

The Need for Psychological Science



1. What is Pseudoscience?
2. Identifying Pseudoscience

Today

- Describe psychological pseudoscience and distinguish it from psychological science.
- Identify reasons we are drawn to pseudoscience.
- Understand what hindsight bias is.
- Understand the implications of overconfidence.

Learning Goals

A body of knowledge, methodology, belief, or practice that is claimed to be scientific or made to appear scientific, but does not adhere to the scientific method.

Pseudoscientific beliefs are remarkably common and resistant to change--even among well-educated persons.

What is Pseudoscience?

- Use of 'psychobabble'--words that sound scientific, but are used incorrectly, or in a misleading manner. Some common examples:

Biofeedback

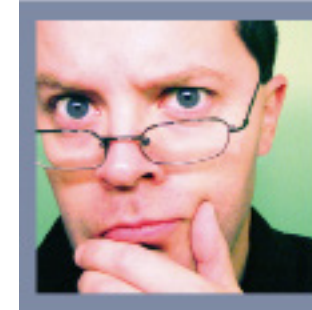
Quantum Energies

Neuroplastic Mechanisms



Identifying Pseudoscience

- A substantial reliance on anecdotal evidence.



**The power bracelet is phenomenal!
It really works!**

- Tom 32, Athlete



**Ever since I started wearing it,
I feel more energized!**

- Tashya 29, Singer

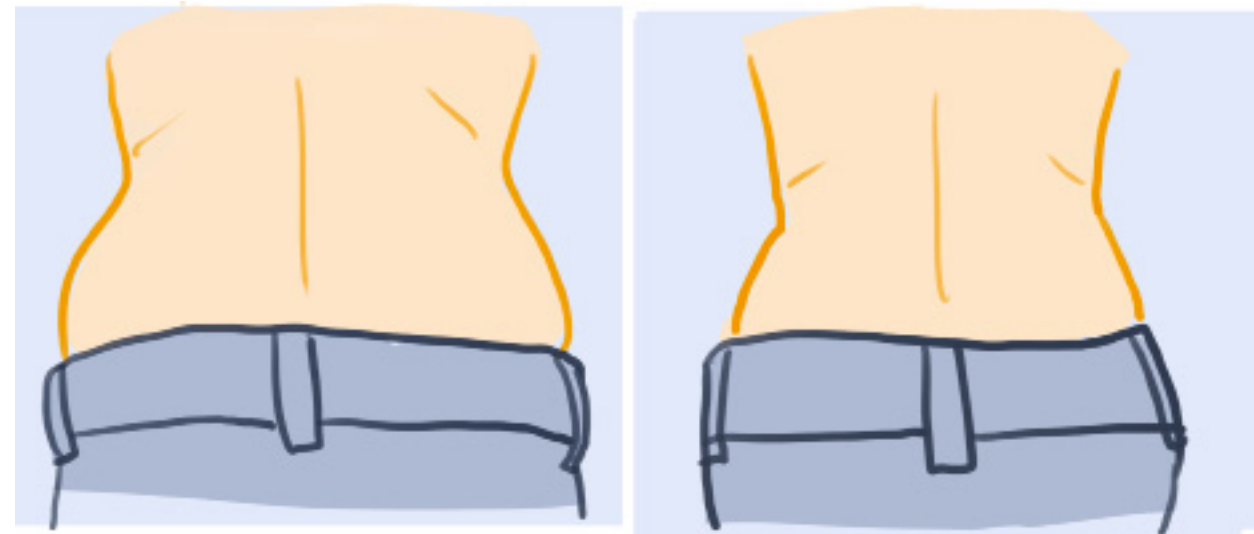


**I can now get through a day of work
without feeling tired thanks to
the power bracelet.**

- Bob 56, Salesman

Identifying Pseudoscience

- Extraordinary claims in the absence of strong evidence.



Identifying Pseudoscience

- Unfalsifiable claims



“I have tiny, invisible leprechauns living in my inner ear. Unfortunately, these cannot be detected by any kind of scientific equipment.”

