



RESEARCH UPDATES

THE OBSERVER EFFECT



As much as we discount anecdotal observations in medicine, research studies are, in fact, a collection of observed anecdotes. This does not mean that what we conclude is founded on fallacy. Rather, it suggests that our observations, even when pooled, should be questioned.

In quantum mechanics, the act of observing (or measuring) subatomic particles inherently affects the behavior of the particle being observed. Think of measuring the speed of a bowling ball as it rolls down a hill. With radar, the sound waves have an inconsequential effect on the ball as they hit it and bounce back to the detector. However, we could also measure the ball's speed as it hits a series of bowling pins in its path. If we know the distance between each pin and the time it takes to hit the next pin, we have all the information we need to calculate the speed of the ball. But the act of measuring the ball's speed in this manner will inherently change the speed of the ball and bias our results.

In clinical studies, whether it is the inherent bias of the observer or the artificial study environment that impacts patient behavior, the act of observation, in very simplistic terms, may bias the outcome. When the effect of the observation is significant enough relative to what is being observed, we may not know the true result.

In this issue of *GT*, individuals share updates on their recent or ongoing projects in glaucoma research. Most importantly, they reflect on the questions that sparked these efforts and comment on those that continue to drive them. We all learn so much from this investigative thinking, not only as we conduct research but as we review findings, explore new technologies and techniques, and make changes to our own clinical and surgical practice over time. A constant questioning and a recognition of the variables that affect our observations will help bring us closer to a more accurate picture of reality, subjective it may be. ■

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