

TABLE M-8. (continued)

Unadjusted Exposure Index Analyses
for Central Cardiac Function Variables by Occupation

Variable	Occupation	Statistic	Exposure Index						Contrast	Est. Relative Risk (95% C.I.)	p-Value
			Low		Medium		High				
			Number	Percent	Number	Percent	Number	Percent			
Bradycardia	Officer	n	119		122		109		Overall		0.975
		Abnormal	7	5.9	8	6.6	7	6.4	M vs. L	1.12 (0.39,3.20)	0.826
		Normal	112	94.1	114	93.4	102	93.6	H vs. L	1.10 (0.37,3.24)	0.865
	Enlisted Flyer	n	54		56		53		Overall		0.205
		Abnormal	1	1.8	5	8.9	2	3.8	M vs. L	5.20 (0.59,46.04)	0.139
		Normal	53	98.2	51	91.1	51	96.2	H vs. L	2.08 (0.18,23.63)	0.555
	Enlisted Groundcrew	n	148		151		130		Overall		0.078
		Abnormal	9	6.1	2	1.3	4	3.1	M vs. L	0.21 (0.04,0.98)	0.047
		Normal	139	93.9	149	98.7	126	96.9	H vs. L	0.49 (0.15,1.63)	0.246
Tachycardia	Officer	n	119		122		109				—
		Abnormal	0	0.0	0	0.0	0	0.0		—	—
		Normal	119	100.0	122	100.0	109	100.0		—	—
	Enlisted Flyer	n	54		56		53				—
		Abnormal	0	0.0	0	0.0	0	0.0		—	—
		Normal	54	100.0	56	100.0	53	100.0		—	—
	Enlisted Groundcrew	n	148		151		130				—
		Abnormal	0	0.0	0	0.0	0	0.0		—	—
		Normal	148	100.0	151	100.0	130	100.0		—	—

TABLE M-8. (continued)

Unadjusted Exposure Index Analyses
for Central Cardiac Function Variables by Occupation

Variable	Occupation	Statistic	Exposure Index						Contrast	Est. Relative Risk (95% C.I.)	p-Value	
			Low		Medium		High					
			Number	Percent	Number	Percent	Number	Percent				
Other ECG Diagnoses	Officer	n	119		122		109		Overall		0.311	
		Abnormal	14	11.8	21	17.2	12	11.0	M vs. L	1.56 (0.75,3.23)	0.234	
		Normal	105	88.2	101	82.8	97	89.0	H vs. L	0.93 (0.41,2.10)	0.857	
	Enlisted Flyer	n	54		56		53				0.265	
		Abnormal	9	16.7	5	8.9	4	7.6	M vs. L	0.49 (0.15,1.57)	0.230	
		Normal	45	83.3	51	91.1	49	92.4	H vs. L	0.42 (0.12,1.42)	0.159	
	Enlisted Groundcrew	n	148		151		130				0.645	
		Abnormal	13	8.8	9	6.0	10	7.7	M vs. L	0.66 (0.27,1.59)	0.352	
		Normal	135	91.2	142	94.0	120	92.3	H vs. L	0.87 (0.37,2.04)	0.741	
	Arrhythmia	Officer	n	119		122		109		Overall		0.166 ^a
			Abnormal	6	5.0	3	2.5	1	0.9	M vs. L	0.47 (0.12,1.94)	0.298
			Normal	113	95.0	119	97.5	108	99.1	H vs. L	0.17 (0.02,1.47)	0.110
Enlisted Flyer		n	54		56		53				—	
		Abnormal	2	3.7	0	0.0	1	1.9		—	—	
		Normal	52	96.3	56	100.0	52	98.1		—	—	
Enlisted Groundcrew		n	148		151		130		Overall		0.482	
		Abnormal	7	4.7	4	2.6	7	5.4	M vs. L	0.55 (0.16,1.91)	0.347	
		Normal	141	95.3	147	97.4	123	94.6	H vs. L	1.15 (0.39,3.36)	0.582	

^aOverall analysis; sparse cells, chi-square test may not be valid.

— Analysis not performed due to sparse cells.

TABLE M-9.

Unadjusted Exposure Index Analyses
for Diastolic Blood Pressure, Funduscopy Abnormalities,
Carotid Bruits, and Manual Pulse Readings by Occupation

M-15

Variable	Occupation	Statistic	Exposure Index						Contrast	Est. Relative Risk (95% C.I.)	p-Value
			Low		Medium		High				
			Number	Percent	Number	Percent	Number	Percent			
Diastolic Blood Pressure	Officer	n	119		122		109		Overall		0.585
		Abnormal	8	6.7	7	5.7	10	9.2	M vs. L	0.84 (0.30,2.41)	0.749
		Normal	111	93.3	115	94.3	99	90.8	H vs. L	1.40 (0.53,3.69)	0.497
	Enlisted Flyer	n	54		56		53		Overall		0.903
		Abnormal	5	9.3	5	8.9	6	11.3	M vs. L	0.96 (0.26,3.53)	0.952
		Normal	49	90.7	51	91.1	47	88.7	H vs. L	1.25 (0.36,4.38)	0.726
	Enlisted Groundcrew	n	148		151		130		Overall		0.434
		Abnormal	11	7.4	17	11.3	10	7.7	M vs. L	1.58 (0.71,3.50)	0.258
		Normal	137	92.6	134	88.7	120	92.3	H vs. L	1.04 (0.43,2.53)	0.936
Funduscopy Examination	Officer	n	119		122		109		Overall		0.337 ^a
		Abnormal	2	1.7	0	0.0	2	1.8	—	—	—
		Normal	117	98.3	122	100.0	107	98.2	—	—	—
	Enlisted Flyer	n	54		56		53		—	—	—
		Abnormal	1	1.8	0	0.0	0	0.0	—	—	—
		Normal	53	98.2	56	100.0	53	100.0	—	—	—
	Enlisted Groundcrew	n	148		150		130		—	—	—
		Abnormal	1	0.7	0	0.0	1	0.8	—	—	—
		Normal	147	99.3	150	100.0	129	99.2	—	—	—

TABLE M-9. (continued)

Unadjusted Exposure Index Analyses
for Diastolic Blood Pressure, Fundoscopic Abnormalities,
Carotid Bruits, and Manual Pulse Readings by Occupation

Variable	Occupation	Statistic	Exposure Index						Contrast	Est. Relative Risk (95% C.I.)	p-Value
			Low		Medium		High				
			Number	Percent	Number	Percent	Number	Percent			
Carotid Bruits	Officer	n	120		122		109		Overall		0.388 ^a
		Abnormal	3	1.7	1	0.8	0	0.0		—	
		Normal	117	98.3	121	99.2	109	100.0		—	
	Enlisted Flyer	n	54		56		53				—
		Abnormal	0	0.0	0	0.0	2	3.8		—	
		Normal	54	100.0	56	100.0	51	96.2		—	
	Enlisted Groundcrew	n	148		150		130				—
		Abnormal	0	0.0	0	0.0	2	1.5		—	
		Normal	148	100.0	150	100.0	128	98.5		—	
Radial Pulses	Officer	n	118		119		108		Overall		0.342 ^a
		Abnormal	2	1.7	0	0.0	2	1.8		—	
		Normal	116	98.3	119	100.0	106	98.2		—	
	Enlisted Flyer	n	54		55		53				—
		Abnormal	0	0.0	0	0.0	0	0.0		—	
		Normal	54	100.0	55	100.0	53	100.0		—	
	Enlisted Groundcrew	n	146		149		127				—
		Abnormal	0	0.0	0	0.0	0	0.0		—	
		Normal	146	100.0	149	100.0	127	100.0		—	

TABLE M-9. (continued)

Unadjusted Exposure Index Analyses
for Diastolic Blood Pressure, Fundoscopic Abnormalities,
Carotid Bruits, and Manual Pulse Readings by Occupation

Variable	Occupation	Statistic	Exposure Index						Contrast	Est. Relative Risk (95% C.I.)	p-Value	
			Low		Medium		High					
			Number	Percent	Number	Percent	Number	Percent				
Femoral Pulses (Manual)	Officer	n	118		119		108		Overall		0.379 ^a	
		Abnormal	1	0.8	1	0.8	3	2.8		—	—	
		Normal	117	99.2	118	99.2	105	97.2		—	—	
	Enlisted Flyer	n	54		55		53		Overall		0.334	
		Abnormal	1	1.8	2	3.6	4	7.6		M vs. L	2.00 (0.18,22.7)	0.575
		Normal	53	98.2	53	96.4	49	92.4		H vs. L	4.33 (0.47,39.8)	0.197
	Enlisted Groundcrew	n	146		149		127		Overall		0.088	
		Abnormal	5	3.4	0	0.0	3	2.4		—	—	
		Normal	141	96.6	149	100.0	124	97.6		H vs. L	0.68 (0.16,2.91)	0.603
Popliteal Pulses (Manual)	Officer	n	118		119		108		Overall		—	
		Abnormal	0	0.0	1	0.8	1	0.9		—	—	
		Normal	118	100.0	118	99.2	107	99.1		—	—	
	Enlisted Flyer	n	54		55		53		Overall		0.224 ^a	
		Abnormal	2	3.7	0	0.0	3	5.7		—	—	
		Normal	52	96.3	55	100.0	50	94.3		—	—	
	Enlisted Groundcrew	n	146		149		127		Overall		0.692 ^a	
		Abnormal	4	2.7	2	1.3	3	2.4		M vs. L	0.48 (0.09,2.68)	0.407
		Normal	142	97.3	147	98.7	124	97.6		H vs. L	0.86 (0.19,3.92)	0.841

TABLE M-9. (continued)

