

APPENDIX E-2.

Interaction Tables for the General Health Assessment

This appendix contains exposure analyses results of interactions between covariates and group or dioxin. Results are presented for each separate strata of the covariate and include sample sizes, percent abnormal, relative risks, confidence intervals, and p-values for discrete dependent variables. Sample sizes, adjusted means, differences of adjusted means and confidence intervals or adjusted slopes and standard errors, and p-values are given for continuous dependent variables. Means are transformed back to the original scale, if necessary. Chapter 7, Statistical Methods, provides further details on the analytical approaches used in the interaction analyses. The covariate involved in the interaction and a reference to the analysis table in Chapter 9 are given in the heading of each subtable. A summary of the interactions described in this appendix follows.

Appendix E-2 Table	Chapter 9 Table	Dependent Variable	Model	Covariate
E-2-1	9-3	Self-Perception of Health	4 5 6	Age Age Age
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E-2-3	9-5	Relative Age Appearance	4	Occupation
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E-2-6	9-8	Body Fat (Discrete)	4	Occupation
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Table E-2-1.
Interaction Table for Self-Perception of Health

a) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Age: Table 9-3)					
Current Dioxin Category Summary Statistics				Analysis Results for Log ₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Fair or Poor	Adjusted Relative Risk (95% C.I.) ^a	p-Value
Born ≥ 1942	Low	99	5.1	1.26 (0.98,1.61)	0.067
	Medium	97	4.1		
	High	171	11.7		
Born < 1942	Low	196	7.7	1.12 (0.91,1.39)	0.287
	Medium	203	11.8		
	High	128	18.0		

b) MODEL 5: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Age: Table 9-3)					
Current Dioxin Category Summary Statistics				Analysis Results for Log ₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Fair or Poor	Adjusted Relative Risk (95% C.I.) ^a	p-Value
Born ≥ 1942	Low	103	3.9	1.27 (1.01,1.59)	0.041
	Medium	96	7.3		
	High	168	10.7		
Born < 1942	Low	197	7.6	1.14 (0.95,1.37)	0.172
	Medium	201	11.4		
	High	129	18.6		

c) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Age: Table 9-3)					
Current Dioxin Category Summary Statistics				Analysis Results for Log ₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Fair or Poor	Adjusted Relative Risk (95% C.I.) ^a	p-Value
Born ≥ 1942	Low	103	3.9	1.18 (0.94,1.49)	0.161
	Medium	96	7.3		
	High	168	10.7		
Born < 1942	Low	196	7.6	1.04 (0.86,1.27)	0.678
	Medium	201	11.4		
	High	129	18.6		

^a Relative risk for a twofold increase in current dioxin.

Note: Model 4: Low = ≤ 8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.
Models 5 and 6: Low = ≤ 46 ppq; Medium = >46-128 ppq; High = >128 ppq.

Table E-2-2.
Interaction Table for Appearance of Illness or Distress

a) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Age: Table 9-4)					
Current Dioxin Category Summary Statistics				Analysis Results for Log ₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Yes	Adjusted Relative Risk (95% C.I.) ^a	p-Value
Born ≥ 1942	Low	99	0.0	1.25 (0.63,2.50)	0.523
	Medium	97	0.0		
	High	171	1.8		
Born < 1942	Low	196	3.6	0.87 (0.57,1.33)	0.512
	Medium	203	2.0		
	High	128	3.1		

b) MODEL 5: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Age: Table 9-4)					
Current Dioxin Category Summary Statistics				Analysis Results for Log ₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Yes	Adjusted Relative Risk (95% C.I.) ^a	p-Value
Born ≥ 1942	Low	103	0.0	1.19 (0.64,2.24)	0.583
	Medium	96	1.0		
	High	168	1.2		
Born < 1942	Low	197	3.6	0.86 (0.62,1.20)	0.383
	Medium	201	2.0		
	High	129	3.1		

c) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Age: Table 9-4)					
Current Dioxin Category Summary Statistics				Analysis Results for Log ₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Yes	Adjusted Relative Risk (95% C.I.) ^a	p-Value
Born ≥ 1942	Low	103	0.0	1.16 (0.62,2.19)	0.643
	Medium	96	1.0		
	High	168	1.2		
Born < 1942	Low	196	3.6	0.83 (0.59,1.18)	0.299
	Medium	201	2.0		
	High	129	3.1		

^a Relative risk for a twofold increase in current dioxin.

Note: Model 4: Low = ≤ 8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.
 Models 5 and 6: Low = ≤ 46 ppq; Medium = >46-128 ppq; High = >128 ppq.

**Table E-2-3.
Interaction Table for Relative Age Appearance**

a) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Occupation: Table 9-5)					
Current Dioxin Category Summary Statistics				Analysis Results for Log₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Older	Adjusted Relative Risk (95% C.I.)^a	p-Value
Officer	Low	193	4.1	0.45 (0.24,0.83)	0.011
	Medium	141	1.4		
	High	14	0.0		
Enlisted Flyer	Low	31	12.9	0.92 (0.59,1.44)	0.706
	Medium	57	7.0		
	High	62	9.7		
Enlisted Groundcrew	Low	71	5.6	1.11 (0.85,1.46)	0.443
	Medium	102	2.0		
	High	223	7.6		

^a Relative risk for a twofold increase in current dioxin.

