

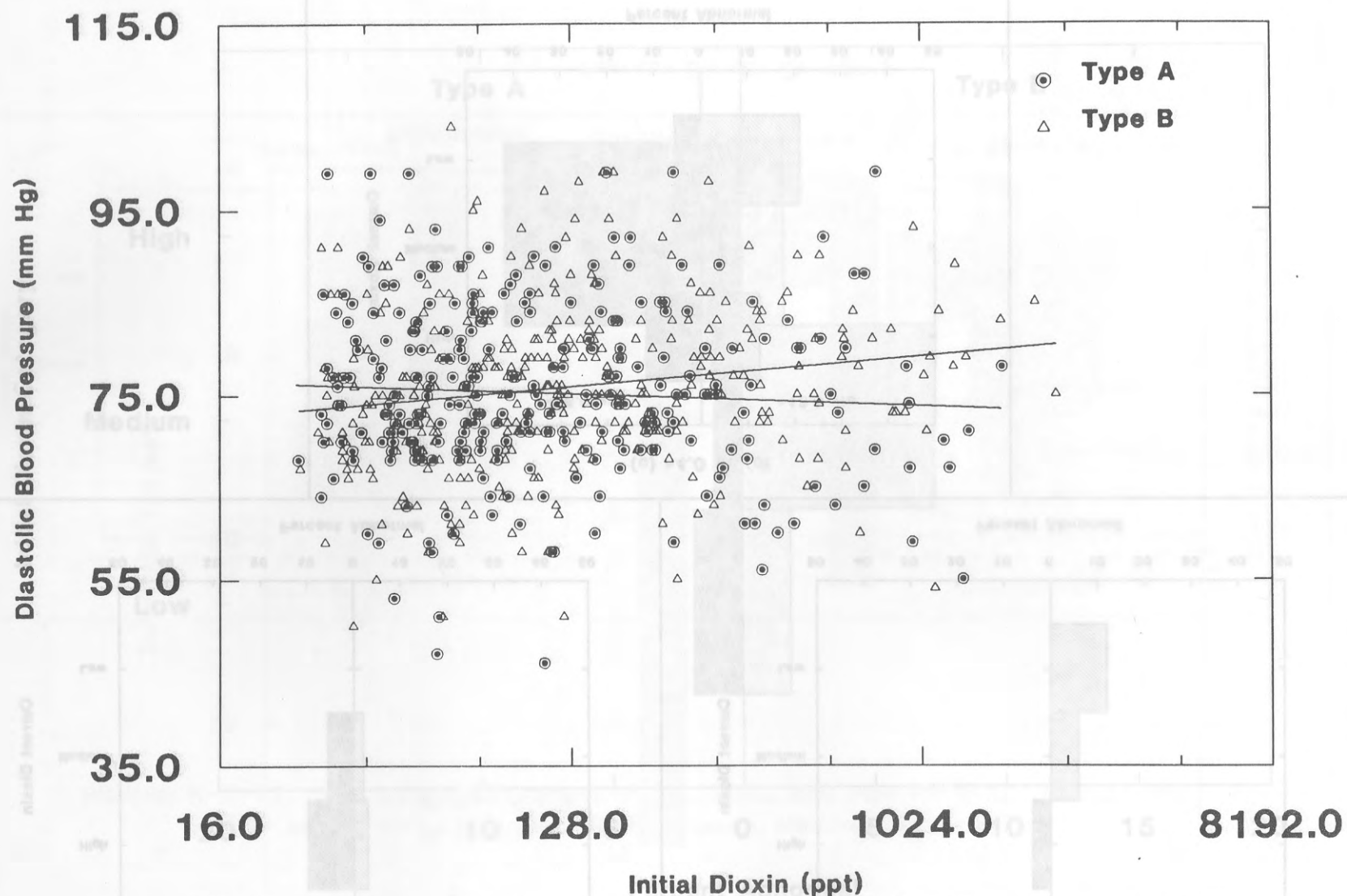


FIGURE K-2-21. Interaction of Initial Dioxin and Personality Type for Diastolic Blood Pressure (Continuous - Ranch Hands, Maximal Assumption)

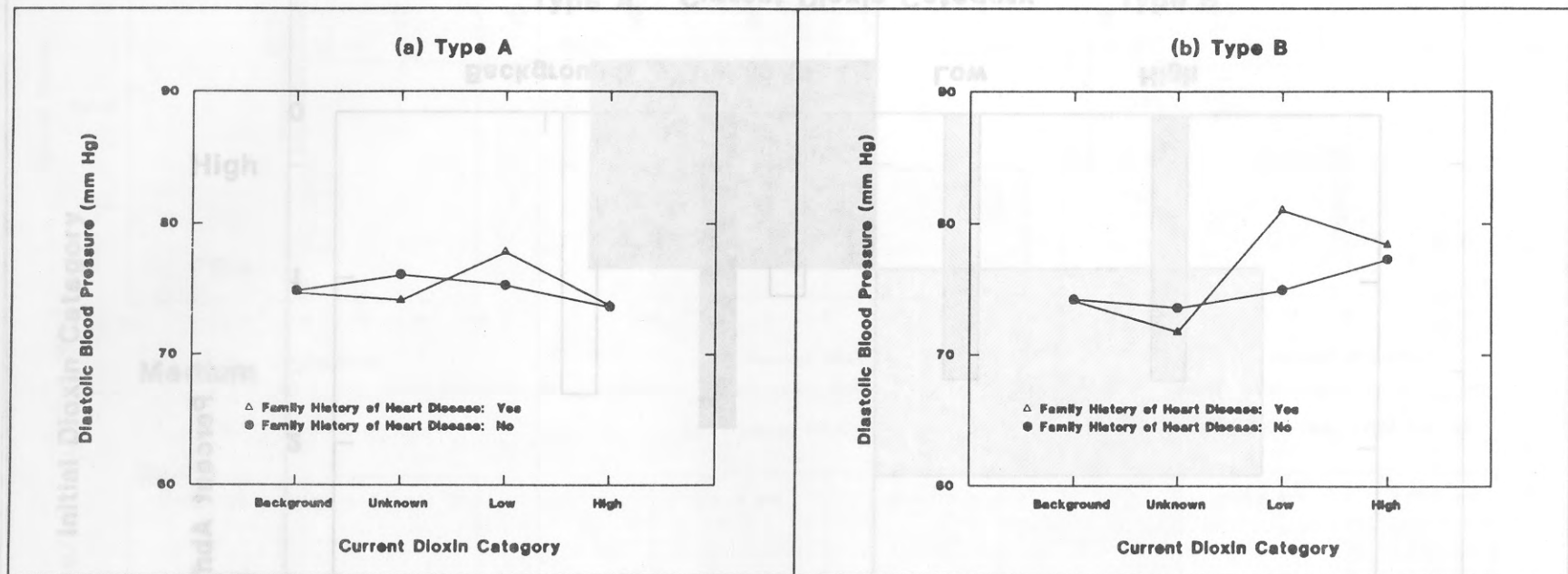


FIGURE K-2-22. Interaction of Categorized Current Dioxin, Personality Type, and Family History of Heart Disease for Diastolic Blood Pressure (Continuous)

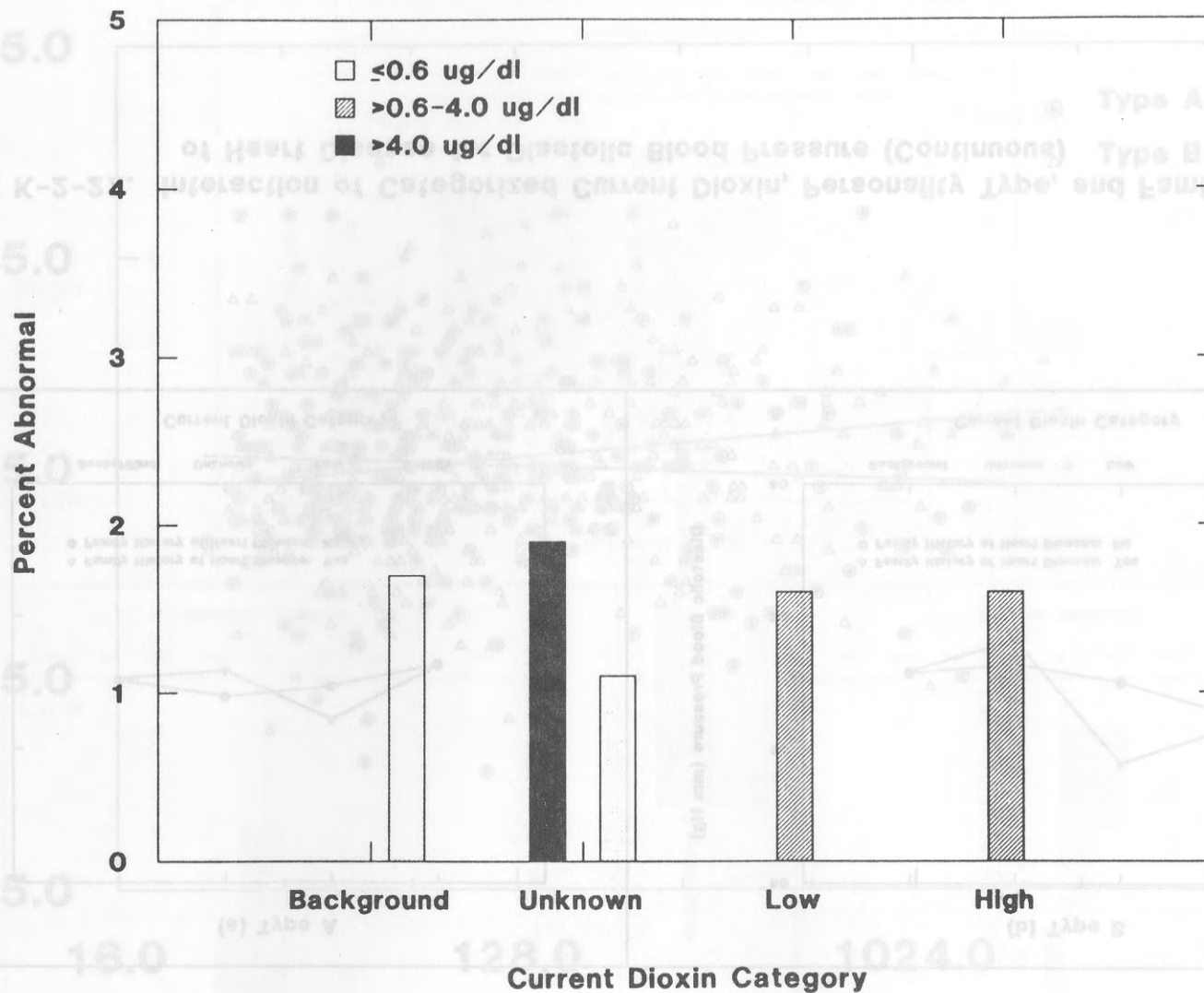


FIGURE K-2-23. Interaction of Categorized Current Dioxin and Differential Cortisol Response for Funduscopy Examination

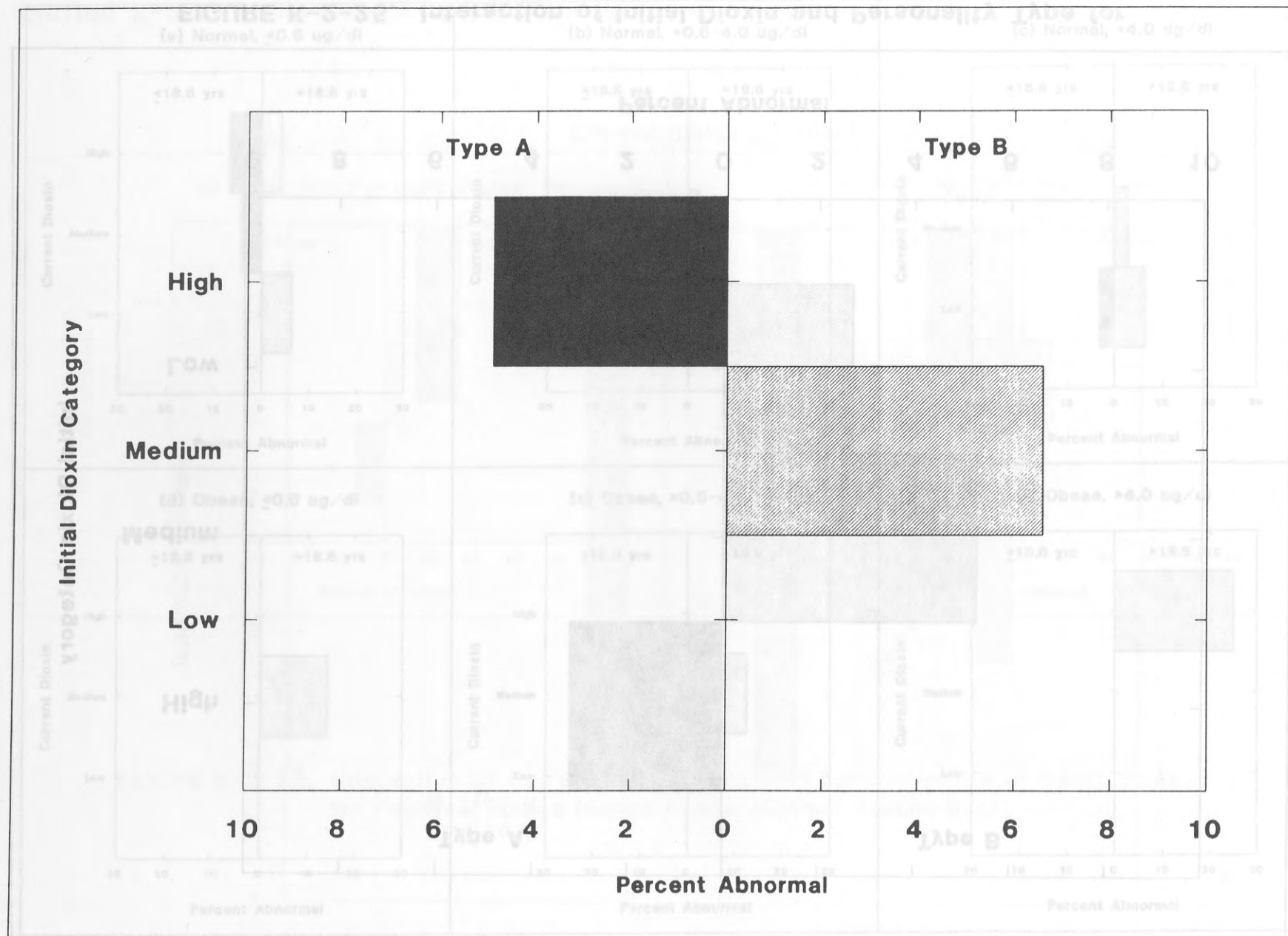


FIGURE K-2-24. Interaction of Initial Dioxin and Personality Type for Femoral Pulses (Ranch Hands, Minimal Assumption)

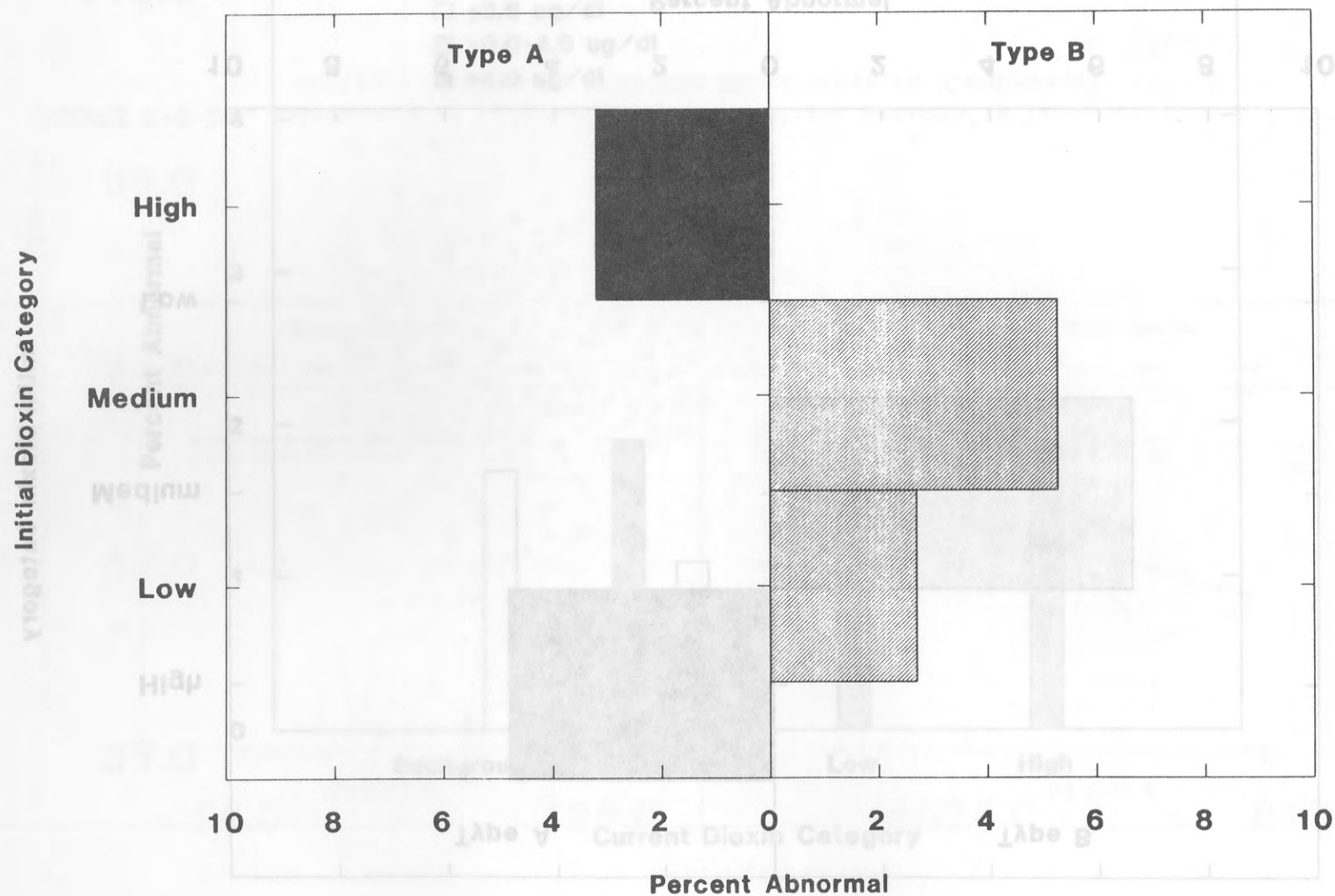


FIGURE K-2-25. Interaction of Initial Dioxin and Personality Type for Femoral Pulses (Ranch Hands, Maximal Assumption)

