

Table N-2-18.
Interaction Table for 2-Hour Postprandial Urinary Glucose (Nondiabetics)

a) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Occupation: Table 18-35)					
Current Dioxin Category Summary Statistics				Analysis Results for Log ₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Present	Adjusted Relative Risk (95% C.I.) ^a	p-Value
Officer	Low	176	16.5	0.82 (0.62,1.09)	0.176
	Medium	107	13.1		
	High	8	25.0		
Enlisted Flyer	Low	31	22.6	0.80 (0.57,1.11)	0.179
	Medium	45	22.2		
	High	48	18.8		
Enlisted Groundcrew	Low	65	12.3	1.18 (0.99,1.40)	0.071
	Medium	89	19.1		
	High	182	26.4		

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

Note: Model 6: Low = ≤ 46 ppq; Medium = > 46-128 ppq; High = > 128 ppq.

Table N-2-19.
Interaction Table for Serum Insulin (mIU/ml) (All Participants)
(Continuous)

a) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Age: Table 18-36)						
Stratum	Occupational Category	Group	n	Adjusted Mean ^a	Difference of Adjusted Means (95% C.I.) ^b	p-Value ^c
Born ≥1942	<i>All</i>	<i>Ranch Hand</i>	<i>390</i>	<i>31.17</i>	<i>-0.83 --</i>	<i>0.614</i>
		<i>Comparison</i>	<i>548</i>	<i>32.00</i>		
Born <1942	<i>All</i>	<i>Ranch Hand</i>	<i>541</i>	<i>43.66</i>	<i>2.54 --</i>	<i>0.181</i>
		<i>Comparison</i>	<i>710</i>	<i>41.13</i>		
Born ≥1942	Officer	Ranch Hand	78	34.85	-1.30 --	0.748
		Comparison	121	36.15		
	Enlisted Flyer	Ranch Hand	38	26.60	-2.11 --	0.643
		Comparison	57	28.72		
	Enlisted Groundcrew	Ranch Hand	274	31.78	-0.50 --	0.801
		Comparison	370	32.23		
Born <1942	Officer	Ranch Hand	281	51.20	5.62 --	0.060
		Comparison	378	45.58		
	Enlisted Flyer	Ranch Hand	120	33.43	-5.80 --	0.101
		Comparison	140	39.23		
	Enlisted Groundcrew	Ranch Hand	140	45.86	5.36 --	0.153
		Comparison	192	40.50		

Table N-2-19. (Continued)
Interaction Table for Serum Insulin (mIU/ml) (All Participants)
(Continuous)

b) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Body Fat: Table 18-36)						
Stratum	Occupational Category	Group	n	Adjusted Mean^a	Difference of Adjusted Means (95% C.I.)^b	p-Value^c
Obese: >25%	All	Ranch Hand	237	66.06	10.17 --	0.017
		Comparison	326	55.89		
Lean or Normal: ≤25%	All	Ranch Hand	694	31.84	-1.17 --	0.380
		Comparison	932	33.01		
Obese: >25%	Officer	Ranch Hand	80	87.56	26.00 --	0.003
		Comparison	115	61.56		
	Enlisted Flyer	Ranch Hand	38	54.36	5.55 --	0.546
		Comparison	47	48.81		
	Enlisted Groundcrew	Ranch Hand	119	60.79	3.47 --	0.549
		Comparison	164	57.31		
Lean or Normal: ≤25%	Officer	Ranch Hand	279	37.76	0.93 --	0.969
		Comparison	384	36.82		
	Enlisted Flyer	Ranch Hand	120	24.04	-5.66 --	0.034
		Comparison	150	29.70		
	Enlisted Groundcrew	Ranch Hand	295	33.30	0.85 --	0.688
		Comparison	398	34.15		

Table N-2-19. (Continued)
Interaction Table for Serum Insulin (mIU/ml) (All Participants)
(Continuous)

c) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Age: Table 18-36)					
Stratum	Dioxin Category	n	Adjusted Mean^a	Difference of Adjusted Mean vs. Comparisons (95% C.I.)^b	p-Value^c
Born ≥1942	Comparison	446	33.45		
	Background RH	127	28.91	-4.54 --	0.067
	Low RH	83	32.52	-0.93 --	0.762
	High RH	151	36.96	3.51 --	0.180
	Low plus High RH	234	35.32	1.87 --	0.391
Born <1942	Comparison	598	44.73		
	Background RH	241	45.99	1.26 --	0.644
	Low RH	168	48.60	3.87 --	0.224
	High RH	103	45.35	0.62 --	0.872
	Low plus High RH	271	47.34	2.61 --	0.328

d) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Body Fat: Table 18-36)					
Current Dioxin Category Summary Statistics				Analysis Results for Log₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Adjusted Mean^a	Adjusted Slope (Std. Error)^d	p-Value
Obese: >25%	Low	37	66.63	0.0113 (0.0391)	0.772
	Medium	81	57.96		
	High	107	62.80		
Lean or Normal: ≥25%	Low	262	28.22	0.0749 (0.0217)	<0.001
	Medium	215	32.65		
	High	189	35.83		

^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 serum insulin 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 6: Low = ≤ ppq; Medium = > 46-128 ppq; High = > 128 ppq.

Table N-2-20.
Interaction Table for Serum Insulin (All Participants)
(Discrete)

a) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Age: Table 18-37)										
Stratum	Occupational Category	Group	n	Percent			Low vs. Normal		High vs. Normal	
				Abnormal Low	Normal	Abnormal High	Adj. Relative Risk (95% C.I.)	p-Value	Adj. Relative Risk (95% C.I.)	p-Value
Born ≥ 1942	<i>All</i>	<i>Ranch Hand</i>	396	6.6	46.5	47.0	<i>1.03 (0.59,1.80)</i>	<i>0.927</i>	<i>0.77 (0.58,1.01)</i>	<i>0.063</i>
		<i>Comparison</i>	557	5.6	40.4	54.0				
Born < 1942	<i>All</i>	<i>Ranch Hand</i>	553	2.9	34.7	62.4	<i>0.77 (0.40,1.46)</i>	<i>0.423</i>	<i>1.12 (0.88,1.43)</i>	<i>0.354</i>
		<i>Comparison</i>	719	3.9	36.3	59.8				
Born ≥ 1942	Officer	<i>Ranch Hand</i>	79	6.3	50.6	43.0	0.79 (0.33,1.92)	0.609	0.76 (0.50,1.18)	0.225
		<i>Comparison</i>	121	9.1	47.9	43.0				
	Enlisted Flyer	<i>Ranch Hand</i>	38	5.3	52.6	42.1	1.10 (0.31,3.88)	0.878	0.53 (0.30,0.92)	0.024
		<i>Comparison</i>	58	5.2	29.3	65.5				
	Enlisted Groundcrew	<i>Ranch Hand</i>	279	6.8	44.4	48.8	1.14 (0.59,2.19)	0.706	0.81 (0.60,1.10)	0.173
		<i>Comparison</i>	378	4.5	39.7	55.8				
Born < 1942	Officer	<i>Ranch Hand</i>	286	3.2	36.7	60.1	0.66 (0.31,1.42)	0.290	1.20 (0.88,1.63)	0.254
		<i>Comparison</i>	381	4.7	38.6	56.7				
	Enlisted Flyer	<i>Ranch Hand</i>	123	4.1	33.3	62.6	0.92 (0.29,2.94)	0.886	0.82 (0.51,1.33)	0.425
		<i>Comparison</i>	144	2.8	32.6	64.6				
	Enlisted Groundcrew	<i>Ranch Hand</i>	144	1.4	31.9	66.7	0.94 (0.36,2.49)	0.908	1.26 (0.85,1.88)	0.243
		<i>Comparison</i>	194	3.1	34.5	62.4				

Table N-2-20. (Continued)
Interaction Table for Serum Insulin (All Participants)
(Discrete)

b) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Body Fat: Table 18-37)										
Stratum	Occupational Category	Group	n	Percent			Low vs. Normal		High vs. Normal	
				Abnormal Low	Normal	Abnormal High	Adj. Relative Risk (95% C.I.)	p-Value	Adj. Relative Risk (95% C.I.)	p-Value
Obese: >25%	<i>All</i>	<i>Ranch Hand</i>	<i>241</i>	<i>1.2</i>	<i>20.8</i>	<i>78.0</i>	<i>1.32 (0.28,6.15)</i>	<i>0.724</i>	<i>1.42 (0.96,2.12)</i>	<i>0.082</i>
		<i>Comparison</i>	<i>327</i>	<i>1.2</i>	<i>26.9</i>	<i>71.9</i>				
Lean or Normal: ≤25%	<i>All</i>	<i>Ranch Hand</i>	<i>708</i>	<i>5.5</i>	<i>46.1</i>	<i>48.5</i>	<i>0.88 (0.57,1.36)</i>	<i>0.557</i>	<i>0.84 (0.69,1.03)</i>	<i>0.089</i>
		<i>Comparison</i>	<i>949</i>	<i>5.8</i>	<i>41.9</i>	<i>52.3</i>				
Obese: >25%	Officer	Ranch Hand	81	2.5	12.4	85.2	0.96 (0.19,4.98)	0.963	1.72 (1.08,2.74)	0.023
		Comparison	115	1.7	26.1	72.2				
	Enlisted Flyer	Ranch Hand	38	0.0	21.1	79.0	1.44 (0.23,9.23)	0.698	1.12 (0.62,2.00)	0.713
		Comparison	48	0.0	20.8	79.2				
	Enlisted Groundcrew	Ranch Hand	122	0.8	26.2	73.0	1.58 (0.32,7.74)	0.573	1.34 (0.87,2.07)	0.191
		Comparison	164	1.2	29.3	69.5				
Lean or Normal: ≤25%	Officer	Ranch Hand	284	4.2	47.5	48.2	0.66 (0.34,1.31)	0.241	1.01 (0.75,1.35)	0.973
		Comparison	387	7.0	45.2	47.8				
	Enlisted Flyer	Ranch Hand	123	5.7	43.1	51.2	1.00 (0.33,3.04)	0.997	0.65 (0.41,1.03)	0.067
		Comparison	154	4.6	35.1	60.4				
	Enlisted Groundcrew	Ranch Hand	301	6.6	45.9	47.5	1.09 (0.57,2.07)	0.789	0.78 (0.58,1.05)	0.097
		Comparison	408	5.2	41.4	53.4				

