

Complementary Medicine

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What is complementary medicine?

- Complementary/alternative medicine (CAM)
- A huge variety of different therapies
- NCCAM categories:
 - Alternative Medical Systems
 - Mind-Body Intervention
 - Biologically Based Therapy
 - Manipulative and body-based methods
 - Energy Therapy

Some examples

Acupuncture

Homoeopathy

Crystal healing

Faith healing

Herbal

Acupressure

Bowen technique

Chiropractic

Massage therapy

Metamorphic technique

Reiki

Ayurveda

Chiropractic

Herbalism

Naturopathic medicine

Osteopathy

Traditional Chinese medicine

Ear candling

Iridology

Bach flower therapy

Colour therapy

Urine therapy

Definition

- Richard Dawkins defined alternative medicine as a "...set of practices which cannot be tested, refuse to be tested, or consistently fail tests. If a healing technique is demonstrated to have curative properties in properly controlled double-blind trials, it ceases to be alternative. It simply...becomes medicine." He also stated that "There is no alternative medicine. There is only medicine that works and medicine that doesn't work."

Use of CAM in the United Kingdom 1999

Use of any CAM in past 12 months	20%
<i>of which:</i>	
Herbal medicine	34%
Aromatherapy	21%
Homoeopathy	17%
Acupuncture / acupressure	14%
Massage	6%
Reflexology	6%
Osteopathy	4%
Chiropractic	3%

Why does CAM appeal?

- Lack of 'faith' in conventional medicine and doctors
- 'Plausible' explanations of their curative process
- Lack of understanding of medicine and science in general

Why does CAM appeal?

- Hype and celebrity endorsement ('Boots sells it, therefore it must work'; 'Charles Windsor uses it, therefore it must work')
- Language: eg treating the 'whole' person, not just the condition
- Time spent with CAM practitioners
- Anecdotal evidence: 'it worked for my friend, therefore it will work for me'

Why do so many use CAM if...

- It is implausible because its implied mechanisms or putative effects contradict well-established laws, principles or empirical findings in physics, chemistry or biology
- It lacks a scientifically acceptable rationale of its own

Why do so many use CAM if...

- It has insufficient supporting evidence from adequately controlled outcome research
- It has failed in well-controlled clinical studies
- Should seem improbable even to the lay person on commonsense grounds

What if...



Actually, we're an alternative ambulance...

8 reasons why some CAM may appear to work

1. The disease may have run its natural course
2. Many diseases are cyclical
3. Spontaneous remission
4. The placebo effect

8 reasons why some CAM appear to work

5. Parallel treatment
6. Symptomatic cure versus real cure
7. Some symptoms are psychosomatic
8. Misdiagnosis

History of CAM

- Many CAMs claim roots going back thousands of years
- Old is good! It's been practiced for 3,000 years, therefore it must be good and it must work!
- Others claim they are at the cutting edge of scientific discovery
- New is good!

Homoeopathy

Invented by Samuel Hahnemann in
1796

Homoeopathy: from Greek for 'like' and
'suffering'

Homoeopathy v Allopathy

- Allopathy: 'other' 'suffering'
- Refers to side effects of conventional medicine
- Coined by homoeopaths as a pejorative term for conventional medicine

The three 'laws' of homoeopathy

- Law of similars
- Law of infinitesimals
- Law of succussion

The Law of similars

- *similia similibus curentur* - 'like cure likes'
- This is the hypothesis that taking something that generates the same symptoms as a 'disease' can cure that disease
- eg a substance that raises the body's temperature (pyrexia) can (so homoeopaths say), in dilute quantities, relieve the cause of the pyrexia

Law of infinitessimals: dilution

- Common dilutions: 10X, 100X, 30C, 100C
- X is 10, C is 100
- A 10X solution is one diluted in 10 times the amount and repeated 10 times
- 100X is diluted in 10 times the amount and repeated 100 times
- 100C is diluted in 100 times the amount and repeated 100 times

10X dilution

Stage	Dilution	Number of zeros
1X	1:10	1
2X	1:100	2
3X	1:1,000	3
4X	1:10,000	4
5X	1:100,000	5
6X	1:1,000,000	6
7X	1:10,000,000	7
8X	1:100,000,000	8
9X	1:1,000,000,000	9
10X	1:10,000,000,000	10

10C dilution

Stage	Dilution	Number of zeros
1C	1:100	2
2C	1:10,000	4
3C	1:1,000,000	6
4C	1:100,000,000	8
5C	1:10,000,000,000	10
6C	1:1,000,000,000,000	12
7C	1:100,000,000,000,000	14
8C	1:10,000,000,000,000,000	16
9C	1:1,000,000,000,000,000,000	18
10C	1:100,000,000,000,000,000,000	20

30C dilution: how many zeros?

- 100 raised to the power 30 =
1,000,000,000,000,000,000,000,000,000,000,
000,000,000,000,000,000,000,000,000,000,
000,000
- This is a very BIG number — there are sixty zeros!
- This would require a container more than 30,000,000,000 times the size of the Earth to contain just one molecule

Infinitesimals

- The more dilute the solution, the more potent it becomes
- No explanation for this
- No scientific evidence for this

How *does* it work?

- It just does! Right?
- Water has a memory effect and remembers the properties of the dissolved substance
- It is the succussion that imparts the properties into the water

The 'Law' of succussion

- At each stage of dilution, the mixture is knocked (succused) in a prescribed manner
 - 10 hard strikes against an elastic body
- This is claimed to imprint the water with the memory of the substance being diluted

Impurities

- Even if succussion did this, unless you start with absolutely clean equipment and absolutely pure water, how does the water know which molecules it is meant to remember?
- Considering even distilled water will have numerous molecules of impurities, each with their own homoeopathic properties, a single glass of water a day must cure all ills!

Summary of homoeopathy

Stir the mixture well
Lest it prove inferior,
Then put half a drop
Into Lake Superior.

Every other day
Take a drop in water,
You'll be better soon
Or at least you oughter.

Bishop William Croswell Doane (1832–1913)

Useful websites

- | Quackwatch www.quackwatch.com
- | Junkscience www.junkscience.com
- | The Skeptics Dictionary www.skepdic.com
- | Bad Science www.badscience.net
- | National Council Against Health Fraud
www.ncahf.org
- | Association for Skeptical Enquiry
www.aske.org.uk
- | CSICOP www.csicop.org

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Any questions?