

## New Exercises Chapter 8

**8.9 Baldness and heart attacks.** A case-control study of baldness and myocardial infarction in men less than 55-years of age identified 663 acute myocardial infarction cases and 772 controls admitted to the hospital for nonfatal non-cardiac problems (Lesko et al., 1993). Data, with baldness dichotomized as moderate to severe baldness and no or mild baldness, are shown in the table below.

Baldness	Heart Attack		Total
	+	-	
Moderate to severe	247	220	
None or mild	416	552	
	663	772	

- (a) Calculate the odds ratio associated with baldness. Interpret this result.
- (b) Use OpenEpi.com or WinPEPI to calculate the 95% confidence for the odds ratio by the Mid-P exact method.

**8.10 Fruit and vegetable consumption and colon polyps.** A case-control study used *matched pairs* to study the relationship between the recurrence of colon polyps and fruit and vegetable consumption. Controls were matched to cases on several factors, including clinic, family history of colon polyps, age, race, and sex. The exposure of interest for this analysis is low fruit and vegetable consumption (which is a potential risk factor for the recurrence of polyps). There were 45 pairs in which the case but not the control reported low fruit/veg consumption, and there were 24 pairs in which the control but not the case reported low fruit/veggie consumption. There were 25 pairs in which both the case and control reported high fruit/veg consumption, and there were 32 pairs in which both the case and control reported low fruit/veg consumption. (Data based on Witte et al., 1996 as reported by Rothman & Greenland, 1998; the numbers of concordant pairs is fiction and is included for teaching purposes).

- (a) What was the purpose of matching cases and controls on the stated factors?
- (b) Show these data in the form of a matched pair cross-tabulation.
- (c) How many subjects in total were studied? How many were cases? How many were exposed cases?
- (d) Calculate the odds ratios associated with low fruit/veg consumption. Interpret your results by relating the odds ratio back to the initial study question.

(e) Calculate a 95% confidence interval for the odds ratio using either WinPEPI or OpenEpi.com. (Note: When using OpenEpi.com you will have to transpose the values to accommodate OpenEpi's table with case status listed along the rows and control status listed along the columns, which is opposite of ours.)

## REFERENCES

Lesko, S. M., Rosenberg, L., & Shapiro, S. (1993). A case-control study of baldness in relation to myocardial infarction in men. *JAMA*, 269(8), 998-1003.

Rothman, K. J., & Greenland, S. (1998). *Modern Epidemiology* (Second ed.). Philadelphia: Lippincott-Raven.

Witte, J. S., Longnecker, M. P., Bird, C. L., Lee, E. R., Frankl, H. D., & Haile, R. W. (1996). Relation of vegetable, fruit, and grain consumption to colorectal adenomatous polyps. *American Journal of Epidemiology*, 144(11), 1015-1025.