Table N-2-20. (Continued)
Interaction Table for Serum Insulin (All Participants)
(Discrete)

c) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Age: Table 18-37)									
Stratum	Dioxin Category	n	Percent			Low vs. Normal		High vs. Normal	
			Abnormal Low	Normal	Abnormal High	Adj. Relative Risk (95% C.I.) ^a	p-Value	Adj. Relative Risk (95% C.I.) ^a	p-Value
Born ≥ 1942	Comparison	446	5.4	38.3	56.3				
	Background RH	127	7.9	55.9	36.2	0.86 (0.38,1.94)	0.719	0.59 (0.38,0.92)	0.019
	Low RH	83	8.4	42.2	49.4	1.27 (0.49,3.32)	0.619	0.82 (0.49,1.37)	0.444
	High RH	151	4.0	41.1	55.0	0.80 (0.30,2.18)	0.669	0.78 (0.52,1.17)	0.231
	Low plus High RH	234	5.6	41.5	53.0	1.00 (0.47,2.13)	0.999	0.79 (0.56,1.12)	0.187
Born < 1942	Comparison	598	4.4	35.1	60.5				
	Background RH	241	3.3	39.8	56.9	0.61 (0.26,1.41)	0.244	0.98 (0.70,1.36)	0.886
	Low RH	168	1.8	33.9	64.3	0.44 (0.13,1.52)	0.194	1.06 (0.72,1.54)	0.778
	High RH	103	2.9	27.2	69.9	0.89 (0.24,3.30)	0.866	1.37 (0.82,2.28)	0.228
	Low plus High RH	271	2.2	31.4	66.4	0.59 (0.23,1.51)	0.269	1.15 (0.71,1.89)	0.568

Table N-2-20. (Continued)
Interaction Table for Serum Insulin (All Participants)
(Discrete)

d) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Occupation: Table 18-37)									
Stratum	Dioxin Category	n	Percent			Low vs. Normal		High vs. Normal	
			Abnormal Low	Normal	Abnormal High	Adj. Relative Risk (95% C.I.) ^a	p-Value	Adj. Relative Risk (95% C.I.) ^a	p-Value
Officer	Comparison	406	6.2	39.9	53.9				
	Background RH	232	3.5	43.5	53.0	0.51 (0.22,1.18)	0.116	1.01 (0.72,1.44)	0.934
	Low RH	99	4.0	34.3	61.6	0.95 (0.30,2.98)	0.931	1.15 (0.71,1.88)	0.570
	High RH	9	11.1	11.1	77.8	9.37 (0.54,163.79)	0.125	3.80 (0.44,32.82)	0.225
	Low plus High RH	108	4.6	32.4	63.0	1.17 (0.41,3.33)	0.774	1.23 (0.76,1.98)	0.399
Enlisted Flyer	Comparison	169	4.1	28.4	67.5				
	Background RH	40	5.0	57.5	37.5	0.49 (0.09,2.66)	0.412	0.31 (0.14,0.66)	0.002
	Low RH	53	3.8	47.2	49.1	0.43 (0.08,2.31)	0.326	0.47 (0.24,0.92)	0.028
	High RH	53	3.8	17.0	79.3	1.49 (0.25,8.77)	0.656	1.70 (0.75,3.86)	0.206
	Low plus High RH	106	3.8	32.1	64.2	0.69 (0.18,2.60)	0.582	0.80 (0.46,1.41)	0.445
Enlisted Groundcrew	Comparison	469	3.8	36.5	59.7				
	Background RH	96	8.3	44.8	46.9	1.57 (0.62,4.00)	0.339	0.83 (0.51,1.35)	0.447
	Low RH	99	4.0	33.3	62.6	1.04 (0.32,3.44)	0.945	1.15 (0.70,1.88)	0.578
	High RH	192	3.1	41.7	55.2	0.64 (0.23,1.80)	0.393	0.81 (0.55,1.18)	0.267
	Low plus High RH	291	3.4	38.8	57.7	0.76 (0.33,1.75)	0.514	0.91 (0.66,1.25)	0.549

Table N-2-20. (Continued)
Interaction Table for Serum Insulin (All Participants)
(Discrete)

e) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Personality Type: Table 18-37)									
Stratum	Dioxin Category	n	Percent			Low vs. Normal		High vs. Normal	
			Abnormal Low	Normal	Abnormal High	Adj. Relative Risk (95% C.I.) ^a	p-Value	Adj. Relative Risk (95% C.I.) ^a	p-Value
Type A	Comparison	437	6.4	42.6	51.0				
	Background RH	172	5.2	46.5	48.3	0.75 (0.33,1.70)	0.490	0.95 (0.65,1.41)	0.808
	Low RH	111	6.3	32.4	61.3	1.42 (0.56,3.57)	0.459	1.56 (0.98,2.51)	0.063
	High RH	97	1.0	41.2	57.7	0.17 (0.02,1.34)	0.093	1.14 (0.70,1.85)	0.602
	Low plus High RH	208	3.9	36.5	59.6	0.75 (0.32,1.77)	0.513	1.34 (0.93,1.93)	0.119
Type B	Comparison	607	3.6	32.1	64.3				
	Background RH	196	4.6	44.4	51.0	0.75 (0.32,1.72)	0.496	0.73 (0.51,1.04)	0.079
	Low RH	140	2.1	40.0	57.9	0.41 (0.11,1.50)	0.180	0.64 (0.43,0.96)	0.033
	High RH	157	5.1	31.9	63.1	1.42 (0.56,3.59)	0.463	0.90 (0.60,1.36)	0.610
	Low plus High RH	297	3.7	35.7	60.6	0.87 (0.39,1.95)	0.739	0.76 (0.56,1.05)	0.092

Table N-2-20. (Continued)
Interaction Table for Serum Insulin (All Participants)
(Discrete)

f) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Body Fat: Table 18-37)									
Stratum	Dioxin Category	n	Percent			Low vs. Normal		High vs. Normal	
			Abnormal Low	Normal	Abnormal High	Adj. Relative Risk (95% C.I.) ^a	p-Value	Adj. Relative Risk (95% C.I.) ^a	p-Value
Obese: >25%	Comparison	278	1.4	27.7	70.9				
	Background RH	52	1.9	13.5	84.6	2.53 (0.24,26.28)	0.438	2.68 (1.14,6.31)	0.024
	Low RH	77	2.6	20.8	76.6	2.57 (0.42,15.55)	0.305	1.55 (0.82,2.91)	0.175
	High RH	92	0.0	25.0	75.0	--	--	1.19 (0.68,2.08)	0.552
	Low plus High RH	169	1.2	23.1	75.7	0.92 (0.16,5.32)	0.925	1.33 (0.84,2.11)	0.219
Lean or Normal: ≤25%	Comparison	766	6.0	39.7	54.3				
	Background RH	316	5.4	50.6	44.0	0.69 (0.37,1.25)	0.220	0.68 (0.51,0.90)	0.007
	Low RH	174	4.6	43.7	51.7	0.66 (0.29,1.49)	0.315	0.84 (0.59,1.19)	0.321
	High RH	162	5.6	41.4	53.1	1.00 (0.44,2.24)	0.991	0.88 (0.61,1.27)	0.493
	Low plus High RH	336	5.1	42.6	52.4	0.81 (0.43,1.49)	0.494	0.86 (0.65,1.13)	0.273

Table N-2-20. (Continued)
Interaction Table for Serum Insulin (All Participants)
(Discrete)

g) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Body Fat: Table 18-37)									
Analysis Results for Log ₂ (Current Dioxin + 1)									
Stratum	Current Dioxin	n	Percent			Low vs. Normal		High vs. Normal	
			Abnormal Low	Normal	Abnormal High	Adj. Relative Risk (95% C.I.) ^b	p-Value	Adj. Relative Risk (95% C.I.) ^b	p-Value
Obese: >25%	Low	35	2.9	14.3	82.9	0.49 (0.21,1.14)	0.098	0.85 (0.68,1.08)	0.183
	Medium	81	1.2	17.3	81.5				
	High	109	0.9	26.6	72.5				
Lean or Normal: ≤25%	Low	260	6.2	51.5	42.3	0.80 (0.62,1.03)	0.087	1.18 (1.05,1.32)	0.005
	Medium	217	5.1	45.2	49.8				
	High	189	4.8	39.7	55.6				

Table N-2-20. (Continued)
Interaction Table for Serum Insulin (All Participants)
(Discrete)

h) MODEL 5: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Body Fat: Table 18-37)									
Analysis Results for Log ₂ (Current Dioxin + 1)									
Stratum	Current Dioxin	n	Percent			Low vs. Normal		High vs. Normal	
			Abnormal Low	Normal	Abnormal High	Adj. Relative Risk (95% C.I.) ^b	p-Value	Adj. Relative Risk (95% C.I.) ^b	p-Value
Obese: >25%	Low	37	2.7	13.5	83.8	0.57 (0.31,1.02)	0.058	0.88 (0.71,1.08)	0.224
	Medium	81	2.5	19.8	77.8				
	High	107	0.0	25.2	74.8				
Lean or Normal: ≤25%	Low	263	6.5	51.3	42.2	0.83 (0.68,1.01)	0.062	1.19 (1.08,1.31)	0.001
	Medium	214	4.7	44.4	50.9				
	High	189	4.8	40.7	54.5				

^a Relative risk and confidence interval relative to Comparisons.

