Contingency Analysis

Allows us to determine if two categorical variables are associated (some contingency tests will allow us to quantify the degree of association as well but not all do this).

Major tests:

- **χ^2 Contingency Test** −> similar but not exactly as the same χ^2 Goodness of fit test. You can think of it as a subset of χ^2 Goodness of fit tests with some calculation differences. Basis of test is Multiplication rule with the assumption of independence.
- **Odds ratio** −> Ho: OR=1. Challenge: transforming the sampling distribution of OR so that it is normally distributed.
- **Relative** Risk -> similar to OR but accounts for proportion of (rare) event in the population
- **Fisher's Exact test** -> exact calculation. You can think of it as the contingency version of calculating a p-value

Contingency Analysis:

Review prompt: Contingency tables (chapter 2)

- Associations between categorical variables

- Test the independence of two or more categorical variables

	Control Group	Egg-Removal Group	Row Total
Malaria	**7**	**15**	**22**
No Malaria	**28**	**15**	**43**
Column Total	**36**	**30**	**65**

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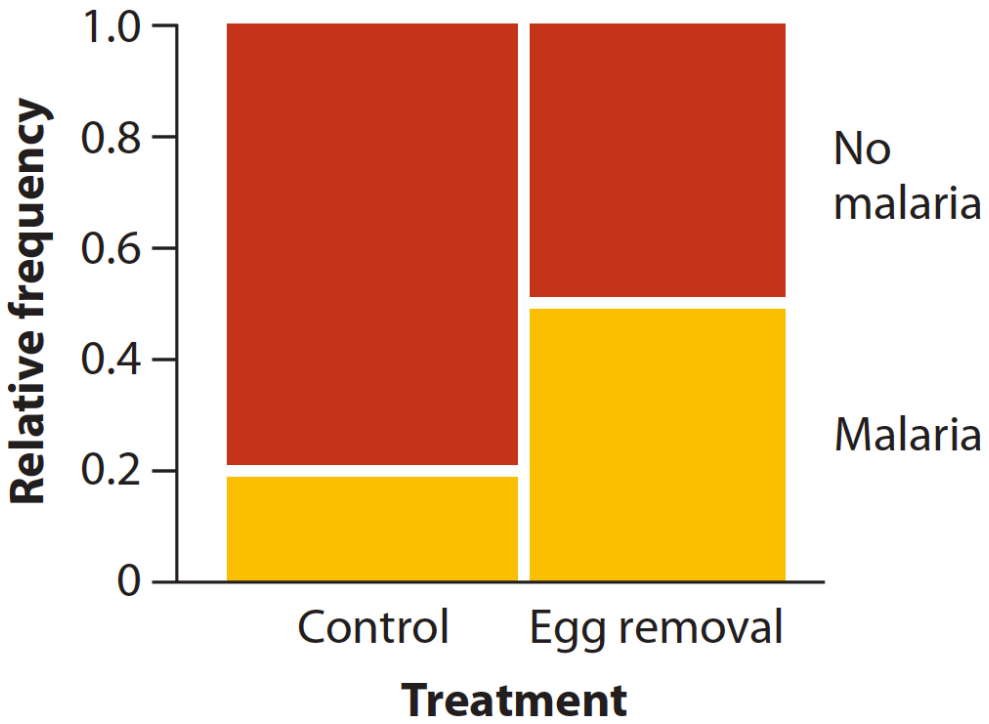

Multiplication Rule

Remember:

$P[A \text{ and } B] = P[A|B]P[B]$

IFF INDEPENDENT, this collapses to:

$P[A \text{ and } B] = P[A]P[B]$