Unadjusted Exposure Index Analyses
for Diastolic Blood Pressure, Funduscopy Abnormalities,
Carotid Bruits, and Manual Pulse Readings by Occupation

Variable	Occupation	Statistic	Exposure Index						Contrast	Est. Relative Risk (95% C.I.)	p-Value
			Low		Medium		High				
			Number	Percent	Number	Percent	Number	Percent			
Dorsalis Pedis Pulses (Manual)	Officer	n	118		119		108		Overall		0.418
		Abnormal	15	12.7	13	10.9	8	7.4	M vs. L	0.84 (0.38,1.86)	0.667
		Normal	103	87.3	106	89.1	100	92.6	H vs. L	0.55 (0.22,3.35)	0.194
	Enlisted Flyer	n	54		55		53		Overall		0.716
		Abnormal	6	11.1	9	16.4	8	15.1	M vs. L	1.57 (0.52,4.75)	0.430
		Normal	48	88.9	46	83.6	45	84.9	H vs. L	1.42 (0.46,4.42)	0.542
	Enlisted Groundcrew	n	146		149		127		Overall		0.555
		Abnormal	17	11.6	12	8.0	14	11.0	M vs. L	0.66 (0.31,1.45)	0.303
		Normal	129	88.4	137	92.0	113	89.0	H vs. L	0.94 (0.44,1.99)	0.841
Posterior Tibial Pulses (Manual)	Officer	n	118		119		108				—
		Abnormal	1	0.8	2	1.7	0	0.0		—	—
		Normal	117	99.2	117	98.3	108	100.0		—	—
	Enlisted Flyer	n	54		55		53		Overall		0.879 ^a
		Abnormal	3	5.6	3	5.4	4	7.6	M vs. L	0.98 (0.19,5.09)	0.984
		Normal	51	94.4	52	94.6	49	92.4	H vs. L	1.39 (0.30,6.52)	0.674
	Enlisted Groundcrew	n	146		149		127		Overall		0.859
		Abnormal	4	2.7	5	3.4	5	3.9	M vs. L	1.23 (0.32,4.68)	0.757
		Normal	142	97.3	144	96.6	122	96.1	H vs. L	1.45 (0.38,5.54)	0.582

TABLE M-9. (continued)

Unadjusted Exposure Index Analyses
for Diastolic Blood Pressure, Funduscopy Abnormalities,
Carotid Bruits, and Manual Pulse Readings by Occupation

Variable	Occupation	Statistic	Exposure Index						Contrast	Est. Relative Risk (95% C.I.)	p-Value	
			Low		Medium		High					
			Number	Percent	Number	Percent	Number	Percent				
All Leg Pulses (Manual)	Officer	n	118		119		108		Overall		0.932	
		Abnormal	15	12.7	14	11.8	12	11.1	M vs. L	0.92 (0.42,1.99)	0.826	
		Normal	103	87.3	105	88.2	96	89.0	H vs. L	0.86 (0.38,1.93)	0.711	
	Enlisted Flyer	n	54		55		53		Overall		0.848	
		Abnormal	9	16.7	11	20.0	11	20.8	M vs. L	1.25 (0.47,3.31)	0.653	
		Normal	45	83.3	44	80.0	42	79.2	H vs. L	1.31 (0.49,3.48)	0.589	
	Enlisted Groundcrew	n	146		149		127		Overall		0.659	
		Abnormal	23	15.8	18	12.1	18	14.2	M vs. L	0.73 (0.38,1.43)	0.363	
		Normal	123	84.2	131	87.9	109	85.8	H vs. L	0.88 (0.45,1.72)	0.719	
	Peripheral Pulses (Manual)	Officer	n	118		119		108		Overall		0.904
			Abnormal	16	13.6	14	11.8	13	12.0	M vs. L	0.85 (0.39,1.83)	0.697
			Normal	102	86.4	105	88.2	95	88.0	H vs. L	0.87 (0.40,1.91)	0.734
Enlisted Flyer		n	54		55		53		Overall		0.848	
		Abnormal	9	16.7	11	20.0	11	20.8	M vs. L	1.25 (0.47,3.31)	0.653	
		Normal	45	83.3	44	80.0	42	79.2	H vs. L	1.31 (0.49,3.48)	0.589	
Enlisted Groundcrew		n	146		149		127		Overall		0.659	
		Abnormal	23	15.8	18	12.1	18	14.2	M vs. L	0.73 (0.38,1.43)	0.363	
		Normal	123	84.2	131	87.9	109	85.8	H vs. L	0.88 (0.45,1.72)	0.719	

TABLE M-9. (continued)

Unadjusted Exposure Index Analyses
for Diastolic Blood Pressure, Funduscopy Abnormalities,
Carotid Bruits, and Manual Pulse Readings by Occupation

Variable	Occupation	Statistic	Exposure Index						Contrast	Est. Relative Risk (95% C.I.)	p-Value
			Low		Medium		High				
			Number	Percent	Number	Percent	Number	Percent			
All Pulses (Manual)	Officer	n	118		119		108				0.904
		Abnormal	16	13.6	14	11.8	13	12.0	M vs. L	0.85 (0.39,1.83)	0.697
		Normal	102	86.4	105	88.2	95	88.0	H vs. L	0.87 (0.40,1.91)	0.734
	Enlisted Flyer	n	54		55		53				0.848
		Abnormal	9	16.7	11	20.0	11	20.8	M vs. L	1.25 (0.47,3.31)	0.653
		Normal	45	83.3	44	80.0	42	79.2	H vs. L	1.31 (0.49,3.48)	0.589
	Enlisted Groundcrew	n	146		149		127				0.659
		Abnormal	23	15.8	18	12.1	18	14.2	M vs. L	0.73 (0.38,1.43)	0.363
		Normal	123	84.2	131	87.9	109	85.8	H vs. L	0.88 (0.45,1.72)	0.719

*Overall analysis; sparse cells, chi-square test may not be valid.

— Analysis not performed due to sparse cells.

TABLE M-10.

Unadjusted Exposure Index Analyses for
Peripheral Vascular System Doppler Pulse Readings by Occupation

Variable	Occupation	Statistic	Exposure Index						Contrast	Est. Relative Risk (95% C.I.)	p-Value
			Low		Medium		High				
			Number	Percent	Number	Percent	Number	Percent			
Radial Pulses	Officer	n	119		122		109				—
		Abnormal	1	0.8	0	0.0	0	0.0		—	—
		Normal	118	99.2	122	100.0	109	100.0		—	—
	Enlisted Flyer	n	54		56		53				—
		Abnormal	0	0.0	0	0.0	0	0.0		—	—
		Normal	54	100.0	56	100.0	53	100.0		—	—
	Enlisted Groundcrew	n	148		151		130				—
		Abnormal	1	0.7	0	0.0	1	0.8		—	—
		Normal	147	99.3	151	100.0	129	99.2		—	—
Femoral Pulses	Officer	n	119		122		109				—
		Abnormal	1	0.8	0	0.0	0	0.0		—	—
		Normal	118	99.2	122	100.0	109	100.0		—	—
	Enlisted Flyer	n	54		56		53				—
		Abnormal	0	0.0	1	1.8	1	1.9		—	—
		Normal	54	100.0	55	98.2	52	98.1		—	—
	Enlisted Groundcrew	n	148		151		130		Overall		0.304 ^a
		Abnormal	1	0.7	0	0.0	2	1.5		—	
		Normal	147	99.3	151	100.0	128	98.5		—	

TABLE M-10. (continued)

Unadjusted Exposure Index Analyses for
Peripheral Vascular System Doppler Pulse Readings by Occupation

Variable	Occupation	Statistic	Exposure Index						Contrast	Est. Relative Risk (95% C.I.)	p-Value
			Low		Medium		High				
			Number	Percent	Number	Percent	Number	Percent			
Popliteal Pulses	Officer	n	119		122		109				—
		Abnormal	1	0.8	2	1.6	0	0.0		—	—
		Normal	118	99.2	120	98.4	109	100.0		—	—
	Enlisted Flyer	n	54		56		53				—
		Abnormal	0	0.0	2	3.6	1	1.9		—	—
		Normal	54	100.0	54	96.4	52	98.1		—	—
	Enlisted Groundcrew	n	148		151		130		Overall		0.123 ^a
		Abnormal	1	0.7	0	0.0	3	2.3		—	—
		Normal	147	99.3	151	100.0	127	97.7		—	—
Dorsalis Pedis Pulses	Officer	n	119		121		109		Overall M vs. L H vs. L		0.967
		Abnormal	33	27.7	35	28.9	30	27.5		1.06 (0.60,1.86)	0.841
		Normal	86	72.3	86	71.1	79	72.5		0.99 (0.55,1.77)	0.968
	Enlisted Flyer	n	54		56		52		Overall M vs. L H vs. L		0.848
		Abnormal	11	20.4	13	23.2	13	25.0		1.18 (0.48,2.93)	0.719
		Normal	43	79.6	43	76.8	39	75.0		1.30 (0.52,3.25)	0.569
	Enlisted Groundcrew	n	147		151		129		Overall M vs. L H vs. L		0.967
		Abnormal	32	21.8	32	21.2	29	22.5		0.97 (0.56,1.68)	0.904
		Normal	115	78.2	119	78.8	100	77.5		1.04 (0.59,1.84)	0.889

TABLE M-10. (continued)

Unadjusted Exposure Index Analyses for
Peripheral Vascular System Doppler Pulse Readings by Occupation

