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## Getting the Best Health Care: Statisticians Are Our Friends

Today's news has two reminders of why statisticians are our friends and allies when it comes to getting the right health care and avoiding dangerous and over-hyped treatments.

The headlines:

\* Hormone replacement therapy after menopause not only increases the risk of getting breast cancer, but also makes the cancer more deadly. Details [here](#).

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\* Taking a daily fish oil supplement in pregnancy doesn't make babies any smarter. Details [here](#).

The arc of both stories is similar, and that's no coincidence.

**Act One:** Medical scientists develop a new treatment that, based on then current knowledge, should work.

In hormone therapy, the idea was that estrogen protected women from heart and blood vessel disease. This was based on a statistical notion -- since proven false -- that there was a big jump in heart attacks and similar disease after menopause, which must mean (so it was thought) that the drying up of estrogen in the body with menopause was depriving the body of a natural protectant.

In fish oil, the idea came from observations that DHA, a key fish oil ingredient, is naturally transmitted to a fetus in the last half of pregnancy and is important to brain development. And premature babies, born with low supplies of DHA, did better in some studies if they received DHA supplements in the first few months of life.

**Act Two:** Hopeful "observational" studies are published. These involve dozens to hundreds of patients and have very favorable results for the treatment in question.

**Act Three:** Manufacturers make big bucks pumping the treatment in question.

**Act Four:** Medical scientists do the hard work of large-scale studies where patients are "randomized" to the real treatment versus a dummy (placebo) treatment.

This takes years of carefully following patients and comparing outcomes.

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**Act Five:** Enter the statisticians.

They come in, crunch the numbers and discover: It doesn't work (see today's fish oil study) or worse, it causes a lot of harm too (today's hormone story).

What's the lesson for the rest of us? As I wrote a few days ago on [this blog](#), it pays to be skeptical of medical research findings, particularly when hyped by commercial interests.

Most people hear about research in the Act One, Two or Three stages.

If you wait till the story plays out in Acts Four and Five, you'll be less disillusioned, and safer and wiser too.

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