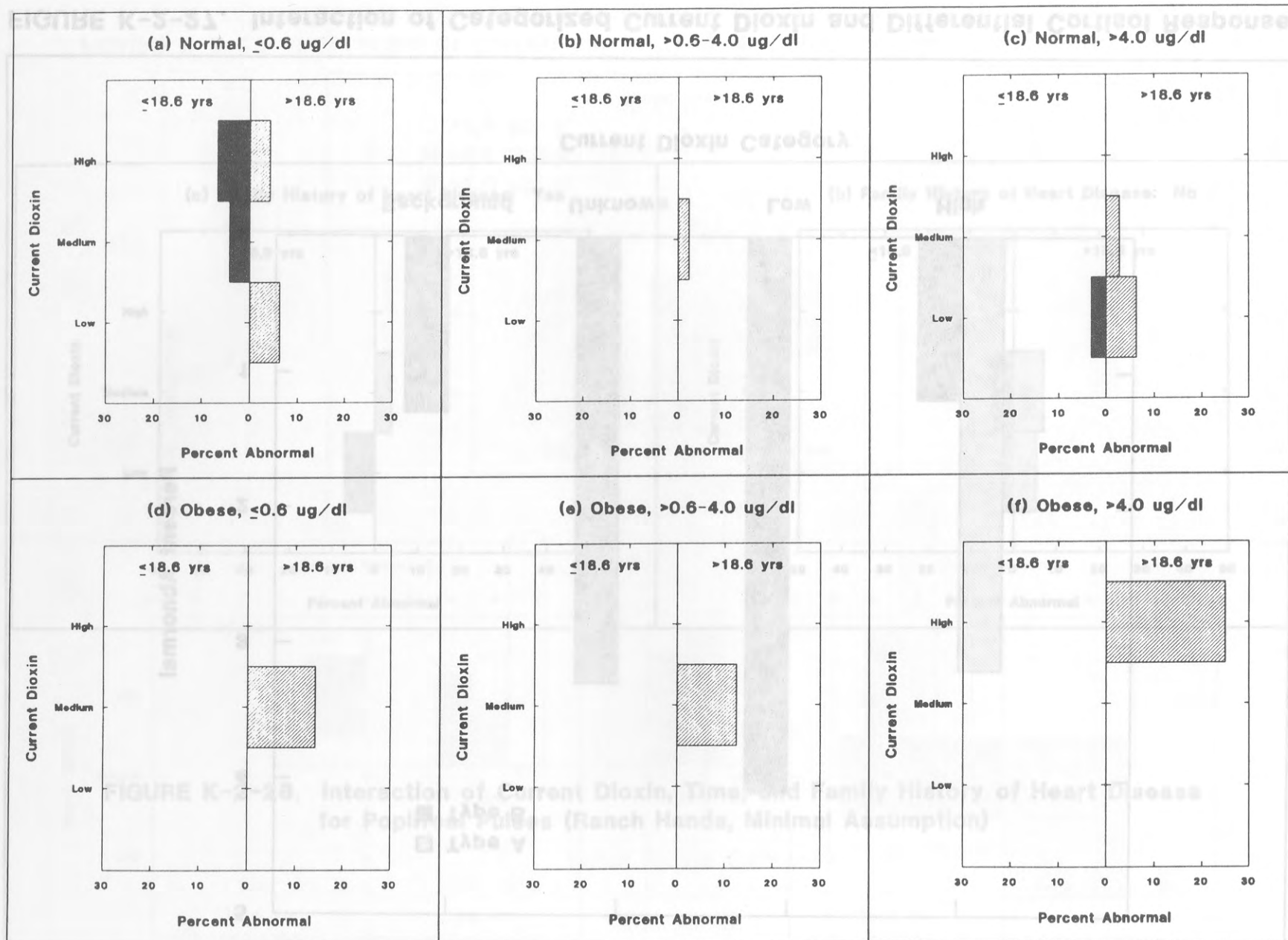


FIGURE K-2-26. Interaction of Current Dioxin, Time, Percent Body Fat, and Differential Cortisol Response for Femoral Pulses (Ranch Hands, Maximal Assumption)

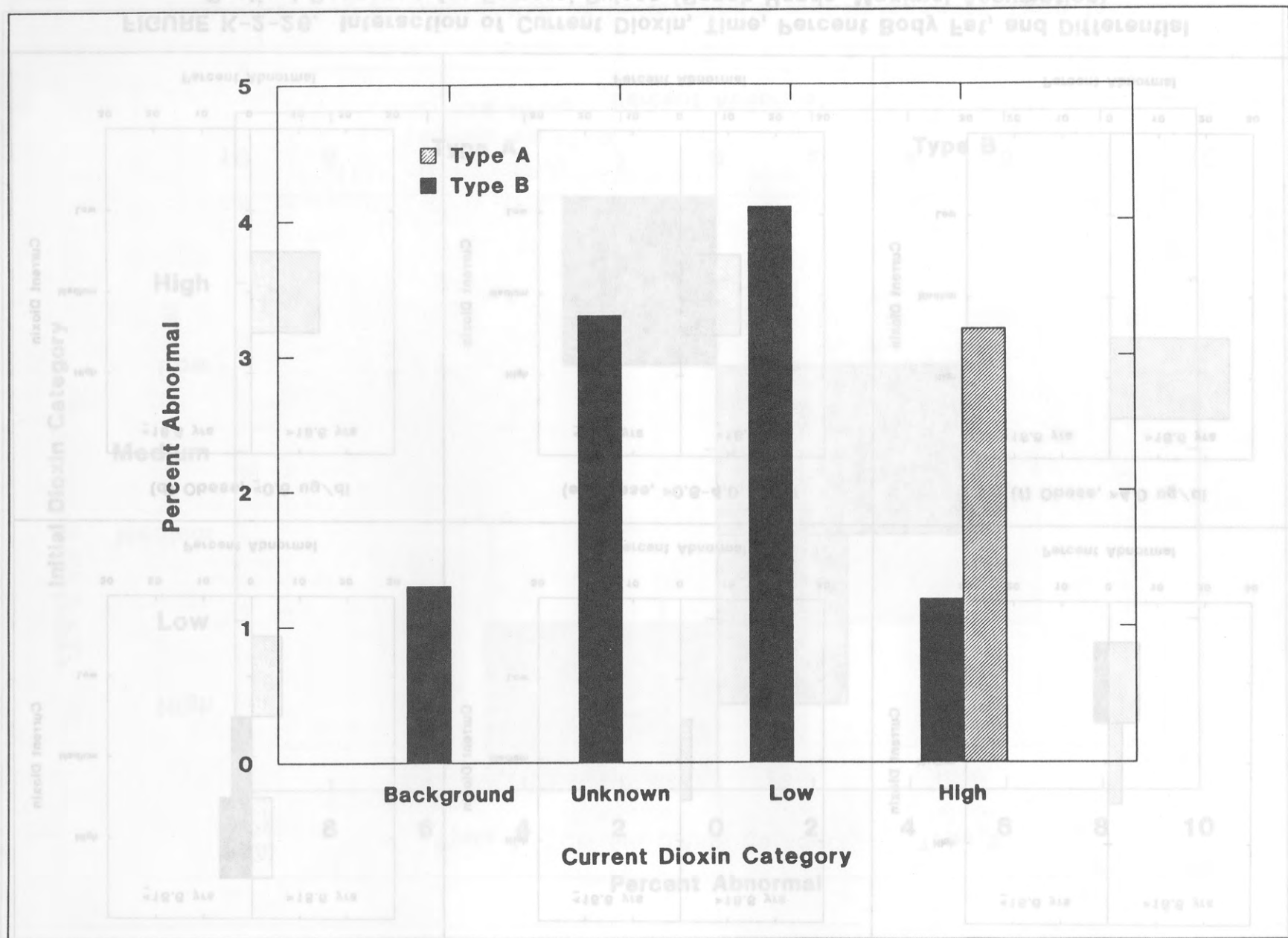
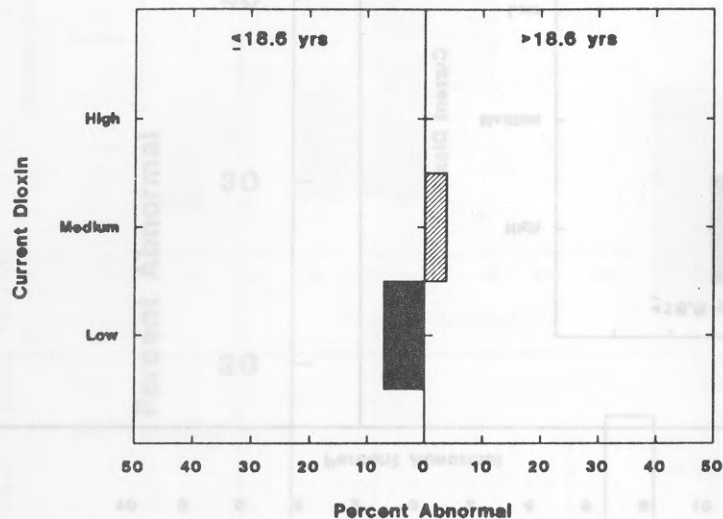


FIGURE K-2-27. Interaction of Categorized Current Dioxin and Differential Cortisol Response
 Femoral Pulses (for Femoral Pulses)

(a) Family History of Heart Disease: Yes



(b) Family History of Heart Disease: No

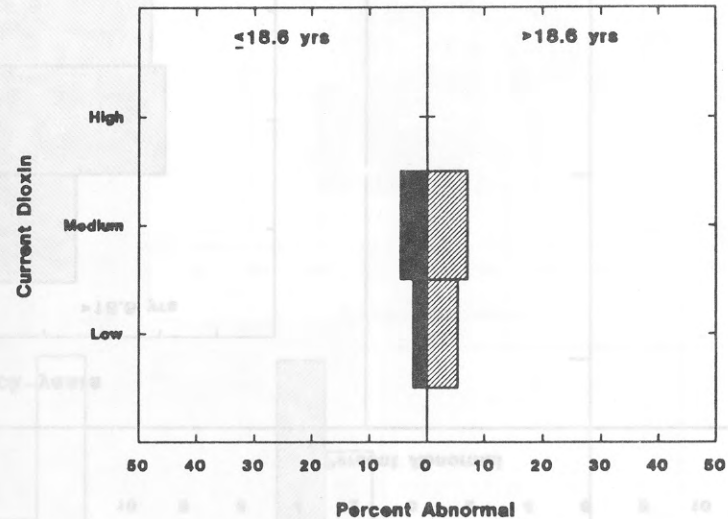


FIGURE K-2-28. Interaction of Current Dioxin, Time, and Family History of Heart Disease for Popliteal Pulses (Ranch Hands, Minimal Assumption)

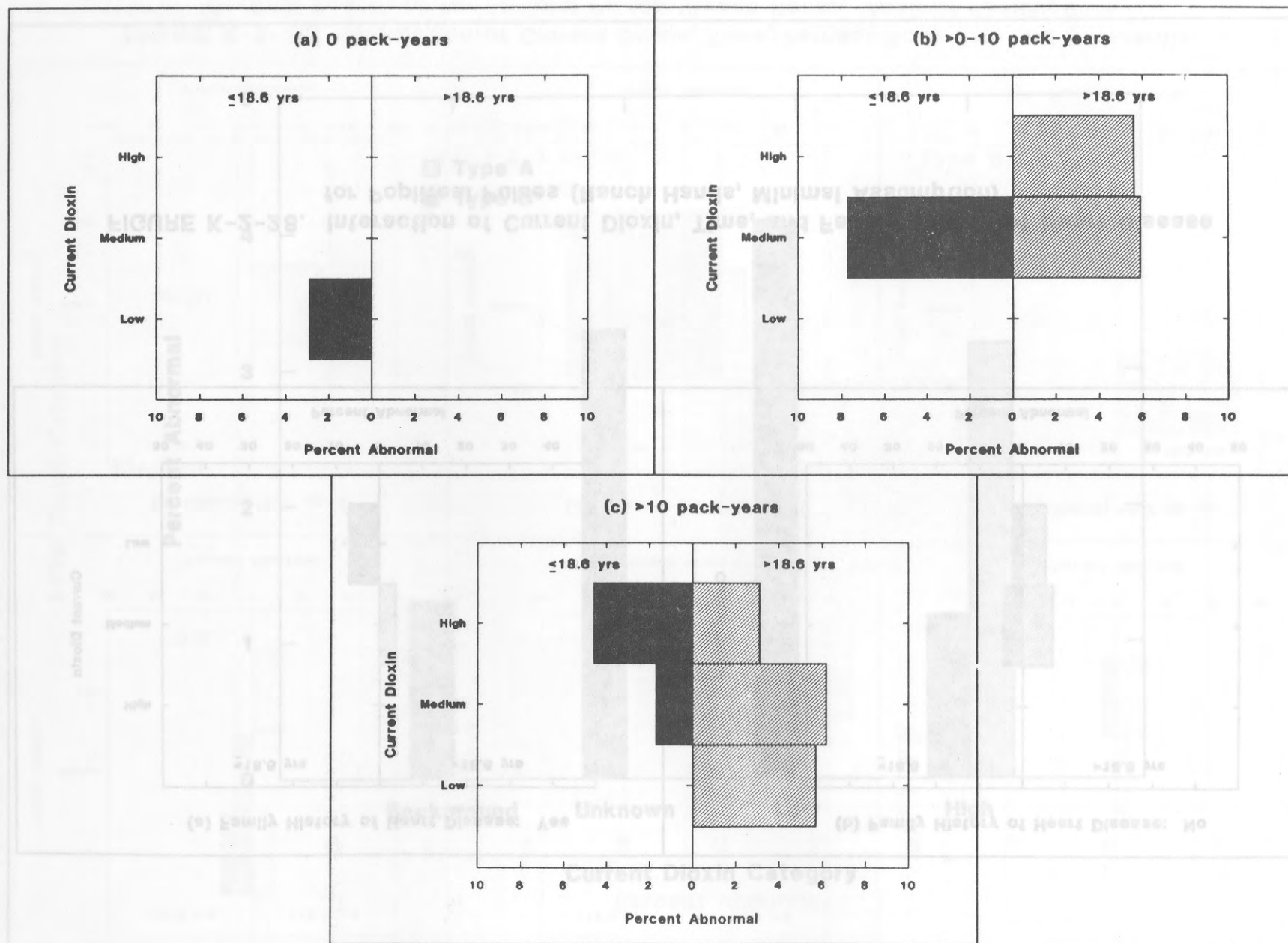


FIGURE K-2-29. Interaction of Current Dioxin, Time, and Lifetime Cigarette Smoking History for Popliteal Pulses (Ranch Hands, Maximal Assumption)

K-2-33

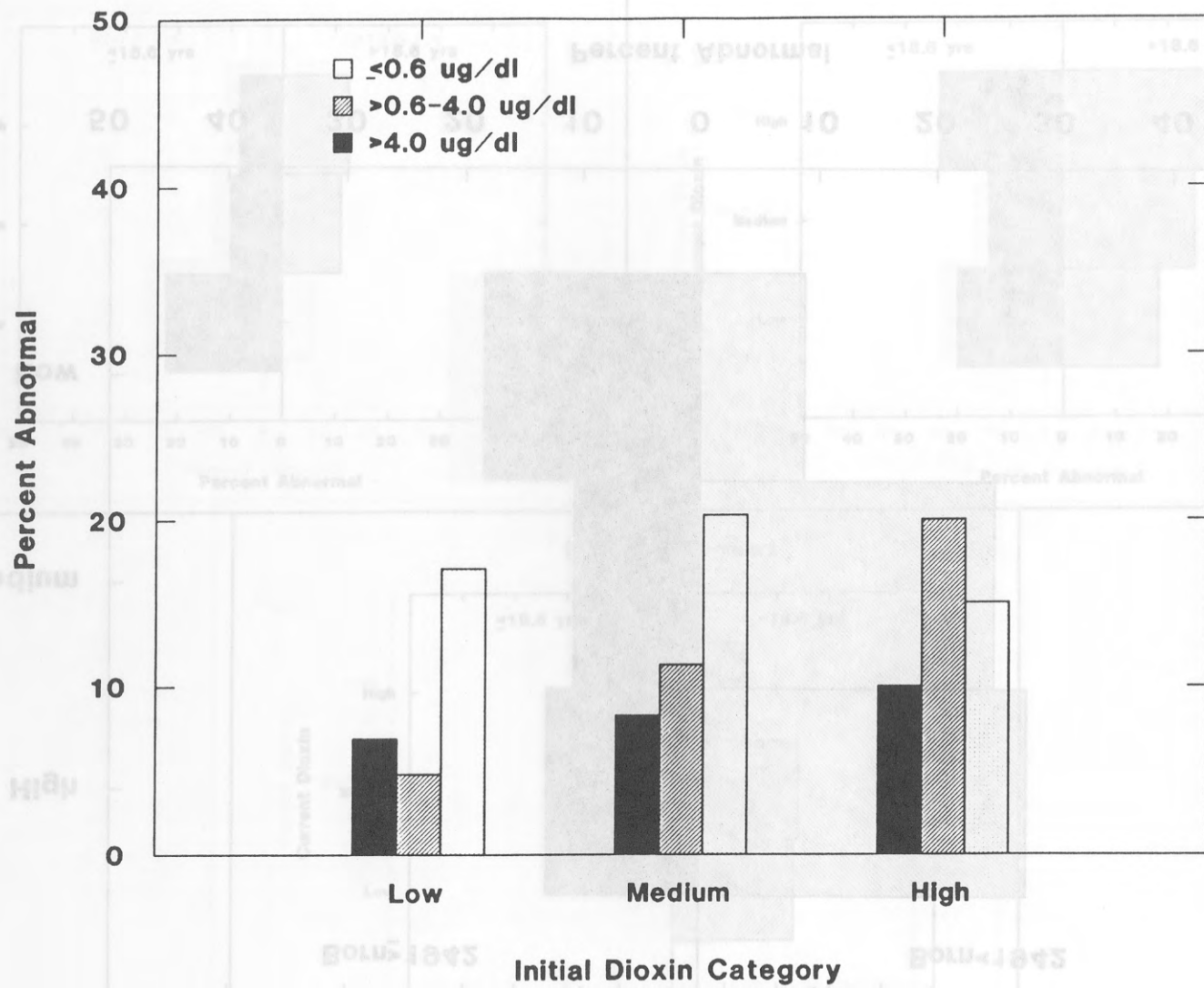


FIGURE K-2-30. Interaction of Initial Dioxin and Differential Cortisol Response for Dorsalis Pedis Pulses (Ranch Hands, Minimal Assumption)

Initial Dioxin Category

High

Medium

Low

Born $\geq$ 1942

Born < 1942

50

40

30

20

10

0

10

20

30

40

50

Percent Abnormal

FIGURE K-2-31. Interaction of Initial Dioxin and Age for Leg Pulses
(Ranch Hands, Minimal Assumption)

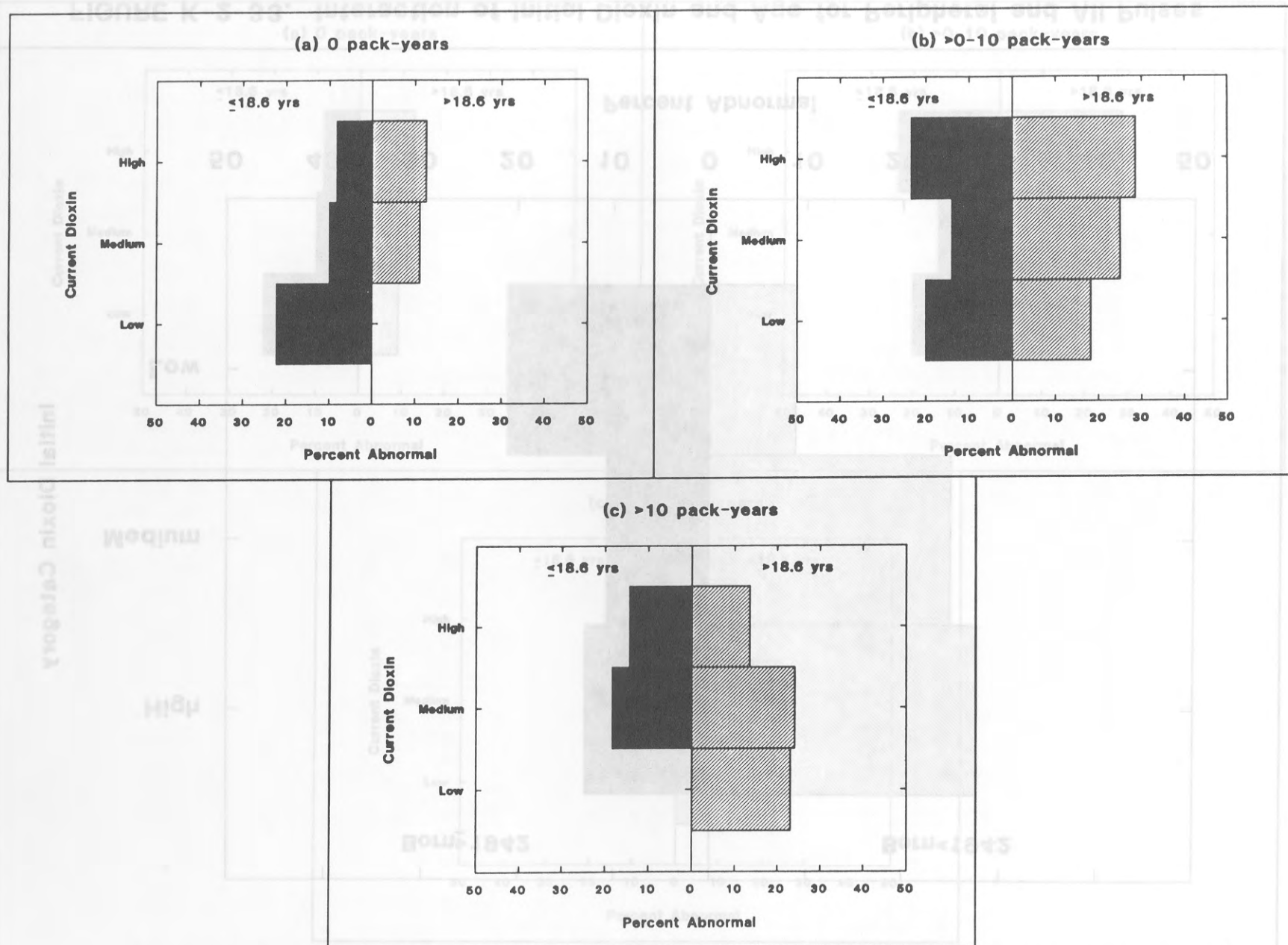


FIGURE K-2-32. Interaction of Current Dioxin, Time, and Lifetime Cigarette Smoking History for Leg Pulses (Ranch Hands, Minimal Assumption)

