1. A study is run to estimate the association between exposure to lead paint in childhood and attention-deficit hyperactivity disorder (ADHD). Data on n = 400 children are collected and data on exposure and ADHD diagnosis are shown below.

|  |  |  |
| --- | --- | --- |
| Exposure to Lead Paint | ADHD | No ADHD |
| Yes | 34 | 71 |
| No | 29 | 266 |

1. Estimate the crude or unadjusted relative risk.

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1. Estimate the crude or unadjusted odds ratio.

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2. A study is conducted in patients with HIV. The primary outcome is CD4 cell count which is a measure of the stage of the disease. Lower CD4 counts are associated with more advanced disease. The investigators are interested in the association between vitamin and mineral supplements and CD4 count. A multiple regression analysis is performed relating CD4 count to use of supplements (coded as 1=yes, 0=no) and to duration of HIV, in years (i.e., the number of years between the diagnosis of HIV and the study date). For the analysis, Y=CD4 count.

= 501.41 + 12.67 Supplements – 30.23 Duration of HIV

1. What is the expected CD4 count for a patient taking supplements who has had HIV for 2.5 years?

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1. What is the expected CD4 count for a patient not taking supplements who was diagnosed with HIV at study enrollment?

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1. What is the expected CD4 count for a patient not taking supplements who has had HIV for 2.5 years.

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3. A study is conducted to evaluate risk factors for incident hypertension. All participants are free of hypertension at the start of the study and are followed for 4 years at which time they are re-assessed for hypertension. Risk factors are measured in all participants at the start of the study. A total of n=3182 participants enroll and 1123 develop hypertension over 4 years. The following table displays the numbers of participants who develop hypertension by gender and age group.

|  |  |  |  |
| --- | --- | --- | --- |
| Women | Develop  Hypertension | Do Not Develop Hypertension | Total |
| Age 50+ Years | 255 | 237 | 492 |
| Age < 50 Years | 241 | 916 | 1157 |
| Total | 496 | 1153 | 1649 |
|  |  |  |  |
| Men | Develop  Hypertension | Do Not Develop Hypertension | Total |
| Age 50+ Years | 283 | 188 | 471 |
| Age < 50 Years | 344 | 718 | 1062 |
| Total | 627 | 906 | 1533 |

1. What is the relative risk for hypertension in women 50+ years versus women < 50 years of age?

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1. What is the relative risk for hypertension in men 50+ years versus men < 50 years of age?

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