

FIGURE G-1-26. Achilles Reflex versus Dioxin

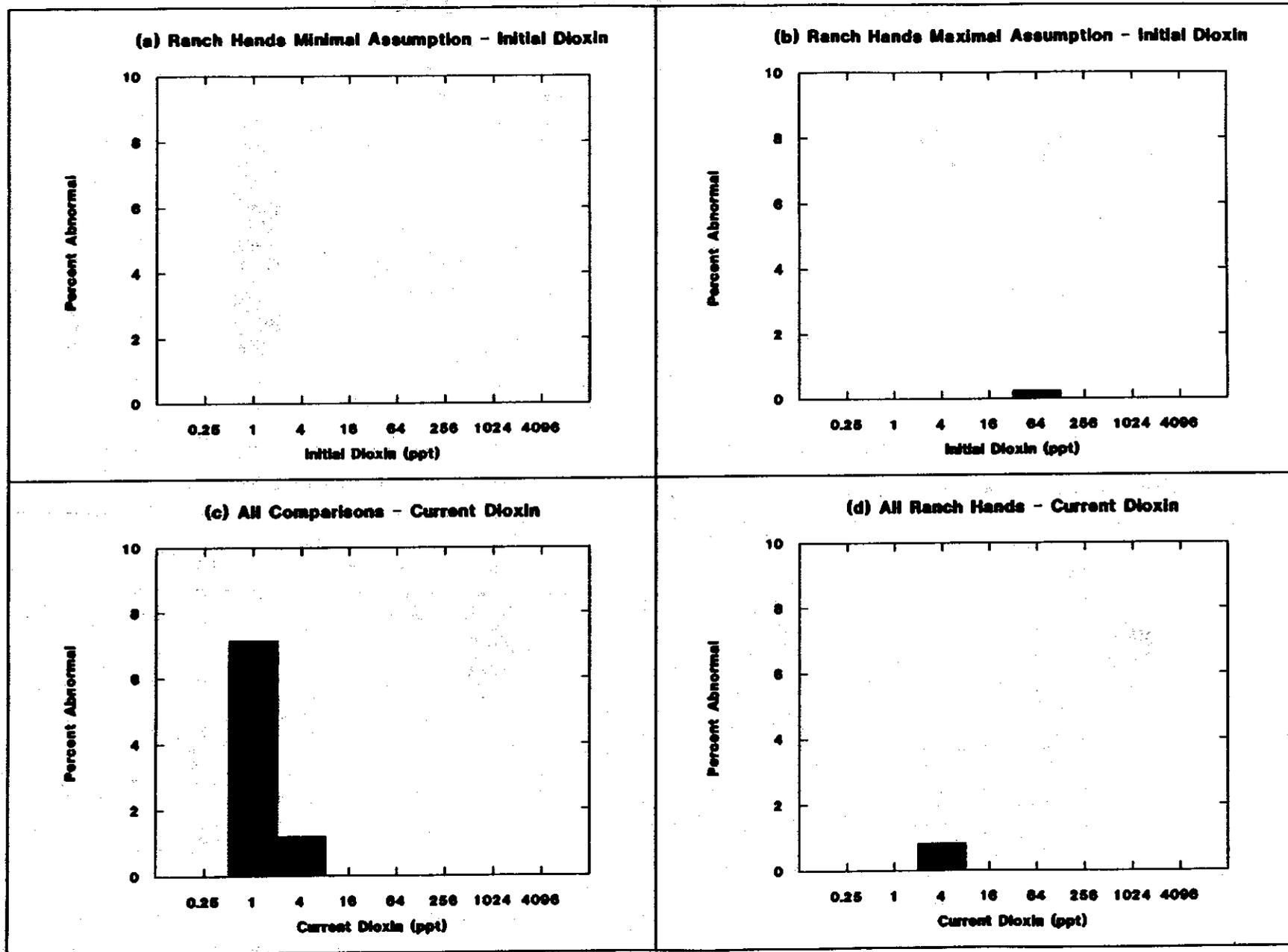


FIGURE G-1-27. Biceps Reflex versus Dioxin

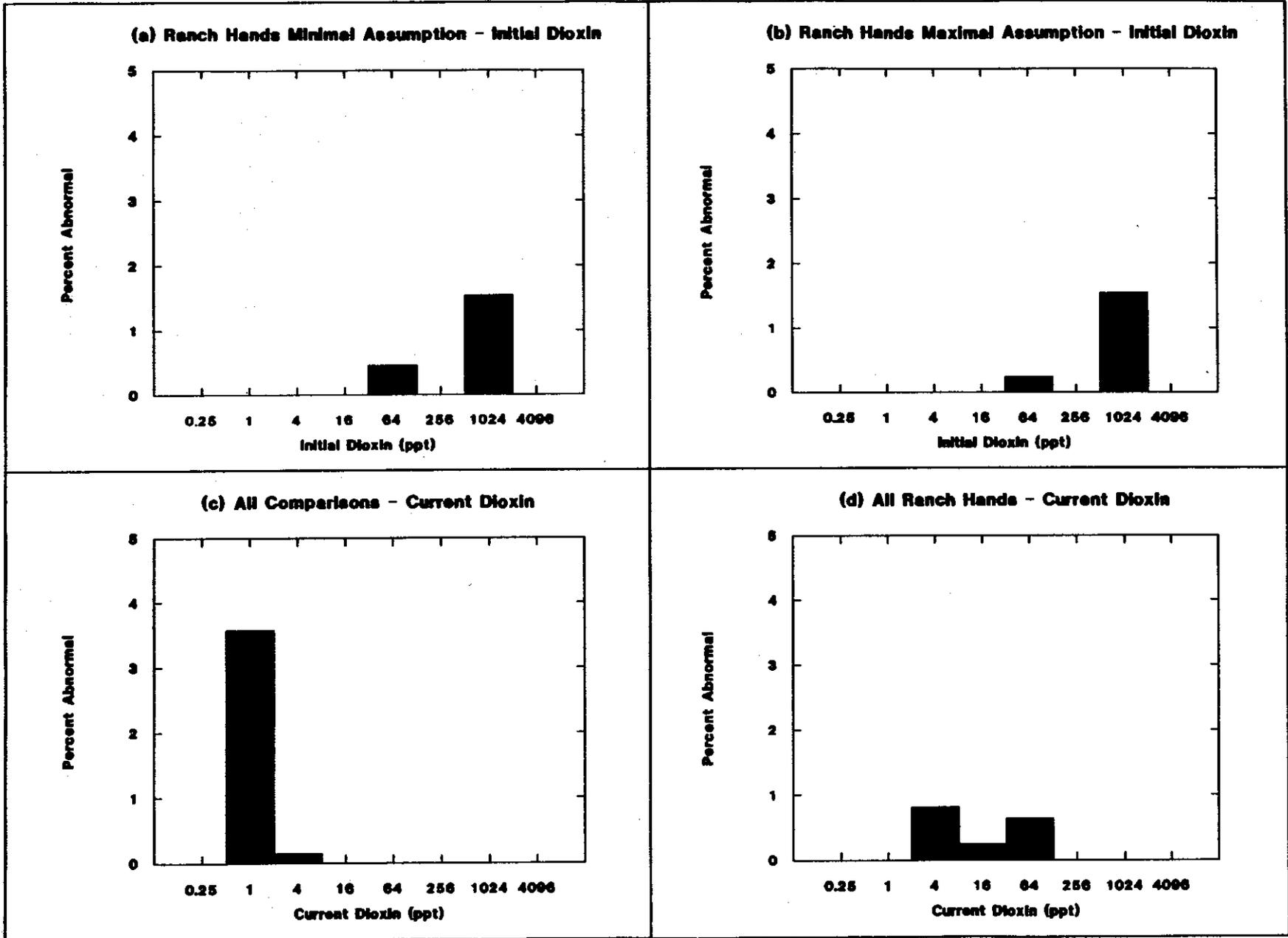


FIGURE G-1-28. Babinski Reflex versus Dioxin

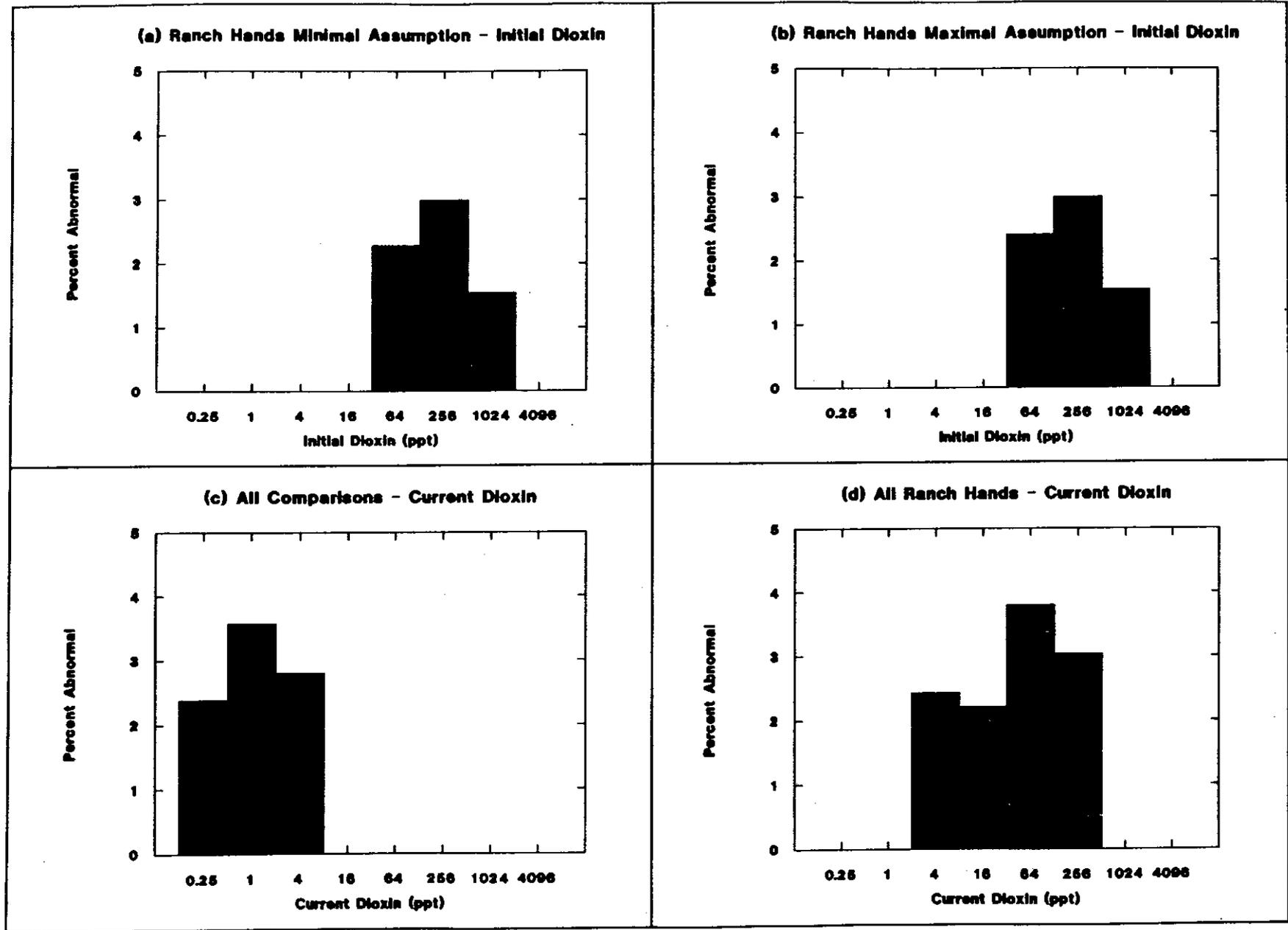


FIGURE G-1-29. Tremor versus Dioxin

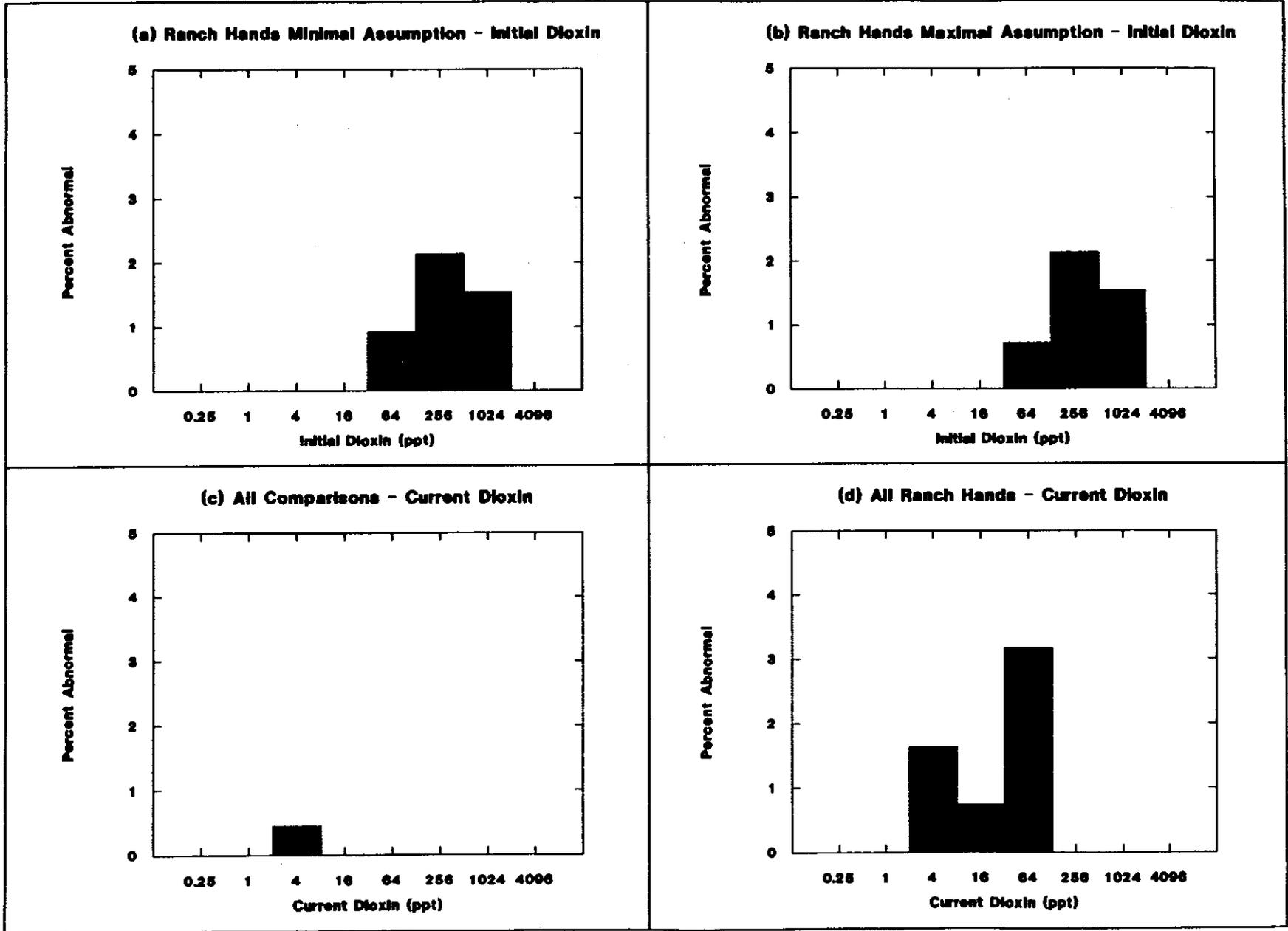