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

--: Relative risk, confidence interval, and p-value not presented due to the sparse number of abnormalities.

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.

Model 5: Low = ≤ 46 ppq; Medium = > 46-128 ppq; High = > 128 ppq.

Table N-2-21.
Interaction Table for Serum Insulin (Diabetics)
(Discrete)

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED (Initial Dioxin-by-Age: Table 18-39)					
Initial Dioxin Category Summary Statistics				Analysis Results for Log₂ (Initial Dioxin)	
Stratum	Initial Dioxin	n	Percent Abnormal High	Adjusted Relative Risk (95% C.I.)^a	p-Value
Born ≥ 1942	Low	2	50.0	0.75 (0.34,1.64)	0.470
	Medium	6	66.7		
	High	15	40.0		
Born < 1942	Low	29	62.1	0.61 (0.36,1.05)	0.073
	Medium	25	80.0		
	High	19	31.6		

b) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED (Initial Dioxin-by-Occupation: Table 18-39)					
Initial Dioxin Category Summary Statistics				Analysis Results for Log₂ (Initial Dioxin)	
Stratum	Initial Dioxin	n	Percent Abnormal High	Adjusted Relative Risk (95% C.I.)^a	p-Value
Officer	Low	14	64.3	5.43 (0.86,34.21)	0.072
	Medium	12	83.3		
	High	1	100.0		
Enlisted Flyer	Low	9	55.6	0.57 (0.25,1.33)	0.194
	Medium	6	66.7		
	High	9	44.4		
Enlisted Groundcrew	Low	8	62.5	0.55 (0.31,0.98)	0.043
	Medium	13	76.9		
	High	24	29.2		

Table N-2-21. (Continued)
Interaction Table for Serum Insulin (Diabetics)
(Discrete)

c) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED (Initial Dioxin-by-Body Fat: Table 18-39)					
Initial Dioxin Category Summary Statistics				Analysis Results for Log ₂ (Initial Dioxin)	
Stratum	Initial Dioxin	n	Percent Abnormal High	Adjusted Relative Risk (95% C.I.) ^a	p-Value
Obese: >25%	Low	11	100.0	0.30 (0.13,0.67)	0.003
	Medium	19	79.0		
	High	20	40.0		
Lean or Normal: ≤25%	Low	20	40.0	0.95 (0.57,1.60)	0.856
	Medium	12	75.0		
	High	14	28.6		

d) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Age: Table 18-39)					
Stratum	Dioxin Category	n	Percent Abnormal High	Adjusted Relative Risk (95% C.I.) ^b	p-Value
Born ≥1942	Comparison	36	52.8		
	Background RH	8	50.0	0.98 (0.17,5.76)	0.982
	Low RH	4	25.0	0.12 (0.01,2.04)	0.141
	High RH	19	52.6	1.76 (0.48,6.41)	0.393
	Low plus High RH	23	47.8	1.13 (0.34,3.68)	0.844
Born <1942	Comparison	112	59.8		
	Background RH	34	67.6	1.24 (0.50,3.07)	0.640
	Low RH	45	71.1	2.73 (1.14,6.50)	0.024
	High RH	28	42.9	0.44 (0.16,1.21)	0.112
	Low plus High RH	73	60.3	1.30 (0.64,2.64)	0.469

Table N-2-21. (Continued)
Interaction Table for Serum Insulin (Diabetics)
(Discrete)

e) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Body Fat: Table 18-39)					
Current Dioxin Category Summary Statistics				Analysis Results for Log₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Abnormal High	Adjusted Relative Risk (95% C.I.)^c	p-Value
Obese: >25%	Low	6	100.0	0.39 (0.21,0.72)	0.003
	Medium	22	86.4		
	High	32	56.3		
Lean or Normal: ≤25%	Low	22	54.6	0.91 (0.66,1.25)	0.564
	Medium	34	50.0		
	High	22	45.5		

f) MODEL 5: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Body Fat: Table 18-39)					
Current Dioxin Category Summary Statistics				Analysis Results for Log₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Abnormal High	Adjusted Relative Risk (95% C.I.)^c	p-Value
Obese: >25%	Low	6	100.0	0.47 (0.28,0.79)	0.005
	Medium	23	82.6		
	High	31	58.1		
Lean or Normal: ≤25%	Low	20	55.0	0.92 (0.71,1.19)	0.536
	Medium	31	54.8		
	High	27	40.7		

Table N-2-21. (Continued)
Interaction Table for Serum Insulin (Diabetics)
(Discrete)

g) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Body Fat: Table 18-39)					
Current Dioxin Category Summary Statistics				Analysis Results for Log ₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Abnormal High	Adjusted Relative Risk (95% C.I.) ^c	p-Value
Obese: >25%	Low	6	100.0	0.47 (0.27,0.80)	0.006
	Medium	23	82.6		
	High	31	58.1		
Lean or Normal: ≤25%	Low	20	55.0	0.92 (0.69,1.22)	0.544
	Medium	31	54.8		
	High	27	40.7		

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

^b Relative risk and confidence interval relative to Comparisons.

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

Note: Model 2: Low = 39-98 ppt; Medium = > 98-232 ppt; High = > 232 ppt.

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 ppq; Medium = >8.1-20.5 ppq; High = >20.5 ppq.

Models 5 and 6: Low = ≤ 46 ppq; Medium = > 46-128 ppq; High = > 128 ppq.

Table N-2-22.
Interaction Table for Serum Insulin (mIU/ml) (Nondiabetics)
(Continuous)

a) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Body Fat: Table 18-40)						
Stratum	Occupational Category	Group	n	Adjusted Mean^a	Difference of Adjusted Means (95% C.I.)^b	p-Value^c
Obese: >25%	All	<i>Ranch Hand</i>	175	117.03	17.32 --	0.043
		<i>Comparison</i>	243	99.71		
Lean or Normal: ≤25%	All	<i>Ranch Hand</i>	619	55.96	-3.19 --	0.189
		<i>Comparison</i>	838	59.15		
Obese: >25%	Officer	<i>Ranch Hand</i>	59	135.02	29.48 --	0.066
		<i>Comparison</i>	89	105.54		
	Enlisted Flyer	<i>Ranch Hand</i>	28	105.19	16.27 --	0.400
		<i>Comparison</i>	37	88.92		
	Enlisted Groundcrew	<i>Ranch Hand</i>	88	115.32	10.63 --	0.390
		<i>Comparison</i>	117	104.69		
Lean or Normal: ≤25%	Officer	<i>Ranch Hand</i>	247	63.64	0.67 --	0.874
		<i>Comparison</i>	352	62.98		
	Enlisted Flyer	<i>Ranch Hand</i>	106	43.22	-10.82 --	0.033
		<i>Comparison</i>	126	54.03		
	Enlisted Groundcrew	<i>Ranch Hand</i>	266	58.34	-3.24 --	0.400
		<i>Comparison</i>	360	61.58		

Table N-2-22. (Continued)
Interaction Table for Serum Insulin (mIU/ml) (Nondiabetics)
(Continuous)

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Age: Table 18-40)					
Stratum	Dioxin Category	n	Adjusted Mean^a	Difference of Adjusted Mean vs. Comparisons (95% C.I.)^b	p-Value^c
Born ≥ 1942	Comparison	410	48.20		
	Background RH	119	41.90	-6.30 --	0.080
	Low RH	80	45.93	-2.27 --	0.603
	High RH	132	51.56	3.36 --	0.380
	Low plus High RH	212	49.36	1.16 --	0.712
Born < 1942	Comparison	487	64.49		
	Background RH	210	64.56	0.07 --	0.988
	Low RH	123	63.88	0.61 --	0.901
	High RH	76	72.50	8.01 --	0.221
	Low plus High RH	199	67.05	2.56 --	0.547

^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.

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.

