

A Simple Comparative Trial

- **Formoterol (F) and Salbutamol (S) are two drugs used to treat chronic asthma.**
- **a trial was carried out to compare efficacy of F and S:**
 - **asthmatic children recruited;**
 - **Peak Expiratory Flow (PEF) measured after administration of F;**
 - **PEF measured after administration of S;**
 - **one week between two measurements (ordering varies between children)**

Data from the Asthma Trial

Order Child	F then S		Child	S then F	
	Drug F	Drug S		Drug F	Drug S
1	310	270	8	385	370
2	310	260	9	400	310
3	370	300	10	410	380
4	410	390	11	320	290
5	250	210	12	340	260
6	380	350	13	220	90
7	330	365			

Analysing the asthma trial data

- simple analysis as paired design (cf chemical treatment of rubber)
- convert data to differences, $D = F - S$
 $\bar{d} = 45.4$ $SE(\bar{d}) = SD/\sqrt{n} = 40.59/13 = 3.12$
95% CI = (22.9,67.9)

What is this estimating?

- for children 1 to 7: F vs S **plus** week 1 vs 2
- for children 8 to 13: F vs S **minus** week 1 vs 2