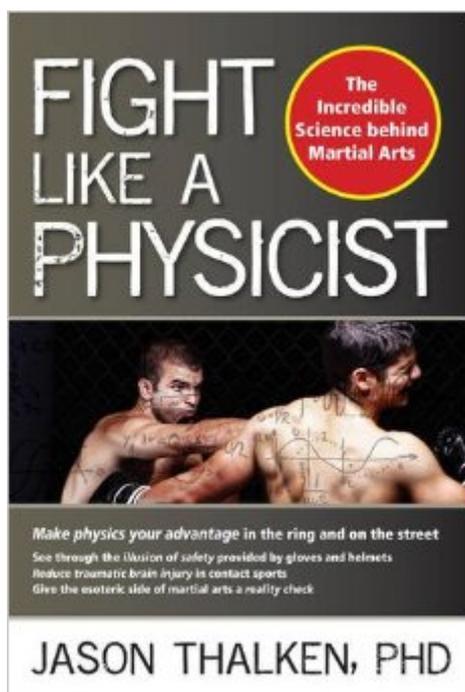


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# Fight Like A Physicist: The Incredible Science Behind Martial Arts (Martial Science)



## Synopsis

WINNER • SPORTS • USA Best Books Award 2015

*Fight Like a Physicist* provides an in-depth, sometimes whimsical look into the physics behind martial arts for sport and self-defense. Whether you are an experienced martial artist or a curious enthusiast, this book can give you an "unfair advantage" by unraveling the complex science of effective fighting techniques and examining the core principles that make them work. In addition to breaking down the principles behind the punches, Dr. Thalken, a computational physicist with a long history of martial arts across various styles, applies the mind-set of a physicist to a number of controversial topics in the martial arts: Making physics your "unfair advantage," in the ring and on the street; Examining center of mass, pi, levers, wedges, angular momentum, and linear momentum for martial artists; Protecting the brains of fighters and football players from concussions; Reducing traumatic brain injury in contact sports; Exposing the illusion of safety provided by gloves and helmets; Overturning conventional wisdom on compliance during an assault; Busting Hollywood action myths; Giving the mystical side of martial arts a much-needed reality check. Dr. Thalken invites readers to take a scientific approach to training and fighting, and provides all the tools necessary to get the most out of their experiences and make their training count.

## Book Information

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## Customer Reviews

When I saw this book's title, I imagined a bloodied and battered Poindexter in a bow-tie--a professorial type dying in a puddle of his own bodily fluids as he calculated the Bayesian probability

of winning given that initial beating. After all, physics is a highly cerebral activity, and being cerebral in a fight is a certain path to a beat down. However, Thalken makes a good point with his explanation of the title (and the book's theme.) He's suggesting that one use tactics and techniques that are supported by evidence and rooted in a sound understanding of the science of combat "as opposed to mindlessly doing whatever your sensei tells you or--worse yet--just muddling through on a combination of instinct and ignorance. In short, be skeptical, but inquiring. It turns out that there is a time for a fighter to be cerebral, but it's when they are making decisions about how to train. The book is divided into two parts. The first part explains how classical mechanics can help one to be a better fighter. There are four chapters in this section that deal with center of mass and its crucial role in a fight, the differences between high momentum and high energy strikes and how each is achieved, differences in circular versus linear paths and where the advantage in each lies, and what simple machines (i.e. levers and wedges) can do for a fighter. This section is what one would expect from such a book. Unlike the second section, which deals largely with sport fighters, the advice on offer in the first section is as applicable to those involved in self-defense or other real world combative situations as it is to fighters in the ring.

Martial arts can seem like an illusion. Take, for instance, the competition I saw at the U.S. Open in 2007 in Orlando. A martial artist, a black belt I presumed to be in his 40s, lifted up a plank full of nails and punctured a bottle of water with it. As the water spread out on the floor, he put the plank down and stepped on it. I cringed as I watched the nails all but pierce his feet while he demolished a stack of bricks as tall as a child. Neither act - standing on nails or breaking bricks - is as strenuous as it seems, says Dr. Jason Thalken, author of his first book, *How To Fight Like A Physicist*. Regarding the bed of nails, he says that "any person is capable of performing this trick right now with no training." He explains how surface area distribution prevents the nails from piercing the skin. Turning to the bricks, he says it wouldn't work if the bricks were spaced incorrectly. He details how bricks are broken due to how they are bent. This is just one example of how Thalken breaks through martial arts mysticism. The meat of the book, in my view, lies in the middle. Thalken discusses the issue of how brain damage occurs from sparring and MMA fights, and even suggests that, in some cases, the more protection we think we have from head injuries (through the use of face cages, for example), the more we may actually be at risk for them. Just because Thalken is a new author doesn't mean he lacks knowledge. The Ph.D., holder of three bachelor's degrees, and holder of eight patents has filed a patent for a new type of headgear to protect against brain injuries in the hopes of preventing chronic traumatic encephalopathy (CTE),

also known as "punch drunk syndrome" in martial artists and fighters.

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