Table N-2-23.
Interaction Table for Serum Insulin (Nondiabetics)
(Discrete)

a) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Age: Table 18-41)										
Stratum	Occupational Category	Group	n	Percent			Low vs. Normal		High vs. Normal	
				Abnormal Low	Normal	Abnormal High	Adj. Relative Risk (95% C.I.)	p-Value	Adj. Relative Risk (95% C.I.)	p-Value
Born ≥ 1942	All	Ranch Hand	359	7.2	46.2	46.5	0.97 (0.55,1.72)	0.926	0.72 (0.53,0.97)	0.028
		Comparison	503	6.2	39.4	54.5				
Born < 1942	All	Ranch Hand	435	3.2	34.5	62.3	0.72 (0.36,1.42)	0.342	1.04 (0.78,1.37)	0.801
		Comparison	578	4.5	34.6	60.9				
Born ≥ 1942	Officer	Ranch Hand	75	6.7	53.3	40.0	0.69 (0.28,1.71)	0.420	0.65 (0.41,1.04)	0.074
		Comparison	117	9.4	47.0	43.6				
	Enlisted Flyer	Ranch Hand	34	5.9	50.0	44.1	1.18 (0.29,4.74)	0.815	0.45 (0.27,0.84)	0.012
		Comparison	51	5.9	29.4	64.7				
	Enlisted Groundcrew	Ranch Hand	250	7.6	43.6	48.8	1.11 (0.57,2.15)	0.769	0.79 (0.57,1.10)	0.162
		Comparison	335	5.1	38.2	56.7				
Born < 1942	Officer	Ranch Hand	231	3.5	39.0	57.6	0.59 (0.26,1.31)	0.194	1.07 (0.76,1.51)	0.697
		Comparison	324	5.6	38.6	55.9				
	Enlisted Flyer	Ranch Hand	100	4.0	32.0	64.0	1.01 (0.27,3.79)	0.987	0.74 (0.43,1.28)	0.283
		Comparison	112	1.8	27.7	70.5				
	Enlisted Groundcrew	Ranch Hand	104	1.9	26.9	71.2	0.95 (0.34,2.63)	0.916	1.30 (0.82,2.05)	0.261
		Comparison	142	4.2	31.0	64.8				

Table N-2-23. (Continued)
Interaction Table for Serum Insulin (Nondiabetics)
(Discrete)

b) MODEL 1: RANCH HANDS VS. COMPARISONS -- ADJUSTED (Group-by-Body Fat: Table 18-41)										
Stratum	Occupational Category	Group	n	Percent			Low vs. Normal		High vs. Normal	
				Abnormal Low	Normal	Abnormal High	Adj. Relative Risk (95% C.I.)	p-Value	Adj. Relative Risk (95% C.I.)	p-Value
Obese: >25%	<i>All</i>	<i>Ranch Hand</i>	<i>175</i>	<i>1.7</i>	<i>18.9</i>	<i>79.4</i>	<i>1.07 (0.20,5.69)</i>	<i>0.937</i>	<i>1.25 (0.76,2.05)</i>	<i>0.372</i>
		<i>Comparison</i>	<i>243</i>	<i>1.7</i>	<i>22.2</i>	<i>76.1</i>				
Lean/Normal: ≤25%	<i>All</i>	<i>Ranch Hand</i>	<i>619</i>	<i>6.0</i>	<i>45.7</i>	<i>48.3</i>	<i>0.85 (0.54,1.34)</i>	<i>0.483</i>	<i>0.81 (0.65,1.01)</i>	<i>0.061</i>
		<i>Comparison</i>	<i>838</i>	<i>6.3</i>	<i>41.1</i>	<i>52.6</i>				
Obese: >25%	Officer	Ranch Hand	59	3.4	15.3	81.4	0.74 (0.14,3.98)	0.728	1.42 (0.81,2.48)	0.219
		Comparison	89	2.3	21.4	76.4				
	Enlisted Flyer	Ranch Hand	28	0.0	14.3	85.7	--	--	0.93 (0.46,1.84)	0.827
		Comparison	37	0.0	13.5	86.5				
	Enlisted Groundcrew	Ranch Hand	88	1.1	22.7	76.1	1.34 (0.26,6.82)	0.726	1.24 (0.73,2.11)	0.430
		Comparison	117	1.7	25.6	72.7				
Lean/Normal: ≤25%	Officer	Ranch Hand	247	4.5	49.0	46.6	0.60 (0.30,1.22)	0.161	0.92 (0.67,1.27)	0.622
		Comparison	352	7.7	45.7	46.6				
	Enlisted Flyer	Ranch Hand	106	5.7	42.5	51.9	1.09 (0.31,3.85)	0.895	0.60 (0.36,1.01)	0.054
		Comparison	126	4.0	32.5	63.5				
	Enlisted Groundcrew	Ranch Hand	266	7.5	44.0	48.5	1.09 (0.57,2.09)	0.796	0.81 (0.59,1.11)	0.182
		Comparison	360	5.8	39.4	54.7				

Table N-2-23. (Continued)
Interaction Table for Serum Insulin (Nondiabetics)
(Discrete)

c) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED (Initial Dioxin-by-Occupation: Table 18-41)									
Analysis Results for Log ₂ (Initial Dioxin)									
Stratum	Initial Dioxin	n	Percent			Low vs. Normal		High vs. Normal	
			Abnormal Low	Normal	Abnormal High	Adj. Relative Risk (95% C.I.) ^a	p-Value	Adj. Relative Risk (95% C.I.) ^a	p-Value
Officer	Low	62	3.2	40.3	56.5	3.71 (0.66,20.72)	0.136	1.97 (0.74,5.25)	0.177
	Medium	21	14.3	19.1	66.7				
	High	0	--	--	--				
Enlisted Flyer	Low	27	7.4	51.9	40.7	1.35 (0.38,4.82)	0.647	2.75 (1.39,5.44)	0.004
	Medium	37	8.1	18.9	73.0				
	High	22	0.0	9.1	90.9				
Enlisted Groundcrew	Low	53	3.8	30.2	66.0	0.75 (0.47,1.19)	0.224	1.08 (0.87,1.34)	0.507
	Medium	83	4.8	39.8	55.4				
	High	117	3.4	38.5	58.1				

Table N-2-23. (Continued)
Interaction Table for Serum Insulin (Nondiabetics)
(Discrete)

d) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Occupation: Table 18-41)									
Stratum	Dioxin Category	n	Percent			Low vs. Normal		High vs. Normal	
			Abnormal Low	Normal	Abnormal High	Adj. Relative Risk (95% C.I.) ^b	p-Value	Adj. Relative Risk (95% C.I.) ^b	p-Value
Officer	Comparison	354	7.1	40.7	52.3				
	Background RH	208	3.9	45.2	51.0	0.49 (0.21,1.15)	0.101	0.98 (0.67,1.42)	0.899
	Low RH	75	5.3	36.0	58.7	1.03 (0.33,3.27)	0.955	1.02 (0.58,1.77)	0.954
	High RH	6	16.7	16.7	66.7	7.24 (0.41,126.67)	0.175	2.24 (0.23,21.75)	0.487
	Low plus High RH	81	6.2	34.6	59.3	1.25 (0.43,3.61)	0.684	1.06 (0.61,1.82)	0.839
Enlisted Flyer	Comparison	143	3.5	28.0	68.5				
	Background RH	39	5.1	56.4	38.5	0.73 (0.13,4.18)	0.720	0.32 (0.14,0.70)	0.005
	Low RH	41	4.9	48.8	46.3	0.70 (0.12,4.09)	0.690	0.40 (0.18,0.85)	0.018
	High RH	42	4.8	7.1	88.1	4.59 (0.58,36.14)	0.148	4.80 (1.37,16.74)	0.014
	Low plus High RH	83	4.8	27.7	67.5	1.18 (0.28,4.97)	0.820	0.97 (0.51,1.83)	0.917
Enlisted Groundcrew	Comparison	400	4.5	34.5	61.0				
	Background RH	82	9.8	45.1	45.1	1.60 (0.63,4.08)	0.322	0.73 (0.43,1.25)	0.255
	Low RH	87	4.6	34.5	60.9	1.01 (0.31,3.26)	0.984	0.93 (0.55,1.58)	0.798
	High RH	160	3.8	38.1	58.1	0.69 (0.25,1.89)	0.477	0.83 (0.59,1.16)	0.269
	Low plus High RH	247	4.1	36.8	59.1	0.80 (0.35,1.83)	0.595	0.86 (0.60,1.23)	0.417

Table N-2-23. (Continued)
Interaction Table for Serum Insulin (Nondiabetics)
(Discrete)

e) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Age: Table 18-41)									
Analysis Results for Log ₂ (Current Dioxin + 1)									
Stratum	Current Dioxin	n	Percent			Low vs. Normal		High vs. Normal	
			Abnormal Low	Normal	Abnormal High	Adj. Relative Risk (95% C.I.) ^c	p-Value	Adj. Relative Risk (95% C.I.) ^c	p-Value
Born ≥ 1942	Low	98	9.2	60.2	30.6	0.96 (0.73,1.26)	0.770	1.09 (0.94,1.25)	0.256
	Medium	90	6.7	40.0	53.3				
	High	148	5.4	40.5	54.1				
Born < 1942	Low	175	5.1	40.6	54.3	0.85 (0.62,1.16)	0.314	1.34 (1.14,1.58)	0.001
	Medium	151	4.0	37.8	58.3				
	High	90	1.1	16.7	82.2				

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

^b Relative risk and confidence interval relative to Comparisons.

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

--: Adjusted relative risk, confidence interval, and p-value not presented due to the sparse number of abnormalities.

Note: Model 2: Low = 39-98 ppt; Medium = > 98-232 ppt; High = > 232 ppt.

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 6: Low = ≤ 46 ppq; Medium = > 46-128 ppq; High = > 128 ppq.

Table N-2-24.
Interaction Table for Serum Glucagon (pg/ml) (All Participants)
(Continuous)

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED (Initial Dioxin-by-Occupation: Table 18-42)					
Initial Dioxin Category Summary Statistics				Analysis Results for Log_e (Initial Dioxin)	
Stratum	Initial Dioxin	n	Adjusted Mean^a	Adjusted Slope (Std. Error)^b	p-Value
Officer	Low	63	57.64	0.0795 (0.0458)	0.083
	Medium	30	62.43		
	High	1	63.10		
Enlisted Flyer	Low	32	55.21	0.0434 (0.0240)	0.071
	Medium	38	55.66		
	High	28	62.88		
Enlisted Groundcrew	Low	55	61.01	-0.0146 (0.0118)	0.215
	Medium	81	63.85		
	High	124	59.73		

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Family History of Diabetes: Table 18-42)					
Stratum	Dioxin Category	n	Adjusted Mean^a	Difference of Adjusted Mean vs. Comparisons (95% C.I.)^c	p-Value^d
No	Comparison	709	60.72		
	Background RH	256	59.28	-1.44 --	0.202
	Low RH	175	59.44	-1.28 --	0.322
	High RH	162	63.07	2.35 --	0.094
	Low plus High RH	337	61.16	0.44 --	0.670
Yes	Comparison	235	61.51		
	Background RH	74	61.36	-0.15 --	0.941
	Low RH	48	61.21	-0.30 --	0.904
	High RH	56	55.87	-5.64 --	0.011
	Low plus High RH	104	58.28	-3.23 --	0.071

Table N-2-24. (Continued)
Interaction Table for Serum Glucagon (pg/ml) (All Participants)
(Continuous)

c) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Family History of Diabetes: Table 18-42)					
Current Dioxin Category Summary Statistics				Analysis Results for Log ₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Adjusted Mean ^a	Adjusted Slope (Std. Error) ^b	p-Value
No	Low	204	57.09	0.0213 (0.0080)	0.008
	Medium	201	57.13		
	High	188	61.47		
Yes	Low	54	57.55	-0.0191 (0.0127)	0.132
	Medium	61	59.60		
	High	63	56.74		

^a Transformed from natural logarithm scale.