Variable	Occupation	Statistic	Exposure Index						Contrast	Est. Relative Risk (95% C.I.)	p-Value
			Low		Medium		High				
			Number	Percent	Number	Percent	Number	Percent			
Posterior Tibial Pulses	Officer	n	119		121		109		Overall		0.410
		Abnormal	2	1.7	5	4.1	2	1.8	M vs. L	2.52 (0.48,13.3)	0.276
		Normal	117	98.3	116	95.9	107	98.2	H vs. L	1.09 (0.15,7.90)	0.928
	Enlisted Flyer	n	54		56		52		Overall		0.248 ^a
		Abnormal	0	0.0	3	5.4	2	3.8		—	—
		Normal	54	100.0	53	94.6	50	96.2		—	—
	Enlisted Groundcrew	n	147		151		130		Overall		0.193 ^a
		Abnormal	2	1.4	0	0.0	3	2.3		—	—
		Normal	145	98.6	151	100.0	127	97.7		—	—
Leg Pulses	Officer	n	119		121		109		Overall		0.822
		Abnormal	33	27.7	38	31.4	32	29.4	M vs. L	1.19 (0.68,2.08)	0.535
		Normal	86	72.3	83	68.6	77	70.6	H vs. L	1.08 (0.61,1.93)	0.787
	Enlisted Flyer	n	54		56		52		Overall		0.666
		Abnormal	11	20.4	15	26.8	14	26.9	M vs. L	1.43 (0.58,3.48)	0.430
		Normal	43	79.6	41	73.2	38	73.1	H vs. L	1.44 (0.58,3.55)	0.430
	Enlisted Groundcrew	n	147		151		129		Overall		0.955
		Abnormal	33	22.4	32	21.2	29	22.5	M vs. L	0.93 (0.54,1.61)	0.795
		Normal	114	77.8	119	78.8	100	77.5	H vs. L	1.00 (0.57,1.77)	1.000

TABLE M-10. (continued)

Unadjusted Exposure Index Analyses for
Peripheral Vascular System Doppler Pulse Readings by Occupation

Variable	Occupation	Statistic	Exposure Index						Contrast	Est. Relative Risk (95% C.I.)	p-Value
			Low		Medium		High				
			Number	Percent	Number	Percent	Number	Percent			
Peripheral Pulses	Officer	n	119		121		109		Overall		0.822
		Abnormal	33	27.7	38	31.4	32	29.4	M vs. L	1.19 (0.68,2.08)	0.535
		Normal	86	72.3	83	68.6	77	70.6	H vs. L	1.08 (0.61,1.93)	0.787
	Enlisted Flyer	n	54		56		52		Overall		0.666
		Abnormal	11	20.4	15	26.8	14	26.9	M vs. L	1.43 (0.58,3.48)	0.430
		Normal	43	79.6	41	73.2	38	73.1	H vs. L	1.44 (0.58,3.55)	0.430
	Enlisted Groundcrew	n	147		151		129		Overall		0.894
		Abnormal	34	23.1	32	21.2	30	23.3	M vs. L	0.89 (0.52,1.54)	0.689
		Normal	113	76.9	119	78.8	99	76.7	H vs. L	1.01 (0.58,1.76)	0.984
All Pulses	Officer	n	119		121		109		Overall		0.822
		Abnormal	33	27.7	38	31.4	32	29.4	M vs. L	1.19 (0.68,2.08)	0.535
		Normal	86	72.3	83	68.6	77	70.6	H vs. L	1.08 (0.61,1.93)	0.787
	Enlisted Flyer	n	54		56		52		Overall		0.666
		Abnormal	11	20.4	15	26.8	14	26.9	M vs. L	1.43 (0.58,3.48)	0.430
		Normal	43	79.6	41	73.2	38	73.1	H vs. L	1.44 (0.58,3.55)	0.430
	Enlisted Groundcrew	n	147		151		129		Overall		0.894
		Abnormal	34	23.1	32	21.2	30	23.3	M vs. L	0.89 (0.52,1.54)	0.689
		Normal	113	76.9	119	78.8	99	76.7	H vs. L	1.01 (0.58,1.76)	0.984

^aOverall analysis; sparse cells, chi-square test may not be valid.

— Analysis not performed due to sparse cells.

TABLE M-11.

**Association Between Central and Peripheral Abnormalities and
Verified Heart Disease in the Combined
Ranch Hand and Comparison Groups**

Variable	Stratification	Total	Essential Hypertension		Percent Abnormal	Heart Disease*		Myocardial Infarction
			Percent Abnormal	p-Value		p-Value	Percent Abnormal	p-Value
Systolic Pressure	≤140	2,002	17.5	<0.001	21.7	0.556	1.0	0.386
	>140	145	61.4		24.1		2.1	
Diastolic Pressure	≤90	1,966	14.8	<0.001	22.4	0.043	1.1	0.790
	>90	180	81.7		15.6		0.6	
ECG	Normal	1,858	18.8	<0.001	17.4	<0.001	0.3	<0.001
	Abnormal	290	30.7		50.3		5.9	
Heart Sounds	Normal	2,084	20.1	0.036	21.4	0.017	0.9	<0.001
	Abnormal	63	31.8		34.9		6.4	
Funduscopic Examination	Normal	2,134	20.2	0.008	21.6	0.014	1.0	0.999
	Abnormal	13	53.8		53.8		0.0	
Carotid Bruit	Normal	2,132	20.3	0.080	21.8	0.775	1.0	0.999
	Abnormal	14	42.9		28.6		0.0	
Peripheral Pulses (Manual)	Normal	1,806	20.0	0.547	21.5	0.725	0.9	0.391
	Abnormal	314	21.7		22.6		1.6	
Peripheral Pulses (Doppler)	Normal	1,611	20.6	0.754	20.4	0.007	0.9	0.306
	Abnormal	529	19.8		26.1		1.5	

*Excluding hypertension.

TABLE M-12.

**Unadjusted Analyses for Reported and Verified Heart Disease by Group
(Original Comparisons Only)**

Variable	Statistic	Group				Est. Relative Risk (95% C.I.)	p-Value
		Ranch Hand		Original Comparison			
		Number	Percent	Number	Percent		
Reported Essential Hypertension	n	942		888			
	Yes	247	26.2	231	26.0	1.01 (0.82,1.24)	0.920
	No	695	73.8	657	74.0		
Verified Essential Hypertension	n	942		888			
	Yes	195	20.7	184	20.7	1.00 (0.80,1.25)	0.992
	No	747	79.3	704	79.3		
Reported Heart Disease (Excluding Hypertension)	n	942		888			
	Yes	265	28.1	234	26.4	1.09 (0.89,1.34)	0.390
	No	677	71.9	654	73.6		
Verified Heart Disease (Excluding Hypertension)	n	942		888			
	Yes	224	23.8	180	20.3	1.23 (0.98,1.53)	0.070
	No	718	76.2	708	79.7		
Reported Myocardial Infarction	n	942		888			
	Yes	20	2.1	18	2.0	1.05 (0.55,1.99)	0.889
	No	922	97.9	870	98.0		
Verified Myocardial Infarction	n	942		888			
	Yes	9	1.0	11	1.2	0.77 (0.32,1.87)	0.562
	No	933	99.0	877	98.8		

TABLE M-13.

**Adjusted Analyses for Reported and Verified Heart Disease
(Original Comparisons Only)**

Variable	Adj. Relative Risk (95% C.I.)	p-Value	Covariate Remarks*
Reported Essential Hypertension	1.12 (0.90,1.40)	0.312	AGE (p<0.001), CSMOK (p<0.001), CHOL (p<0.001), %BFAT (p<0.001), ALC (p=0.003)
Verified Essential Hypertension	1.10 (0.86,1.39)	0.447	CSMOK (p=0.015), CHOL (p<0.001), %BFAT (p<0.001), PS (p=0.024), ALC (p=0.028)
Reported Heart Disease	1.14 (0.92,1.40)	0.230	AGE (p<0.001), RACE (p=0.046)
Verified Heart Disease	1.28 (1.02,1.60)	0.032	AGE (p<0.001)
Reported Myocardial Infarction	1.16 (0.58,2.32)	0.682	AGE (p<0.001), OCC (p=0.005), CHOL (p=0.040)
Verified Myocardial Infarction	0.90 (0.36,2.24)	0.810	AGE (p<0.001), CHOL (p=0.021)

***Abbreviations:**

CSMOK: Current smoking
 CHOL: Cholesterol
 %BFAT: Percent body fat
 ALC: Current alcohol use (drinks/day)
 PS: Personality score
 OCC: Occupation

TABLE M-14.

**Unadjusted Analyses for Central Cardiac Function by Group (Diabetics Excluded)
(Original Comparisons Only)**

Variable	Statistic	Group				Est. Relative Risk (95% C.I.)	p-Value
		Ranch Hand		Original Comparison			
		Number	Percent	Number	Percent		
Systolic Blood Pressure	n	942		888		0.83 (0.58,1.20)	0.322
	Abnormal	60	6.4	67	7.6		
	Normal	882	93.6	821	92.4		
Heart Sounds	n	941		888		1.09 (0.64,1.84)	0.757
	Abnormal	31	3.3	27	3.0		
	Normal	910	96.7	861	97.0		
ECG (Overall)	n	942		888		0.90 (0.69,1.18)	0.441
	Abnormal	121	12.8	125	14.1		
	Normal	821	87.2	763	85.9		
ECG: RBBB	n	942		888		0.79 (0.24,2.58)	0.689
	Abnormal	5	0.5	6	0.7		
	Normal	937	99.5	882	99.3		
ECG: LBBB	n	942		888		---	---
	Abnormal	0	0.0	0	0.0		
	Normal	942	100.0	888	100.0		
ECG: Nonspecific T-Wave Changes	n	942		888		1.03 (0.75,1.42)	0.857
	Abnormal	85	9.0	78	8.8		
	Normal	857	91.0	810	91.2		

TABLE M-14. (continued)

Unadjusted Analyses for Central Cardiac Function by Group (Diabetics Excluded)
(Original Comparisons Only)

Variable	Statistic	Group				Est. Relative Risk (95% C.I.)	p-Value
		Ranch Hand		Original Comparison			
		Number	Percent	Number	Percent		
ECG: Bradycardia	n	942		888		1.12 (0.72,1.75)	0.610
	Abnormal	45	4.8	38	4.3		
	Normal	897	95.2	850	95.7		
ECG: Tachycardia	n	942		888		---	---
	Abnormal	0	0.0	0	0.0		
	Normal	942	100.0	888	100.0		
ECG: Arrhythmia	n	942		888		0.91 (0.55,1.50)	0.711
	Abnormal	31	3.3	32	3.6		
	Normal	911	96.7	856	96.4		
ECG: Other Diagnoses	n	942		888		0.99 (0.74,1.34)	0.968
	Abnormal	97	10.3	92	10.4		
	Normal	845	89.7	796	89.6		

--No relative risk given, since no abnormalities are present.