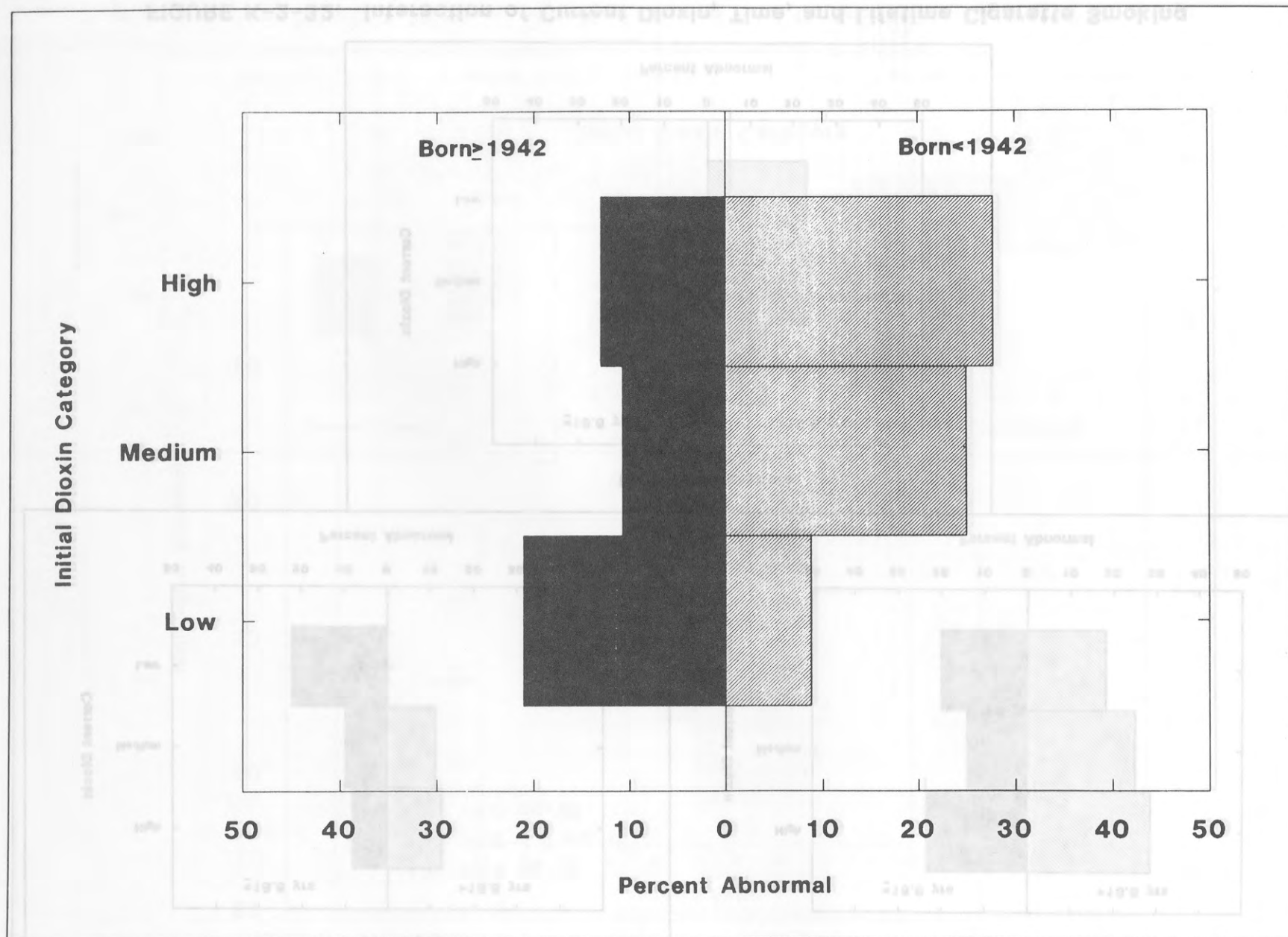


FIGURE K-2-33. Interaction of Initial Dioxin and Age for Peripheral and All Pulses (Ranch Hands, Minimal Assumption)

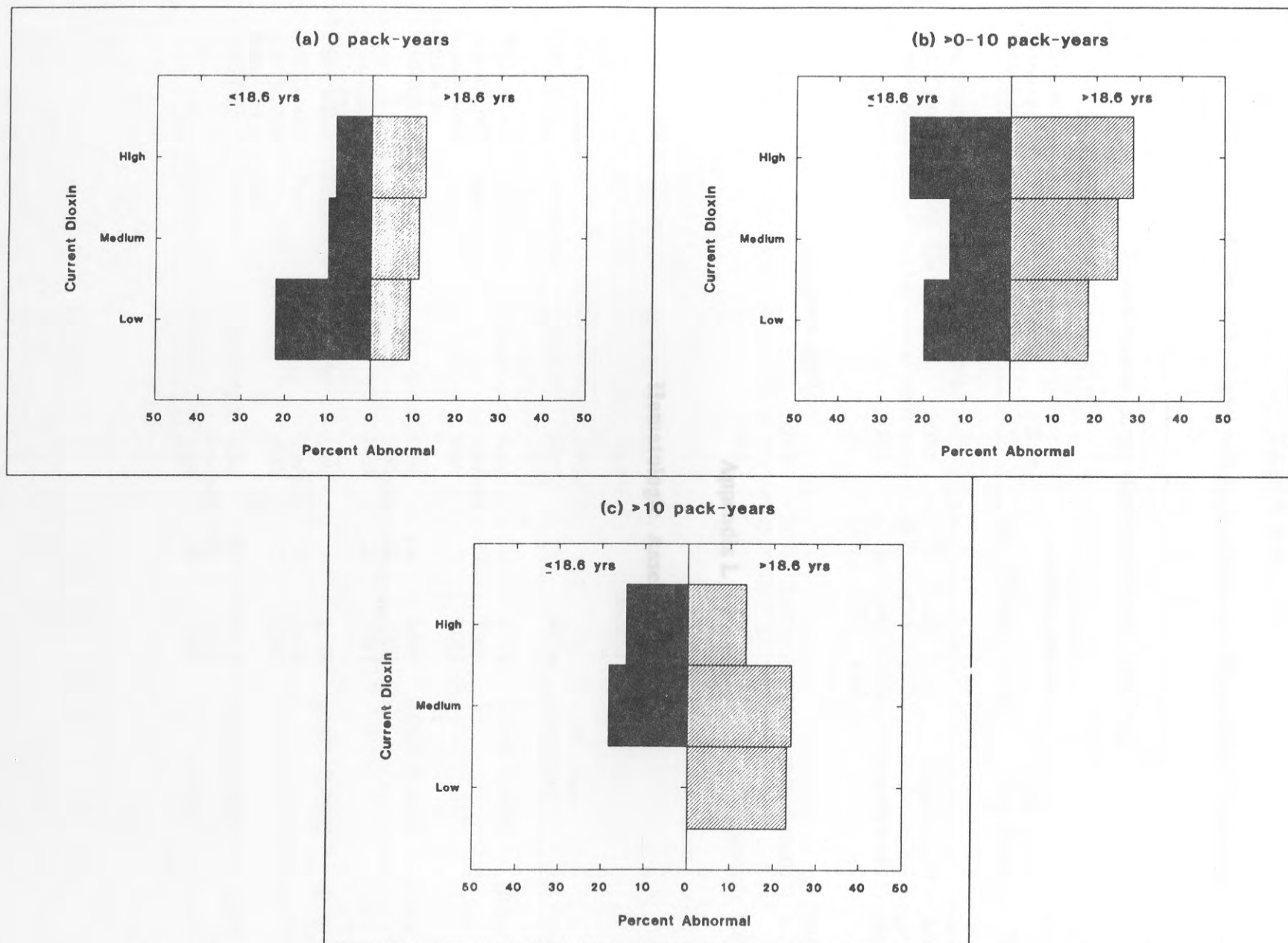


FIGURE K-2-34. Interaction of Current Dioxin, Time, and Lifetime Cigarette Smoking History for Peripheral and All Pulses (Ranch Hands, Minimal Assumption)

Appendix L

Hematologic Assessment

TABLE L-1.

Summary of Dioxin-by-Covariate Interactions for Hematology Variables

Ranch Hands - Log₂ (Current Dioxin) and Time

Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Time (Yrs.)	Adj. Mean/(n) Current Dioxin			Adj. Slope (Std. Error)	p-Value
				Low	Medium	High		
Red Blood Cell Count (Continuous) (Maximal-- 13-3 [h])	Current-by- Time-by-Age	Born ≥1942						0.605 ^a
			≤18.6	5.018 (47)	5.103 (84)	5.179 (57)	0.0360 (0.0193)	0.063 ^b
			>18.6	5.116 (13)	5.041 (53)	5.218 (60)	0.0509 (0.0215)	0.018 ^b
		Born <1942						0.035 ^a
			≤18.6	5.038 (59)	5.091 (107)	5.078 (26)	0.0265 (0.0255)	0.299 ^b
			>18.6	5.102 (66)	5.060 (125)	4.969 (44)	-0.0403 (0.0189)	0.033 ^b

Ranch Hands - Log₂ (Initial Dioxin)

Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Initial Dioxin	n	Adj. Mean	Adj. Slope (Std. Error)	p-Value
White Blood Cell Count ^c (Continuous) (Minimal-- 13-5 [c])	Initial-by- Race	Black	Low	12	5.373	0.1756 (0.0470)	<0.001
			Medium	17	7.346		
			High	3	8.016		
		Non-Black	Low	118	6.890	0.0088 (0.0087)	0.308
			Medium	242	7.062		
			High	128	7.017		
White Blood Cell Count ^c (Continuous) (Maximal-- 13-5 [d])	Initial-by- Race	Black	Low	4	5.138	0.1495 (0.0389)	<0.001
			Medium	27	6.476		
			High	7	8.230		
		Non-Black	Low	181	6.615	0.0190 (0.0063)	0.003
			Medium	343	6.886		
			High	179	7.045		

TABLE L-1. (Continued)

Summary of Dioxin-by-Covariate Interactions for Hematology Variables

Ranch Hands - Log₂ (Current Dioxin) and Time

Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Time (Yrs.)	Adj. Mean/(n) Current Dioxin			Adj. Slope (Std. Error)	p-Value
				Low	Medium	High		
White Blood Cell Count ^c (Continuous) (Minimal-- 13-5 [gl])	Current-by- Time-by-Age	Born ≥1942						0.025 ^a
			≤18.6	6.209 (24)	7.213 (66)	6.582 (41)	-0.0081 (0.0185)	0.662 ^b
			>18.6	6.846 (12)	6.771 (50)	7.543 (44)	0.0496 (0.0180)	0.006 ^b
		Born <1942						0.528 ^a
			≤18.6	6.710 (48)	7.024 (62)	7.116 (13)	0.0205 (0.0238)	0.389 ^b
			>18.6	6.870 (46)	6.950 (81)	6.984 (33)	0.0022 (0.0165)	0.892 ^b
White Blood Cell Count ^c (Continuous) (Maximal-- 13-5 [hl])	Current-by- Time-by-Race	Black						0.080 ^a
			≤18.6	5.150 (4)	6.180 (12)	8.070 (2)	0.2072 (0.0716)	0.004 ^b
			>18.6	12.958 (1)	6.524 (13)	8.158 (6)	0.0510 (0.0526)	0.333 ^b
		Non-Black						0.117 ^a
			≤18.6	6.568 (102)	7.000 (179)	6.830 (81)	0.0091 (0.0098)	0.356 ^b
			>18.6	6.442 (78)	6.819 (165)	7.333 (98)	0.0297 (0.0087)	<0.001 ^b

Ranch Hands and Comparisons by Current Dioxin Category

Variable/ (Table Ref.)	Interaction	Stratum	Current Dioxin Category	n	Adj. Mean	Contrast	Difference of Adj. Means (95% C.I.)	p-Value
Hematocrit (Continuous) (13-9 [jl])	Categorized Current Dioxin-by- Age	Born ≥1942	Background	323	45.044	A11		0.091
			Unknown	118	44.882	U vs. B	-0.662 (-0.769,0.446)	0.602
			Low	81	44.516	L vs. B	-0.528 (-1.230,0.174)	0.141
			High	117	45.536	H vs. B	0.493 (-0.117,1.103)	0.114
		Born <1942	Background	460	44.954	A11		0.268
			Unknown	227	44.764	U vs. B	-0.190 (-0.649,0.269)	0.418
			Low	114	45.392	L vs. B	0.438 (-0.153,1.029)	0.146
			High	70	44.756	H vs. B	-0.198 (-0.923,0.527)	0.593

TABLE L-1. (Continued)

Summary of Dioxin-by-Covariate Interactions for Hematology Variables

Ranch Hands - Log₂ (Initial Dioxin)							
Variable (Assumption-- Table Ref.)	Interaction	Stratum	Initial Dioxin	n	Adj. Mean	Adj. Slope (Std. Error)	p-Value
Mean Corpuscular Volume (Continuous) (Minimal-- 13-11 [c])	Initial-by- Lifetime Cigarette Smoking History	0	Low	35	90.445	-0.0831 (0.3201)	0.795
			Medium	61	88.943		
			High	40	89.667		
		>0-10	Low	38	89.636	0.2841 (0.3458)	0.412
			Medium	75	90.531		
			High	39	91.174		
		>10	Low	57	89.994	0.2888 (0.2605)	0.268
			Medium	123	90.158		
			High	52	90.890		

Ranch Hands - Log₂ (Initial Dioxin)							
Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Initial Dioxin	n	Percent Abnormal High	Adj. Relative Risk (95% C.I.) ^d	p-Value
Mean Corpuscular Volume (Discrete) (Minimal-- 13-12 [c])	Initial-by- Lifetime Cigarette Smoking History	0	Low	35	5.7	0.61 (0.18,2.01)	0.416
			Medium	61	1.6		
			High	40	0.0		
		>0-10	Low	38	15.8	0.92 (0.61,1.41)	0.712
			Medium	75	12.0		
			High	39	15.4		
		>10	Low	57	12.3	1.09 (0.82,1.44)	0.568
			Medium	123	18.7		
			High	52	19.2		
Mean Corpuscular Volume (Discrete) (Maximal-- 13-12 [d])	Initial-by- Lifetime Cigarette Smoking History	0	Low	62	1.6	0.92 (0.44,1.96)	0.837
			Medium	93	2.2		
			High	53	1.9		
		>0-10	Low	50	16.0	0.95 (0.68,1.31)	0.735
			Medium	97	15.5		
			High	59	10.2		
		>10	Low	73	5.5	1.30 (1.04,1.63)	0.020
			Medium	180	16.7		
			High	74	17.6		

TABLE L-1. (Continued)

Summary of Dioxin-by-Covariate Interactions for Hematology Variables

Ranch Hands - Log₂ (Initial Dioxin)

Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Initial Dioxin	n	Adj. Mean	Adj. Slope (Std. Error)	p-Value
Mean Corpuscular Hemoglobin (Continuous) (Minimal-- 13-13 [c])	Initial-by- Lifetime Cigarette Smoking History	0	Low	35	31.210	-0.0552 (0.1159)	0.634
			Medium	61	30.758		
			High	40	30.846		
		>0-10	Low	38	31.056	0.0585 (0.1252)	0.640
			Medium	75	31.249		
			High	39	31.479		
		>10	Low	57	31.007	0.1251 (0.0943)	0.185
			Medium	123	31.043		
			High	52	31.451		

Ranch Hands - Log₂ (Initial Dioxin)

Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Initial Dioxin	n	Percent Abnormal High	Adj. Relative Risk (95% C.I.) ^d	p-Value
Mean Corpuscular Hemoglobin (Discrete) (Maximal-- 13-14 [d])	Initial-by- Lifetime Cigarette Smoking History	0	Low	62	1.6	0.99 (0.53,1.83)	0.970
			Medium	93	3.2		
			High	53	1.9		
		>0-10	Low	50	12.0	0.97 (0.68,1.40)	0.879
			Medium	97	8.3		
			High	59	8.5		
		>10	Low	73	5.5	1.21 (0.94,1.56)	0.138
			Medium	180	11.1		
			High	74	12.2		

TABLE L-1. (Continued)

Summary of Dioxin-by-Covariate Interactions for Hematology Variables

Ranch Hands - Log₂ (Initial Dioxin)							
Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Initial Dioxin	n	Adj. Mean	Adj. Slope (Std. Error)	p-Value
Mean Corpuscular Hemoglobin Concentration (Continuous) (Minimal-- 13-15 [c])	Initial-by- Age	Born ≥1942	Low	43	34.648	-0.0394 (0.0279)	0.158
			Medium	111	34.469		
			High	83	34.467		
		Born <1942	Low	87	34.417	0.0248 (0.0288)	0.390
			Medium	148	34.449		
			High	48	34.535		

Ranch Hands and Comparisons by Current Dioxin Category

Variable/ (Table Ref.)	Interaction	Stratum	Current Dioxin Category	n	Adj. Mean	Contrast	Difference of Adj. Means (95% C.I.)	p-Value
Platelet Count (Continuous) (13-16 [j])	Categorized Current Dioxin-by- Age	Born ≥1942	Background	323	263.06	All		0.010
			Unknown	118	257.98	U vs. B	-5.08 (-16.84,6.69)	0.398
			Low	81	271.16	L vs. B	8.11 (-5.48,21.69)	0.242
			High	117	279.94	H vs. B	16.89 (5.09,28.68)	0.005
		Born <1942	Background	460	256.55	All		0.435
			Unknown	227	263.15	U vs. B	6.60 (-2.27,15.47)	0.145
			Low	114	260.46	L vs. B	3.91 (-7.53,15.35)	0.503
			High	70	254.00	H vs. B	-2.55 (-16.58,11.48)	0.722

TABLE L-1. (Continued)**Summary of Dioxin-by-Covariate Interactions for Hematology Variables**

Ranch Hands - Log₂ (Initial Dioxin)							
Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Initial Dioxin	n	Adj. Mean	Adj. Slope (Std. Error)	p-Value
Prothrombin Time^c (Continuous) (Minimal-- 13-18 [c])	Initial-by- Lifetime Cigarette Smoking History	0	Low	35	12.393	0.0038 (0.0029)	0.190
			Medium	60	12.237		
			High	39	12.367		
		>0-10	Low	38	12.367	0.0100 (0.0030)	0.001
			Medium	74	12.320		
			High	38	12.334		
		>10	Low	57	12.514	-0.0018 (0.0023)	0.435
			Medium	120	12.532		
			High	52	12.249		