^b Slope and standard error based on natural logarithm of serum glucagon versus log₂ dioxin.

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

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

Note: Model 2: Low = 39-98 ppt; Medium = > 98-232 ppt; High = > 232 ppt.

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 N-2-25.
Interaction Table for Serum Glucagon (pg/ml) (Diabetics)
(Continuous)

a) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Body Fat: Table 18-44)						
Stratum	Occupational Category	Group	n	Adjusted Mean^a	Difference of Adjusted Means (95% C.I.)^b	p-Value^c
Obese: >25%	All	Ranch Hand	59	67.74	-5.05 --	0.197
		Comparison	72	72.79		
Lean or Normal: ≤25%	All	Ranch Hand	66	71.55	4.94 --	0.174
		Comparison	88	66.61		
Obese: >25%	Officer	Ranch Hand	21	68.65	-0.67 --	0.917
		Comparison	25	69.32		
	Enlisted Flyer	Ranch Hand	8	56.63	-19.54 --	0.053
		Comparison	9	76.17		
	Enlisted Groundcrew	Ranch Hand	30	74.46	-4.47 --	0.452
		Comparison	38	78.93		
Lean or Normal: ≤25%	Officer	Ranch Hand	29	70.89	3.49 --	0.546
		Comparison	29	67.40		
	Enlisted Flyer	Ranch Hand	13	66.20	-2.49 --	0.736
		Comparison	23	68.70		
	Enlisted Groundcrew	Ranch Hand	24	76.27	10.92 --	0.065
		Comparison	36	65.35		

Table N-2-25. (Continued)
Interaction Table for Serum Glucagon (pg/ml) (Diabetics)
(Continuous)

b) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Diabetic Severity: Table 18-44)						
Stratum	Occupational Category	Group	n	Adjusted Mean^a	Difference of Adjusted Means (95% C.I.)^b	p-Value^c
<i>No Treatment</i>	<i>All</i>	<i>Ranch Hand</i>	67	64.12	2.76 --	0.368
		<i>Comparison</i>	98	61.36		
<i>Diet Only</i>	<i>All</i>	<i>Ranch Hand</i>	25	74.51	13.55 --	0.018
		<i>Comparison</i>	29	60.96		
<i>Oral Hypo-glycemics</i>	<i>All</i>	<i>Ranch Hand</i>	17	60.95	-26.09 --	<0.001
		<i>Comparison</i>	24	87.04		
<i>Insulin Dependent</i>	<i>All</i>	<i>Ranch Hand</i>	16	76.44	-3.91 --	0.697
		<i>Comparison</i>	9	80.35		
<i>No Treatment</i>	<i>Officer</i>	<i>Ranch Hand</i>	26	63.68	1.71 --	0.746
		<i>Comparison</i>	30	61.97		
	<i>Enlisted Flyer</i>	<i>Ranch Hand</i>	11	55.53	-6.87 --	0.302
		<i>Comparison</i>	21	62.40		
	<i>Enlisted Groundcrew</i>	<i>Ranch Hand</i>	30	68.81	7.04 --	0.133
		<i>Comparison</i>	47	61.77		
<i>Diet Only</i>	<i>Officer</i>	<i>Ranch Hand</i>	11	72.67	19.34 --	0.031
		<i>Comparison</i>	8	53.33		
	<i>Enlisted Flyer</i>	<i>Ranch Hand</i>	2	83.99	13.92 --	0.456
		<i>Comparison</i>	7	70.07		
	<i>Enlisted Groundcrew</i>	<i>Ranch Hand</i>	12	76.46	13.61 --	0.109
		<i>Comparison</i>	14	62.85		
<i>Oral Hypo-glycemics</i>	<i>Officer</i>	<i>Ranch Hand</i>	3	67.11	-15.60 --	0.288
		<i>Comparison</i>	12	82.71		
	<i>Enlisted Flyer</i>	<i>Ranch Hand</i>	5	56.99	-15.77 --	0.345
		<i>Comparison</i>	2	72.76		
	<i>Enlisted Groundcrew</i>	<i>Ranch Hand</i>	9	63.58	-34.14 --	0.002
		<i>Comparison</i>	10	97.72		
<i>Insulin Dependent</i>	<i>Officer</i>	<i>Ranch Hand</i>	10	69.85	-4.36 --	0.742
		<i>Comparison</i>	4	74.21		
	<i>Enlisted Flyer</i>	<i>Ranch Hand</i>	3	72.08	-4.76 --	0.817
		<i>Comparison</i>	2	76.84		
	<i>Enlisted Groundcrew</i>	<i>Ranch Hand</i>	3	105.53	13.16 --	0.591
		<i>Comparison</i>	3	92.37		

Table N-2-25. (Continued)
Interaction Table for Serum Glucagon (pg/ml) (Diabetics)
(Continuous)

c) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Body Fat: Table 18-44)					
Stratum	Dioxin Category	n	Adjusted Mean^a	Difference of Adjusted Mean vs. Comparisons (95% C.I.)^b	p-Value^c
Obese: >25%	Comparison	61	67.64		
	Background RH	10	65.61	-2.03 --	0.781
	Low RH	23	60.99	-6.65 --	0.195
	High RH	22	57.60	-10.04 --	0.050
	Low plus High RH	45	59.31	-8.33 --	0.038
Lean or Normal: ≤25%	Comparison	71	67.68		
	Background RH	28	74.76	7.08 --	0.190
	Low RH	22	76.81	9.13 --	0.108
	High RH	16	69.79	2.11 --	0.740
	Low plus High RH	38	73.78	6.10 --	0.191

Table N-2-25. (Continued)
Interaction Table for Serum Glucagon (pg/ml) (Diabetics)
(Continuous)

d) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Diabetic Severity: Table 18-44)					
Stratum	Dioxin Category	n	Adjusted Mean^a	Difference of Adjusted Means vs. Comparisons (95% C.I.)^b	p-Value^c
No Treatment/ Diet Only	Comparison	103	60.52		
	Background RH	30	67.19	6.67 --	0.112
	Low RH	35	64.36	3.84 --	0.311
	High RH	23	66.66	6.14 --	0.182
	Low plus High RH	58	65.27	4.75 --	0.137
Oral Hypo- glycemics/ Insulin Dependent	Comparison	29	86.09		
	Background RH	8	77.01	-9.08 --	0.386
	Low RH	10	71.04	-15.05 --	0.099
	High RH	15	56.58	-29.51 --	<0.001
	Low plus High RH	25	61.97	-24.12 --	<0.001

^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.

Note: Model 3: RH = Ranch Hand.

Comparison: Current Dioxin $\leq$ 10 ppt.

Background (Ranch Hand): Current Dioxin $\leq$ 10 ppt.

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

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

Table N-2-26.
Interaction Table for α -1-C Hemoglobin (percent) (All Participants)
(Continuous)

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED (Initial Dioxin-by-Occupation: Table 18-48)					
Initial Dioxin Category Summary Statistics				Analysis Results for Log₂ (Initial Dioxin)	
Stratum	Initial Dioxin	n	Adjusted Mean^a	Adjusted Slope (Std. Error)^b	p-Value
Officer	Low	76	7.06	0.0940 (0.0290)	0.001
	Medium	31	7.86		
	High	1	11.73		
Enlisted Flyer	Low	35	8.53	-0.0073 (0.0160)	0.647
	Medium	42	8.17		
	High	30	8.41		
Enlisted Groundcrew	Low	60	7.36	0.0231 (0.0077)	0.003
	Medium	94	7.61		
	High	137	7.76		

b) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Body Fat: Table 18-48)					
Stratum	Dioxin Category	n	Adjusted Mean^a	Difference of Adjusted Mean vs. Comparisons (95% C.I.)^c	p-Value^d
Obese: >25%	Comparison	278	7.75		
	Background RH	52	7.31	-0.44 --	0.012
	Low RH	77	7.52	-0.23 --	0.123
	High RH	92	8.01	0.26 --	0.080
	Low plus High RH	169	7.78	0.03 --	0.795
Lean or Normal: ≤25%	Comparison	767	7.50		
	Background RH	316	7.58	0.08 --	0.310
	Low RH	175	7.54	0.04 --	0.704
	High RH	162	7.53	0.03 --	0.809
	Low plus High RH	337	7.53	0.04 --	0.684