Note: Low = ≤ 8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.

Table E-2-4.
Interaction Table for Body Fat (Percent)
(Continuous)

a) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Occupation: Table 9-6)					
Current Dioxin Category Summary Statistics				Analysis Results for Log₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Adjusted Mean	Adjusted Slope (Std. Error)^a	p-Value
Officer	Low	193	20.63	0.089 (0.015)	<0.001
	Medium	141	23.16		
	High	14	23.79		
Enlisted Flyer	Low	31	19.14	0.082 (0.015)	<0.001
	Medium	57	21.65		
	High	62	23.31		
Enlisted Groundcrew	Low	71	19.11	0.051 (0.007)	<0.001
	Medium	102	21.88		
	High	223	23.27		

^a Slope and standard error based on natural logarithm of body fat versus log₂ (current dioxin + 1).

Note: Low = ≤ 8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.

**Table E-2-5.
Interaction Table for Body Fat (Percent) with Adjustment for Caloric Intake
(Continuous)**

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Caloric Intake: Table 9-7)					
Stratum	Dioxin Category	n	Adjusted Mean^a	Difference of Adjusted Mean vs. Comparisons (95% C.I.)^b	p-Value^c
≤2,000 Kcal/Day	Comparison	629	21.94		
	Background RH	205	21.96	0.03 --	0.886
	Low RH	162	22.18	0.24 --	0.245
	High RH	162	21.95	0.01 --	0.949
	Low plus High RH	324	21.72	0.13 --	0.425
>2,000 Kcal/Day	Comparison	432	22.13		
	Background RH	169	21.65	-0.48 --	0.023
	Low RH	98	22.09	-0.04 --	0.869
	High RH	96	21.36	0.77 --	0.003
	Low plus High RH	194	21.72	-0.41 --	0.046

b) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Occupation: Table 9-7)					
Current Dioxin Category Summary Statistics				Analysis Results for Log₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Adjusted Mean	Adjusted Slope (Std. Error)^d	p-Value
Officer	Low	193	20.60	0.090 (0.015)	<0.001
	Medium	141	23.14		
	High	14	23.78		
Enlisted Flyer	Low	31	19.12	0.082 (0.015)	<0.001
	Medium	57	21.70		
	High	61	23.19		
Enlisted Groundcrew	Low	71	19.32	0.049 (0.007)	<0.001
	Medium	102	21.97		
	High	222	23.25		

^a Transformed from natural logarithm scale.

^b Difference of means after transformation to original scale; confidence interval on difference of means not presented because analysis was performed on natural logarithm scale.

^c P-value is based on difference of means on natural logarithm scale.

^d Slope and standard error based on natural logarithm of body fat versus log₂ (current dioxin + 1).

Note: Model 3: RH = Ranch Hand.

Comparison: Current Dioxin ≤ 10 ppt.

Background (Ranch Hand): Current Dioxin ≤ 10 ppt.

Low (Ranch Hand): Current Dioxin > 10 ppt, 10 ppt < Initial Dioxin ≤ 143 ppt.

High (Ranch Hand): Current Dioxin > 10 ppt, Initial Dioxin > 143 ppt.

Model 4: Low = ≤ 8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.

**Table E-2-6.
Interaction Table for Body Fat
(Discrete)**

a) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Occupation: Table 9-8)					
Current Dioxin Category Summary Statistics				Analysis Results for Log₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Obese	Adjusted Relative Risk (95% C.I.)^a	p-Value
Officer	Low	193	13.0	2.10 (1.45,3.03)	<0.001
	Medium	141	29.8		
	High	14	50.0		
Enlisted Flyer	Low	31	6.5	1.89 (1.31,2.72)	0.001
	Medium	57	19.3		
	High	62	34.4		
Enlisted Groundcrew	Low	71	11.3	1.29 (1.12,1.50)	0.001
	Medium	102	27.5		
	High	223	36.0		

^a Relative risk for a twofold increase in current dioxin.

Note: Low = ≤ 8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.

Table E-2-7.
Interaction Table for Body Fat with Adjustment for Caloric Intake
(Discrete)

a) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Occupation: Table 9-9)					
Current Dioxin Category Summary Statistics				Analysis Results for Log₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Obese	Adjusted Relative Risk (95% C.I.)^a	p-Value
Officer	Low	193	13.0	2.10 (1.45,3.03)	<0.001
	Medium	141	29.8		
	High	14	50.0		
Enlisted Flyer	Low	31	6.5	1.82 (1.25,2.64)	0.002
	Medium	57	19.3		
	High	61	34.4		
Enlisted Groundcrew	Low	71	11.3	1.29 (1.11,1.50)	0.001
	Medium	102	27.5		
	High	222	36.0		

^a Relative risk for a twofold increase in current dioxin.

Note: Low = ≤ 8.1 ppt; Medium = >8.1-20.5 ppt; High = >20.5 ppt.