TABLE L-1. (Continued)

Summary of Dioxin-by-Covariate Interactions for Hematology Variables

Ranch Hands - Log ₂ (Current Dioxin) and Time								
Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Time (Yrs.)	Adj. Mean/(n) Current Dioxin			Adj. Slope (Std. Error)	p-Value
				Low	Medium	High		
Prothrombin Time ^c (Continuous) (Maximal-- 13-18 [h])	Current-by- Time-by- Current Cigarette Smoking	0-Never						0.657 ^a
			≤18.6	12.497 (39)	12.367 (56)	12.350 (20)	-0.0018 (0.0031)	0.563 ^b
			>18.6	12.432 (22)	12.582 (35)	12.563 (33)	0.0001 (0.0031)	0.974 ^b
		0-Former						0.131 ^a
			≤18.6	12.516 (38)	12.361 (70)	12.471 (28)	-0.0013 (0.0030)	0.678 ^b
			>18.6	12.303 (32)	12.352 (74)	12.521 (35)	0.0045 (0.0025)	0.068 ^b
		>0-20						0.396 ^a
			≤18.6	11.931 (14)	12.165 (31)	12.319 (17)	0.0079 (0.0045)	0.082 ^b
			>18.6	12.071 (10)	12.321 (38)	12.175 (18)	0.0027 (0.0043)	0.529 ^b
		>20						0.107 ^a
			≤18.6	12.028 (14)	12.045 (33)	12.322 (16)	0.0053 (0.0043)	0.216 ^b
			>18.6	12.326 (14)	12.200 (29)	12.163 (15)	-0.0038 (0.0037)	0.298 ^b

TABLE L-1. (Continued)

Summary of Dioxin-by-Covariate Interactions for Hematology Variables

Ranch Hands and Comparisons by Current Dioxin Category

Variable/ (Table Ref.)	Interaction	Stratum	Current Dioxin Category	n	Adj. Mean	Contrast	Difference of Adj. Means (95% C.I.) ^f	p-Value ^g
Prothrombin Time ^e (Continuous) (13-18 [j])	Categorized Current Dioxin-by- Age	Born ≥1942	Background	323	12.402	All		0.045
			Unknown	118	12.487	U vs. B	0.085 --	0.136
			Low	81	12.272	L vs. B	-0.130 --	0.046
			High	116	12.395	H vs. B	-0.007 --	0.895
		Born <1942	Background	462	12.323	All		0.082
			Unknown	227	12.263	U vs. B	-0.070 --	0.100
			Low	114	12.356	L vs. B	0.023 --	0.675
			High	70	12.434	H vs. B	0.101 --	0.132

Ranch Hands - Log₂ (Current Dioxin) and Time

Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Time (Yrs.)	Percent Abnormal High/(n) Current Dioxin			Adj. Relative Risk (95% C.I.) ^d	p-Value
				Low	Medium	High		
Prothrombin Time (Discrete) (Maximal-- 13-19 [h])	Current-by- Time-by- Race	Black	≤18.6	25.0 (4)	0.0 (12)	0.0 (2)	--	--
			>18.6	0.0 (1)	7.7 (13)	16.7 (6)	1.68 (0.35,8.07)	0.516 ⁱ
		Non-Black	≤18.6	2.9 (102)	0.6 (179)	4.9 (81)	1.30 (0.74,2.30)	0.445 ^h 0.360 ⁱ
			>18.6	3.9 (78)	2.4 (165)	3.1 (97)	0.98 (0.61,1.58)	0.946 ⁱ

TABLE L-1. (Continued)

Summary of Dioxin-by-Covariate Interactions for Hematology Variables

Ranch Hands and Comparisons by Current Dioxin Category								
Variable/ (Table Ref.)	Interaction	Stratum	Current Dioxin Category	n	Percent Abnormal High	Contrast	Adj. Relative Risk (95% C.I.)	p-Value
Prothrombin Time (Discrete) (13-19 [jj])	Categorized Current Dioxin-by- Age	Born $\geq$ 1942 0-Never	Background	97	5.2	All		0.041
			Unknown	36	13.9	U vs. B	3.38 (0.90,12.73)	0.072
			Low	19	0.0	L vs. B	--	--
			High	35	2.9	H vs. B	0.57 (0.06,5.10)	0.613

TABLE L-1. (Continued)

Summary of Dioxin-by-Covariate Interactions for Hematology Variables

^aTest of significance for homogeneity of slopes (current dioxin continuous, time categorized).

^bTest of significance for slope equal to 0 (current dioxin continuous, time categorized).

^cAdjusted means transformed from natural logarithm scale; adjusted slope and standard error based on natural logarithm of dependent variable versus log₂ dioxin.

^dRelative risk for a twofold increase in dioxin.

^eAdjusted means transformed from natural logarithm scale.

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

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

^hTest of significance for homogeneity of relative risks (current dioxin continuous, time categorized).

ⁱTest of significance for relative risk equal to 1 (current dioxin continuous, time categorized).

Note: Initial Dioxin: Minimal--Low: 52-93 ppt; Medium: >93-292 ppt; High: >292 ppt.

Maximal--Low: 25-56.9 ppt; Medium: >56.9-218 ppt; High: >218 ppt.

Current Dioxin: Minimal--Low: >10-14.65 ppt; Medium: >14.65-45.75 ppt; High: >45.75 ppt.

Maximal--Low: >5-9.01 ppt; Medium: >9.01-33.3 ppt; High: >33.3 ppt.

All: All categories.

Background (B) (Comparisons): Current Dioxin ≤10 ppt.

Unknown (U) (Ranch Hands): Current Dioxin ≤10 ppt.

Low (L) (Ranch Hands): 15 ppt < Current Dioxin ≤33.3 ppt.

High (H) (Ranch Hands): Current Dioxin >33.3 ppt.

APPENDIX L-1.

Data Displays for the Hematologic Assessment

The following figures graphically display relationships between the dependent variables and measures of dioxin for the hematologic assessment. The panels are arranged as follows:

Panel	Group	Assumption	Dioxin Measure
a	Ranch Hand	Minimal	Initial
b	Ranch Hand	Maximal	Initial
c	Comparison	--	Current
d	Ranch Hand	--	Current

Dioxin measures are presented in original units, but spacing of intervals is based on the logarithm (base 2) scale, similar to the statistical analysis. The dependent variable is also presented in original units, but spacing is based on the scale used for analysis, as described in the chapter. For continuous variables, current dioxin values of 0.0 ppt are displayed as 0.3 ppt. For these variables, the reference line indicates the general relationship, unadjusted for any covariates, between the (transform of the) dependent variable and $\log_2$ dioxin. For discrete variables, the percent of participants that exhibited an abnormal condition is displayed on the vertical axis for given intervals of dioxin. The intervals of dioxin and the sample sizes (assuming no missing data) for each of these intervals are given below. A list of figures found in this appendix follows the table.

Dioxin Interval	Dioxin Scale Midpoint	Panel			
		a	b	c	d
		Sample Size			
0.0-0.5	0.25	0	0	42	8
>0.5-2.0	1	0	0	28	8
>2.0-8.0	4	0	0	678	249
>8.0-32.0	16	0	23	52	407
>32.0-128.0	64	219	417	1	158
>128.0-512.0	256	233	233	0	33
>512.0-2,048.0	1024	65	65	0	2
>2,048.0	4096	3	3	0	0

Figure**Page**

L-1-1	Red Blood Cell Count (Continuous) versus Dioxin.....	L-1-3
L-1-2	Red Blood Cell Count (Discrete) versus Dioxin.....	L-1-4
L-1-3	White Blood Cell Count (Continuous) versus Dioxin	L-1-5
L-1-4	White Blood Cell Count (Discrete - Abnormal Low) versus Dioxin ..	L-1-6
L-1-5	White Blood Cell Count (Discrete - Abnormal High) versus Dioxin..	L-1-7
L-1-6	Hemoglobin (Continuous) versus Dioxin	L-1-8
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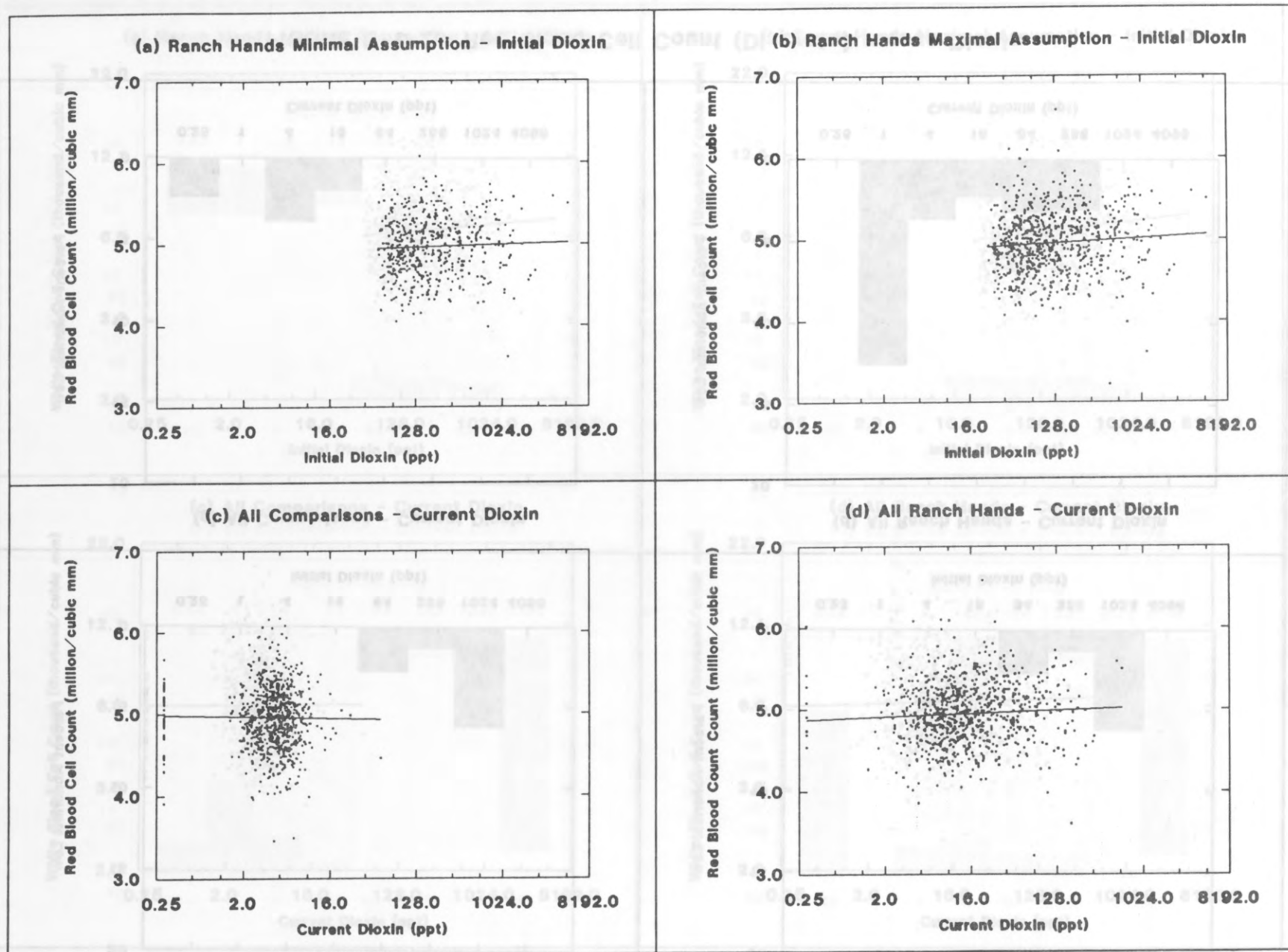


FIGURE L-1-1. Red Blood Cell Count (Continuous) versus Dioxin

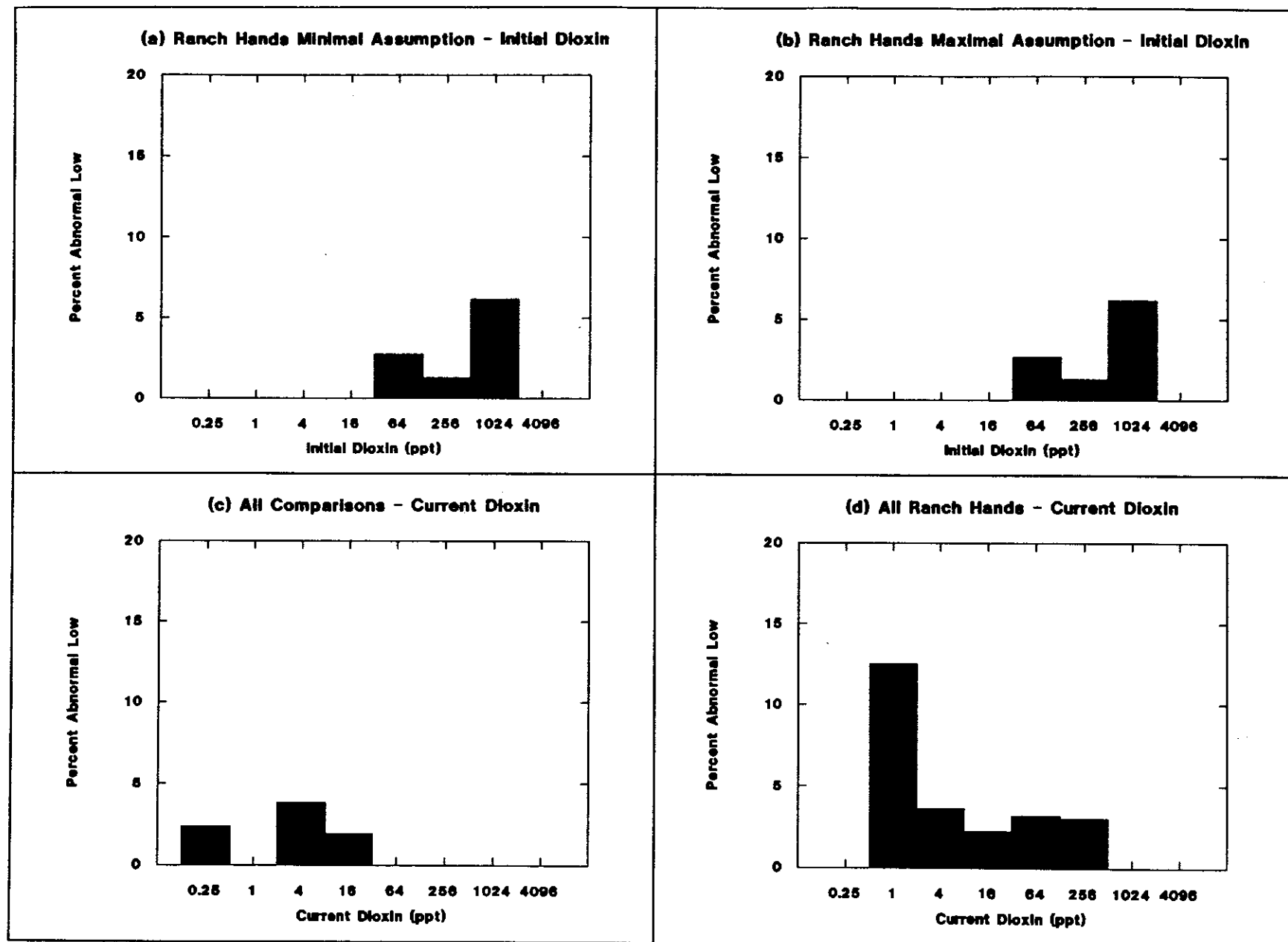


FIGURE L-1-2. Red Blood Cell Count (Discrete) versus Dioxin

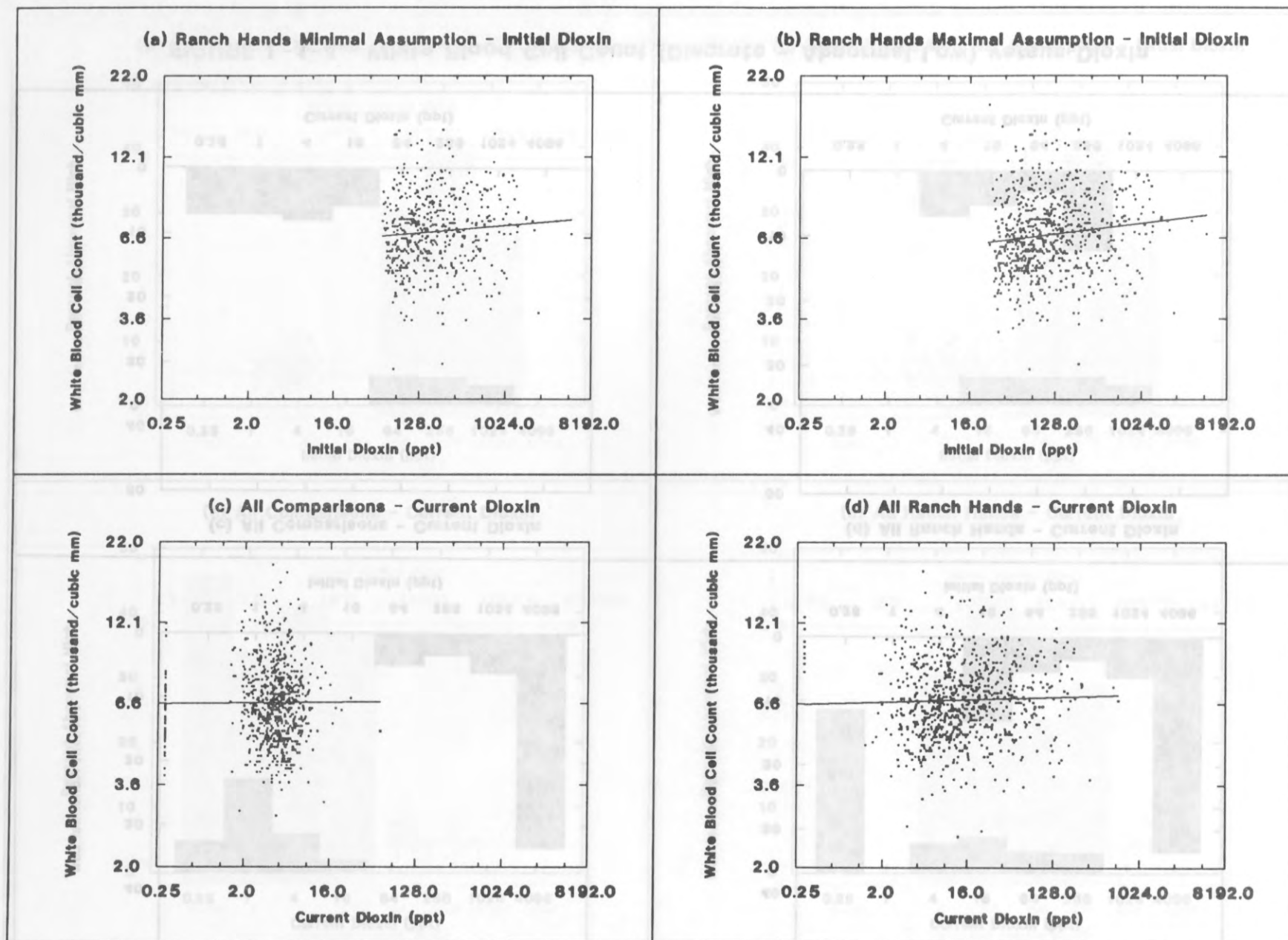
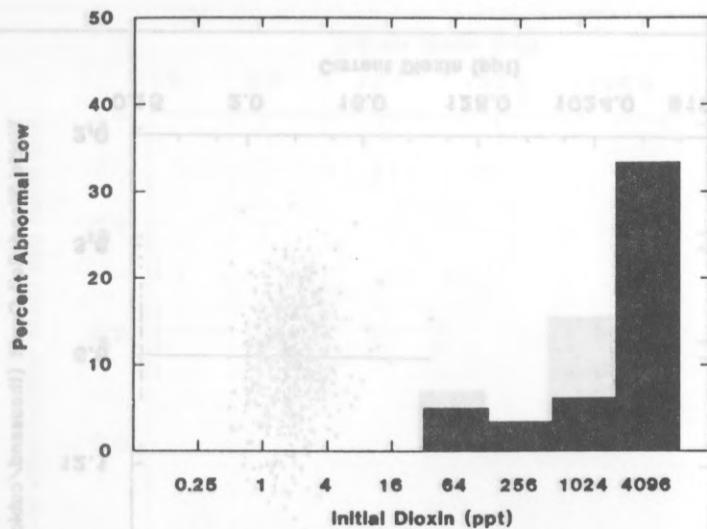
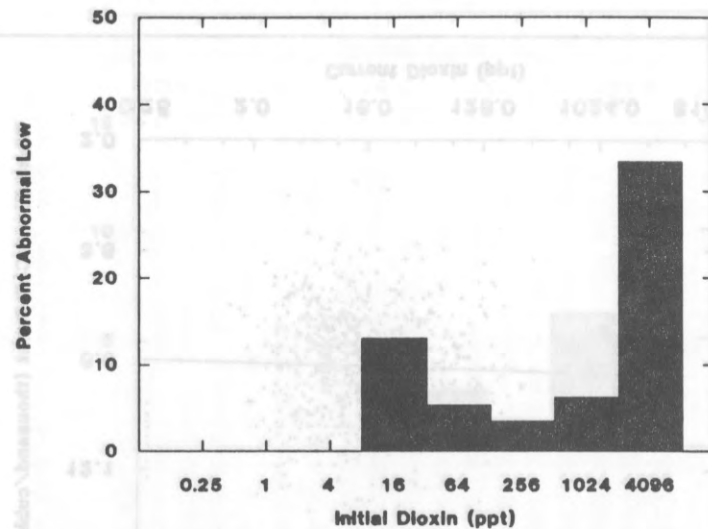