Table N-2-26. (Continued)
Interaction Table for α -1-C Hemoglobin (percent) (All Participants)
(Continuous)

c) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Body Fat: Table 18-48)					
Current Dioxin Category Summary Statistics				Analysis Results for Log ₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Adjusted Mean ^a	Adjusted Slope (Std. Error) ^b	p-Value
Obese: >25%	Low	35	7.47	0.0377 (0.0081)	<0.001
	Medium	79	7.55		
	High	107	8.18		
Lean or Normal: ≤25%	Low	255	7.41	0.0041 (0.0048)	0.398
	Medium	215	7.51		
	High	183	7.48		

d) MODEL 5: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Age and Body Fat: Table 18-48)					
Current Dioxin Category Summary Statistics				Analysis Results for Log ₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Adjusted Mean ^a	Adjusted Slope (Std. Error) ^b	p-Value
Born ≥1942, Obese: >25%	Low	9	7.77	0.0201 (0.0109)	0.065
	Medium	26	7.24		
	High	58	7.75		
Born ≥1942, Lean or Normal: ≤25%	Low	93	7.39	-0.0021 (0.0059)	0.720
	Medium	70	7.14		
	High	105	7.14		
Born <1942, Obese: >25%	Low	28	7.44	0.0492 (0.0102)	<0.001
	Medium	54	7.88		
	High	46	8.34		
Born <1942, Lean or Normal: ≤25%	Low	166	7.42	0.0139 (0.0057)	0.016
	Medium	140	7.49		
	High	79	8.17		

Table N-2-26. (Continued)
Interaction Table for α -1-C Hemoglobin (percent) (All Participants)
(Continuous)

e) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Age and Body Fat: Table 18-48)					
Current Dioxin Category Summary Statistics				Analysis Results for Log ₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Adjusted Mean ^a	Adjusted Slope (Std. Error) ^b	p-Value
Born ≥ 1942, Obese: >25%	Low	9	7.92	0.0137 (0.0109)	0.209
	Medium	26	7.25		
	High	58	7.70		
Born ≥ 1942, Lean or Normal: ≤25%	Low	93	7.50	-0.0061 (0.0060)	0.304
	Medium	70	7.16		
	High	105	7.12		
Born < 1942, Obese: >25%	Low	28	7.53	0.0431 (0.0103)	<0.001
	Medium	54	7.91		
	High	46	8.23		
Born < 1942, Lean or Normal: ≤25%	Low	165	7.51	0.0082 (0.0061)	0.177
	Medium	140	7.52		
	High	79	8.04		

^a Transformed from natural logarithm scale.

^b Slope and standard error based on natural logarithm of α -1-C hemoglobin versus log₂ dioxin.

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

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

Note: Model 2: Low = 39-98 ppt; Medium = > 98-232 ppt; High = > 232 ppt.

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.

Models 5 and 6: Low = ≤ 46 ppq; Medium = > 46-128 ppq; High = > 128 ppq.

Table N-2-27.
Interaction Table for α -1-C Hemoglobin (All Participants)
(Discrete)

a) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED (Initial Dioxin-by-Occupation: Table 18-49)					
Initial Dioxin Category Summary Statistics				Analysis Results for Log₂ (Initial Dioxin)	
Stratum	Initial Dioxin	n	Percent Abnormal High	Adjusted Relative Risk (95% C.I.)^a	p-Value
Officer	Low	76	27.6	2.53 (1.15,5.57)	0.021
	Medium	31	38.7		
	High	1	100.0		
Enlisted Flyer	Low	35	40.0	0.80 (0.54,1.19)	0.267
	Medium	42	28.6		
	High	30	40.0		
Enlisted Groundcrew	Low	60	21.7	1.12 (0.91,1.37)	0.280
	Medium	94	31.9		
	High	137	25.6		

b) MODEL 5: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Body Fat: Table 18-49)					
Current Dioxin Category Summary Statistics				Analysis Results for Log₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Abnormal High	Adjusted Relative Risk (95% C.I.)^b	p-Value
Lean or Normal: $\leq 25\%$	Low	259	21.6	1.05 (0.93,1.17)	0.432
	Medium	209	23.4		
	High	184	24.5		
Obese: $> 25\%$	Low	37	24.3	1.32 (1.09,1.60)	0.005
	Medium	80	42.5		
	High	104	41.4		

Table N-2-27. (Continued)
Interaction Table for α -1-C Hemoglobin (All Participants)
(Discrete)

c) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Body Fat: Table 18-49)					
Current Dioxin Category Summary Statistics				Analysis Results for Log ₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Abnormal High	Adjusted Relative Risk (95% C.I.) ^b	p-Value
Lean or Normal: ≤25%	Low	258	21.7	0.98 (0.87,1.11)	0.754
	Medium	209	23.4		
	High	184	24.5		
Obese: >25%	Low	37	24.3	1.22 (1.00,1.49)	0.050
	Medium	80	42.5		
	High	104	41.4		

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

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

Note: Model 2: Low = 39-98 ppt; Medium = > 98-232 ppt; High = > 232 ppt.

Models 5 and 6: Low = ≤ 46 ppq; Medium = > 46-128 ppq; High = > 128 ppq.

Table N-2-28.
Interaction Table for α -1-C Hemoglobin (percent) (Diabetics)
(Continuous)

a) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Age: Table 18-50)						
Stratum	Occupational Category	Group	n	Adjusted Mean^a	Difference of Adjusted Means (95% C.I.)^b	p-Value^c
Born $\geq$ 1942	All	Ranch Hand	31	10.60	1.00 --	0.087
		Comparison	45	9.60		
Born < 1942	All	Ranch Hand	106	10.28	-0.38 --	0.263
		Comparison	132	10.66		
Born $\geq$ 1942	Officer	Ranch Hand	3	10.01	0.06 --	0.974
		Comparison	4	9.95		
	Enlisted Flyer	Ranch Hand	4	10.04	0.75 --	0.629
		Comparison	6	9.29		
	Enlisted Groundcrew	Ranch Hand	24	11.15	1.21 --	0.084
		Comparison	35	9.94		
Born < 1942	Officer	Ranch Hand	50	10.34	0.04 --	0.929
		Comparison	54	10.30		
	Enlisted Flyer	Ranch Hand	20	10.10	-0.99 --	0.195
		Comparison	28	11.09		
	Enlisted Groundcrew	Ranch Hand	36	10.15	-0.54 --	0.334
		Comparison	50	10.69		

^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-values based on difference of means on natural logarithm scale.

Table N-2-29.
Interaction Table for α -1-C Hemoglobin (percent) (Nondiabetics)
(Continuous)

a) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Body Fat: Table 18-52)						
Stratum	Occupational Category	Group	n	Adjusted Mean^a	Difference of Adjusted Means (95% C.I.)^b	p-Value^c
Obese: >25%	All	Ranch Hand	175	7.11	-0.08 --	0.159
		Comparison	243	7.19		
Lean or Normal: ≤25%	All	Ranch Hand	620	7.05	-0.01 --	0.793
		Comparison	839	7.06		
Obese: >25%	Officer	Ranch Hand	59	6.99	-0.17 --	0.092
		Comparison	89	7.16		
	Enlisted Flyer	Ranch Hand	28	7.24	0.00 --	0.978
		Comparison	37	7.24		
	Enlisted Groundcrew	Ranch Hand	88	7.12	-0.06 --	0.566
		Comparison	117	7.18		
Lean or Normal: ≤25%	Officer	Ranch Hand	247	6.95	-0.01 --	0.776
		Comparison	352	6.96		
	Enlisted Flyer	Ranch Hand	107	7.09	-0.06 --	0.505
		Comparison	126	7.15		
	Enlisted Groundcrew	Ranch Hand	266	7.10	0.02 --	0.775
		Comparison	361	7.08		

b) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Race: Table 18-52)					
Current Dioxin Category Summary Statistics				Analysis Results for Log₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Adjusted Mean^a	Adjusted Slope (Std. Error)^d	p-Value
Non-Black	Low	253	6.96	-0.0026 (0.0028)	0.347
	Medium	222	6.89		
	High	226	6.89		
Black	Low	11	7.34	-0.0282 (0.0125)	0.024
	Medium	17	7.21		
	High	12	6.87		

^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 based on difference of means on natural logarithm scale.

^d Slope and standard error based on natural logarithm of α -1-C hemoglobin versus log₂ (current dioxin + 1).

Table N-2-30.
Interaction Table for Urinary Protein (Diabetics)

a) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Race: Table 18-54)						
Stratum	Occupational Category	Group	n	Percent Present	Adj. Relative Risk (95% C.I.)	p-Value
Non-Black	All	Ranch Hand Comparison	126 161	14.3 13.7	1.05 (0.51,2.19)	0.890
Black	All	Ranch Hand Comparison	11 15	0.0 26.7	--	--
Non-Black	Officer	Ranch Hand Comparison	53	13.2	1.07 (0.32,3.57)	0.910
			58	12.1		
	Enlisted Flyer	Ranch Hand Comparison	20	15.0	2.15 (0.35,13.04)	0.407
			28	7.1		
	Enlisted Groundcrew	Ranch Hand Comparison	53	15.1	0.84 (0.30,2.37)	0.743
			75	17.3		
Black	Officer	Ranch Hand Comparison	0	0.0	--	--
			0	0.0		
	Enlisted Flyer	Ranch Hand Comparison	4	0.0	--	--
			6	16.7		
	Enlisted Groundcrew	Ranch Hand Comparison	7	0.0	--	--
			9	33.3		

--: Adjusted relative risk, confidence interval, and p-value not presented due to the sparse number of abnormalities.