FIGURE G-1-30. Coordination versus Dioxin

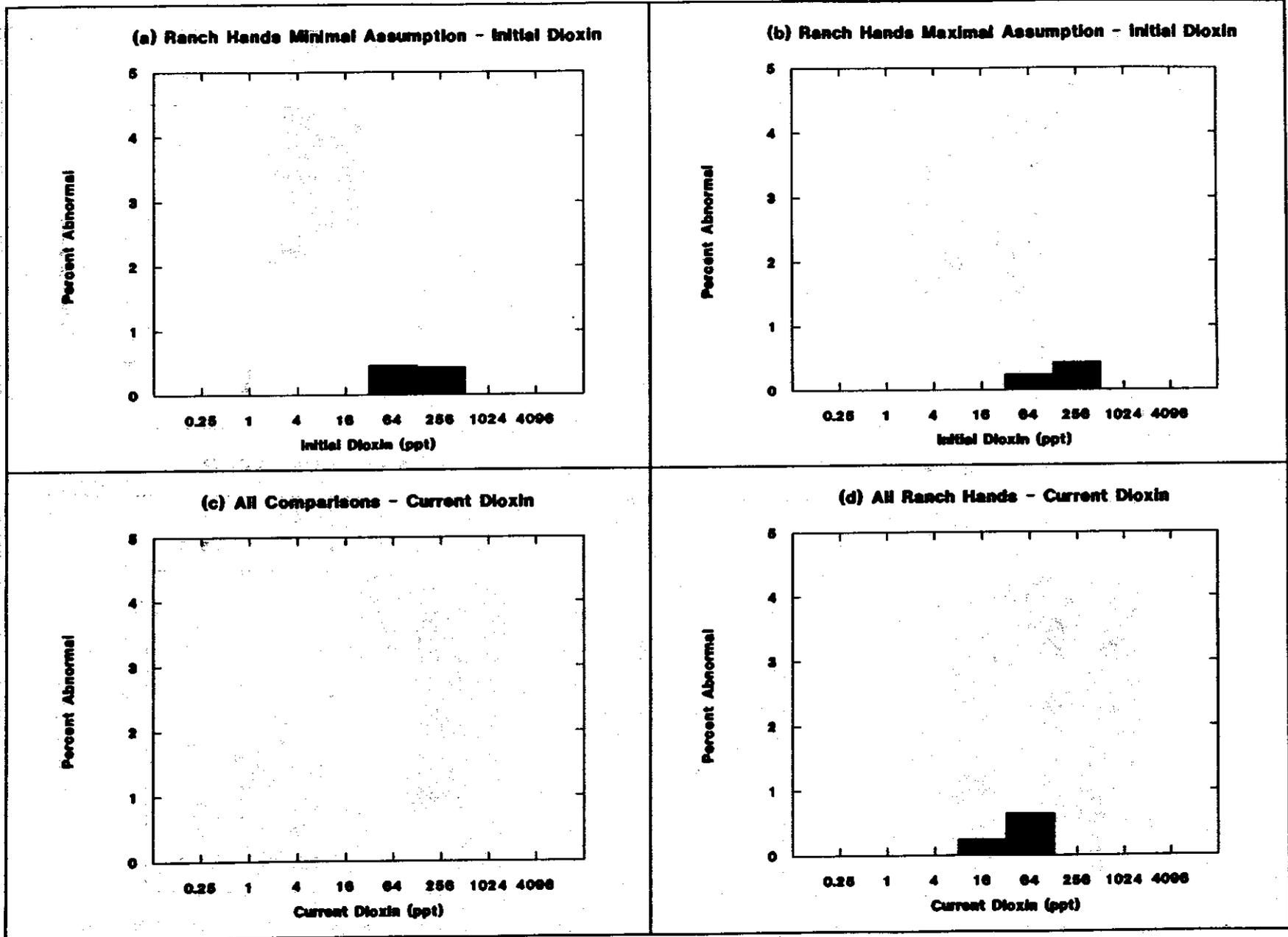


FIGURE G-1-31. Romberg Sign versus Dioxin

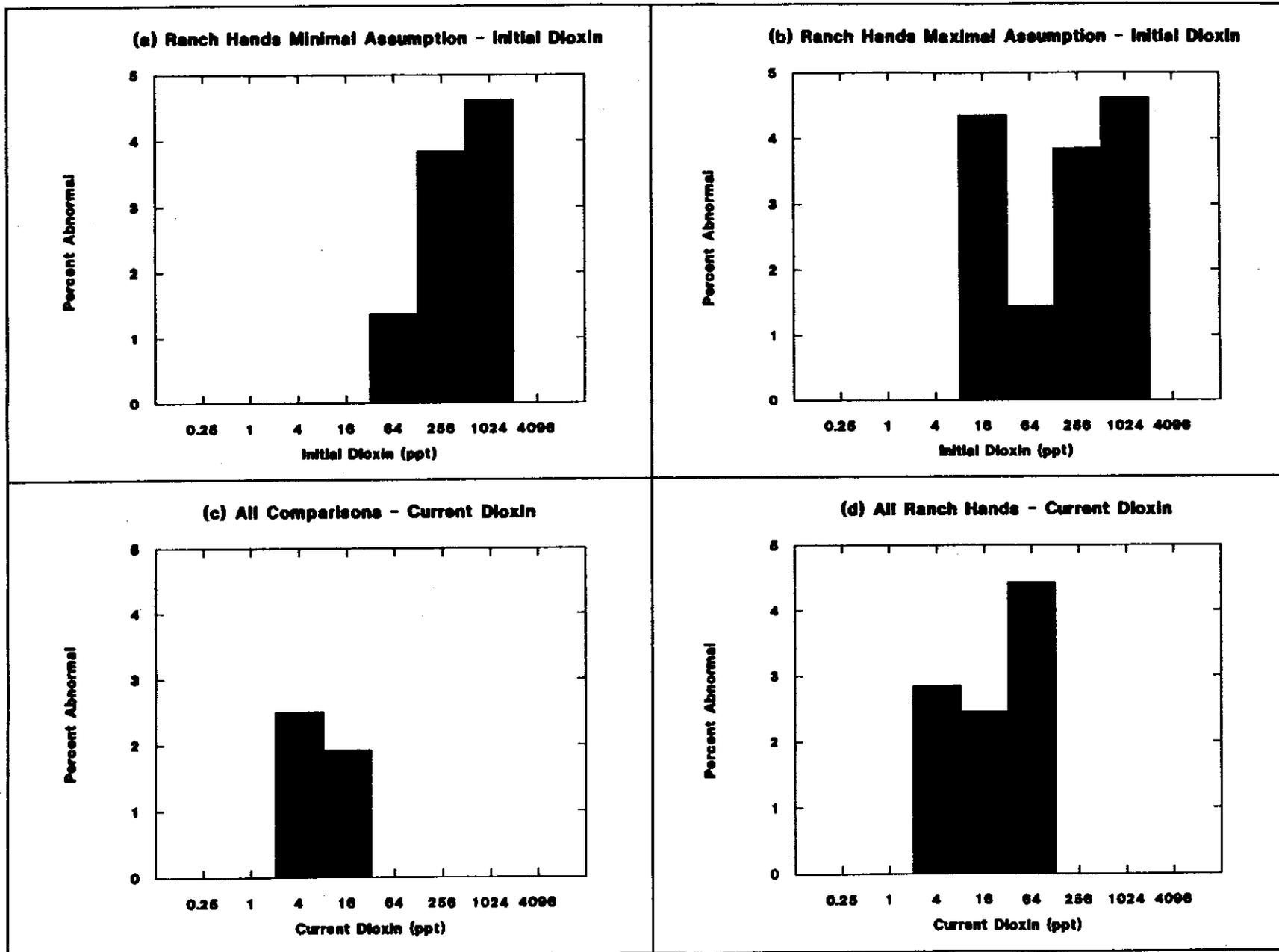


FIGURE G-1-32. Gait versus Dioxin

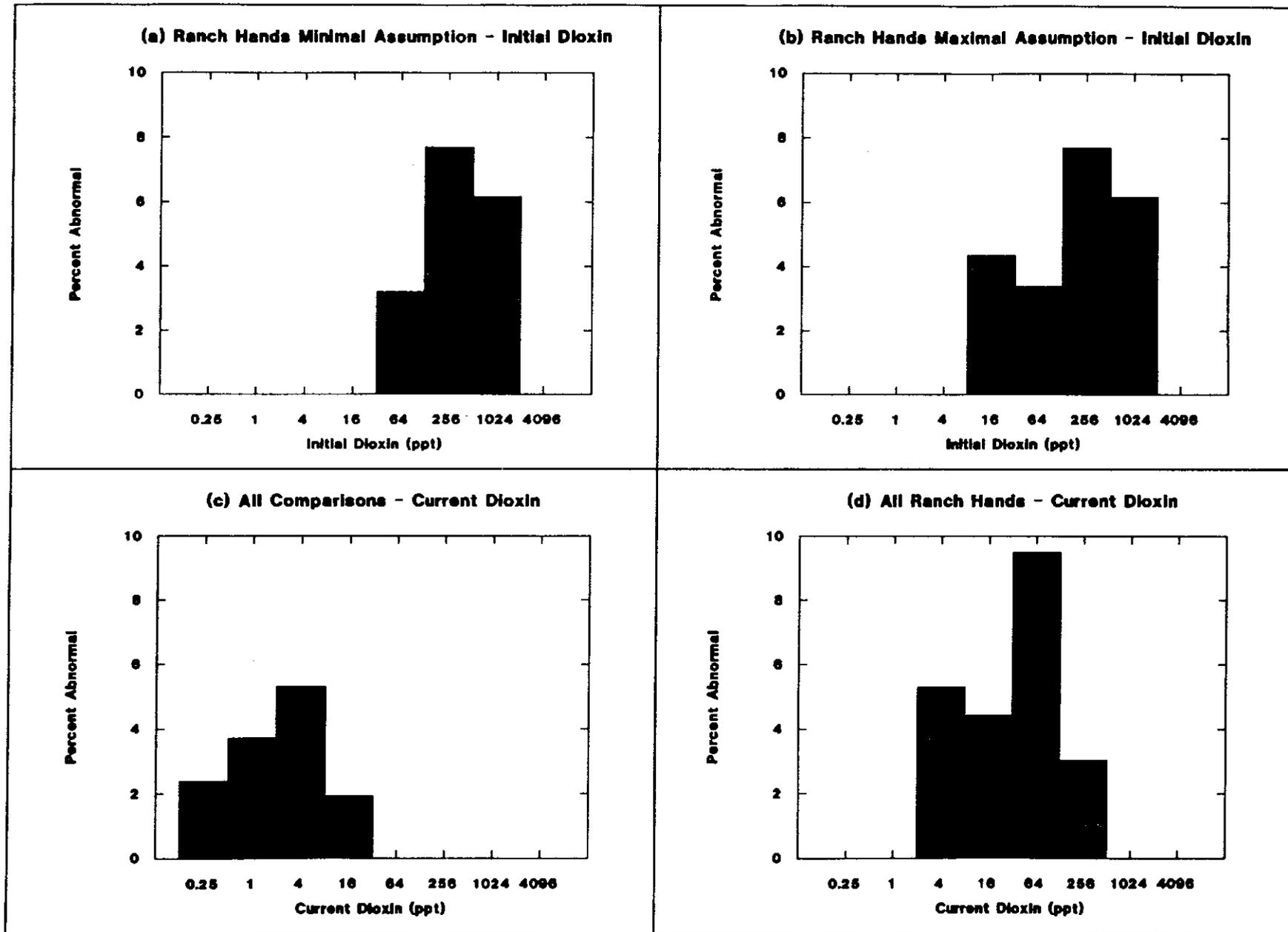


FIGURE G-1-33. CNS Index versus Dioxin

APPENDIX G-2.

Interaction Displays for the Neurological Assessment

The following figures graphically display dioxin-by-covariate interactions found in the statistical analyses of the dependent variables in the neurological assessment. 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 G, Table G-1), and each stratum is represented by a different design. Appendix Table G-1 also displays the sample sizes for each bar on the graph.

For current dioxin-by-time-by-covariate interactions in the Ranch Hands for 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 Table G-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 discrete dependent variables, bars representing the percentage of participants that exhibited an abnormal condition are displayed for the background category in the Comparisons, and the unknown, low, and high categories in the Ranch Hands. Different designs represent covariate categories. Appendix Table G-1 presents the definition of each of the current dioxin categories and the sample sizes for each bar.