FIGURE L-1-3. White Blood Cell Count (Continuous) versus Dioxin

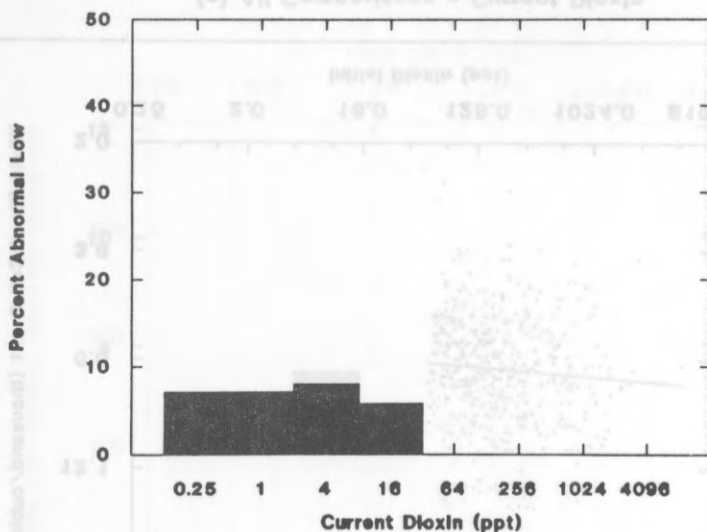
(a) Ranch Hands Minimal Assumption - Initial Dioxin



(b) Ranch Hands Maximal Assumption - Initial Dioxin



(c) All Comparisons - Current Dioxin



(d) All Ranch Hands - Current Dioxin

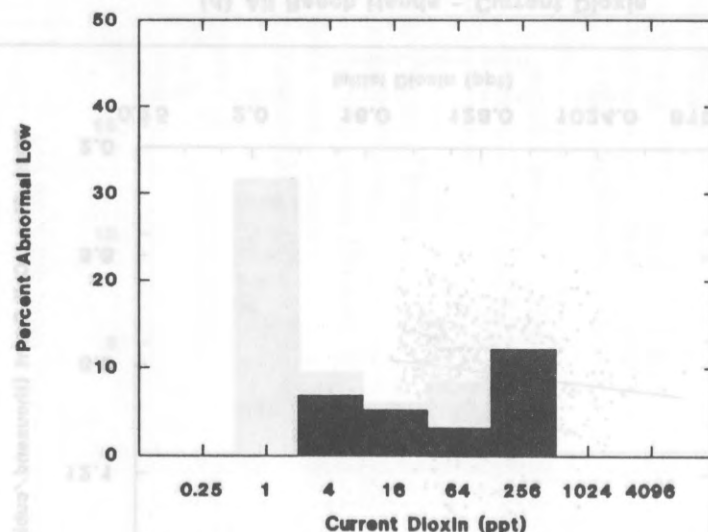


FIGURE L-1-4. White Blood Cell Count (Discrete - Abnormal Low) versus Dioxin

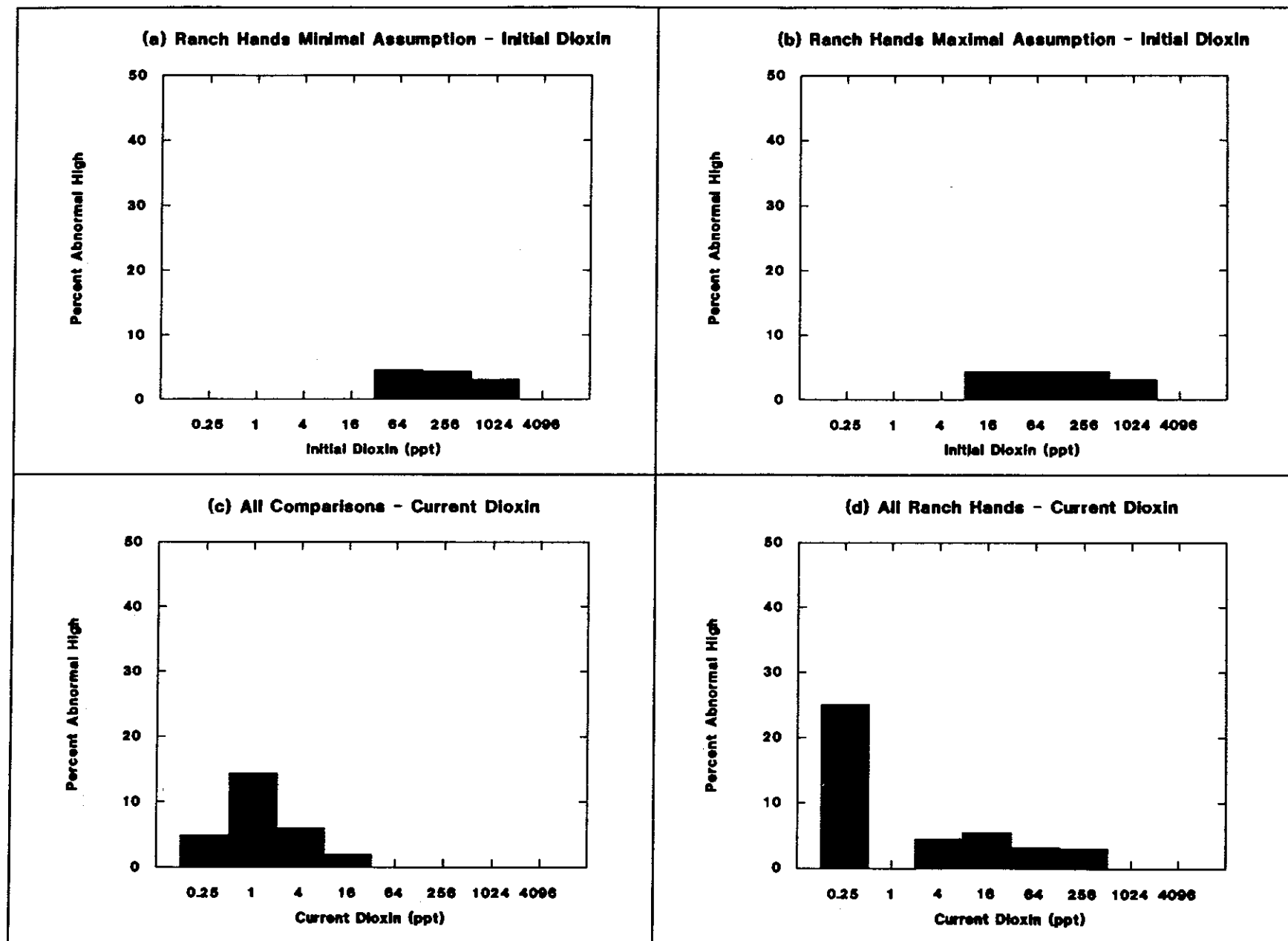
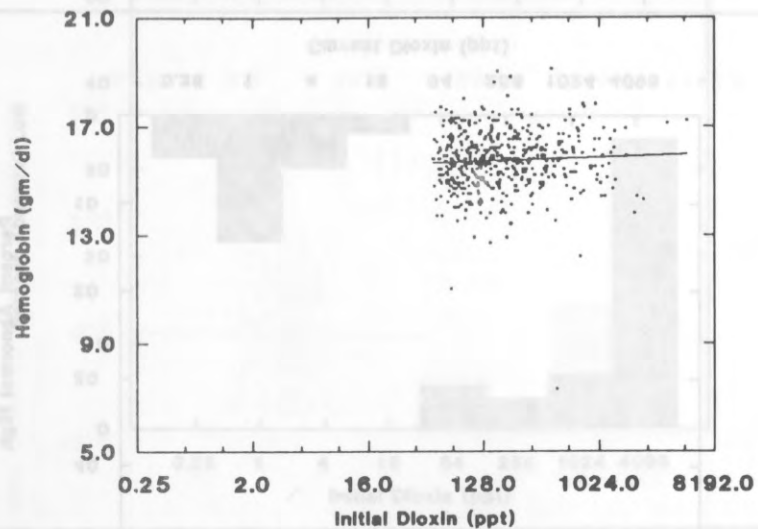
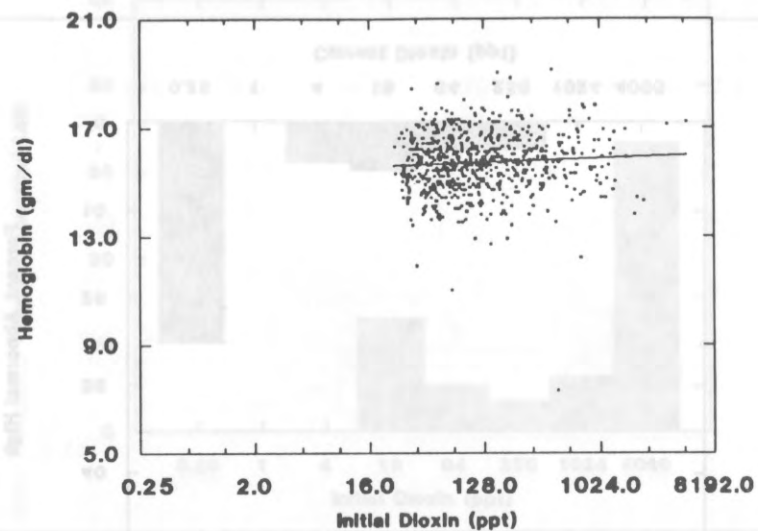


FIGURE L-1-5. White Blood Cell Count (Discrete - Abnormal High) versus Dioxin

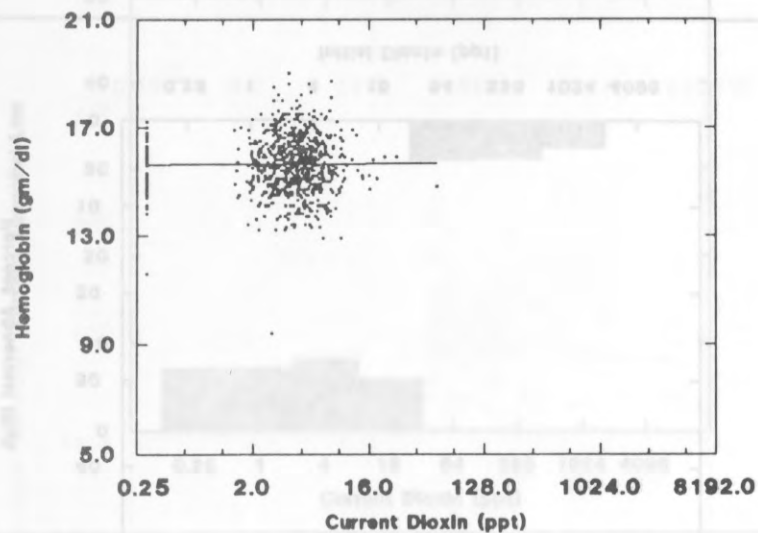
(a) Ranch Hands Minimal Assumption - Initial Dioxin



