Man Bites Downward-Facing Dog

*Yoga Journal’s* Medical Editor Responds to William Broad

**by Timothy McCall, M.D.** (revised March 11, 2013)

Could yoga make you fat? Does it cause hundreds of strokes per year? Sex you up so much you’ll engage in unethical behavior? Did the entire discipline start out as a sex cult? If you read *The New York Times* you might think so. As much as I've often disagreed with reporter William Broad’s writings about yoga in the Times and in his 2012 book *The Science of Yoga*, up until now I’ve been diplomatic. But after an article he published two days prior to the Christmas day release of the paperback edition asserted, once again I believed without good evidence, that "yoga is remarkably dangerous — for men," I decided it was time to speak up.

Broad achieved instant infamy in the yoga world in January of 2012 when the Sunday *New York Times Magazine* published an alarming and controversial excerpt of his book entitled *"How Yoga Can Wreck Your Body."* While I joined the chorus of yogis that responded to its mistakes and exaggerations, I also wrote that by raising the issue of yoga injuries — which some teachers were not discussing enough — he provided a service. My review in *Yoga International* was mixed but said, "Whatever its limitations, this provocative book has much to offer and I highly recommend yoga teachers and serious students read it..." But a disturbing pattern of sensationalism is now emerging. Again and again, Broad has made bold, and sometimes shocking, man-bites-dog claims about yoga, which have succeeded in bringing attention to himself and his book, but which fail to hold up under scientific scrutiny. Surprisingly for a science writer of his stature (he's shared in two Pulitzer Prizes), no extraordinary evidence backs his extraordinary claims.

One counterintuitive claim, parroted by Maureen Dowd in her popular Times column prior to his book’s release, is that yoga could make you fat — particularly if you’re female. Broad based that assertion entirely on an extrapolation from the long-documented finding that practicing yoga can lower the metabolic rate. Why is that? When you are stressed, your sympathetic nervous system steels your body for fight or flight. Your heart beats faster, your blood pressure goes up, more blood is delivered to large muscles, all of which burns calories. Calm your mind and relax your body with yoga and your parasympathetic nervous system kicks in, and you don’t burn all those nervous-energy calories. Broad’s weight gain warning was pure speculation without an ounce of data behind it, and neglected much of the story.
Did Broad consider the effects of stress-related eating? Cortisol-induced binges, and what scientists studying rats call "food seeking behavior?" What about the stress hormone's penchant for turning extra calories into belly fat, the most dangerous kind metabolically? And yoga's proven ability to lower cortisol? None of it is discussed in The Science of Yoga. In fact, there's only one brief mention in the entire book of this hormone so intimately tied to obesity (and many other diseases). He also failed to cite any of the scientific studies that have examined the issue of yoga and body weight. While that research isn't definitive, the preponderance of the evidence suggests that yoga can help people drop excess weight, and prevent unhealthy weight gain, as I pointed out in my 2007 book Yoga as Medicine (which he must have read since his book recommends it).

For example, Dr. Alan Kristal of the Fred Hutchinson Cancer Research Center in Seattle and colleagues surveyed more than 15,000 people in their fifties, 132 of whom had been regular yoga practitioners for at least four years. During the previous ten years, overweight people in the yoga group had lost an average of five pounds, compared to a 13.5 pound gain among overweight non-practitioners. A recent study, published in The International Journal of Yoga found that among more than 200 women, all long-term yoga practitioners over the age of 45, the more yoga they practiced, the lower the body mass index (BMI). The results held up even when adjusted for such factors as age and lifestyle. Among the 49 women who had practiced more than 25 years, there were no cases of obesity.

Then there was Broad's Times article on yoga and sex scandals, which argued they were inevitable because yoga supercharges libido. He chronicled the sexual peccadilloes of yoga superstars like Swami Muktananda, who at one time had millions of followers in the West, and John Friend, who before his fall from grace led the fastest growing school of hatha yoga, leading the writer of a Sunday Times Magazine feature to dub him the "yoga mogul." While Broad's cited scientific studies that found the practice improves sexual function and satisfaction, his notion that any of this explains inappropriate sexual behavior is once again speculation without data. Has he noticed that men in powerful positions in other fields have gotten into similar hot water?

His assertion in The Science of Yoga, repeated in the article, that "the entire discipline itself began as a sex cult," is false and an insult to millions of Hindus. As he correctly pointed out, some Tantric yogis engaged in sexual rituals. But these were highly structured, with participants often paired with partners to whom they
weren't attracted. No one would confuse them with a California hot tub orgy, and in any case, they were never part of yoga's mainstream. Broad mistook metaphorical calls in yogic texts to unite the male and female energies in one's own body and mind, the Shiva and the Shakti, the solar "ha" and lunar "tha" of the word hatha, for literal injunctions to get it on.