Table N-2-31.
Interaction Table for Serum Proinsulin (Diabetics)
(Discrete)

a) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Occupation: Table 18-56)					
Current Dioxin Category Summary Statistics				Analysis Results for Log₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Abnormal High	Adjusted Relative Risk (95% C.I.)^a	p-Value
Officer	Low	13	15.4	7.29 (1.46,36.42)	0.016
	Medium	30	43.3		
	High	5	60.0		
Enlisted Flyer	Low	1	0.0	1.81 (0.55,5.95)	0.330
	Medium	9	11.1		
	High	12	66.7		
Enlisted Groundcrew	Low	10	50.0	0.70 (0.47,1.04)	0.081
	Medium	12	41.7		
	High	33	45.5		

b) MODEL 5: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Occupation: Table 18-56)					
Current Dioxin Category Summary Statistics				Analysis Results for Log₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Abnormal High	Adjusted Relative Risk (95% C.I.)^a	p-Value
Officer	Low	13	7.7	12.43 (2.45,62.98)	0.002
	Medium	26	38.5		
	High	11	63.6		
Enlisted Flyer	Low	1	0.0	2.01 (0.70,5.82)	0.196
	Medium	9	0.0		
	High	13	69.2		
Enlisted Groundcrew	Low	10	50.0	0.83 (0.62,1.11)	0.203
	Medium	15	40.0		
	High	32	46.9		

Table N-2-31. (Continued)
Interaction Table for Serum Proinsulin (Diabetics)
(Discrete)

c) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Occupation: Table 18-56)					
Current Dioxin Category Summary Statistics				Analysis Results for Log₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Abnormal High	Adjusted Relative Risk (95% C.I.)^a	p-Value
Officer	Low	13	7.7	10.52 (1.76,62.96)	0.010
	Medium	26	38.5		
	High	11	63.6		
Enlisted Flyer	Low	1	0.0	1.78 (0.59,5.43)	0.308
	Medium	9	0.0		
	High	13	69.2		
Enlisted Groundcrew	Low	10	50.0	0.62 (0.42,0.92)	0.019
	Medium	15	40.0		
	High	32	46.9		

d) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Diabetic Severity: Table 18-56)					
Current Dioxin Category Summary Statistics				Analysis Results for Log₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Abnormal High	Adjusted Relative Risk (95% C.I.)^a	p-Value
No Treatment	Low	14	7.1	1.20 (0.73,1.95)	0.472
	Medium	28	10.7		
	High	24	50.0		
Diet Only	Low	3	66.7	0.51 (0.25,1.01)	0.055
	Medium	14	50.0		
	High	13	53.9		
Oral Hypoglycemic	Low	0	0.0	0.45 (0.21,0.94)	0.035
	Medium	4	75.0		
	High	13	76.9		
Insulin Dependent	Low	7	42.9	0.78 (0.49,1.23)	0.286
	Medium	4	75.0		
	High	6	33.3		

^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 N-2-32.
Interaction Table for Serum C Peptide (ng/ml) (Diabetics)
(Continuous)

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Occupation: Table 18-57)					
Stratum	Dioxin Category	n	Adjusted Mean	Difference of Adjusted Mean vs. Comparisons (95% C.I.)	p-Value
Officer	Comparison	51	6.52		
	Background RH	22	6.12	-0.40 (-2.51,1.71)	0.707
	Low RH	23	7.14	0.62 (-1.42,2.66)	0.553
	High RH	3	7.31	0.79 (-4.02,5.59)	0.749
	Low plus High RH	26	7.16	0.64 (-1.32,2.59)	0.523
Enlisted Flyer	Comparison	26	6.78		
	Background RH	1	3.17	-3.61 (-11.97,4.74)	0.398
	Low RH	10	6.39	-0.39 (-3.42,2.63)	0.799
	High RH	11	7.86	1.08 (-1.86,4.02)	0.472
	Low plus High RH	21	7.16	0.38 (-2.00,2.76)	0.756
Enlisted Groundcrew	Comparison	66	5.86		
	Background RH	13	6.42	0.56 (-1.94,3.06)	0.660
	Low RH	12	11.68	5.82 (3.29,8.35)	<0.001
	High RH	30	6.24	0.39 (-1.41,2.19)	0.673
	Low plus High RH	42	7.80	1.94 (0.34,3.55)	0.019

Note: Model 3: RH = Ranch Hand.

Comparison: Current Dioxin $\leq$ 10 ppt.

Background (Ranch Hand): Current Dioxin $\leq$ 10 ppt.

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

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

Table N-2-33.
Interaction Table for Serum C Peptide (Diabetics)
(Discrete)

a) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Age: Table 18-58)					
Stratum	Dioxin Category	n	Percent Abnormal High	Adjusted Relative Risk (95% C.I.)^a	p-Value
Born ≥ 1942	Comparison	34	58.8		
	Background RH	7	14.3	0.14 (0.01,1.69)	0.122
	Low RH	3	66.7	0.77 (0.04,14.06)	0.862
	High RH	19	68.4	4.19 (0.95,18.52)	0.059
	Low plus High RH	22	68.2	3.09 (0.79,12.00)	0.104
Born < 1942	Comparison	109	65.1		
	Background RH	32	65.6	1.17 (0.35,3.90)	0.804
	Low RH	43	69.8	2.81 (1.02,7.75)	0.046
	High RH	26	42.3	0.29 (0.08,1.07)	0.062
	Low plus High RH	69	59.4	1.25 (0.54,2.88)	0.601

b) MODEL 5: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Age: Table 18-58)					
Current Dioxin Category Summary Statistics				Analysis Results for Log₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Abnormal High	Adjusted Relative Risk (95% C.I.)^b	p-Value
Born ≥ 1942	Low	4	0.0	0.93 (0.58,1.51)	0.773
	Medium	5	60.0		
	High	19	68.4		
Born < 1942	Low	18	61.1	0.73 (0.51,1.04)	0.079
	Medium	44	65.9		
	High	35	54.3		

Table N-2-33. (Continued)
Interaction Table for Serum C Peptide (Diabetics)
(Discrete)

c) MODEL 5: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Diabetic Severity: Table 18-58)					
Current Dioxin Category Summary Statistics				Analysis Results for Log₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Abnormal High	Adjusted Relative Risk (95% C.I.)^b	p-Value
No Treatment or Diet Only	Low	15	73.3	0.62 (0.42,0.92)	0.017
	Medium	41	75.6		
	High	36	66.7		
Oral Hypoglycemic or Insulin Dependent	Low	7	0.0	1.08 (0.67,1.75)	0.752
	Medium	8	12.5		
	High	18	44.4		

d) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Age: Table 18-58)					
Current Dioxin Category Summary Statistics				Analysis Results for Log₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Abnormal High	Adjusted Relative Risk (95% C.I.)^b	p-Value
Born ≥ 1942	Low	4	0.0	0.98 (0.60,1.60)	0.925
	Medium	5	60.0		
	High	19	68.4		
Born < 1942	Low	18	61.1	0.78 (0.52,1.16)	0.216
	Medium	44	65.9		
	High	35	54.3		

Table N-2-33. (Continued)
Interaction Table for Serum C Peptide (Diabetics)
(Discrete)

e) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Diabetic Severity: Table 18-58)					
Current Dioxin Category Summary Statistics				Analysis Results for Log ₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Abnormal High	Adjusted Relative Risk (95% C.I.) ^b	p-Value
No Treatment or Diet Only	Low	15	73.3	0.65 (0.42,1.00)	0.052
	Medium	41	75.6		
	High	36	66.7		
Oral Hypoglycemic or Insulin Dependent	Low	7	0.0	1.12 (0.68,1.85)	0.658
	Medium	8	12.5		
	High	18	44.4		

^a Relative risk and confidence interval relative to Comparisons.

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

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.

Models 5 and 6: Low = ≤ 46 ppq; Medium = > 46-128 ppq; High = > 128 ppq.

Table N-2-34.
Interaction Table for Total Testosterone (ng/dl)
(Continuous)

a) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Age: Table 18-59)						
Stratum	Occupational Category	Group	n	Adjusted Mean^a	Difference of Adjusted Means (95% C.I.)^b	p-Value^c
Born ≥1942	<i>All</i>	<i>Ranch Hand</i>	395	518.9	1.06 --	0.926
		<i>Comparison</i>	555	517.8		
Born <1942	<i>All</i>	<i>Ranch Hand</i>	541	503.2	18.59 --	0.054
		<i>Comparison</i>	716	484.6		
Born ≥1942	Officer	Ranch Hand	78	500.8	19.97 --	0.414
		Comparison	121	480.8		
	Enlisted Flyer	Ranch Hand	38	535.2	17.18 --	0.638
		Comparison	57	518.0		
	Enlisted Groundcrew	Ranch Hand	279	528.3	-7.78 --	0.574
		Comparison	377	536.1		
Born <1942	Officer	Ranch Hand	279	493.1	14.48 --	0.273
		Comparison	379	478.6		
	Enlisted Flyer	Ranch Hand	123	520.0	45.52 --	0.029
		Comparison	143	474.5		
	Enlisted Groundcrew	Ranch Hand	139	495.7	4.55 --	0.808
		Comparison	194	491.1		

Table N-2-34. (Continued)
Interaction Table for Total Testosterone (ng/dl)
(Continuous)

b) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED (Initial Dioxin-by-Personality Type: Table 18-59)					
Initial Dioxin Category Summary Statistics				Analysis Results for Log₂ (Initial Dioxin)	
Stratum	Initial Dioxin	n	Adjusted Mean^a	Adjusted Slope (Std. Error)^d	p-Value
Type A	Low	80	539.0	-0.5988 (0.2433)	0.015
	Medium	70	492.6		
	High	63	461.8		
Type B	Low	91	534.8	0.0392 (0.1816)	0.829
	Medium	100	509.3		
	High	110	505.2		

c) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Occupation: Table 18-59)					
Current Dioxin Category Summary Statistics				Analysis Results for Log₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Adjusted Mean^a	Adjusted Slope (Std. Error)^d	p-Value
Officer	Low	188	531.2	-0.9913 (0.2791)	<0.001
	Medium	137	493.0		
	High	14	369.3		
Enlisted Flyer	Low	31	571.6	-0.6173 (0.2891)	0.035
	Medium	57	565.5		
	High	61	504.2		
Enlisted Groundcrew	Low	68	515.6	-0.1184 (0.1315)	0.369
	Medium	101	540.2		
	High	222	511.4		