TABLE M-15.

**Adjusted Analyses for Central Cardiac Function (Diabetics Excluded)*
(Original Comparisons Only)**

Variable	Adj. Relative Risk (95% C.I.)	p-Value	Covariate Remarks**
Systolic Blood Pressure (Discrete)	0.95 (0.65,1.38)	0.772	AGE (p<0.001) CHOL (p=0.001) %BFAT (p<0.001) PS (p=0.001)
Systolic Blood Pressure (Continuous)	-0.152 (-1.401,1.097)*	0.811*	AGE*OCC (p=0.018) CSMOK (p<0.001) CHOL (p<0.001) %BFAT (p<0.001) PS (p=0.001) ALC (p<0.001)
Heart Sounds	1.26 (0.73,2.17)	0.407	AGE (p<0.001) RACE (p=0.002) OCC (p=0.048) CHOL/HDL (p<0.001)
ECG (Overall)	****	****	AGE (p<0.001) RACE (p=0.023) %BFAT (p<0.001) GRP*PACKYR (p=0.034)
ECG: RBBB	0.85 (0.26,2.81)	0.787	AGE (p=0.015)
ECG: Nonspecific ST-T-Wave Changes	1.20 (0.85,1.69)	0.294	AGE (p<0.001) RACE (p=0.033) CHOL (p=0.009) %BFAT (p<0.001)
ECG: Bradycardia	1.16 (0.74,1.82)	0.509	OCC (p=0.019) CHOL/HDL (p<0.001)

TABLE M-15. (continued)

Adjusted Analyses for Central Cardiac Function (Diabetics Excluded)*
(Original Comparisons Only)

Variable	Adj. Relative Risk (95% C.I.)	p-Value	Covariate Remarks**
ECG: Arrhythmia	****	****	AGE (p<0.001) OCC (p<0.001) GRP*PACKYR (p=0.034) GRP*%BFAT (p=0.016)
ECG: Other Diagnoses	****	****	AGE (p<0.001) GRP*OCC (p=0.036)

*Some adjusted analyses did not explore effects of all covariates due to sparse number of abnormalities (see text).

****Additional Abbreviations:**

CHOL/HDL: cholesterol to HDL ratio

GRP: group

PACKYR: pack-years of smoking

****Group-by-covariate interaction--relative risk/difference in group means, 95% confidence interval, and p-value not presented.

*Difference in group means (Ranch Hand-Original Comparison) and associated p-value given, rather than relative risk, for continuous analysis of dependent variables.

TABLE M-16.

**Summary of Group-by-Covariate Interactions
for Central Cardiac Function Variables (Diabetics Excluded)
(Original Comparisons Only)**

Variable	Interaction	Stratification	Adj. Relative Risk (95% C.I.)	p-Value
ECG (Overall)	Group-by-Pack-Years Smoking	Pack-Years: 0	0.76 (0.53,1.10)	0.142
		Pack-Years: 30	1.24 (0.87,1.78)	0.234
ECG: Arrhythmia	Group-by-Pack-Years Smoking (21% Body Fat)	Pack-Years: 0	0.59 (0.30,1.18)	0.134
		Pack-Years: 30	1.55 (0.72,3.33)	0.263
	Group-by-Percent Body Fat (7 Pack-Years Smoking)	10% Body Fat	0.17 (0.05,0.62)	0.007
		30% Body Fat	2.46 (0.76,7.99)	0.136
ECG: Other Diagnoses	Group-by-Occupation	Officer	1.73 (1.06,2.85)	0.030
		Enlisted Flyer	0.75 (0.38,1.47)	0.401
		Enlisted Groundcrew	0.73 (0.44,1.22)	0.234

TABLE M-17.

**Unadjusted Analyses for Peripheral Vascular Function by Group
(Diabetics Excluded)
(Original Comparisons Only)**

Variable	Statistic	Group				Est. Relative Risk (95% C.I.)	p-Value
		Ranch Hand		Original Comparison			
		Number	Percent	Number	Percent		
Diastolic Blood Pressure	n	942		887		0.98 (0.70,1.36)	0.889
	Abnormal	79	8.4	76	8.6		
	Normal	863	91.6	811	91.4		
Funduscopy Examination	n	941		888		1.10 (0.37,3.29)	0.865
	Abnormal	7	0.7	6	0.7		
	Normal	934	99.3	882	99.3		
Carotid Bruits	n	941		887		1.10 (0.37,3.28)	0.865
	Abnormal	7	0.7	6	0.7		
	Normal	934	99.3	881	99.3		
Radial Pulses (Manual)	n	929		876		0.54 (0.16,1.84)	0.322
	Abnormal	4	0.4	7	0.8		
	Normal	925	99.6	869	99.2		
Radial Pulses (Doppler)	n	942		886		0.70 (0.16,3.16)	0.646
	Abnormal	3	0.3	4	0.4		
	Normal	939	99.7	882	99.6		
Femoral Pulses (Manual)	n	929		876		0.90 (0.48,1.66)	0.726
	Abnormal	20	2.2	21	2.4		
	Normal	909	97.8	855	97.6		

TABLE M-17. (continued)

**Unadjusted Analyses for Peripheral Vascular Function by Group
(Diabetics Excluded)
(Original Comparisons Only)**

Variable	Statistic	Group				Est. Relative Risk (95% C.I.)	p-Value
		Ranch Hand		Original Comparison			
		Number	Percent	Number	Percent		
Femoral Pulses (Doppler)	n	942		887		1.89 (0.47,7.57)	0.368
	Abnormal	6	0.6	3	0.3		
	Normal	936	99.4	884	99.7		
Popliteal Pulses (Manual)	n	929		876		0.71 (0.37,1.38)	0.312
	Abnormal	16	1.7	21	2.4		
	Normal	913	98.3	855	97.6		
Popliteal Pulses (Doppler)	n	942		887		1.58 (0.57,4.35)	0.379
	Abnormal	10	1.1	6	0.7		
	Normal	932	98.9	881	99.3		
Dorsalis Pedis Pulses (Manual)	n	929		876		1.01 (0.71,1.45)	0.928
	Abnormal	102	11.0	95	10.8		
	Normal	827	89.0	781	89.2		
Dorsalis Pedis Pulses (Doppler)	n	938		885		1.08 (0.87,1.34)	0.490
	Abnormal	228	24.3	203	22.9		
	Normal	710	75.7	682	77.1		
Posterior Tibial Pulses (Manual)	n	929		876		1.06 (0.61,1.85)	0.834
	Abnormal	27	2.9	24	2.7		
	Normal	902	97.1	852	97.3		
Posterior Tibial Pulses (Doppler)	n	939		885		0.99 (0.52,1.91)	0.984
	Abnormal	19	2.0	18	2.0		
	Normal	920	98.0	867	98.0		

TABLE M-17. (continued)

**Unadjusted Analyses for Peripheral Vascular Function by Group
(Diabetics Excluded)
(Original Comparisons Only)**

Variable	Statistic	Group				Est. Relative Risk (95% C.I.)	p-Value
		Ranch Hand		Original Comparison			
		Number	Percent	Number	Percent		
Leg Pulses (Manual)	n	929		876		0.91 (0.70,1.18)	0.472
	Abnormal	131	14.1	134	15.3		
	Normal	798	85.9	742	84.7		
Leg Pulses (Doppler)	n	938		885		1.07 (0.87,1.33)	0.516
	Abnormal	237	25.3	212	23.9		
	Normal	701	74.7	673	76.1		
Peripheral Pulses (Manual)	n	929		876		0.89 (0.69,1.16)	0.395
	Abnormal	133	14.3	138	15.8		
	Normal	796	85.7	738	84.2		
Peripheral Pulses (Doppler)	n	938		885		1.07 (0.87,1.33)	0.522
	Abnormal	239	25.5	214	24.2		
	Normal	699	74.5	671	75.8		
All Pulses (Manual)	n	929		876		0.89 (0.69,1.16)	0.395
	Abnormal	133	14.3	138	15.8		
	Normal	796	85.7	738	84.2		
All Pulses (Doppler)	n	938		884		1.07 (0.86,1.32)	0.529
	Abnormal	239	25.5	214	24.2		
	Normal	699	74.5	670	75.8		

TABLE M-18.

