

George A Patterson III MDPC
8218 Wisconsin Ave Suite 316
Bethesda MD 20814
301-652-7061

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Save me from media hype or how to make sense of the “research” that they bring to you.

Every day we see in the paper/internet/TV about some new breakthrough or cure or something to avoid. What do you need to know to correctly interpret this information? Hopefully asking these questions will help you in judging how useful the information is to you.

1. Who were the subjects, researchers and sponsors? Are the subjects similar to you? Who funded the study and could their sponsorship bias the results or reporting.
2. How was the study done? Was it a randomized trial, survey, or single case report?
3. Where were the patients from? Primary care offices or university clinic. Patients from large teaching hospital often have more severe cases than in smaller community settings.
4. What was studied? POEMs(Patient-Oriented Evidence that Matters) looks at medical events (outcomes) such as rate of developing loss of vision. Other studies focus on test results such as intraocular pressure (the pressure inside the eye or IOP) Test results can be important but changes in serious health outcomes such as vision loss present stronger evidence.
5. When and for how long was the study done? IOP can change hourly but for most glaucoma patient’s vision loss progresses over years and a good study of glaucoma requires five years or longer.

What do the technical terms really mean. These are arranged from most to least desirable study type.

1. Meta-analysis or systematic review. This pools the results of similar studies to analyze information from hundreds or thousands of patients.
2. Randomized controlled trial (RCT). Researchers randomly divide patients into two groups. The experimental group receives a new treatment while the control group (comparison) group receives either traditional care or an inactive (placebo) care. Some studies are blinded- which means either the patients or researchers or both (double blinded) do not know which treatment is administered. The larger the difference between groups the stronger the evidence the new treatment is better.
3. Cohort study. A large group of people are followed, usually for years, to see how often a disease develops and to learn which factors affect the disease.
4. Case control study. This compares past cases (people with disease) to controls (people without disease) searching for clues why the disease occurs or develops.
5. Cross sectional studies. Look at a population at one point in time.
6. Small case studies describe only several patients with a disease.
7. Expert opinion is only as good as the evidence it is based on.
8. Single case or testimonials. Don’t trust the claim” It worked for me, it’ll work for you, too”

How to interpret the math

Statistical significance, $P < .05$. This means that there is a 5 percent chance that the study’s results are purely coincidence, and more than 95% chance that they’re truly related to the treatment being studied. Practical significance- whether the results are worth acting on- is entirely different. A six month study of a weight loss pill might show statistically significant weight loss of one pound, which isn’t practically significant for someone whose goal is to lose 30 pounds.