Table N-2-34. (Continued)
Interaction Table for Total Testosterone (ng/dl)
(Continuous)

d) MODEL 5: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Occupation: Table 18-59)					
Current Dioxin Category Summary Statistics				Analysis Results for Log₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Adjusted Mean^a	Adjusted Slope (Std. Error)^d	p-Value
Officer	Low	187	534.9	-0.7894 (0.2008)	<0.001
	Medium	133	488.2		
	High	19	385.6		
Enlisted Flyer	Low	33	563.4	-0.6092 (0.2386)	0.012
	Medium	56	554.4		
	High	60	515.2		
Enlisted Groundcrew	Low	72	522.7	-0.1864 (0.1158)	0.108
	Medium	104	536.3		
	High	215	509.3		

e) MODEL 6: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Occupation: Table 18-59)					
Current Dioxin Category Summary Statistics				Analysis Results for Log₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Adjusted Mean^a	Adjusted Slope (Std. Error)^d	p-Value
Officer	Low	187	525.6	-0.7437 (0.2158)	0.001
	Medium	133	487.0		
	High	19	402.9		
Enlisted Flyer	Low	32	544.5	-0.3897 (0.2839)	0.172
	Medium	56	548.9		
	High	60	520.0		
Enlisted Groundcrew	Low	72	514.9	-0.0834 (0.1220)	0.495
	Medium	104	531.8		
	High	215	512.5		

^a Transformed from square root scale.

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

^c P-value is based on difference of means on square root scale.

^d Slope and standard error based on square root of total testosterone versus log₂ dioxin.

Note: Model 2: Low = 39-98 ppt; Medium = > 98-232 ppt; High = > 232 ppt.

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 N-2-35.
Interaction Table for Total Testosterone
(Discrete)

a) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Race: Table 18-60)						
Stratum	Occupational Category	Group	n	Percent Abnormal Low	Adjusted Relative Risk (95% C.I.)	p-Value
<i>Non-Black</i>	<i>All</i>	<i>Ranch Hand</i>	877	4.8	0.89 (0.59,1.35)	0.597
		<i>Comparison</i>	1,193	5.2		
<i>Black</i>	<i>All</i>	<i>Ranch Hand</i>	56	0.0	--	--
		<i>Comparison</i>	74	6.8		
<i>Non-Black</i>	<i>Officer</i>	<i>Ranch Hand</i>	348	4.6	1.03 (0.53,2.00)	0.414
		<i>Comparison</i>	494	4.7		
	<i>Enlisted Flyer</i>	<i>Ranch Hand</i>	150	4.0	0.55 (0.19,1.60)	0.638
		<i>Comparison</i>	186	5.9		
	<i>Enlisted Groundcrew</i>	<i>Ranch Hand</i>	379	5.3	0.94 (0.52,1.73)	0.574
		<i>Comparison</i>	513	5.7		
<i>Black</i>	<i>Officer</i>	<i>Ranch Hand</i>	7	0.0	--	--
		<i>Comparison</i>	6	0.0		
	<i>Enlisted Flyer</i>	<i>Ranch Hand</i>	10	0.0	--	--
		<i>Comparison</i>	14	0.0		
	<i>Enlisted Groundcrew</i>	<i>Ranch Hand</i>	39	0.0	--	--
		<i>Comparison</i>	54	0.0		
	<i>Comparison</i>	<i>Background All</i>	100	4.3	1.58 (0.60,4.15)	0.360
		<i>Low RH</i>	113	8.2	1.83 (0.49,6.86)	0.424
		<i>High RH</i>	100	7.0	2.39 (0.90,6.34)	0.080
		<i>Low plus High RH</i>	213	5.6	2.08 (0.94,4.58)	0.110
<i>Type B</i>	<i>Comparison</i>	<i>Background All</i>	100	1.3	0.28 (0.08,0.94)	0.350
		<i>Low RH</i>	142	2.8	0.29 (0.10,0.85)	0.707
		<i>High RH</i>	139	7.3	0.95 (0.46,1.94)	0.080
		<i>Low plus High RH</i>	281	5.3	0.60 (0.30,1.15)	0.086

Table N-2-35. (Continued)
Interaction Table for Total Testosterone
(Discrete)

b) MODEL 1: RANCH HANDS VS. COMPARISONS — ADJUSTED (Group-by-Personality Type: Table 18-60)						
Stratum	Occupational Category	Group	n	Percent Abnormal Low	Adjusted Relative Risk (95% C.I.)	p-Value
Type A	All	Ranch Hand	408	5.6	1.82 (0.95,3.49)	0.071
		Comparison	527	3.4		
Type B	All	Ranch Hand	525	3.6	0.48 (0.27,0.84)	0.011
		Comparison	740	6.8		
Type A	Officer	Ranch Hand	175	6.3	2.01 (0.89,4.55)	0.092
		Comparison	223	2.2		
	Enlisted Flyer	Ranch Hand	60	3.3	1.24 (0.37,4.15)	0.730
		Comparison	86	4.7		
	Enlisted Groundcrew	Ranch Hand	173	5.8	1.86 (0.84,4.11)	0.125
		Comparison	218	4.1		
Type B	Officer	Ranch Hand	180	2.8	0.54 (0.24,1.22)	0.139
		Comparison	277	6.5		
	Enlisted Flyer	Ranch Hand	100	4.0	0.33 (0.11,1.01)	0.053
		Comparison	114	6.1		
	Enlisted Groundcrew	Ranch Hand	245	4.1	0.50 (0.25,1.02)	0.055
		Comparison	349	7.2		

* Transformed from square root scale.

* Difference of means after transformation to original scale, confidence interval on difference of means not presented because analysis was performed on square root scale.

* P-value is based on difference of means on square root scale.

* Data not available; may be based on square root of total testosterone versus log₁₀ factor.

Note: Model 2: Low = < 34-45 ppt; Medium = > 46-212 ppt; High = > 213 ppt.

Model 4: Low = < 5.1 ppt; Medium = > 5.1-20.5 ppt; High = > 20.5 ppt.

Models 5 and 6: Low = < 46 ppt; Medium = > 46-128 ppt; High = > 128 ppt.

Table N-2-35. (Continued)
Interaction Table for Total Testosterone
(Discrete)

c) MODEL 2: RANCH HANDS — INITIAL DIOXIN — ADJUSTED (Initial Dioxin-by-Occupation: Table 18-60)					
Initial Dioxin Category Summary Statistics				Analysis Results for Log ₂ (Initial Dioxin)	
Stratum	Initial Dioxin	n	Percent Abnormal Low	Adjusted Relative Risk (95% C.I.) ^a	p-Value
Officer	Low	76	5.3	5.48 (1.53,19.67)	0.009
	Medium	33	12.1		
	High	1	100.0		
Enlisted Flyer	Low	36	0.0	1.14 (0.51,2.55)	0.754
	Medium	42	4.8		
	High	31	9.7		
Enlisted Groundcrew	Low	60	6.7	1.01 (0.70,1.45)	0.974
	Medium	95	2.1		
	High	141	7.1		

d) MODEL 3: RANCH HANDS AND COMPARISONS BY DIOXIN CATEGORY — ADJUSTED (Dioxin Category-by-Personality Type: Table 18-60)					
Stratum	Dioxin Category	n	Percent Abnormal Low	Adjusted Relative Risk (95% C.I.) ^b	p-Value
Type A	Comparison	441	3.2		
	Background RH	168	4.2	1.58 (0.60,4.15)	0.040
	Low RH	113	6.2	1.83 (0.69,4.86)	0.024
	High RH	100	7.0	2.39 (0.90,6.34)	0.880
	Low plus High RH	213	6.6	2.08 (0.94,4.56)	0.116
Type B	Comparison	614	6.7		
	Background RH	196	1.5	0.28 (0.09,0.94)	0.350
	Low RH	142	2.8	0.29 (0.10,0.85)	0.227
	High RH	159	7.5	0.95 (0.46,1.94)	0.080
	Low plus High RH	301	5.3	0.60 (0.32,1.13)	0.069

Table N-2-35. (Continued)
Interaction Table for Total Testosterone
(Discrete)

e) MODEL 4: RANCH HANDS — CURRENT DIOXIN — ADJUSTED (Current Dioxin-by-Occupation: Table 18-60)					
Current Dioxin Category Summary Statistics				Analysis Results for Log ₂ (Current Dioxin + 1)	
Stratum	Current Dioxin	n	Percent Abnormal Low	Adjusted Relative Risk (95% C.I.) ^c	p-Value
Officer	Low	188	2.7	2.83 (1.25,6.42)	0.012
	Medium	137	5.1		
	High	14	28.6		
Enlisted Flyer	Low	31	0.0	1.28 (0.61,2.69)	0.523
	Medium	56	0.0		
	High	61	8.2		
Enlisted Groundcrew	Low	68	2.9	0.94 (0.68,1.30)	0.691
	Medium	101	5.0		
	High	222	5.4		

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

^b Relative risk and confidence interval relative to Comparisons.

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

--: Adjusted relative risk, confidence interval, and p-value not presented due to the sparse number of abnormalities.

Note: Model 2: Low = 39-98 ppt; Medium = > 98-232 ppt; High = > 232 ppt.

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.