

Fair tests

Chris Wild, University of Auckland

In the previous video we talked about the basics of randomised experiments to comparing treatments.

Experimentation involves intervening in the process by which different units receiving different treatments. In a randomised experiment we randomise what units are exposed to what treatment - in an attempt to balance groups on other factors so that we are conducting a "fair test".

We haven't talked about the special case of comparing one or more treatments to not being treated at all ("no treatment") using a **control group**. Statistically, "no treatment" is just another treatment condition. But in practical situations it is not always easy to impose practical conditions that satisfactorily act like "no treatment". This is particularly so when people are involved as experimental subjects. Then we need to protect against psychological factors. You may have heard of the **placebo effect** (there can be surprisingly large changes in an outcome variable just from people knowing they are being treated for something). Control conditions need to allow for the placebo effect. We also have to protect against other sorts of (often unconscious) psychological biases using forms of "**blinding**". You may have heard of **double-blind trials**. These issues are very well described in the following short readings.

Short Readings from other sites (strongly recommended)

- [Double-blind trials](#)
- [Why do we need fair tests of treatments?](#)
- [What are fair tests of treatments?](#)

The second and third readings come from the [Testing Treatments site](#). This site, which is trying to improve the quality of evidence about what treatments work in health care, is full of excellent information about experimentation and fascinating case studies.

Further Reading

If you become interested in these topics, the Testing Treatments site has an excellent book, also called *"Testing Treatments"*, which is [available for browsing](#), or from the same page, free download of the [entire book](#) (2.8 Mb).

- Chapter 6 of "Testing Treatments" contains fuller discussions of the issues raised above and many more.

If you are interested in a discussion of statistical experimentation in a **non-medical public-interest setting** you might try the 2012 report ["Test, Learn, Adapt: Developing Public Policy with Randomised Controlled Trials"](#) from the UK Cabinet Office and Behavioural Insights Team. It explores the use of randomised controlled trials in resolving public policy questions.

Goldacre was one of the authors of this report. You could listen to [Ben Goldacre's January 2013 BBC Radio 4 programme](#) (37 minutes).

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