Adjusted Analyses for Peripheral Vascular Function
(Diabetics Excluded)*
(Original Comparisons Only)

Variable	Statistical/Clinical Analysis	Adj. Relative Risk (95% C.I.)	p-Value	Covariate Remarks**
Diastolic Blood Pressure	Discrete	1.04 (0.74,1.46)	0.818	CHOL (p<0.001) %BFAT (p<0.001)
	Continuous	0.250 (-0.530,1.030) ^a	0.537 ^a	AGE (p=0.016) CSMOK (p<0.001) CHOL (p<0.001) %BFAT (p<0.001) ALC (p=0.004)
Funduscopy Examination		1.31 (0.42,4.09)	0.646	AGE (p<0.001) RACE (p<0.001) CHOL/HDL (p=0.010) ALC (p=0.032)
Carotid Bruits		0.95 (0.30,2.97)	0.928	AGE (p=0.018) DRKYR (p<0.001)
Radial Pulses	Manual Doppler	0.57 (0.17,1.96) 0.70 (0.16,3.16) ^b	0.373 0.646 ^b	AGE (p=0.047)
Femoral Pulses	Manual	1.20 (0.60,2.36)	0.710	AGE (p<0.001) OCC (p=0.050) CHOL/HDL (p=0.043) %BFAT (p<0.001) DIFCORT (p=0.005)
	Doppler	1.87 (0.45,7.74)	0.384	AGE (p=0.001) CSMOK (p=0.001) CHOL/HDL (p=0.032)
Popliteal Pulses	Manual	****	****	AGE (p=0.002) RACE (p=0.002) PACKYR (p=0.006) CHOL/HDL (p=0.021) GRP*OCC (p=0.048)
	Doppler	1.66 (0.59,4.72)	0.337	AGE (p<0.001) RACE (p=0.015) CSMOK (p<0.001)
Dorsalis Pedis Pulses	Manual	1.06 (0.78,1.44)	0.704	AGE (p=0.004)
	Doppler	1.07 (0.86,1.33)	0.569	AGE (p=0.036) RACE (p=0.007) %BFAT (p=0.010)

TABLE M-18. (continued)

Adjusted Analyses for Peripheral Vascular Function
(Diabetics Excluded)*
(Original Comparisons Only)

Variable	Statistical/Clinical Analysis	Adj. Relative Risk (95% C.I.)	p-Value	Covariate Remarks**
Posterior Tibial Pulses	Manual	****	****	AGE (p=0.003) RACE (p<0.001) PACKYR (p=0.011) GRP*OCC (p=0.026)
	Doppler	1.07 (0.54,2.13)	0.849	AGE (p<0.001) RACE (p<0.001) CSMOK (p=0.010) CHOL/HDL (p=0.002)
Leg Pulses	Manual	****	****	AGE (p=0.001) GRP*OCC (p=0.038) GRP*%BFAT (p=0.010)
	Doppler	1.07 (0.86,1.33)	0.516	AGE (p=0.016) RACE (p=0.024) %BFAT (p=0.034)
Peripheral Pulses	Manual	****	****	AGE (p<0.001) GRP*%BFAT (p=0.036)
	Doppler	1.06 (0.86,1.32)	0.575	AGE (p=0.028) RACE (p=0.042) %BFAT (p=0.033)
All Pulses	Manual	****	****	AGE (p<0.001) GRP*%BFAT (p=0.036)
	Doppler	1.06 (0.86,1.32)	0.582	AGE (p=0.027) RACE (p=0.042) %BFAT (p=0.038)

*Some adjusted analyses did not explore effects of all covariates due to sparse number of abnormalities (see text).

****Additional Abbreviations:**

DRKYR: Drink-years of alcohol
DIFCORT: Differential cortisol

^aDifference in group means (Ranch Hand - Original Comparison) and associated p-value given, rather than relative risk, continuous analysis of dependent variables.

^bUnadjusted for any covariates—same as for unadjusted results.

—No covariates significant.

****Group-by-covariate interaction—relative risk, 95% confidence interval, and p-value not presented.

TABLE M-19.

**Summary of Group-by-Covariate Interactions
for Peripheral Vascular Function Variables (Diabetics Excluded)
(Original Comparisons Only)**

Variable	Interaction	Stratification	Adj. Relative Risk (95% C.I.)	p-Value
Popliteal Pulses (Manual)	Group-by-Occupation	Officer	0.21 (0.02,2.54)	0.219
		Enlisted Flyer	4.68 (0.53,41.1)	0.165
		Enlisted Groundcrew	0.99 (0.38,2.55)	0.976
Posterior Tibial Pulses (Manual)	Group-by-Occupation	Officer	0.31 (0.05,1.82)	0.197
		Enlisted Flyer	3.68 (0.96,14.1)	0.057
		Enlisted Groundcrew	1.27 (0.56,2.87)	0.575
Leg Pulses (Manual)	Group-by-Occupation (21% Body Fat)	Officer	0.65 (0.41,1.01)	0.054
		Enlisted Flyer	1.52 (0.83,2.77)	0.174
		Enlisted Groundcrew	1.23 (0.81,1.87)	0.327
Peripheral Pulses (Manual)	Group-by-Percent Body Fat	10% Body Fat	1.87 (0.94,3.72)	0.073
		30% Body Fat	0.58 (0.34,0.98)	0.042
All Pulses (Manual)	Group-by-Percent Body Fat	10% Body Fat	1.87 (0.94,3.72)	0.073
		30% Body Fat	0.58 (0.34,0.98)	0.042

TABLE M-20.

**Longitudinal Analysis of Pulse Index and Overall ECG:
A Contrast of Baseline and First Followup Examination Abnormalities
(Original Comparisons Only)**

Variable	Group	1982	1985		Odds* Ratio (OR)	p-Value (OR _{RH} vs OR _{OC})
		Baseline Exam	Followup Exam			
			<u>Abnormal</u>	<u>Normal</u>		
All Pulses (Manual)	Ranch Hand	Abnormal	50	72	1.44	0.05
		Normal	104	743		
	Original Comparison	Abnormal	35	51	2.25	
		Normal	115	668		
ECG (Overall)	Ranch Hand	Abnormal	86	192	0.22	0.23
		Normal	43	650		
	Original Comparison	Abnormal	83	147	0.30	
		Normal	44	598		

*Odds Ratio:
$$\frac{\text{Number Normal Baseline, Abnormal Followup}}{\text{Number Abnormal Baseline, Normal Followup}}$$

APPENDIX N

Hematological Evaluation

APPENDIX N: Hematological Evaluation

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TABLE N-1.

Summary Statistics for Hematological Covariates by Group

Covariate	Covariate Category	Group		p-Value
		Ranch Hand Percent	Comparison Percent	
Race	Black	5.9	6.4	0.679
	Nonblack	94.1	93.6	
Occupation	Officer	37.4	37.5	0.724
	Enlisted Flyer	17.5	16.2	
	Enlisted Groundcrew	45.2	46.3	
		<u>Mean±SE</u>	<u>Mean±SE</u>	
Age (At Baseline)	--	43.94±0.24	43.86±0.22	0.804
Current Smoking ^a	--	10.75±0.48	9.13±0.40	0.010
Smoking History (Pack-Years)	--	13.24±0.52	12.98±0.47	0.708

^aEquivalent cigarettes per day.

--Covariate not categorized for these results.

TABLE N-2.

**Summary of Group-by-Covariate
Interactions for Hematological Variables**

Variable	Interaction Covariates	Stratification	Ranch Hand-Comparison Group Difference $\pm$ SE	p-Value	Direction of Result*
RBC	Occupation	<u>Officer</u>			
	Smoking History	<u>Nonsmoker</u>	-0.009 $\pm$ 0.030	0.775	
		30 Pack-Years	-0.014 $\pm$ 0.035	0.686	
		<u>Enlisted Flyer</u>			
		<u>Nonsmoker</u>	-0.066 $\pm$ 0.053	0.212	
		30 Pack-Years	-0.001 $\pm$ 0.046	0.975	
		<u>Enlisted Groundcrew</u>			
		<u>Nonsmoker</u>	-0.010 $\pm$ 0.029	0.736	
		30 Pack-Years	-0.093 $\pm$ 0.036	0.010	C>RH
WBC ^a	Race	<u>Nonblack</u>			
	Smoking History	<u>Nonsmoker</u>			
		35	-0.010 $\pm$ 0.020	0.609	
		53	0.002 $\pm$ 0.021	0.942	
	Occupation	<u>30 Pack-Years</u>			
	Age (At Baseline)	35	0.115 $\pm$ 0.031	<0.001	RH>C
		53	-0.017 $\pm$ 0.019	0.369	
		<u>Black</u>			
		<u>Officer</u>			
		35	-0.550 $\pm$ 0.184	0.003	C>RH
		53	-0.143 $\pm$ 0.186	0.446	
		<u>Enlisted Flyer</u>			
		35	-0.341 $\pm$ 0.172	0.050	C>RH
		53	0.067 $\pm$ 0.134	0.618	
		<u>Enlisted Groundcrew</u>			
		35	-0.121 $\pm$ 0.074	0.104	
		53	0.286 $\pm$ 0.149	0.057	RH>C

TABLE N-2. (continued)

**Summary of Group-by-Covariate
Interactions for Hematological Variables**

Variable	Interaction Covariates	Stratification	Ranch Hand-Comparison Group Difference $\pm$ SE	p-Value	Direction of Result*
PLT ^a	Race Smoking (Smoking History and Current Smoking)	<u>Nonblack</u>			
		Nonsmoker	0.003 $\pm$ 0.012	0.789	
		30 Pack-Years, Currently 1 Pack/Day	0.103 $\pm$ 0.042	0.014	RH>C
		<u>Black</u>			
		Nonsmoker	-0.050 $\pm$ 0.050	0.317	
		30 Pack-Years, Currently 1 Pack/Day	0.258 $\pm$ 0.096	0.007	RH>C

*RH>C: Variable mean in Ranch Hand group greater than variable mean in Comparison group.
C>RH: Variable mean in Comparison group greater than variable mean in Ranch Hand group.

^aUnits are on log scale.

TABLE N-3.