(b) Ranch Hands Maximal Assumption - Initial Dioxin



(c) All Comparisons - Current Dioxin



(d) All Ranch Hands - Current Dioxin

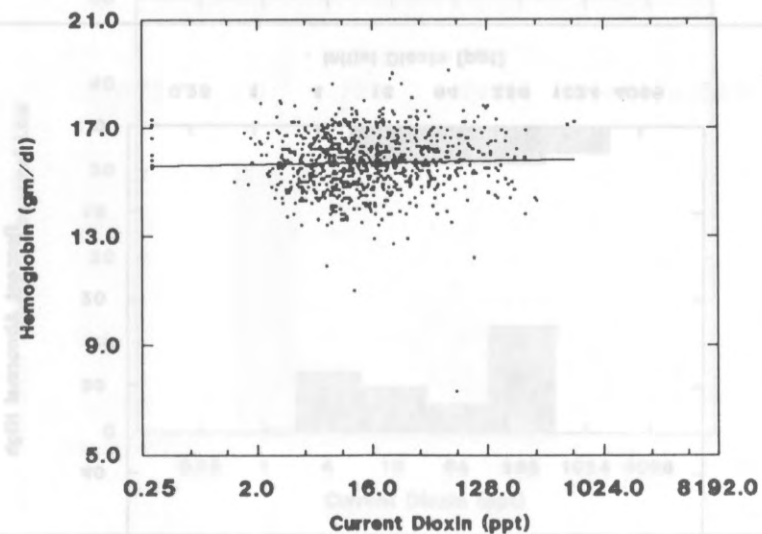


FIGURE L-1-6. Hemoglobin (Continuous) versus Dioxin

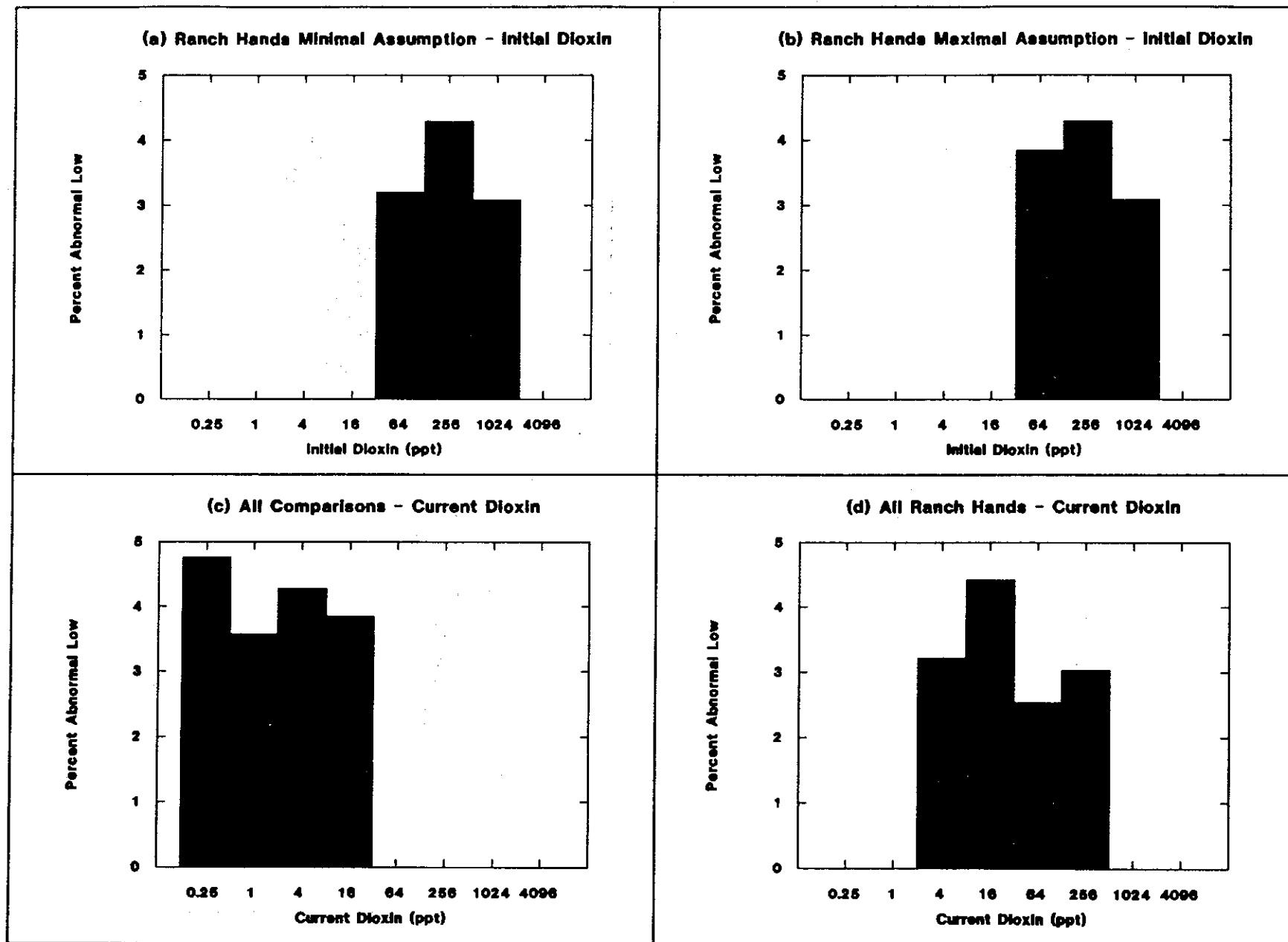


FIGURE L-1-7. Hemoglobin (Discrete - Abnormal Low) versus Dioxin

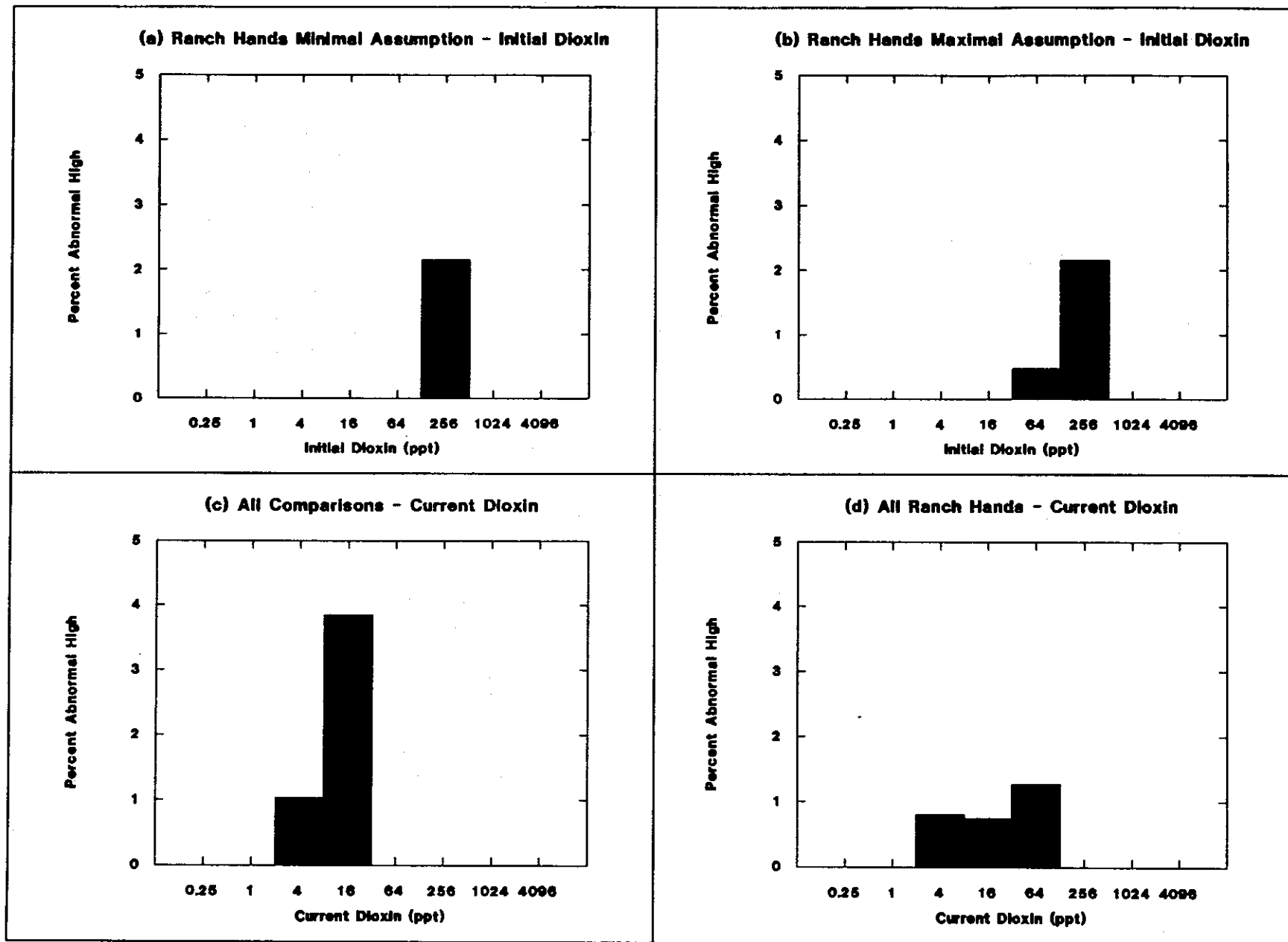
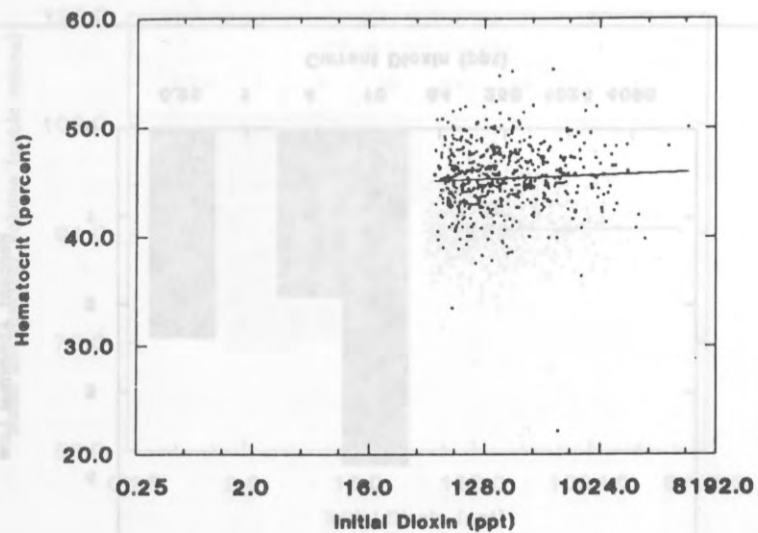
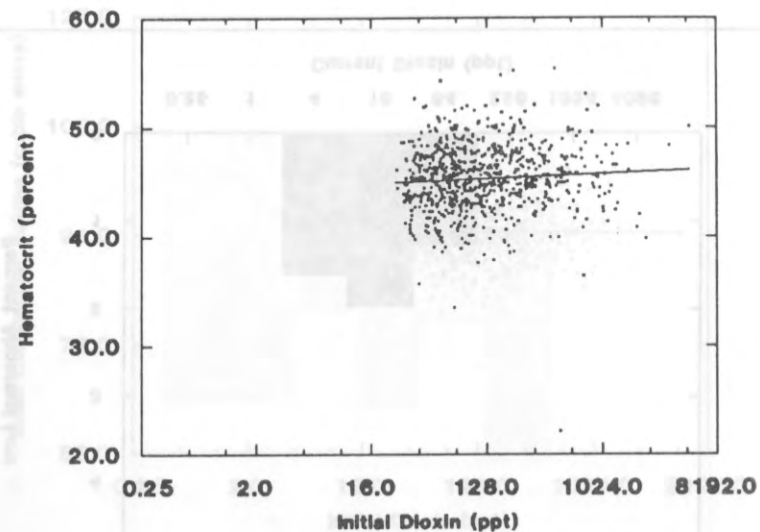


FIGURE L-1-8. Hemoglobin (Discrete - Abnormal High) versus Dioxin

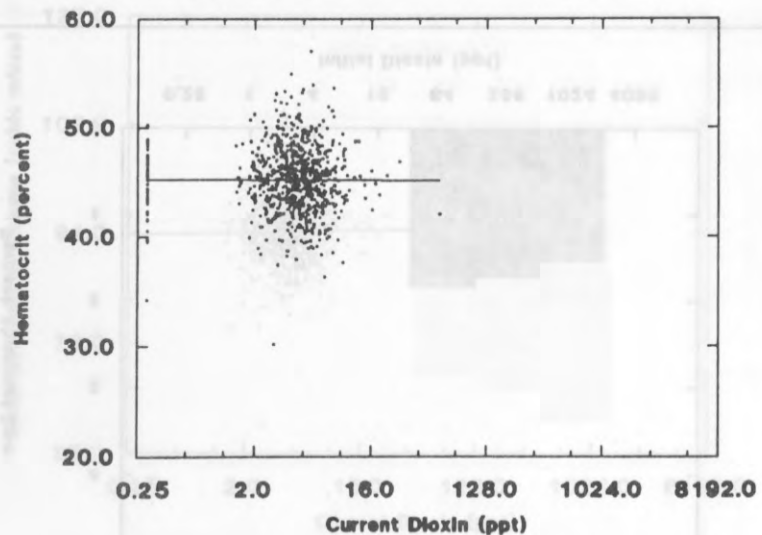
(a) Ranch Hands Minimal Assumption - Initial Dioxin



