQUIRER, September/October 2013) Kenneth Krause wrote "All BMI categories are controversial, however, because they fail to differentiate between lean muscle mass and fat mass or subcutaneous fat (less dangerous) to visceral fat (more dangerous)." It's not clear who the BMI is "controversial" to, but Krause may mean that it's controversial in the same way that evolution, vaccination, and global warming are controversial: not to scientists (or doctors) but to a handful of vocal activists and journalists in the lay public.

References

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