**Interaction Summaries for Adjusted Continuous Exposure
Index Analyses for Hematological Variables**

Variable	Interaction (Occupation)	Stratification	Contrast	Exposure Index Level Difference $\pm$ SE	p-Value	Direction of Result*
7-N	RBC	Nonblack	M vs. L	0.014 $\pm$ 0.295	0.962	
			H vs. L	-0.180 $\pm$ 0.372	0.630	
		Black	M vs. L	-0.047 $\pm$ 0.402	0.908	
			H vs. L	0.516 $\pm$ 0.502	0.304	
	RBC	35	M vs. L	-0.119 $\pm$ 0.128	0.356	H > L
			H vs. L	0.261 $\pm$ 0.151	0.086	
		53	M vs. L	0.033 $\pm$ 0.102	0.748	L > H
			H vs. L	-0.172 $\pm$ 0.102	0.093	
	HGB	Nonblack	M vs. L	-0.007 $\pm$ 0.122	0.955	
			H vs. L	0.060 $\pm$ 0.123	0.626	
		Black	M vs. L	0.089 $\pm$ 0.874	0.919	
			H vs. L	2.227 $\pm$ 0.960	0.021	
	HGB	35	M vs. L	-0.854 $\pm$ 0.389	0.029	L > M
			H vs. L	0.626 $\pm$ 0.457	0.172	
		53	M vs. L	0.425 $\pm$ 0.308	0.169	
			H vs. L	-0.339 $\pm$ 0.308	0.272	
	HCT	Nonblack	M vs. L	-0.093 $\pm$ 0.359	0.795	
			H vs. L	0.206 $\pm$ 0.362	0.569	
		Black	M vs. L	-0.849 $\pm$ 2.569	0.741	
			H vs. L	5.611 $\pm$ 2.823	0.048	

TABLE N-3. (continued)

Interaction Summaries for Adjusted Continuous Exposure
Index Analyses for Hematological Variables

Variable	Interaction (Occupation)	Stratification	Contrast	Exposure Index Level Difference $\pm$ SE	p-Value	Direction of Result*
HCT	Exposure Index by-Age (At Baseline) (Enlisted Flyer)	35	M vs. L	-2.332 $\pm$ 1.141	0.042	L > M
			H vs. L	1.921 $\pm$ 1.341	0.154	
		53	M vs. L	1.074 $\pm$ 0.904	0.236	
			H vs. L	-0.887 $\pm$ 0.904	0.328	
PLT ^a	Exposure Index- by-Current Smoking (Packs per Day) (Enlisted Flyer)	0	M vs. L	0.097 $\pm$ 0.054	0.075	M > L
			H vs. L	-0.005 $\pm$ 0.053	0.932	
		1	M vs. L	-0.015 $\pm$ 0.042	0.710	
			H vs. L	-0.062 $\pm$ 0.045	0.169	
		2	M vs. L	-0.128 $\pm$ 0.068	0.064	L > M
			H vs. L	-0.118 $\pm$ 0.078	0.132	
PLT ^a	Exposure Index- by-Race (Enlisted Groundcrew)	Nonblack	M vs. L	-0.015 $\pm$ 0.025	0.557	
			H vs. L	-0.004 $\pm$ 0.026	0.885	
		Black	M vs. L	0.156 $\pm$ 0.079	0.049	M > L
			H vs. L	-0.036 $\pm$ 0.081	0.659	

*H > L: Variable mean in high exposure index category greater than variable mean in low exposure index category.

L > H: Variable mean in low exposure index category greater than variable mean in high exposure index category.

L > M: Variable mean in low exposure index category greater than variable mean in medium exposure index category.

M > L: Variable mean in medium exposure index category greater than variable mean in low exposure index category.

^aUnits are in log scale.

TABLE N-4.

Unadjusted Categorical Analyses for
Hematological Variables by Group
(Original Comparisons Only)

Variable	Group	<u>Abnormally Low</u>		<u>Normal</u>		<u>Abnormally High</u>		Total	p-Value ^a
		Number	Percent	Number	Percent	Number	Percent		
RBC	Ranch Hand	30	3.0	976	96.2	8	0.8	1,014	0.598
	Original Comparison	36	3.8	910	95.4	8	0.8	954	
WBC	Ranch Hand	45	4.4	906	89.4	62	6.1	1,013	0.631
	Original Comparison	47	4.9	857	89.8	50	5.2	954	
HGB	Ranch Hand	39	3.8	752	74.2	223	22.0	1,014	0.867
	Original Comparison	34	3.6	717	75.2	203	21.3	954	
HCT	Ranch Hand	11	1.1	1,001	98.7	2	0.2	1,014	0.722
	Original Comparison	13	1.4	938	98.3	3	0.3	954	
MCV	Ranch Hand	10	1.0	857	84.5	147	14.5	1,014	0.904
	Original Comparison	11	1.2	809	84.8	134	14.0	954	
MCH	Ranch Hand	7	0.7	943	93.0	64	6.3	1,014	0.947
	Original Comparison	7	0.7	890	93.3	57	6.0	954	
MCHC	Ranch Hand	1	0.1	1,013	99.9	0	0.0	1,014	—
	Original Comparison	0	0.0	954	100.0	0	0.0	954	
PLT	Ranch Hand	5	0.5	987	97.4	21	2.1	1,013	0.760
	Original Comparison	2	0.2	935	98.0	17	1.8	954	

^aChi-square test, 2 d.f., except for HCT and PLT, which were obtained from continuity adjusted chi-square tests on 1 d.f. (Abnormally high category pooled with normal, and abnormally low category pooled with normal for HCT and PLT, respectively.)

—Only one abnormal MCHC value; p-value not given.

TABLE N-5.

Unadjusted Continuous Analyses for
Hematological Variables (Contrast of Group Means)
(Original Comparisons Only)

Variable	Group Mean $\pm$ SE		Difference $\pm$ SE	t-Statistic	p-Value
	Ranch Hand	Original Comparison			
RBC	4.964 $\pm$ 0.012	4.974 $\pm$ 0.012	-0.010 $\pm$ 0.017	-0.61	0.540
WBC ¹	7.003	6.844	--	1.78	0.076
HGB	15.624 $\pm$ 0.033	15.600 $\pm$ 0.034	0.024 $\pm$ 0.047	0.50	0.619
HCT	45.904 $\pm$ 0.097	45.874 $\pm$ 0.097	0.030 $\pm$ 0.137	0.22	0.827
MCV	92.596 $\pm$ 0.150	92.355 $\pm$ 0.157	0.241 $\pm$ 0.217	1.11	0.268
MCH	31.544 $\pm$ 0.055	31.435 $\pm$ 0.058	0.108 $\pm$ 0.080	1.35	0.177
MCHC	34.040 $\pm$ 0.021	34.009 $\pm$ 0.613	0.030 $\pm$ 0.029	1.06	0.291
PLT ¹	265.2	261.7	--	1.39	0.165

¹ Means transformed from log scale.

--Difference and standard errors (SE) not presented, since variables were analyzed on logarithmic scale.

TABLE N-6.

Adjusted Categorical Analyses for Hematological Variables
(Abnormal Versus Normal, Adjusted for Age, Race, Occupation, and Smoking)
(Original Comparisons Only)

Variable	<u>Abnormally Low vs. Normal</u>		<u>Abnormally High vs. Normal</u>	
	Adj. Relative Risk (95% C.I.)	p-Value	Adj. Relative Risk (95% C.I.)	p-Value
RBC	0.81 (0.51,1.30)	0.380	0.95 (0.41,2.17)	0.898
WBC	0.95 (0.63,1.43)	0.730	1.16 (0.80,1.70)	0.431
HGB	1.10 (0.70,1.72)	0.692	1.05 (0.85,1.30)	0.662
HCT	0.84 (0.41,1.71) ^a	0.628 ^a	Sparse Data	
MCV				
Nonblack	1.92 (0.64,5.76)	0.242	1.09 (0.84,1.42)	0.503
Black	0.32 (0.09,1.11)	0.072	0.41 (0.12,1.34)	0.139
MCH	0.96 (0.40,2.30)	0.920	1.06 (0.74,1.52)	0.734
PLT	Sparse Data		1.13 (0.63,2.05) ^b	0.682 ^b

^aAbnormally low versus normal/abnormally high.

^bAbnormally high versus normal/abnormally low.

TABLE N-7.

Adjusted Continuous Analyses for Hematological Variables
(Ranch Hand-Original Comparison Group Differences)
(Original Comparisons Only)

Variable	Ranch Hand-Original Comparison Group Difference ±SE	p-Value	Covariate Remarks*
RBC	-0.018 ± 0.017	0.278	AGE (p<0.001) CSMOK (p=0.001) OCC*PACKYR (p=0.043)
WBC	****	****	GRP*RACE*OCC (p<0.001) GRP*AGE*RACE (p=0.013) GRP*AGE*PACKYR (p=0.013) GRP*RACE*PACKYR (p=0.022) PACKYR*CSMOK (p<0.001)
HGB	****	****	GRP*RACE*AGE (p=0.030) GRP*RACE*OCC (p=0.020) OCC*PACKYR (p=0.023) CSMOK (p<0.001)
HCT	****	****	GRP*RACE*AGE (p=0.026) GRP*RACE*OCC (p=0.011) AGE*OCC (p=0.009) CSMOK (p<0.001)
MCV	****	****	GRP*AGE*PACKYR (p=0.041) GRP*AGE*CSMOK (p=0.012) RACE*OCC (p=0.021) AGE*RACE (p<0.001)
MCH	****	****	GRP*AGE*CSMOK (p=0.026) AGE*RACE (p=0.001) OCC (p=0.001)
MCHC	0.030 ± 0.028	0.296	RACE (p<0.001)
PLT	****	****	GRP*RACE*PACKYR (p=0.011) GRP*AGE (p=0.040) OCC (p=0.005)

*CSMOK: current level of smoking (cigarettes per day)

PACKYR: smoking history (pack years)

OCC: occupation

GRP: group

****Group-by-covariate interaction--group difference, standard error (SE), and p-value not presented.

TABLE N-8.