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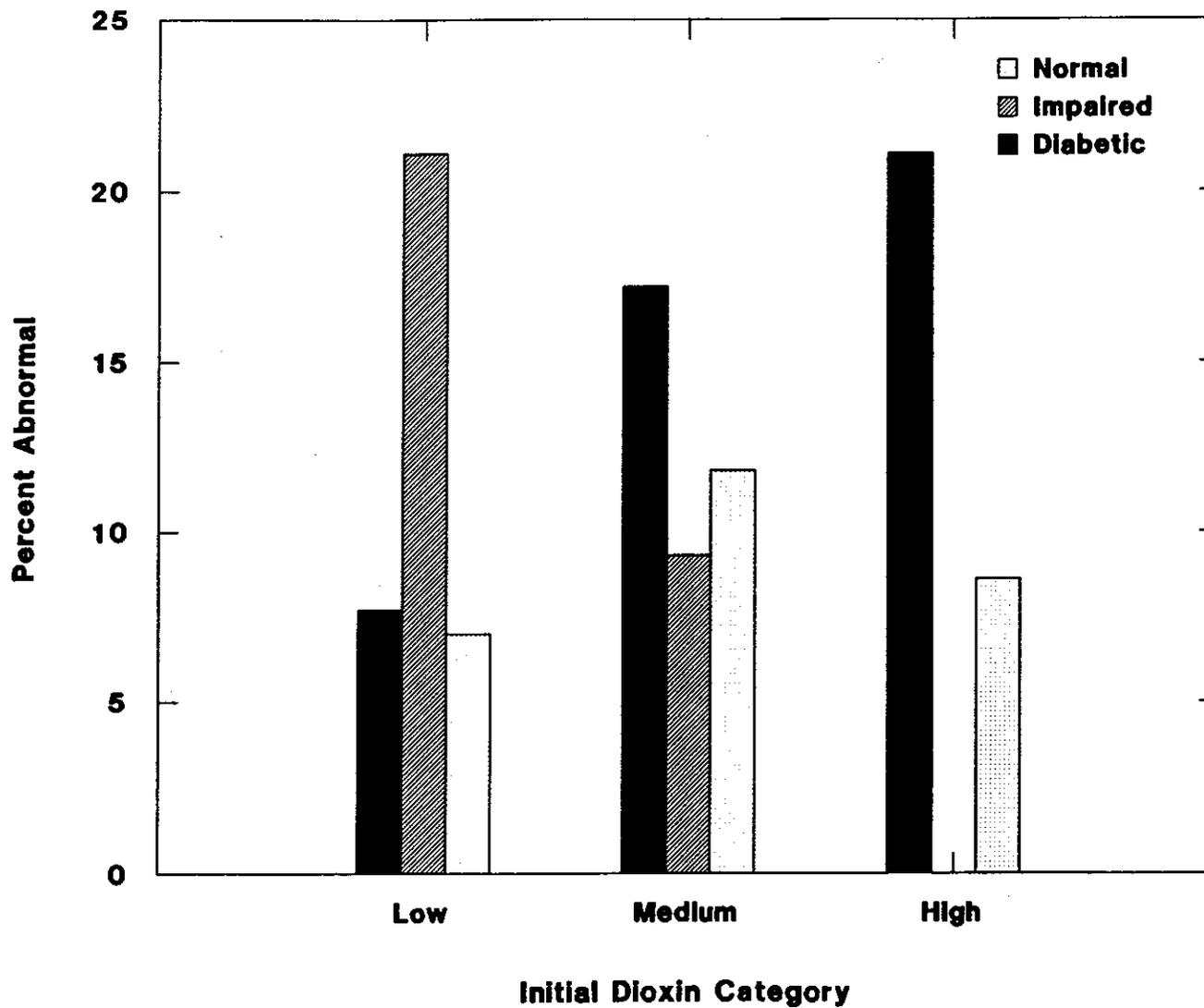


FIGURE G-2-1. Interaction of Initial Dioxin and Diabetic Class for Neck Range of Motion (Non-Black Ranch Hands, Minimal Assumption)

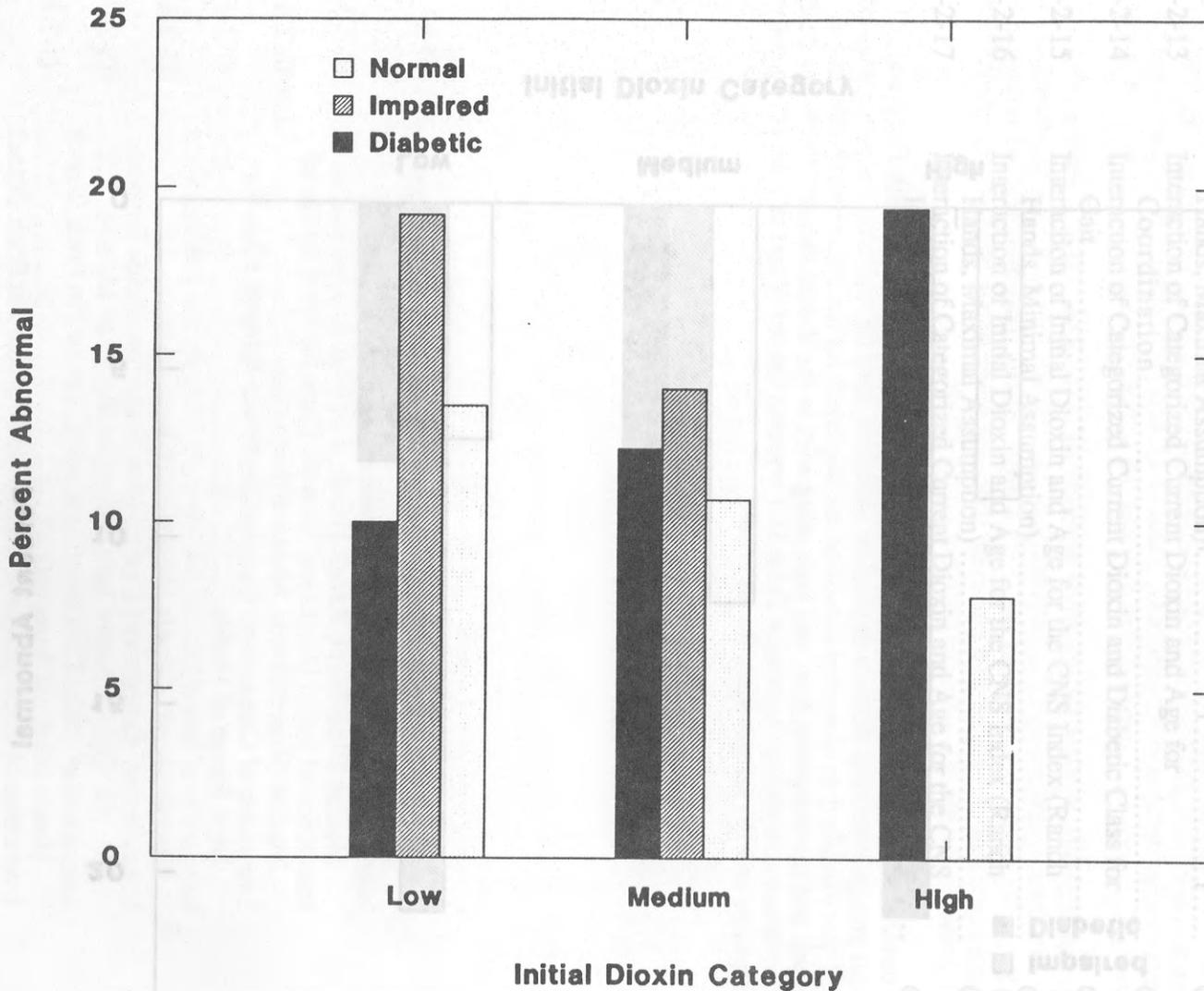


FIGURE G-2-2. Interaction of Initial Dioxin and Diabetic Class for Neck Range of Motion (Ranch Hands, Maximal Assumption)