In making the case that men are at higher risk of yoga injuries, Broad examined 18 years of data — from 1994 to 2011 — from a federal program, the National Electronic Injury Surveillance System (NEISS), that monitors visits to a representative sample of around 100 emergency rooms (out of 5300) nationwide. Broad didn't provide any raw numbers (making it hard for readers to interpret the results since they don't know if he's talking about 12 cases or 12 hundred) just the relative percentages for males and females in 4 categories of "major" injuries 1) strains or sprains 2) dislocations 3) fractures, and 4) nerve damage. So, for example, men had 24 percent of the dislocations in the reports — more than expected — as Broad estimated they comprised just 16 percent of yoga practitioners.

In his analysis, Broad included only major injuries, but one wonders how he decided what to include and what to exclude. Ankle sprains and low back strains, can be painful, but most of them shouldn't be labeled major injuries. (N.B. When Broad analyzed the same government data elsewhere, he categorized sprains and strains as minor. Without that reclassification, it would have been nearly impossible to argue how remarkably dangerous yoga is for men.) In contrast, syncope (fainting), which Broad found disproportionately affects women, he categorized as "minor," and didn't include in his analysis. The question is whether Broad decided which categories to include after examining the data — perhaps okay in journalism but a serious no-no in scientific research, due to the well-known risk of cherry-picking the data.

Most surprisingly, Broad's recent Times article failed to mention the life-threatening condition that was the subject of one of his book's most shocking claims. He noted that doctors estimate the annual rate of strokes due to injuries to the vertebral arteries as one and one half per 100,000 people from all causes. These linguini-like blood vessels which run along the backs of the cervical vertebrae are stretched and potentially torn by extreme movements of the neck as can happen in certain yoga poses, or, for example, when dropping one's head back into a hairdresser's sink. Using unscientific methodology Broad calculated that yoga is tied to 300 strokes per year, and 15 stroke-related deaths. That would be thousands of yoga-induced strokes and hundreds of deaths over the 18 years.
You would think that if he had found support for these claims in the government's emergency room tracking data he would have reported it.

Indeed no such evidence is to be found. What's most striking in a review all 18 years of the NEISS data is how few yoga injuries there are. In 2011, when an estimated 20 million Americans were practicing yoga, the sampled emergency rooms reported a total of 101 cases, an average of one each. The next impression is how utterly ordinary the problems seem. This a laundry list of sprains and strains, re-injured backs, and people who fell in a yoga pose and bumped their head or slipped and broke a toe. My perspective as a physician is that the number of truly serious problems in 18 years is closer to 12.

In almost two decades, the 100 E.R.s combined saw one cervical spine fracture, one hip fracture, one dislocation of a prosthetic hip, two cases of deep vein thrombosis, two of syncope that resulted in injuries and hospitalization, one heart attack and a few other chest pain diagnoses that might have been related to heart disease, one or two possible strokes, one seizure requiring life support and a handful of other diagnoses. Often, as with the possible strokes and the deep vein thromboses, it's impossible to say whether yoga caused (or even contributed to) the reported injuries. There is a roughly even male/female ratio among these serious diagnoses, but with such small numbers it's impossible to draw any conclusions.

As I wrote on the Yoga for Healthy Aging blog, I do think men, in comparison to their proportions in the yoga world, are more likely to take the more strenuous and acrobatic classes where injuries would appear to be more common. And, in my experience, men are more likely to push too hard for results (although women can do this too), and this is a well-known precipitant of injury. Most teachers I've spoken with believe that more flexible students (disproportionately women) are much more likely to get such injuries as hamstring muscle tears and over-stretching of pelvic and spinal ligaments, nettlesome but probably less likely to result in a trip to the ER. Given the paucity of data, a scientist would have to conclude that there isn't enough evidence yet to say which gender is at higher risk for yoga injuries. One certainly should not, based on the weak evidence Broad has marshaled, label yoga as "remarkably dangerous" for men.
"Some yoga practitioners will surely see my analysis as unconvincing," Broad writes. "It’s the kind of topic," he says, "that can only benefit from thorough discussion* — as well as rigorous new studies that can rule out the possibility of false clues."

Finally something we can agree on.

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*In conjunction with the publication of this article, Yoga U, an online educational resource, will broadcast free of charge from April 10-14, 2013 a telesummit on yoga injuries, featuring Timothy McCall, Judith Hanson Lasater, Loren Fishman, Roger Cole, Julie Gudmestad, Leslie Kaminoff and other leading yoga teachers.