(b) Ranch Hands Maximal Assumption - Initial Dioxin



(c) All Comparisons - Current Dioxin



(d) All Ranch Hands - Current Dioxin

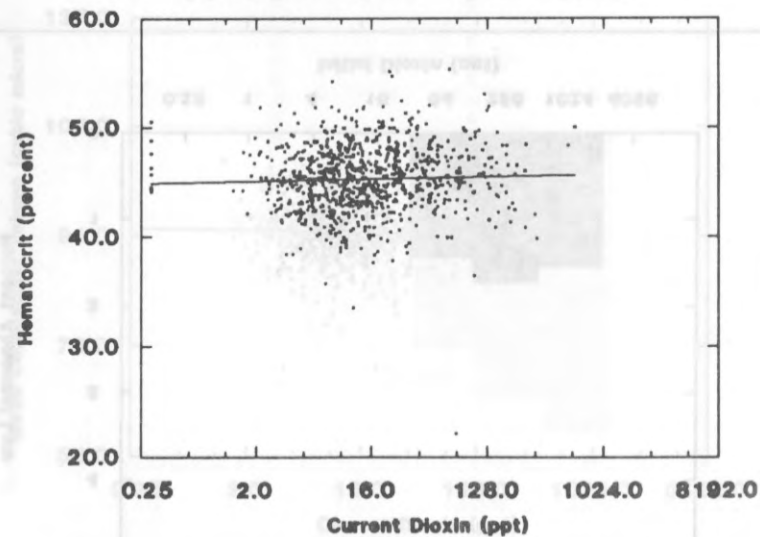


FIGURE L-1-9. Hematocrit (Continuous) versus Dioxin

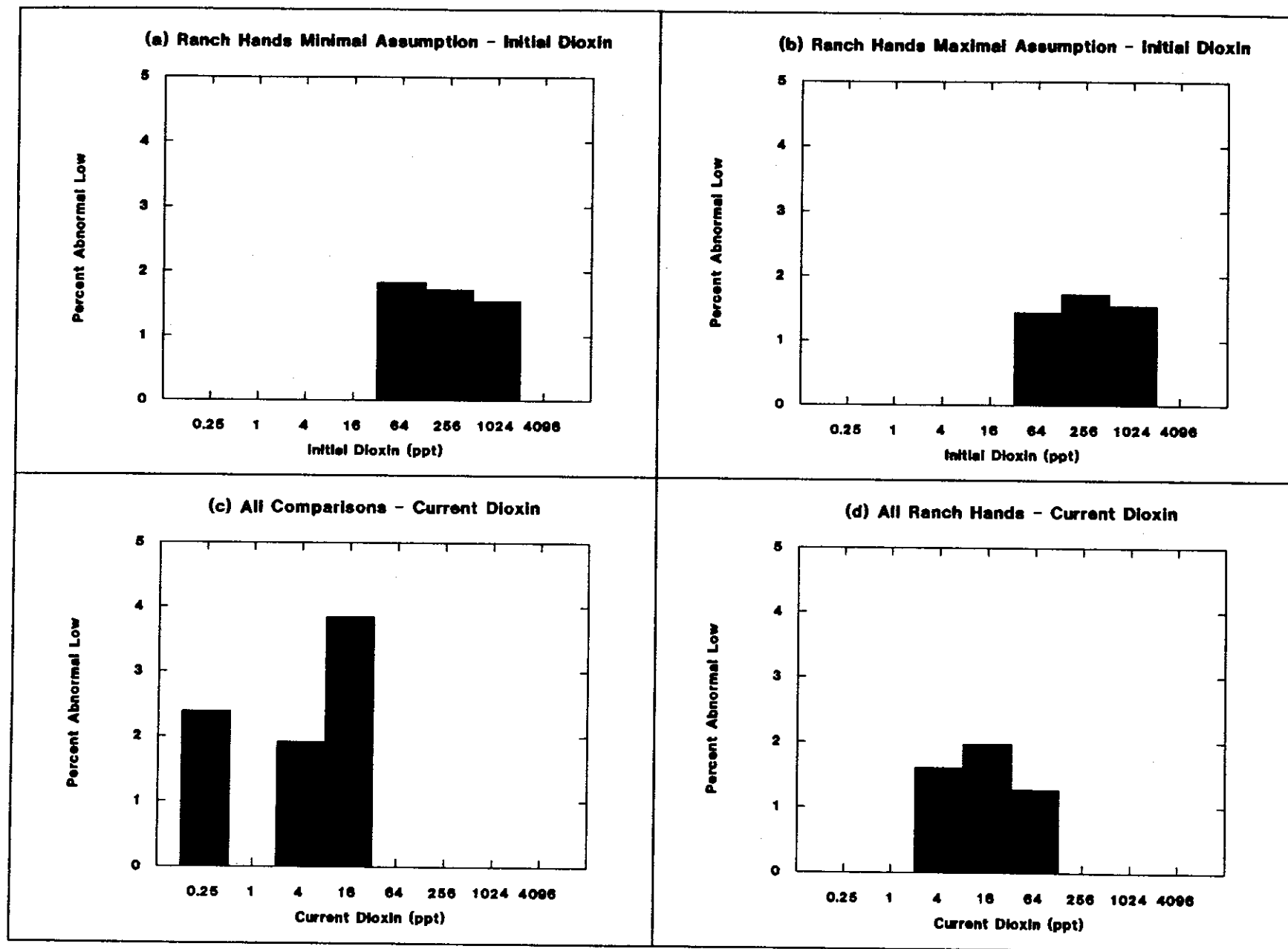


FIGURE L-1-10. Hematocrit (Discrete) versus Dioxin

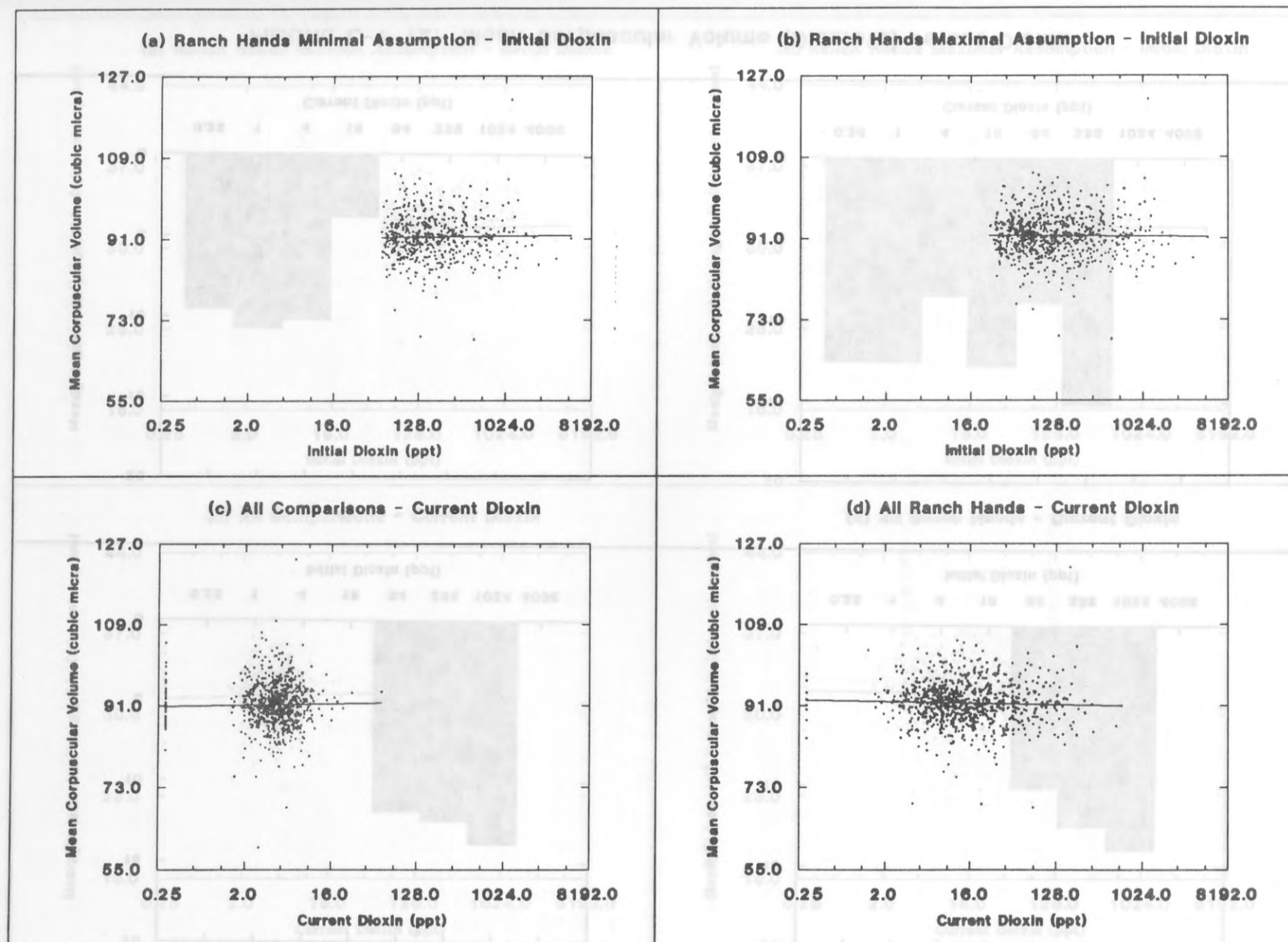


FIGURE L-1-11. Mean Corpuscular Volume (Continuous) versus Dioxin

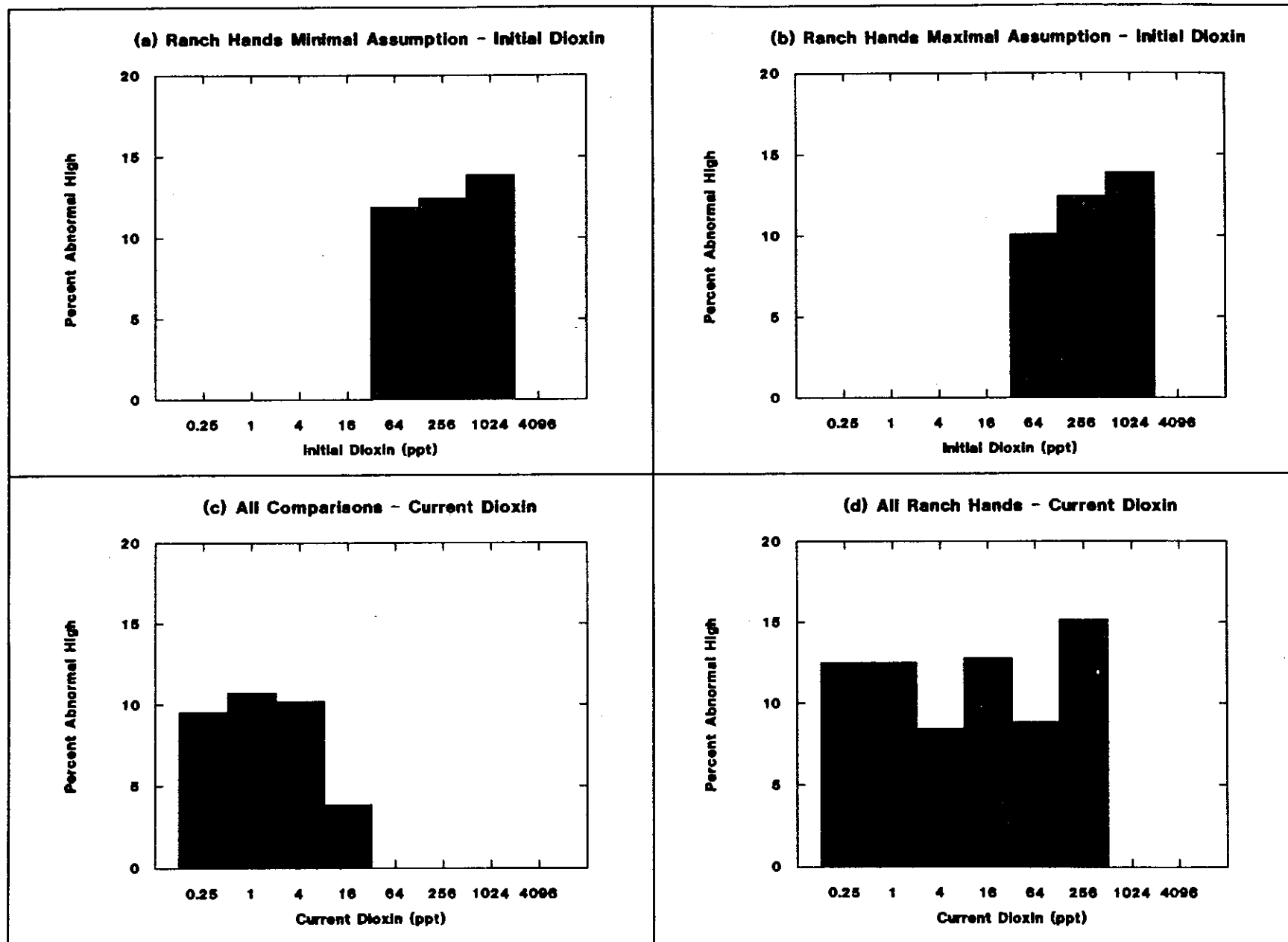


FIGURE L-1-12. Mean Corpuscular Volume (Discrete) versus Dioxin

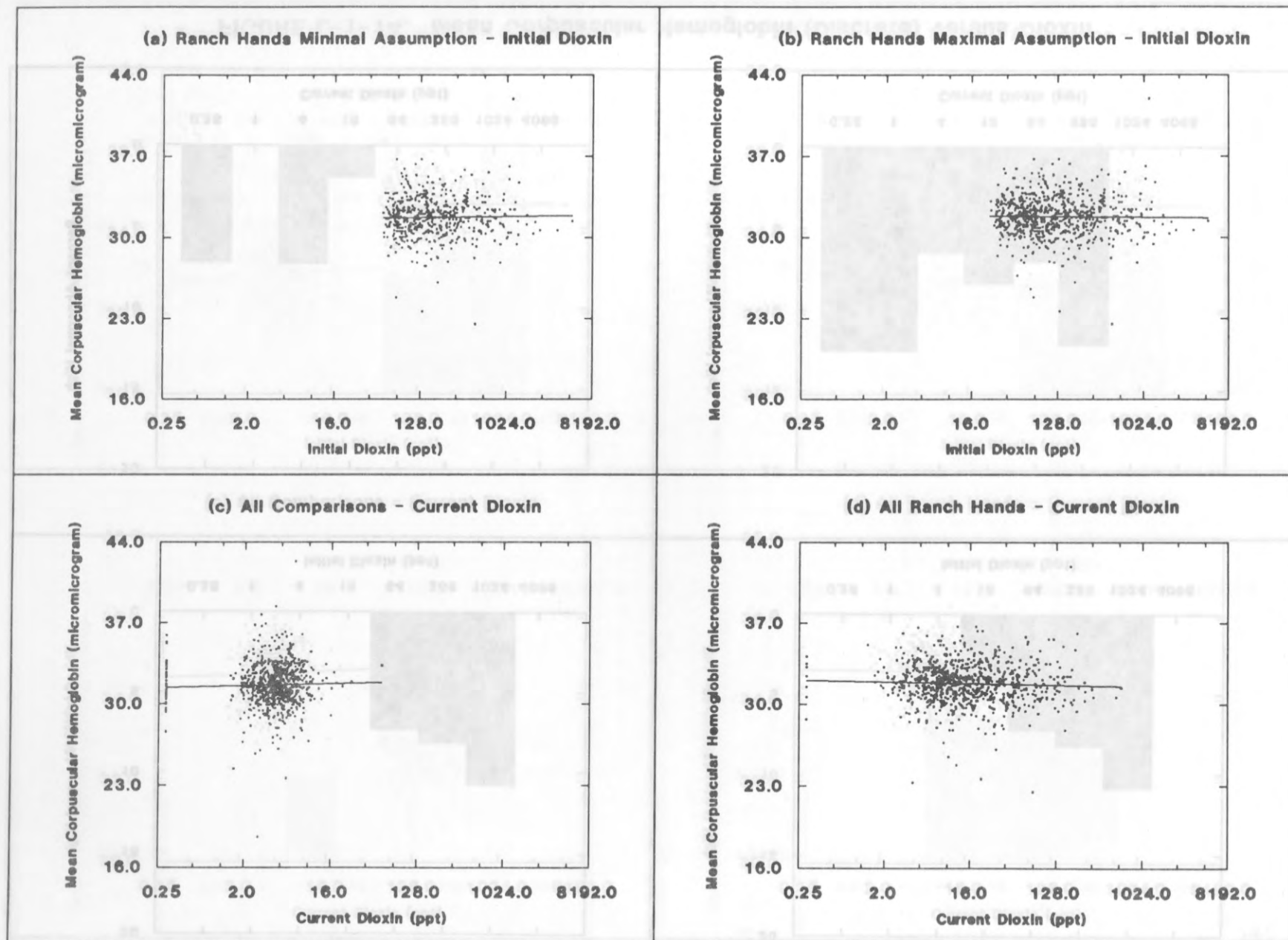


FIGURE L-1-13. Mean Corpuscular Hemoglobin (Continuous) versus Dioxin

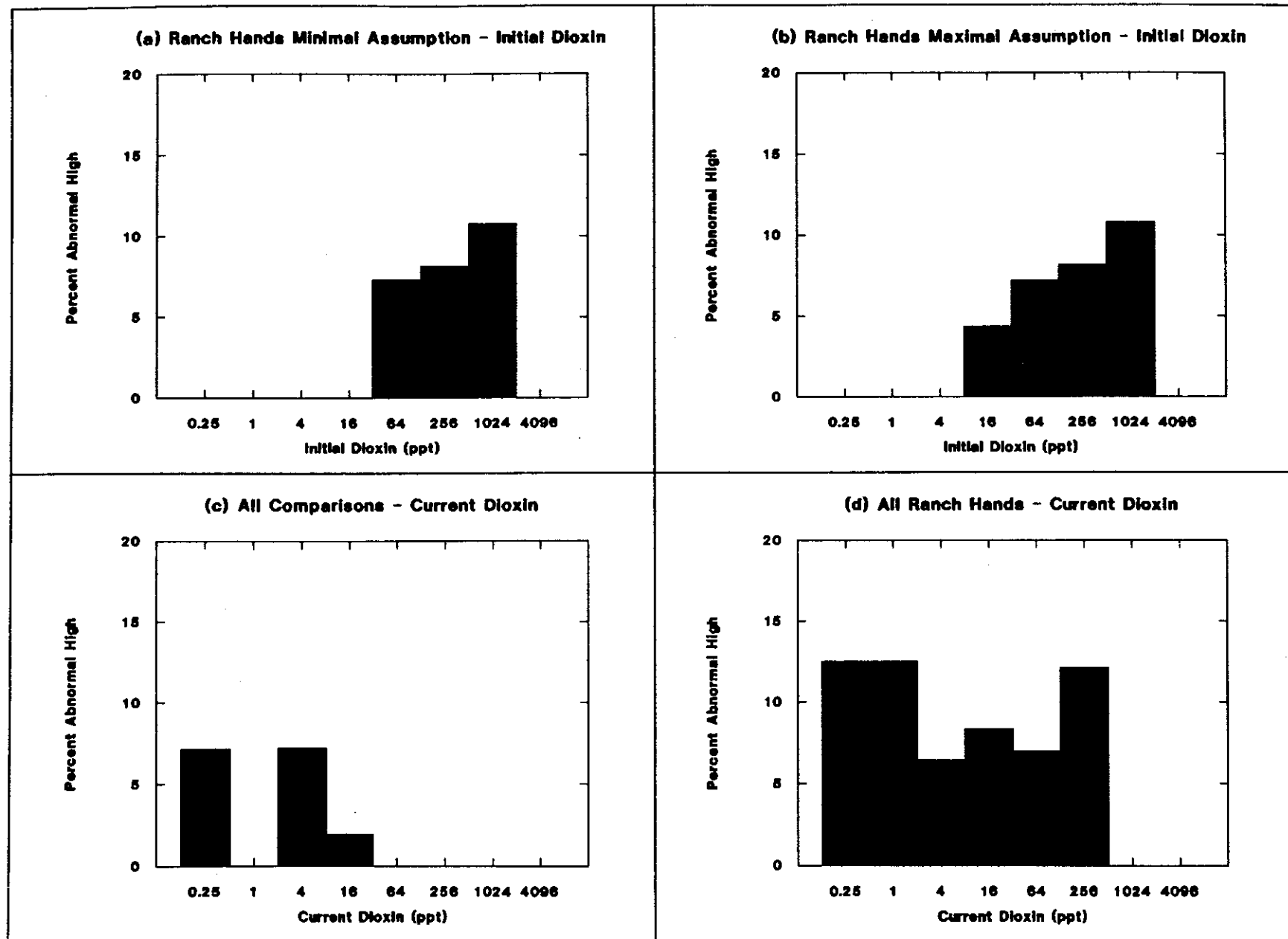
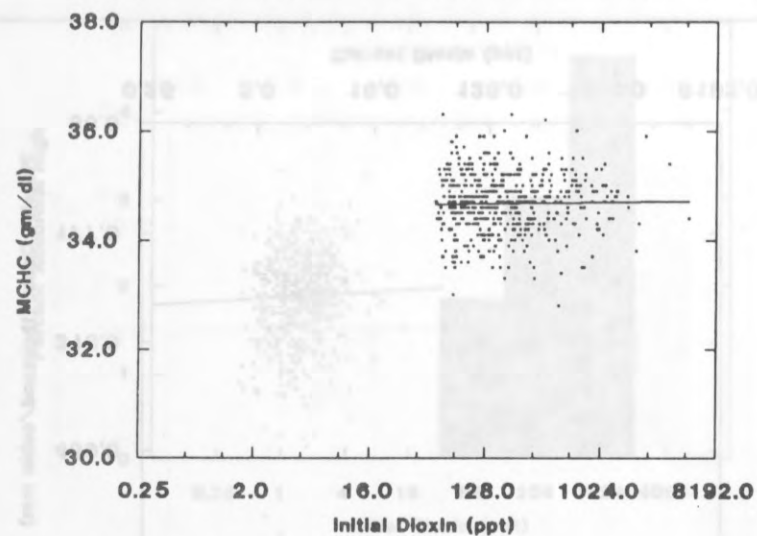
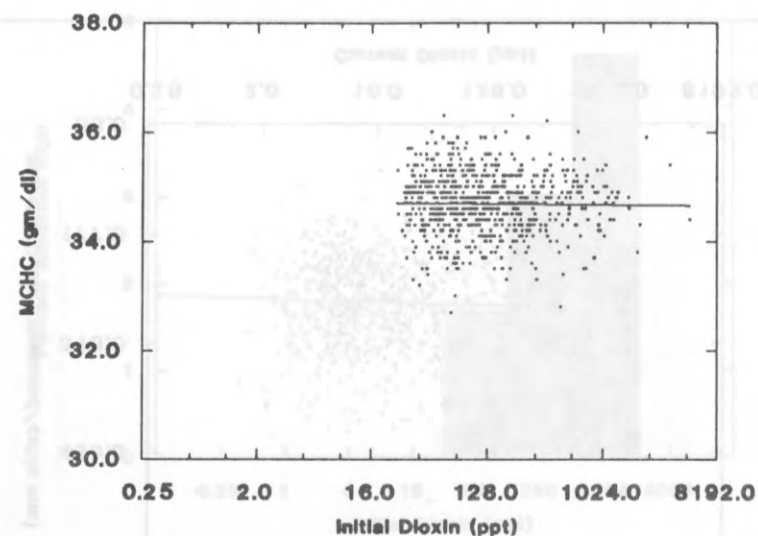


FIGURE L-1-14. Mean Corpuscular Hemoglobin (Discrete) versus Dioxin

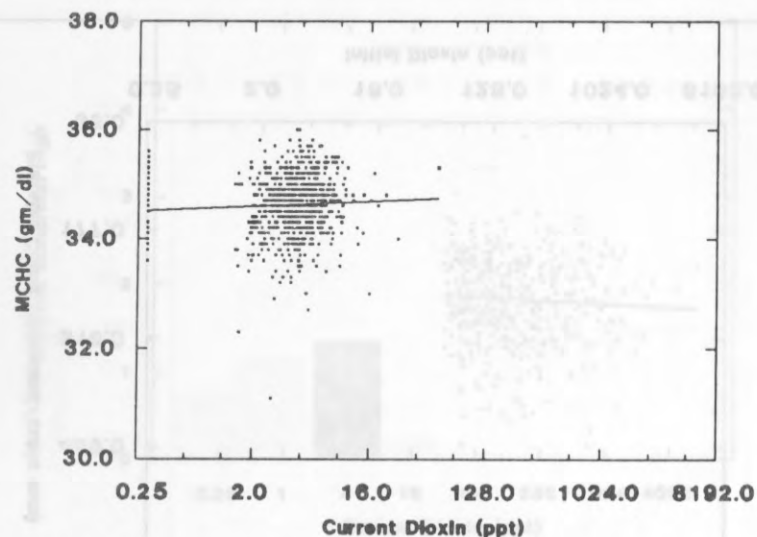
(a) Ranch Hands Minimal Assumption - Initial Dioxin



(b) Ranch Hands Maximal Assumption - Initial Dioxin



(c) All Comparisons - Current Dioxin



(d) All Ranch Hands - Current Dioxin

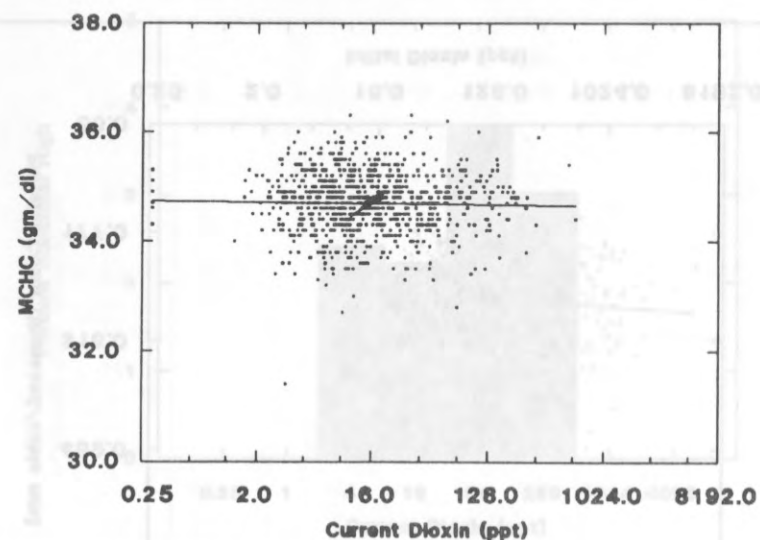


FIGURE L-1-15. Mean Corpuscular Hemoglobin Concentration (Continuous) versus Dioxin

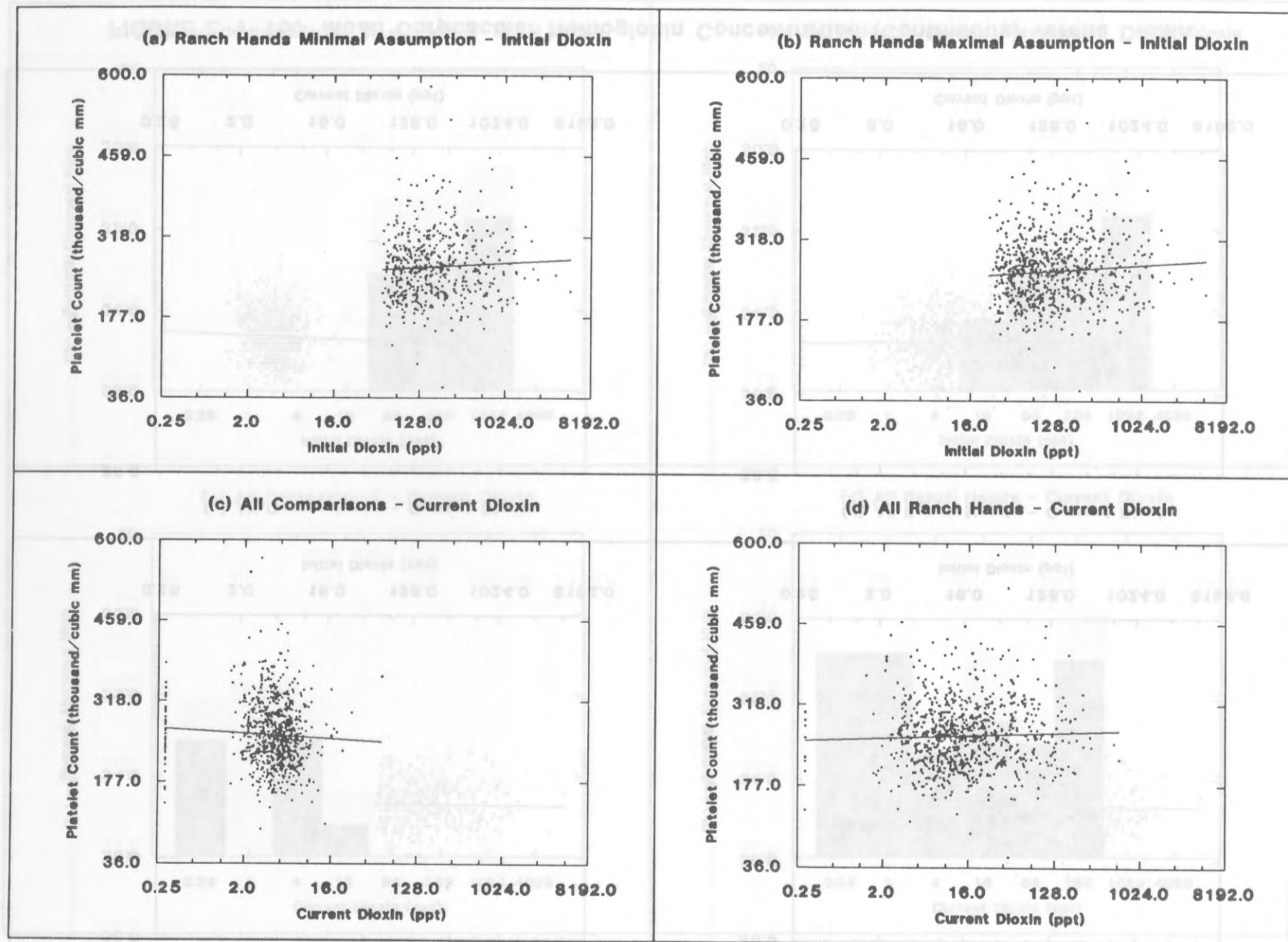
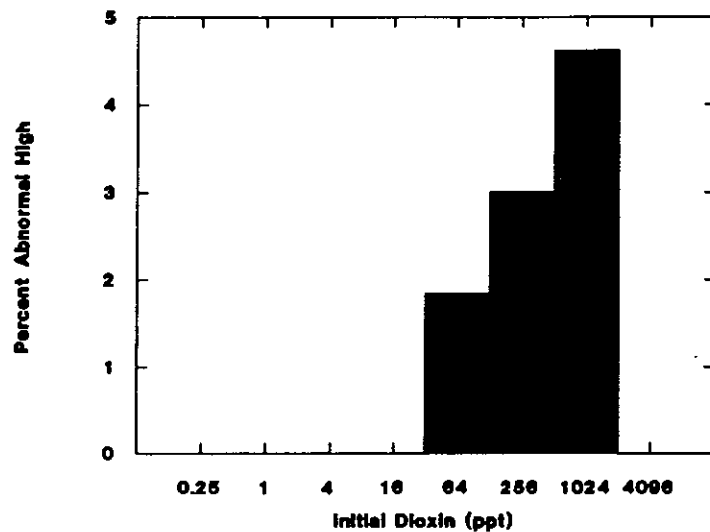
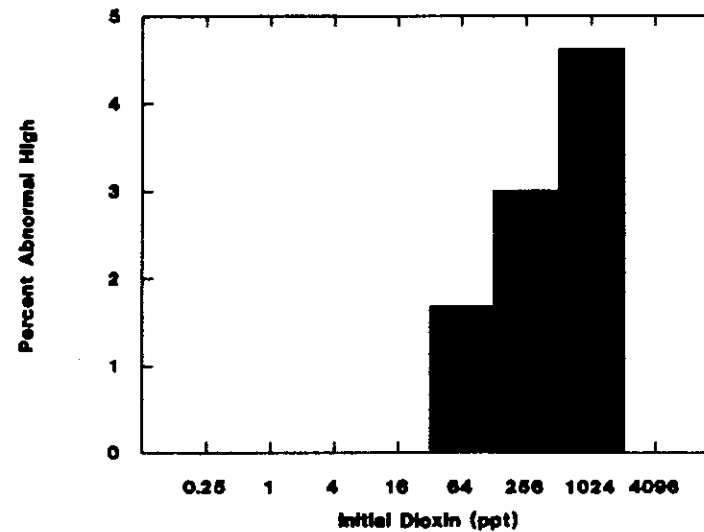
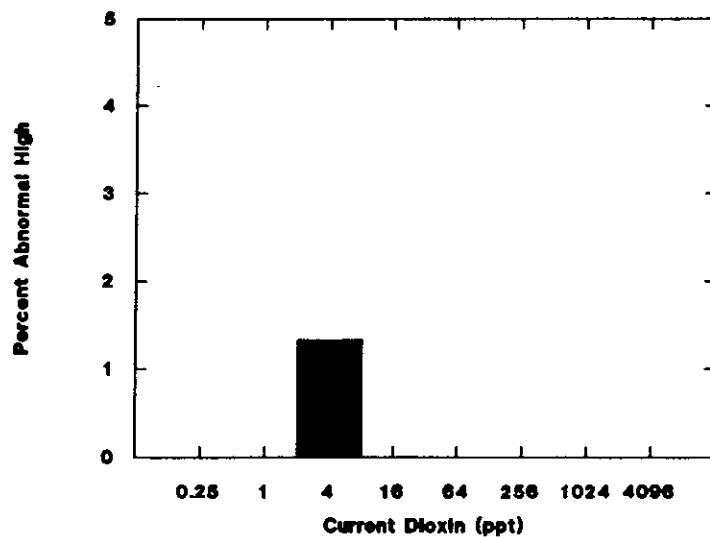
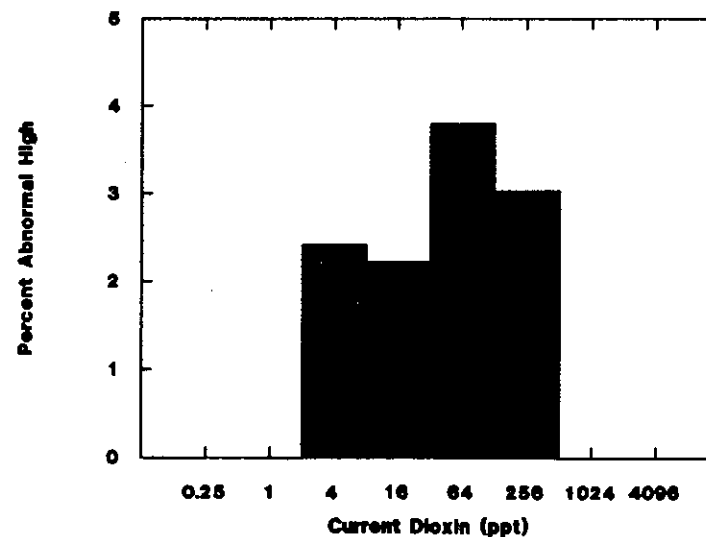