G-2-5

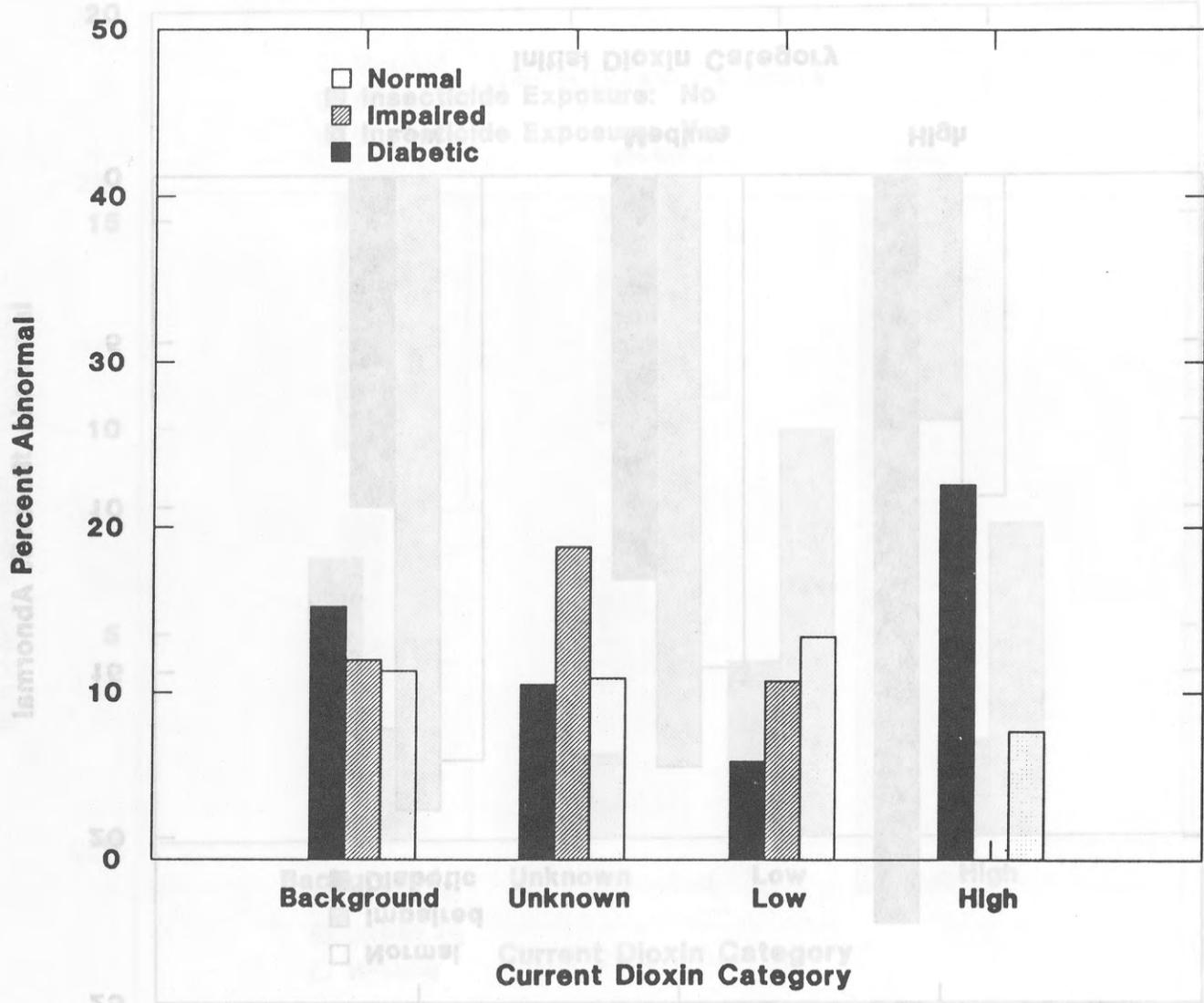


FIGURE G-2-3. Interaction of Categorized Current Dioxin and Diabetic Class for Neck Range of Motion

