

# THE ROLE OF RANDOMIZATION IN ESTABLISHING CAUSATION

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The role of randomization in experimental design is often poorly understood by students of statistics. Part of the reason for this lies with our traditional presentations. Randomization is critically important to provide a simple compelling argument for the existence of a causal relationship from factor to response. In this talk, I describe and demonstrate a simple physical device that makes this point. The device can also be used to demonstrate how simple randomization tests work but this is far less important. The device can be used by a speaker on an overhead projector and/or directly by students in a laboratory setup. The device has been used in both fashions at Waterloo in a first course in statistics. Some of that experience will related.