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Why RCTs Break Down in an Einsteinian, Quantum, and Circadian World

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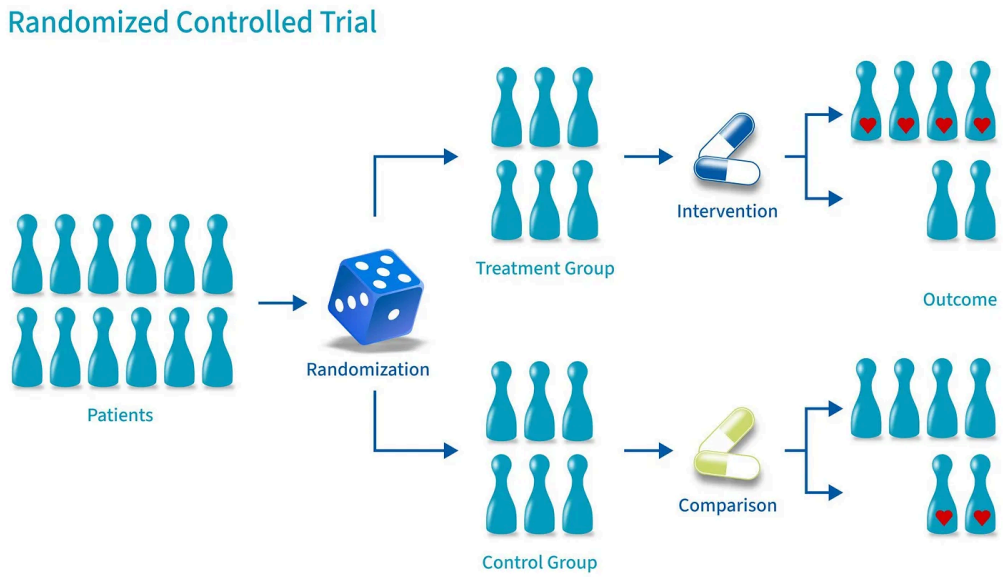

Within modern day science, people worship the randomized controlled trial, so much so that they call it the gold standard of scientific evidence.

But, what if that falls apart when viewing reality for what it really is?

I'm here to make that case.

Einstein's theory of relativity redefined the structure of reality:

> ***Time is not absolute: it bends with velocity and gravity.***
>
> ***Simultaneity is relative: what's "now" for one observer may be "later" for another.***

From this point of view, causality becomes conditional.

In relativity, cause must precede effect only within a light cone (at or below light speed). Events outside each other's light cones have no absolute ordering, their causal link is undefined or nonexistent depending on the observer's frame.

In a relativistic world, causality is local, not universal.

Time ordering is no longer sacred.

Einstein showed that time isn't the same for everyone. It moves differently depending on how fast you're going or how close you are to gravity. That means two people might disagree on when things happen.

Because of this, cause and effect aren't always clear. If two events are far apart in space and not connected by light or slower signals, their order can flip depending on who's watching.

So in Einstein's world, causality isn't fixed, it only works in certain situations.

Time and cause and effect are local, not universal truths.

This is where the randomized controlled trial comes into play.

Randomized controlled trials rest on classical Newtonian assumptions:

- Linear time: cause = effect.
- Isolated systems: variables can be controlled.
- Observer neutrality: measurements don't influence results.

But, these assumptions collapse under relativistic and quantum scrutiny.

The first problem is that ***time isn't fixed***. RCTs assume things happen in a clear order. First the treatment, then the result. But Einstein showed time depends on your point of view, what's "before" for one person might be "after" for another. That challenges the idea of a single, fixed timeline.

The second problem is the ***observer effect***. Quantum physics shows that just observing something can change how it behaves. In biology, being part of a study can change how people act or feel, but RCTs pretend the study doesn't affect the outcome.

The third problem is that ***biology runs on invisible fields***. Your body isn't just made of parts, it responds to invisible forces like light and magnetism. Light isn't just a chemical trigger; it's a circadian signal that has a drastic impact on the circadian system. RCTs treat it like a simple "dose," ignoring how deeply it shapes your body.

Biology isn't a Newtonian clock.

It's a field-sensitive, time-dependent, non-linear system. This matters for measurement (observer effect) because you can't observe without altering the system, especially in the case of human beings.

It matters for context (entanglement). For example, sunscreen doesn't "work" in isolation. Its effects depend on light timing, skin type, diet, mitochondrial function, and so much more. RCTs collapse context to force simplicity.

It matters for light information because full spectrum sunlight isn't just radiation, it's structured information for biological systems. All light wavelengths work synergistically to create a whole greater than the sum of its parts. RCTs reduce this to "UV dose vs no UV," missing the biological orchestra I often speak about.

It matters for circadian timing because circadian biology is all about timing using external zeitgebers for endogenous clocks that are circadian, ultradian, and seasonal. RCTs rarely control for time of day, even though biology does.

It matters for non-locality because cells signal via biophotons and field coherence. RCTs don't track how, for example, applying sunscreen may affect melatonin, cortisol, or brainwave patterns indirectly.

RCTs work well when testing drugs in tightly controlled, simplified systems where variables can be isolated and outcomes repeated. They're useful when complexity is stripped away.

But, they fall short when applied to areas like circadian rhythms, sunlight, mitochondrial function, consciousness, or behavior.. where timing, environment, and observation all matter. These systems are dynamic, context-dependent, and shaped by invisible rhythms that RCTs simply aren't designed to capture.

In other words.. RCTs are epistemological tools, not metaphysical truths.

They can detect correlations in tightly boxed systems but CANNOT capture reality's full spectrum, especially where time is flexible, observation matters, and biological signals arise from light, rhythm, and coherence.

To understand life, health, and healing, we must think circadianly, relationally, and quantum-mechanically, beyond the rigid lens of randomized trials.

Consider that the next time a centralized thinker wants you to believe that randomized controlled trials are the end all be all of truth where all conversations end.