Making sense of miracle cures
How psychology makes alternative medicine 'work'

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Complementary and alternative medicine (CAM)

- **Most common examples?** acupuncture, homeopathy, chiropractic; herbal medicine; bioenergy healing; reflexology; crystal therapy; aromatherapy

- **Some other examples:** autogenic training, Alexander technique, acupuncture, applied kinesiology, Ayurveda, Bach flower remedies, Bowen technique, bio-magnetic therapy, bionomic massage, Brain P chcąć Therapy, craniosacral therapy, Chi Kung (no contact), colour analysis therapy, downstream, energy balancing, electro-crystal therapy, iridology, Indian head massage, kinesiology, the Meichizadoe method, the transmorphastic technique, naturopathy, nutritional therapy, on-site massage, pilates, polarity therapy, Qi Gong, Pranic healing, Rechim therapy, Reiki, spiritual healing, Sharif, Shinto therapy, touch for health, Tai Chi (non-contact), trigger point therapy, Tui na, zero balancing.

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CAM: Plausibility, evidence

<table>
<thead>
<tr>
<th>CAM</th>
<th>Check with mainstream scientific explanations</th>
<th>Number of trials/participants</th>
<th>Number of review mentions</th>
<th>Clash with mainstream scientific explanations</th>
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<tr>
<td>Homeopathy</td>
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<tr>
<td>Acupuncture</td>
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<td>2/43+</td>
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<td>Reflexology</td>
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<td>5/400</td>
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</tr>
<tr>
<td>Crystal therapy</td>
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<td>1/2</td>
<td>None</td>
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<tr>
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CAM is popular!

For the past 24 years I have argued that patients should be able to gain the benefit of the 'best of both worlds'—complementary and orthodox—as part of an integrated approach to healing. Many of today's complementary therapies are rooted in ancient traditions that intuitively understood the need to maintain balance and harmony with our minds, bodies and the natural world.

- Prince Charles (World Health Assembly, 2004)
Socio-cultural explanations

- Adaptive nature of unproductive behaviour
- Luddism, technophobia
- Economics of rationality

Sosis & Bressler (2003)

Conspiratorial explanations

- “Big Pharma” not objective
  - “No money for CAM research”
  - “No interest because CAM remedies not patentable”
- Formal research methods don’t “work”
- Epistemology is subjective
  - “No such thing as objective truth (and that’s objectively true)”

The Economist, 18 March 2006

Placebos & placebo effects

- “Placebo” – the inert intervention
- “Placebo effect” – the curative result
  - Used for centuries (millennia?)
  - 1800s: OED, modern definition

MODERATORS OF PLACEBO
1. Placebo can be influenced by characteristics of the patient
   - Neuroticism, extraversion, esteem, etc.
2. Placebo can be influenced by characteristics of the treatment
   - Convincingness
     - Ultrasound for pain – Heel et al. (1986)
   - Seriousness
     - Placebo/heart surgery – Cobb et al. (1953), Diamond et al. (1960)
3. Placebo can be influenced by characteristics of the therapist
**Placebos & placebo effects**

**Physician factors**
1. Placebo can be influenced by approach of physician to patient
   - Physician expectancies, self-fulfilling prophesies
   - Rosenthal effect
2. Placebo can be influenced by approach of patient to physician
   - Patient expectancies
     - Beta-blocker Heart Attack Trial – Horwitz et al. (1990)
3. Placebo can be influenced by conditioning

**Biological mechanisms**
1. Placebo can result from stress reduction
   - Cardiovascular reactivity
   - Psychoneuroimmunology
2. Placebo can result from endorphin-related mechanisms
   - Dependence-forming
   - Blocked by naloxone
   - PET studies show association with dopamine
3. Placebo can originate from latent evolutionary endowment
   - Latent capacity for self-cure

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**Cardiovascular Reactivity**

**The Cardiovascular System**

- Stress-illness link

**Psychoneuroimmunology (PNI)**

- Immune System

**Stress** –> **Illness**

**Stress-illness link**

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**Placebos & placebo effects**

**Not all placebos are actually placebos...**

- True “placebo” associated only with acute phase response (Evans, 2003)
- Often, other (non-placebo) mechanisms responsible for treatment illusions, both in real life and in “placebo” research

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**Non-placebo treatment effects:**

*Perceptual misattribution*

“...the first thing that consumers need to do in order to begin to make sensible healthcare choices is to cure themselves of expert-itis. Often this requires a substantial leap of faith and a belief in the miracle of your own body. You don’t need a PhD or a degree of any kind to understand your own body – you live in it.”

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Non-placebo treatment effects: Perceptual misattribution

- 'James-Lange' theory
- Stanley Schachter, Columbia University

Non-placebo treatment effects: Expectancy effects

Howard & Hughes (in press)

Non-placebo treatment effects: Other examples

- Medical artifacts
  - Spontaneous fluctuation of symptoms in disease; spontaneous remission rates; habituation to symptoms; residual effects of prior medication use; subsiding side-effects of prior medication
- Limitations of causal reasoning:
  - Problems with: probabilistic computation; deduction; extrapolation across time; interpreting consensuses; the appreciation of base-rates; the evaluation of anecdotal evidence; and superstitious behavior.

Conclusion

- Baby and bathwater: the baby is safe!
  - No paradigm shifts required to explain CAM
- Ample alternative explanations for ‘effects’ of alternative medicine
  - Placebo just one of several relevant influences
- ‘Holistic science’ needed to elucidate CAM effects?
  - Biomedicine helps explain if
  - Psychology helps explain how

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