2004b(5): What are the strengths and weaknesses of the randomised controlled trial study design

General: randomised controlled trials (RCT) are a form of prospective trial comparing 2 different groups (treatment and control).
- It is the ‘gold standard’ of research tools

**Strengths**
- **Prospective**: allows the specific allocation and administration of intervention to a chosen population; ↓**allocation bias**
  - ↑precision compared to retrospective / observational data
- **Randomisation**: ↓**selection bias**, combined with stratifying patient groups enables the variance of the groups to be matched ↓**confounders**
- Observations can be **consistent** and **standardised**
  - Can be devised to be parametric, which is more powerful than non-parametric data
- Blinding of participants and/or observers is more easily achieved, ↑**power of the study**, and increasing its credibility
- Powerful enough to detect small changes (small effect difference)
- Large multicentre trials tend to have greater clinical applicability

**Weaknesses**
- Resource, money hungry
- Results may not mimic real life application
- Ethical implications: denying treatment to one group, ability to provide informed consent
- Selection of patients may be too specific will decrease the variance and it may not be applicable to a large population (lacking applicability)
- Recruitment bias is hard to overcome (too ill, declined)