FIGURE L-1-16. Platelet Count (Continuous) versus Dioxin

(a) Ranch Hands Minimal Assumption - Initial Dioxin**(b) Ranch Hands Maximal Assumption - Initial Dioxin****(c) All Comparisons - Current Dioxin****(d) All Ranch Hands - Current Dioxin****FIGURE L-1-17. Platelet Count (Discrete) versus Dioxin**

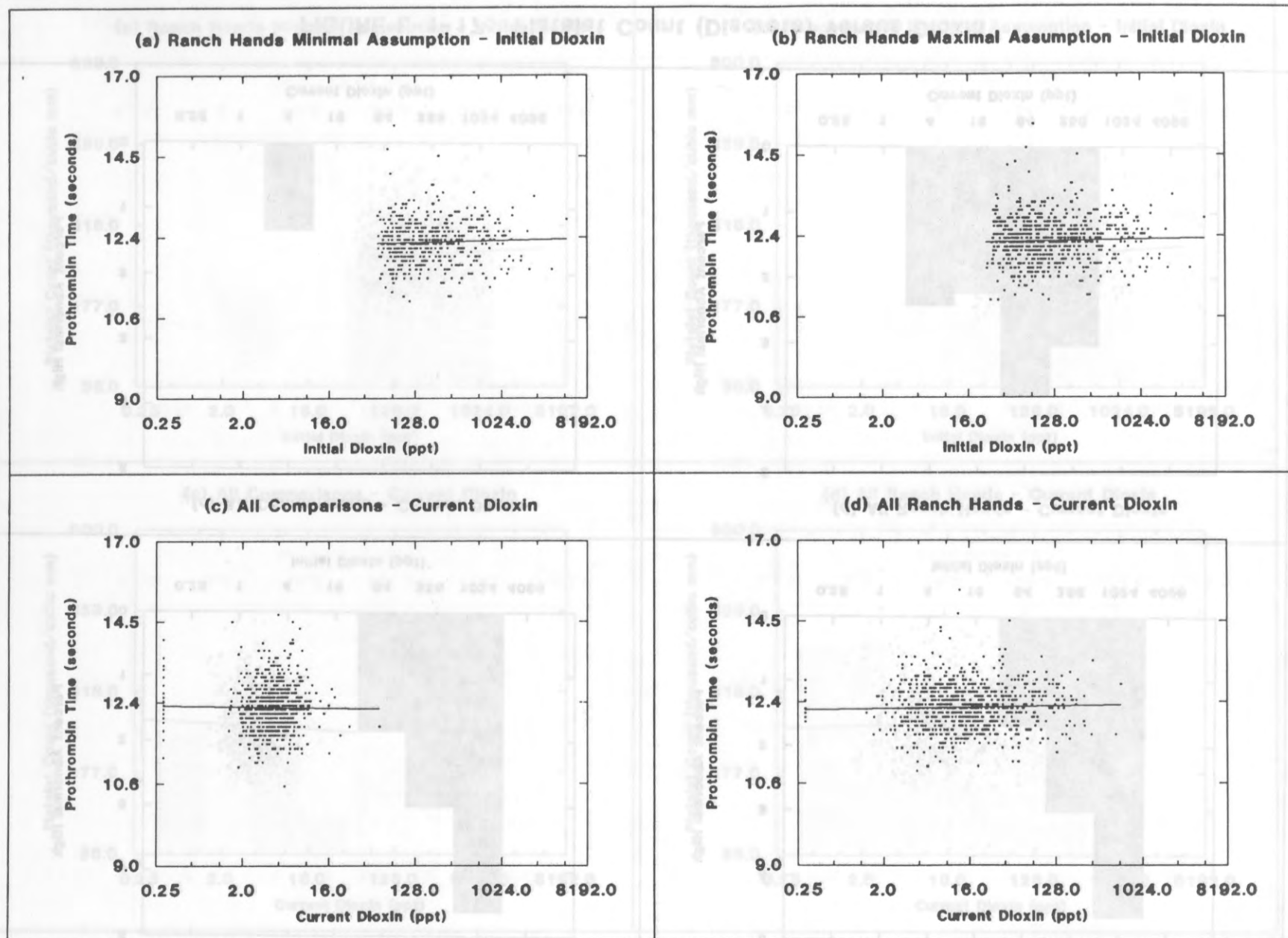


FIGURE L-1-18. Prothrombin Time (Continuous) versus Dioxin

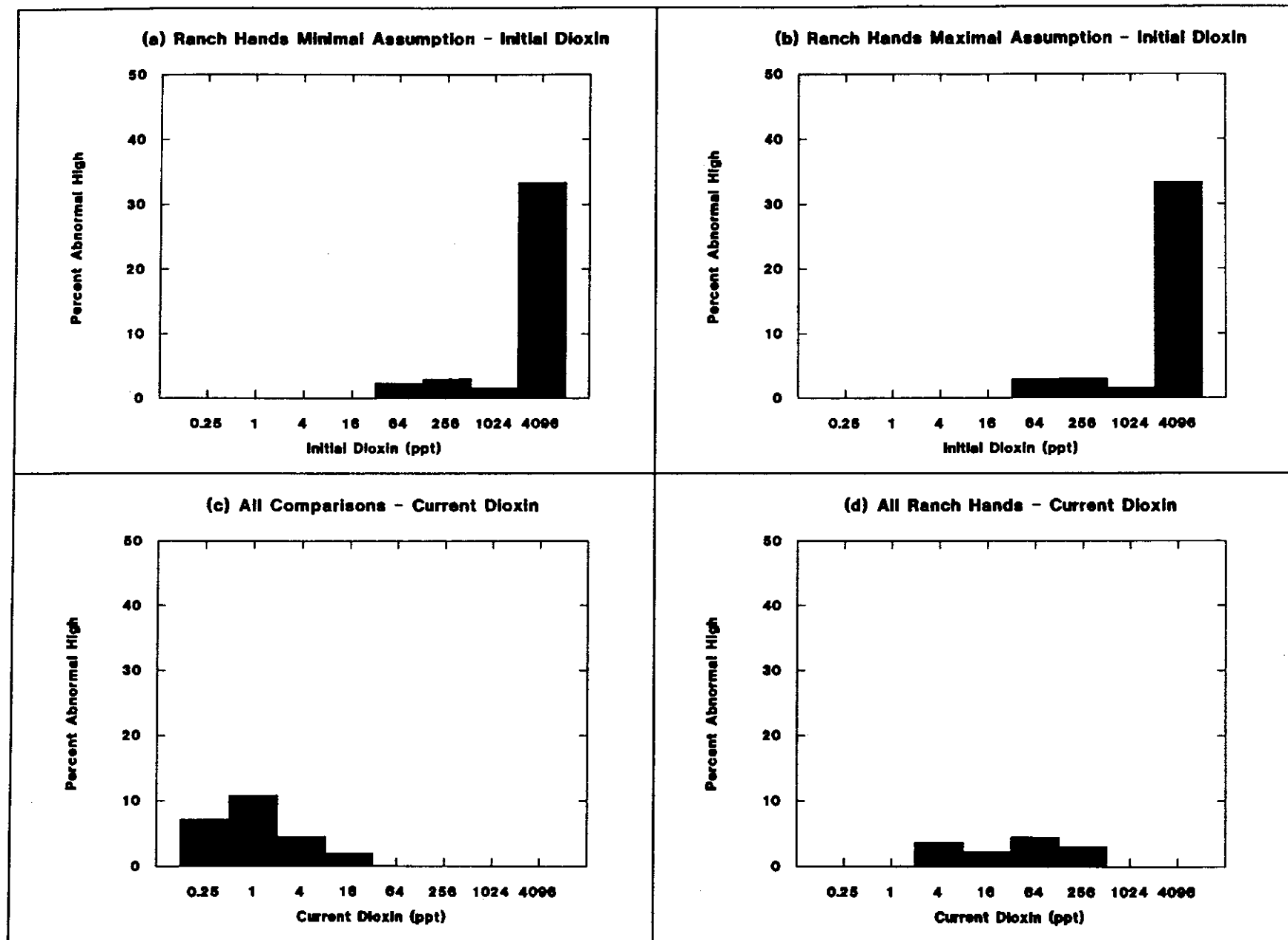


FIGURE L-1-19. Prothrombin Time (Discrete) versus Dioxin

APPENDIX L-2.

Interaction Displays for the Hematologic Assessment

The following figures graphically display dioxin-by-covariate interactions found in the statistical analyses of the dependent variables in the hematologic assessment. For interactions with initial dioxin in the Ranch Hands involving continuous dependent variables, bivariate plots are presented with observations in each stratum represented by different symbols. Initial dioxin is shown in original units (ppt) but spacing of intervals is based on the logarithm (base 2) scale. The dependent variable is also displayed in original units but spacing is based on the scale used for analysis, as described in the chapter. The reference lines indicate the general relationship, unadjusted for any covariates, between the (transform of the) dependent variable and $\log_2$ (initial dioxin). For each stratum, the lines span the range of initial dioxin. For interactions with initial dioxin in the Ranch Hands involving discrete variables, the stratum-specific percentage of participants that exhibited an abnormal condition is displayed for low, medium, and high initial dioxin categories (as defined in Appendix L, Table L-1), and each stratum is represented by a different design. Appendix Table L-1 also displays the sample sizes for each bar on the graph.

In the Ranch Hands, for current dioxin-by-time-by-covariate interactions with continuous dependent variables, separate bivariate plots (dependent variable versus current dioxin) are presented for each stratum of the covariate. Different symbols represent late tours (time since tour ≤ 18.6 years) and early tours (time since tour > 18.6 years) within each plot. The spacing for current dioxin and the dependent variable follows the same conventions as described above, as do the reference lines. For current dioxin-by-time-by-covariate interactions in the Ranch Hands with discrete dependent variables, a stratum-specific percentage of participants that exhibited an abnormal condition is displayed for low, medium, and high current dioxin. Different designs represent separate time since tour categories, and covariate strata are given on separate panels. Appendix L-1 provides the sample sizes for each bar on the graph.

For covariate interactions with current dioxin categorized within the Ranch Hand and Comparison groups involving continuous dependent variables, adjusted means for the background category in the Comparisons, and the unknown, low, and high categories in the Ranch Hands, are shown. Appendix Table L-1 presents the definition of these categories and the sample sizes for each mean. Different symbols distinguish the covariate categories and solid line segments connect the means to display a profile of the adjusted means. For covariate interactions with current dioxin categorized within the Ranch Hand and Comparison groups involving discrete dependent variables, bars representing the percentage of participants that exhibited an abnormal condition are displayed for each of the four current dioxin categories. Different designs represent covariate categories.

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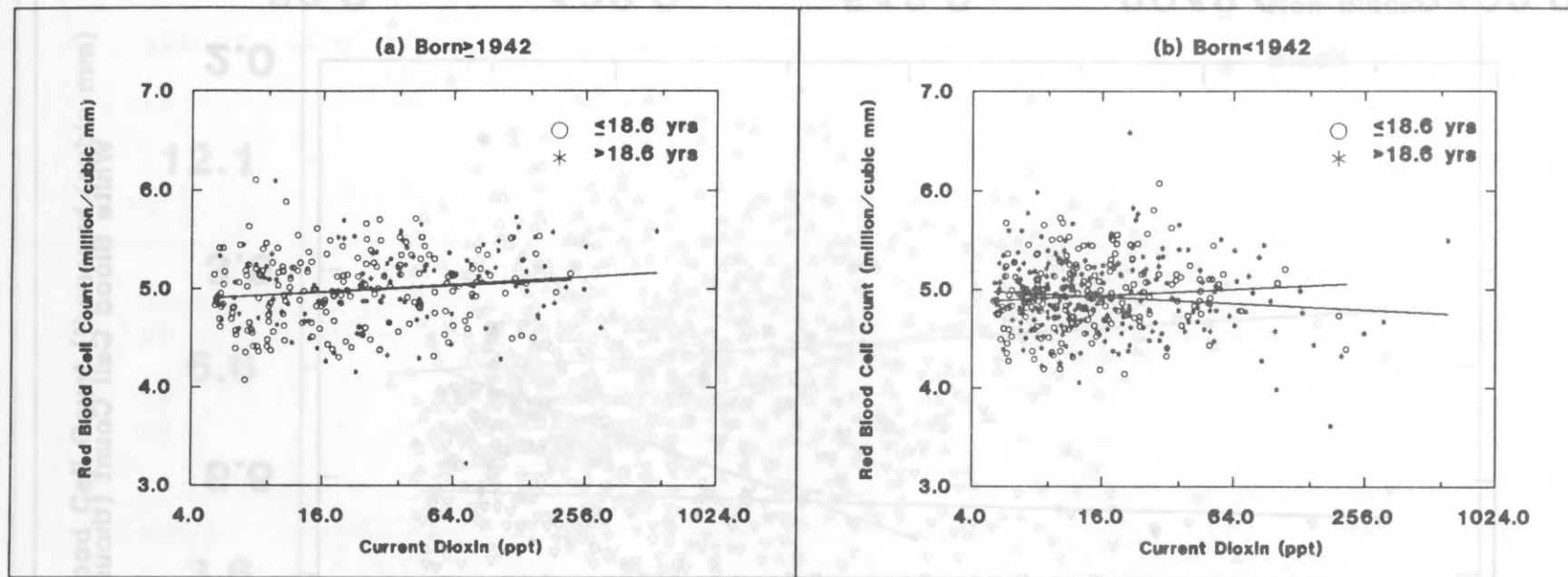


FIGURE L-2-1. Interaction of Current Dioxin, Time, and Age for Red Blood Cell Count (Continuous - Ranch Hands, Maximal Assumption)

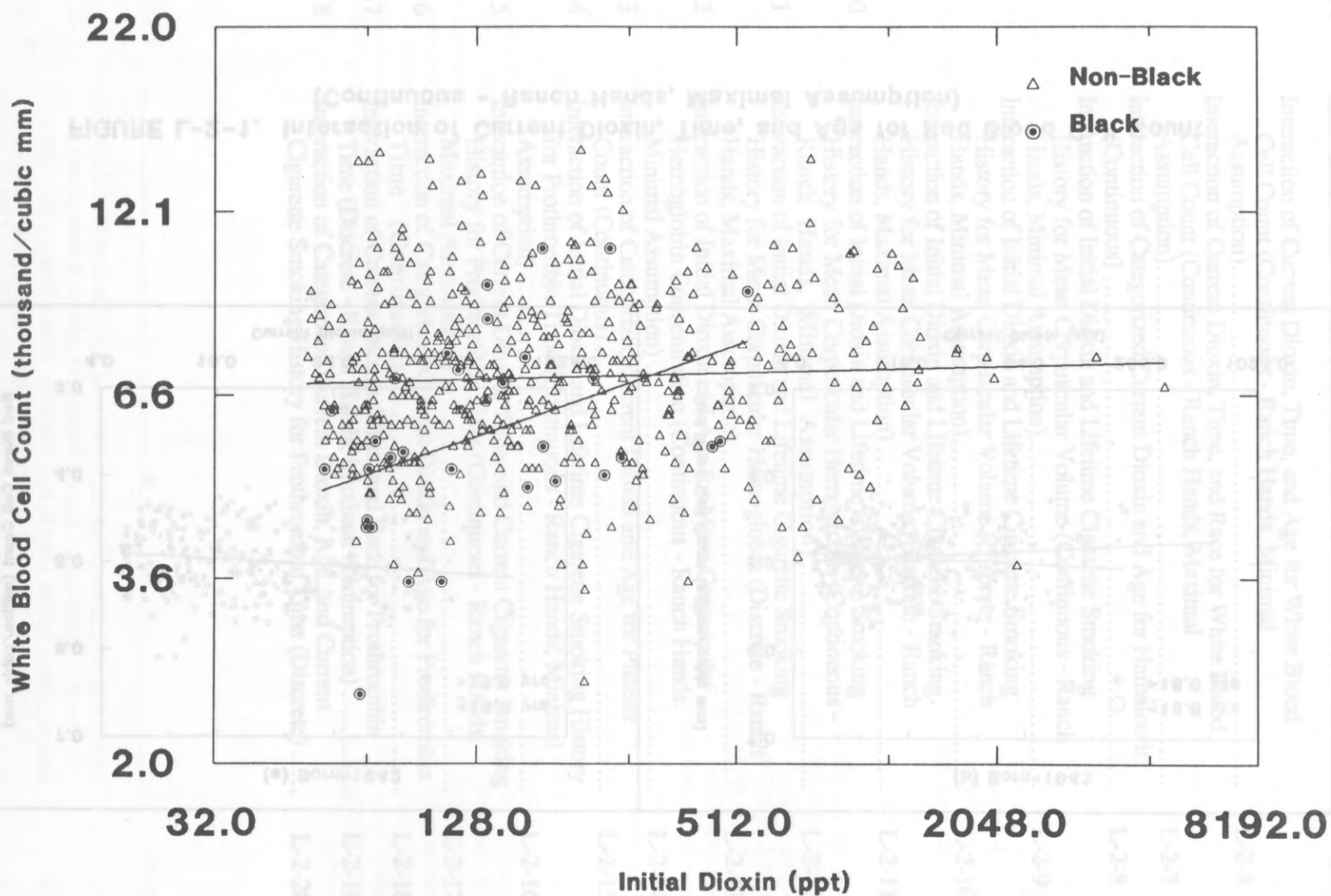


FIGURE L-2-2. Interaction of Initial Dioxin and Race for White Blood Cell Count (Continuous - Ranch Hands, Minimal Assumption)