Placebo:  
*The Belief Effect*

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Outline of this talk

• How do beliefs affect physical health?
• What is the placebo response?
• Which conditions are placebo-responsive?
• Why invoke the concept of belief?
• Implications for health psychology
Two ways for beliefs to affect physical health

• Indirect: beliefs cause behavior that affects physical health
• Direct: beliefs cause endocrine and immune changes
• In this talk, ‘belief effects’ refer exclusively to the latter route
Real drugs and horseshoes

- Horse-shoes: don’t work even if you believe they do
- Etorphine: works even if you don’t believe it does
- Placebos: only work if you believe they work
The placebo response as a causal chain

Medical intervention

Formation of a belief

Modulation of endocrine/immune activity

Relief of symptoms or cure of disease
Placebo-responsive symptoms and conditions

- Pain
- Nausea
- Swelling
- Stomach ulcers
- Depression
- Anxiety
Conditions that are not placebo-responsive

- Cancer
- Schizophrenia
- Most medical conditions!
Conditions that may be placebo-responsive

- Parkinson’s disease?
- Asthma?
- Heart disease?
- Others…?
A scientific theory is more than just a list

- Chemistry only became a true science when the great Russian chemist Mendeleev took the list of known elements and perceived a hidden pattern in the data.
- Can we do the same for the placebo response?
The acute phase response

- Four classic signs of ‘inflammation’: tumor, rubor, calor and dolor – swelling, redness, heat and pain.
- Sickness behaviour: lethargy, apathy, loss of appetite and increased sensitivity to pain.
- Inflammation + sickness behaviour = acute phase response.
The hypothesis

- All placebo-responsive symptoms and conditions involve activation of the acute phase response.
- Placebos work by triggering the suppression of the acute phase response.
- This explains why placebos work for certain things and not for others.
Tracing the chain back to the brain

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Why belief?

- Why invoke such a high-level cognitive phenomenon?
- The immune conditioning theory of the placebo response
- Conditioning can be viewed as a process of belief-formation
- Experiments for distinguishing conditioning from belief-effects
Experiment one: Voudouris et. al., 1989

- Fake analgesic: cold cream + linalol
- Electrophoresis: Na+ ions
- Classical conditioning
- Controlling for verbal information by reversing the conditioning effect
Experiment two: Montgomery & Kirsch, 1997

- Fake analgesic: cold cream + linalol
- Electrophoresis: $K^+$ ions
- Classical conditioning
- Controlling for verbal information by providing more verbal information
Experiment three: Kirschbaum et. al., 1992

- Dutch study failed to replicate results of German study
- Classical conditioning: pair sherbet sweet with adrenaline injection (four days)
- Measure: NK cell activity
Conclusions from experiments

• High-level cognitive processes play a role in determining placebo responses (beliefs?)
• Importance of subtle context-effects
• Caution required when generalising from results of experiments to clinical practice
Implications for health psychology

- The *art* of prescribing medication
- The importance of nonverbal information
- The value of belief effects
- The limits of belief effects
- The power of positive thinking may lie more in its effect on behavior (Spiegel, 1997)