Summary of Group-by-Covariate
Interactions for Hematological Variables
(Original Comparisons Only)

Variable	Interaction Covariates	Stratification	Ranch Hand-Original Comparison Group Difference $\pm$ SE	p-Value	Direction of Result*
WBC ^a	Race	<u>Nonblack</u>			
		<u>Nonsmoker</u>			
	Smoking History	35			
		53	-0.014 $\pm$ 0.021	0.511	
	Age (At Baseline)		0.014 $\pm$ 0.022	0.508	
		<u>30 Pack-Years</u>			
		35	0.107 $\pm$ 0.033	0.001	RH>OC
		53	-0.011 $\pm$ 0.019	0.551	
		<u>Black</u>	-0.053 $\pm$ 0.058	0.364	
		(No significant interactions)			

TABLE N-8. (continued)

Summary of Group-by-Covariate
Interactions for Hematological Variables
(Original Comparisons Only)

Variable	Interaction Covariates	Stratification	Ranch Hand-Original Comparison Group Difference $\pm$ SE	p-Value	Direction of Result*
HGB	Race	<u>Nonblack</u>			
		<u>Officer</u>			
	Occupation	35	0.151 $\pm$ 0.113	0.181	
		53	-0.035 $\pm$ 0.082	0.667	
	Age (At Baseline)	<u>Enlisted Flyer</u>			
		35	0.087 $\pm$ 0.132	0.509	
		53	-0.100 $\pm$ 0.121	0.410	
		<u>Enlisted Groundcrew</u>			
		35	0.026 $\pm$ 0.080	0.744	
		53	-0.161 $\pm$ 0.107	0.134	
		<u>Black</u>			
		<u>Officer</u>			
		35	-1.034 $\pm$ 0.627	0.099	OC>RH
		53	0.209 $\pm$ 0.629	0.740	
		<u>Enlisted Flyer</u>			
		35	-1.398 $\pm$ 0.613	0.023	OC>RH
		53	-0.155 $\pm$ 0.481	0.747	
		<u>Enlisted Groundcrew</u>			
		35	-0.014 $\pm$ 0.283	0.962	
		53	1.230 $\pm$ 0.526	0.020	RH>OC

TABLE N-8. (continued)

**Summary of Group-by-Covariate
Interactions for Hematological Variables
(Original Comparisons Only)**

Variable	Interaction Covariates	Stratification	Ranch Hand-Original Comparison Group Difference $\pm$ SE	p-Value	Direction of Result*
HCT	Race	<u>Nonblack</u>			
		<u>Officer</u>			
	Occupation	35	0.506 $\pm$ 0.325	0.120	
		53	-0.174 $\pm$ 0.237	0.462	
	Age (At Baseline)	<u>Enlisted Flyer</u>			
		35	0.390 $\pm$ 0.377	0.301	
		53	-0.291 $\pm$ 0.347	0.403	
		<u>Enlisted Groundcrew</u>			
		35	0.063 $\pm$ 0.230	0.783	
		53	-0.617 $\pm$ 0.307	0.045	OC>RH
		<u>Black</u>			
		<u>Officer</u>			
		35	-2.662 $\pm$ 1.801	0.140	
		53	0.825 $\pm$ 1.805	0.648	
		<u>Enlisted Flyer</u>			
		35	-4.365 $\pm$ 1.753	0.013	OC>RH
		53	-0.878 $\pm$ 1.378	0.524	
		<u>Enlisted Groundcrew</u>			
		35	-0.050 $\pm$ 0.806	0.950	
		53	3.436 $\pm$ 1.497	0.022	RH>OC

TABLE N-8. (continued)

**Summary of Group-by-Covariate
Interactions for Hematological Variables
(Original Comparisons Only)**

Variable	Interaction Covariates	Stratification	Ranch Hand-Original Comparison Group Difference $\pm$ SE	p-Value	Direction of Result*
MCV	Smoking (Smoking History and Current Smoking)	<u>Nonsmoker</u>			
		35	0.692 $\pm$ 0.418	0.098	RH>OC
		53	-0.136 $\pm$ 0.417	0.743	
	Age (At Baseline)	<u>30 Pack-Years, Currently 1 Pack/Day</u>			
		35	0.057 $\pm$ 0.635	0.928	
		53	-0.582 $\pm$ 0.412	0.158	
MCH	Current Smoking	<u>Nonsmoker</u>			
		35	0.126 $\pm$ 0.141	0.373	
	Age (At Baseline)	53	0.158 $\pm$ 0.132	0.232	
		<u>1 Pack/Day</u>			
		35	0.254 $\pm$ 0.144	0.079	RH>OC
		53	-0.275 $\pm$ 0.149	0.066	OC>RH
		<u>2 Pack/Day</u>			
		35	0.381 $\pm$ 0.273	0.162	
		53	-0.707 $\pm$ 0.281	0.012	OC>RH

TABLE N-8. (continued)

Summary of Group-by-Covariate
Interactions for Hematological Variables
(Original Comparisons Only)

Variable	Interaction Covariates	Stratification	Ranch Hand-Original Comparison Group Difference $\pm$ SE	p-Value	Direction of Result*
PLT ^a	Race	<u>Nonblack</u>			
		<u>Nonsmoker</u>			
	Smoking History	35	0.030 $\pm$ 0.016	0.061	RH>OC
		53	-0.017 $\pm$ 0.018	0.354	
	Age (At Baseline)	<u>30 Pack-Years</u>			
		35	0.050 $\pm$ 0.020	0.012	RH>OC
		53	0.003 $\pm$ 0.016	0.858	
		<u>Black</u>			
		<u>Nonsmoker</u>			
		35	-0.082 $\pm$ 0.051	0.111	OC>RH
		53	-0.129 $\pm$ 0.054	0.016	
		<u>30 Pack-Years</u>			
		35	0.261 $\pm$ 0.103	0.011	RH>OC
		53	0.214 $\pm$ 0.102	0.036	RH>OC

*RH>OC: Variable mean in Ranch Hand group greater than variable mean in Original Comparison group.

OC>RH: Variable mean in Original Comparison group greater than variable mean in Ranch Hand group.

^aUnits are on log scale.

TABLE N-9.

Longitudinal Analyses for
MCV, MCH, and PLT: A Contrast of
Baseline and First Followup Examination Test Means
(Original Comparisons Only)

Variable	Group	Total	Means		Difference (Followup-Baseline)	Error*	p-Value (Equality of Difference)
			Baseline	Followup			
MCV	Ranch Hand	971	88.89	92.60	+3.71	2.808	0.65
	Original Comparison	872	88.56	92.35	+3.79		
MCH	Ranch Hand	971	30.81	31.55	+0.74	0.873	0.21
	Original Comparison	872	30.63	31.44	+0.81		
PLT	Ranch Hand	971	276.90	271.50	-5.4	35.50	0.80
	Original Comparison	872	272.10	267.30	-4.8		

*Error = $\sqrt{\text{Subj} * \text{Time/Group mean squares.}}$

APPENDIX 0

Renal Assessment

TABLE 0-1.

Unadjusted Exposure Index Analyses for Renal Variables by Occupation

Variable	Occupation	Statistic	Exposure Index			Contrast	Est. Relative Risk (95% C.I.)	p-Value
			Low	Medium	High			
Kidney Disease	Officer	n	127	130	123	Overall		0.226
		Number/%						
		Abnormal	10 7.9%	11 8.5%	17 13.8%	M vs. L	1.08 (0.44,2.64)	0.999
	Enlisted Flyer	Normal	117 92.1%	119 91.5%	106 86.2%	H vs. L	1.88 (0.82,4.28)	0.155
		n	55	65	57	Overall		0.165
		Number/%						
		Abnormal	7 12.7%	8 12.3%	2 3.5%	M vs. L	0.96 (0.33,2.85)	0.999
	Enlisted Groundcrew	Normal	48 87.3%	57 87.7%	55 96.5%	H vs. L	0.25 (0.05,1.26)	0.091
		n	153	163	141	Overall		0.214
		Number/%						
Urinary Protein	Officer	Abnormal	18 11.8%	11 6.7%	10 7.1%	M vs. L	0.54 (0.25,1.19)	0.172
		Normal	135 88.2%	152 93.3%	131 92.9%	H vs. L	0.57 (0.26,1.29)	0.233
	Enlisted Flyer	n	127	130	123	Overall		0.696
		Number/%						
		Abnormal	4 3.1%	2 1.5%	3 2.4%	M vs. L	0.48 (0.09,2.67)	0.443
	Enlisted Groundcrew	Normal	123 96.9%	128 98.5%	120 97.6%	H vs. L	0.77 (0.17,3.51)	0.999
		n	55	65	57	Overall		0.708
		Number/%						
		Abnormal	2 3.6%	1 1.5%	1 1.8%	M vs. L	0.41 (0.04,4.69)	0.593
Urinary Protein	Enlisted Flyer	Normal	53 96.4%	64 98.5%	56 98.2%	H vs. L	0.47 (0.04,5.37)	0.615
		n	154	163	142	Overall		0.726
		Number/%						
	Enlisted Groundcrew	Abnormal	8 5.2%	7 4.3%	9 6.3%	M vs. L	0.82 (0.29,2.32)	0.794
		Normal	146 94.8%	156 95.7%	133 93.7%	H vs. L	1.24 (0.46,3.29)	0.804
		n						
		Number/%						
		Abnormal						
		Normal						

TABLE 0-1. (continued)

