

# The "Relative Risk" of Drugs

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My thanks to Dr. David Brownstein who stunned me with the information I am about to share, plus a quote that re-energizes me. Understanding these principles reaffirms that what we do is having a profound effect on people's lives. Here's what he said about prescription drugs, "It is ludicrous to think that we were born and made to have our enzyme systems poisoned and our receptors blocked long term and expect a good result." Drugs work, but they have side effects, and we should strive to alert our patients that they should be used short term, and then work together to find the solution to the problem.

Additionally, studies show that 75% of all Americans over the age of 65 took an average of 4 prescription drugs on a daily basis. Yet, not one study has ever been done to document the safety of these random 4 drug combination cocktails. Not one.

Here's another shocker. Drug ads misrepresent their effectiveness. They often show a percentage indicating how effective a drug may be.



Inferring this is what "the science" shows. It's usually pretty impressive. The problem is, what's advertised is called "Relative Risk" and very deceptive. Look next to that percentage, and you will see a little asterisk. Always follow the asterisk for the rest of the story.

Let's see how they calculate that number. Take the percentage of people achieving success on the drug and then divide that number by the percentage of people taking the control. Now, take that number and subtract it from the number one to get a percentage. Let's use real numbers from a real study to

make it clear. Several people in a study were taking a drug for 3.3 years, and they had a 2% incidence of a nonfatal heart attack. The control group taking a placebo had a 3% incidence of a nonfatal heart attack. We would create the Relative Risk by dividing the treatment group 2%, by the control group 3%, and get 0.66. Now, when we subtract 0.66 from the number one, we get the percentage of a relative reduction in nonfatal heart attack, 34%. This is the number that shows up in the direct-to-consumer ads. And who wouldn't want to have a 34% risk reduction in nonfatal heart attacks? Sign me up.

However, let's look at a more precise way to understand the same numbers called the "Absolute Risk Reduction." This is the calculation that the *New England Journal of Medicine* in their 2008 edition suggests physicians use. Let's use the same numbers. First, take the percentage of incidence of nonfatal heart attacks from the control or placebo group and subtract the percentage of incidence in the treatment group. Remember, 3% is the control group and subtract 2% which is the treatment group. We get a difference of 1%. So, by taking this drug, we have an "Absolute Risk Reduction" of 1% in nonfatal heart attacks. 1% is a lot different than 34%.

Now, let me stretch you a little further because we want to make one more calculation called the "Number Needed to Treat" (NNT). We want to calculate the percentage from the Absolute Risk to a number we can use to make a real-life decision. We do that by taking our 1% and divide it by .01 to give us a whole number and our answer is 100. What does this mean? It would take 100 people to take this drug for 3.3 years to prevent one nonfatal heart attack.

The cost of that drug for 3.3 years is over \$550,000. Is that a good investment? This particular study was done with a major cholesterol lowering medication over a 3.3 year

period. The name of the drug doesn't matter because most cholesterol lowering medications have the same or worse numbers. I want you to understand the concept. Now, just for fun, let's look at the Number Needed to Treat when using antibiotics for a strep throat. That number is 1.1. In other words, 1.1 people would have to take penicillin for fourteen days to effectively treat strep throat. Let's look at the triple drug therapy used to treat H-Pylori. The number is 1.2. So, 1.2 people would have to take the drugs to have a positive effect. Dr. Brownstein states that a number (or Number Needed to Treat) over 20 is questionable. A number over 50 is ridiculous, and yet major pharmaceutical company drug use studies routinely have Numbers Needed To Treat of over 100.

Let's come back to Dr. Brownstein's quote, "You can't poison a crucial enzyme or block an important receptor for the long term and expect a good result." These are the kind of discussions that motivate our patients to get well and stay well. There is no question that drugs have a place in medicine, but the concepts of wellness are really the future of health care, and we are on the forefront. Thanks for your commitment to making a change in people's lives.

Thanks for watching. I look forward to seeing you again next Tuesday.