Identifying Pseudoscience

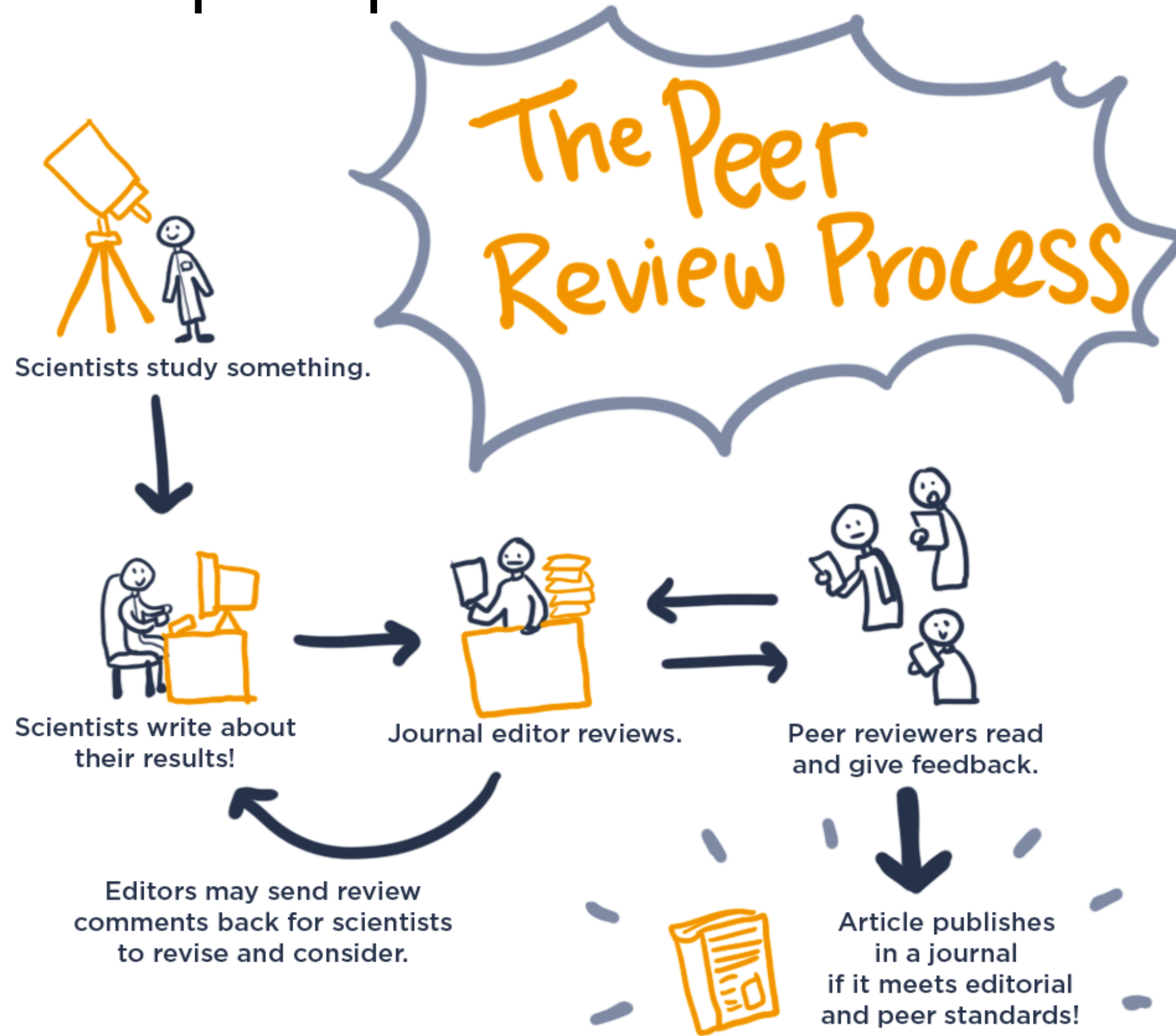
- An absence of connectivity to other research.



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Identifying Pseudoscience

- Absence of adequate peer review.



Identifying Pseudoscience

- Lack of self-correction: Pseudosciences often persist despite contradictory evidence.



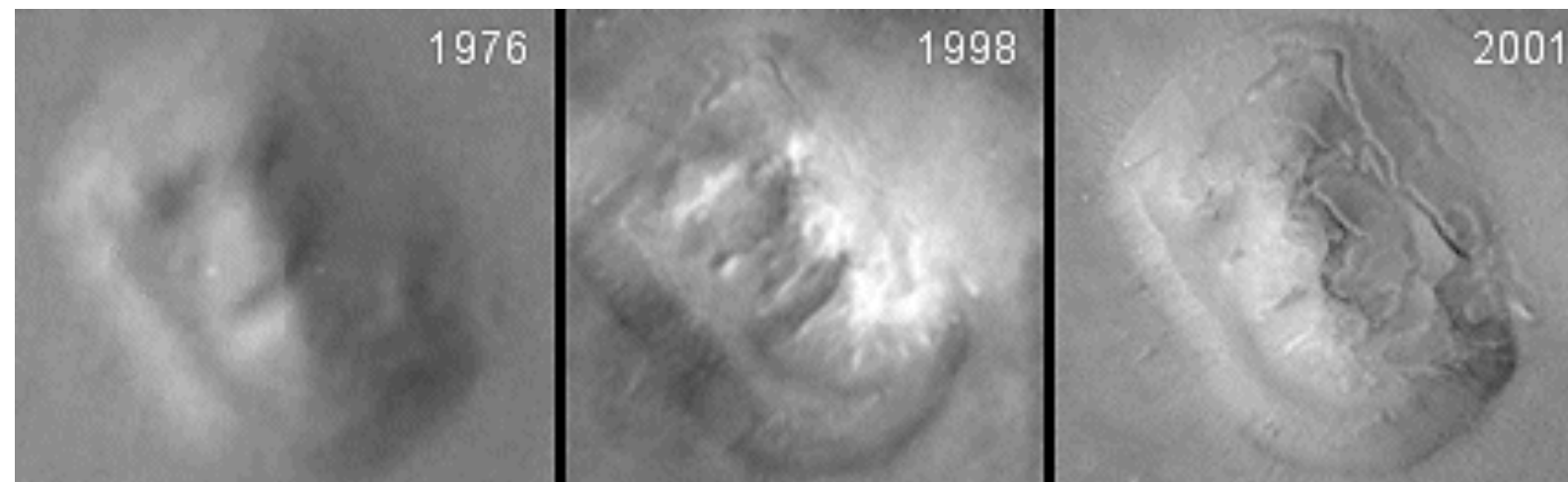
CHERRY PICKING

**The overemphasis of token data
that supports a preferred conclusion
and excludes contradictory evidence.**

Identifying Pseudoscience

Apophenia: The tendency to perceive meaningful connections among unrelated phenomena.

Pareidolia: Seeing meaningful image in meaningless visual stimuli



Apophenia & Pareidolia



Apopphenia & Pareidolia



Apophenia & Pareidolia

Hindsight Bias

We all tend to believe, after learning an outcome, that we could have foreseen that outcome.

People also tend to think that, given a particular research finding, they knew that all along.

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Overconfidence

We all tend to think we know more than we actually do. That is, we are often more confident in our answers than we are correct.

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