Unadjusted Exposure Index Analyses for Renal Variables by Occupation

Variable	Occupation	Statistic	Exposure Index			Contrast	Est. Relative Risk (95% C.I.)	p-Value
			Low	Medium	High			
Urinary Occult Blood	Officer	n	127	130	123	Overall		0.334
		Number/%						
		Abnormal	17 13.4%	15 11.5%	22 17.9%	M vs. L	0.84 (0.40,1.77)	0.708
	Enlisted Flyer	Normal	110 86.6%	115 88.5%	101 82.1%	H vs. L	1.41 (0.71,2.81)	0.385
		n	55	65	57	Overall		0.325
		Number/%						
		Abnormal	12 21.8%	14 21.5%	7 12.3%	M vs. L	0.98 (0.41,2.35)	0.999
	Enlisted Groundcrew	Normal	43 78.2%	51 78.5%	50 87.7%	H vs. L	0.50 (0.18,1.39)	0.214
		n	154	163	141	Overall		0.144
		Number/%						
Urinary White Blood Cell Count	Officer	Abnormal	25 16.2%	34 20.9%	36 25.5%	M vs. L	1.36 (0.77,2.41)	0.315
		Normal	129 83.8%	129 79.1%	105 74.5%	H vs. L	1.77 (1.00,3.13)	0.061
	Enlisted Flyer	n	127	130	123	Overall		0.558
		Number/%						
		Abnormal	11 8.7%	7 5.4%	10 8.1%	M vs. L	0.60 (0.23,1.60)	0.337
	Enlisted Groundcrew	Normal	116 91.3%	123 94.6%	113 91.9%	H vs. L	0.93 (0.38,2.28)	0.999
		n	55	65	57	Overall		0.763
		Number/%						
		Abnormal	7 12.7%	8 12.3%	5 8.8%	M vs. L	0.96 (0.33,2.85)	0.999
Urinary White Blood Cell Count	Enlisted Flyer	Normal	48 87.3%	57 87.7%	52 91.2%	H vs. L	0.66 (0.20,2.22)	0.554
	Enlisted Groundcrew	n	154	163	142	Overall		0.447
		Number/%						
		Abnormal	20 13.0%	15 9.2%	19 13.4%	M vs. L	0.68 (0.33,1.38)	0.290
	Enlisted Groundcrew	Normal	134 87.0%	148 90.8%	123 86.6%	H vs. L	1.04 (0.53,2.03)	0.999
		n	127	130	123	Overall		0.558
		Number/%						
		Abnormal	11 8.7%	7 5.4%	10 8.1%	M vs. L	0.60 (0.23,1.60)	0.337
	Enlisted Flyer	Normal	116 91.3%	123 94.6%	113 91.9%	H vs. L	0.93 (0.38,2.28)	0.999

TABLE 0-1. (continued)
Unadjusted Exposure Index Analyses for Renal Variables by Occupation

Variable	Occupation	Statistic	Exposure Index			Contrast	Est. Relative Risk (95% C.I.)	p-Value
			Low	Medium	High			
Blood Urea Nitrogen	Officer	n	127	130	123	Overall		0.891
		Mean*	14.62	14.82	14.74	H vs. L	--	0.633
		95% C.I.*	(14.05, 15.19)	(14.20, 15.46)	(14.14, 15.35)	H vs. L	--	0.775
	Enlisted Flyer	n	55	65	57	Overall		0.983
		Mean*	13.84	13.80	13.93	H vs. L	--	0.963
		95% C.I.*	(12.79, 14.93)	(12.87, 14.77)	(13.15, 14.72)	H vs. L	--	0.895
	Enlisted Groundcrew	n	154	163	142	Overall		0.639
		Mean*	14.08	13.72	14.00	H vs. L	--	0.389
		95% C.I.*	(13.50, 14.67)	(13.15, 14.30)	(13.48, 14.52)	H vs. L	--	0.841
Urine Specific Gravity	Officer	n	127	130	123	Overall	--	0.786
		Mean	1.0144	1.0149	1.0150	H vs. L	--	0.554
		95% C.I.	(1.0132, 1.0156)	(1.0137, 1.0161)	(1.0137, 1.0162)	H vs. L	--	0.541
	Enlisted Flyer	n	55	65	57	Overall	--	0.358
		Mean	1.0159	1.0155	1.0141	H vs. L	--	0.803
		95% C.I.	(1.0139, 1.0178)	(1.0138, 1.0173)	(1.0123, 1.0158)	H vs. L	--	0.178
	Enlisted Groundcrew	n	154	163	142	Overall	--	0.967
		Mean	1.0167	1.0168	1.0166	H vs. L	--	0.885
		95% C.I.	(1.0156, 1.0178)	(1.0158, 1.0179)	(1.0154, 1.0179)	H vs. L	--	0.907

*Transformed from square root scale.

--No relative risk given for variables analyzed continuously.

TABLE 0-2.

Interaction Summaries of Adjusted Exposure Index Analyses for Renal Variables

Variable	Interaction (Occupation)	Stratification	Statistic	Exposure Index						Contrast	Adj. Relative Risk (95% C.I.)	p-Value		
				Low		Medium		High						
Urinary Protein	Exposure Index-by- Diabetic Class (Officer)	Diabetic	n	8		8		14		Overall			0.010*	
			Number/%											
			Abnormal	3	37.5%	0	0.0%	0	0.0%	H vs. L	0.09 (0.004,2.16)**	0.200*		
			Normal	5	62.5%	8	100.0%	14	100.0%	H vs. L	0.05 (0.002,1.22)**	0.036*		
			Impaired	n	11		14		16		Overall			0.247*
				Number/%										
		Abnormal		1	9.1%	0	0.0%	0	0.0%	H vs. L	0.24 (0.01,6.53)**	0.440*		
			Normal	10	90.9%	14	100.0%	16	100.0%	H vs. L	0.21 (0.008,5.71)**	0.407*		
			Normal	n	108		108		93		Overall			0.190*
				Number/%										
		Abnormal		0	0.0%	2	1.9%	3	3.2%	H vs. L	5.09 (0.24,107.36)**	0.498*		
		Normal	108	100.0%	106	98.1%	90	96.8%	H vs. L	8.39 (0.43,164.61)**	0.097*			
Urinary Protein	Exposure Index-by- Race (Enlisted Groundcrew)	Nonblack	n	138		149		129		Overall			0.259*	
			Number/%											
			Abnormal	4	2.9%	6	4.0%	9	7.0%	H vs. L	1.41 (0.39,5.09)*	0.751*		
			Normal	134	97.1%	143	96.0%	120	93.0%	H vs. L	2.51 (0.75,8.37)*	0.158*		
			Black	n	16		14		13		Overall			0.092*
				Number/%										
		Abnormal		4	25.0%	1	7.1%	0	0.0%	H vs. L	0.23 (0.02,2.37)*	0.336*		
			Normal	12	75.0%	13	92.9%	13	100.0%	H vs. L	0.10 (0.005,2.11)**	0.107*		
			Born ≥1942	n	87		129		81					
				Number/%										
		Abnormal		11	12.6%	23	17.8%	20	24.7%	H vs. L	1.56 (0.71,3.41)	0.252		
			Normal	76	87.4%	106	82.2%	61	75.3%	H vs. L	2.32 (0.73,7.32)	0.466		
Born <1942	n		67		34		60							
	Number/%													
	Abnormal	14	20.9%	11	32.4%	16	26.7%	H vs. L	1.73 (0.68,4.42)	0.265				
	Normal	53	79.1%	23	67.6%	44	73.3%	H vs. L	1.36 (0.59,3.12)	0.152				

TABLE 0-2. (continued)

Interaction Summaries of Adjusted Exposure Index Analyses for Renal Variables

Variable	Interaction (Occupation)	Stratification	Statistic	Exposure Index			Contrast	Adj. Relative Risk (95% C.I.)	p-Value
				Low	Medium	High			
Urinary White Blood Cell Count(a)	Exposure Index-by- Age	Born ≥1942 Diabetic	n	0	1	0	Overall		—
			Number/% Abnormal	0 —	1 100.0%	0 —	M vs. L	—	—
			Normal	0 —	0 0.0%	0 —	H vs. L	—	—
		Born ≥1942 Impaired	n	1	1	0	Overall		0.157*
			Number/% Abnormal	0 0.0%	1 100.0%	0 —	M vs. L	9.00 (0.10,831.78)**	0.999*
			Normal	1 100.0%	0 0.0%	0 —	H vs. L	—	—
	Exposure Index-by- Diabetic Class (Enlisted Flyer)	Born ≥1942 Normal	n	10	16	9	Overall		0.065*
			Number/% Abnormal	3 30.0%	0 0.0%	1 11.1%	M vs. L	0.07 (0.003,1.42)**	0.046*
			Normal	7 70.0%	16 100.0%	8 88.9%	H vs. L	0.29 (0.02,3.48)**	0.582*
		Born <1942 Diabetic	n	1	8	5	Overall		0.668*
			Number/% Abnormal	0 0.0%	1 12.5%	0 0.0%	M vs. L	0.60 (0.02,23.07)**	0.999*
			Normal	1 100.0%	7 87.5%	5 100.0%	H vs. L	—	—
	Exposure Index-by- Diabetic Class (Enlisted Flyer)	Born <1942 Impaired	n	8	6	6	Overall		0.222*
			Number/% Abnormal	0 0.0%	2 33.3%	1 16.7%	M vs. L	9.44 (0.37,242.18)**	0.165*
			Normal	8 100.0%	4 66.7%	5 83.3%	H vs. L	4.64 (0.16,135.57)**	0.429*
		Born <1942 Normal	n	35	33	37	Overall		0.805
			Number/% Abnormal	4 11.4%	4 12.1%	3 8.1%	M vs. L	0.79 (0.16,3.90)	0.776
			Normal	31 88.6%	29 87.9%	34 91.9%	H vs. L	0.58 (0.11,3.03)	0.515