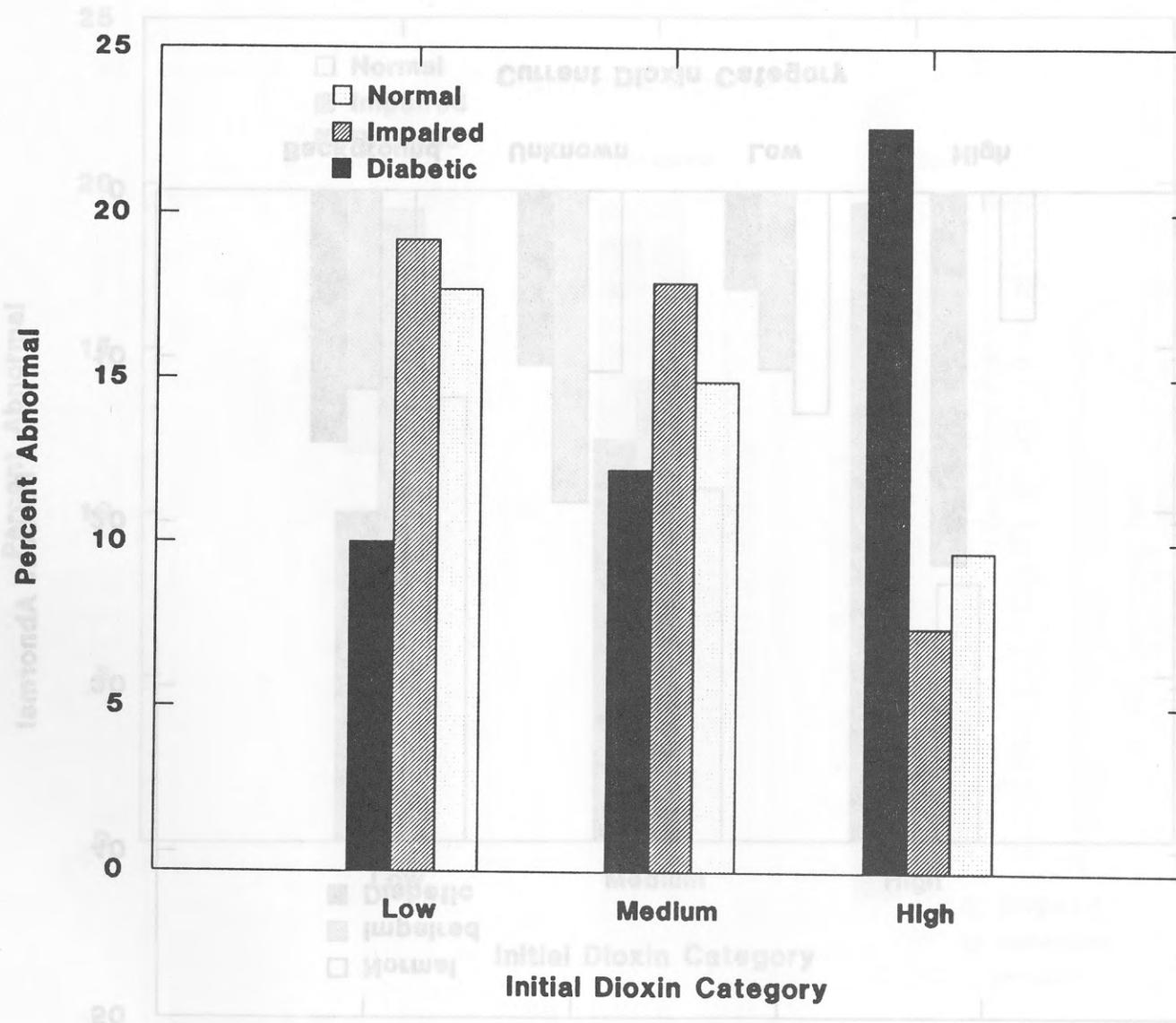


FIGURE G-2-4. Interaction of Initial Dioxin and Diabetic Class for the Cranial Nerve Index (Ranch Hands, Maximal Assumption)

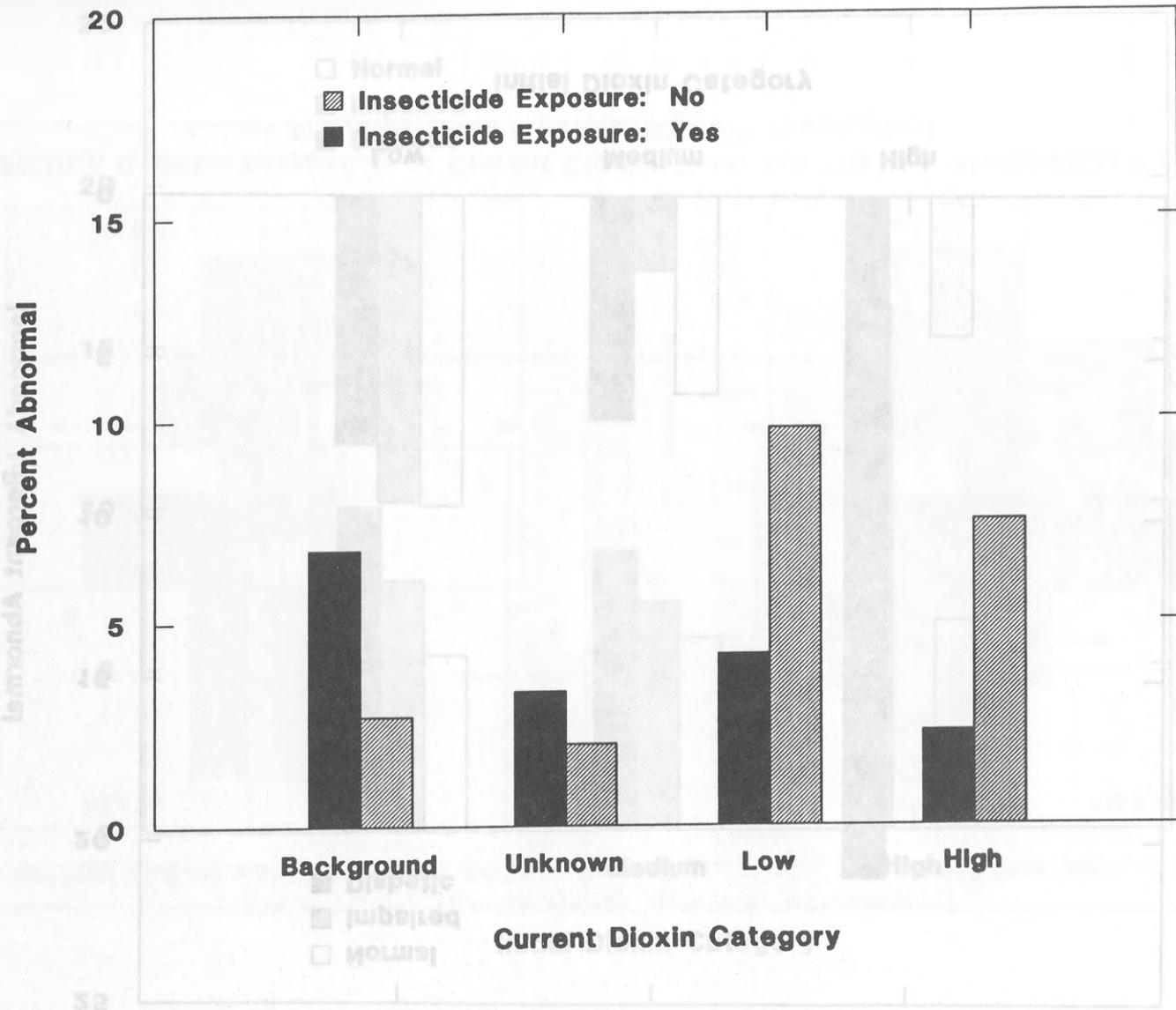


FIGURE G-2-5. Interaction of Categorized Current Dioxin and Insecticide Exposure for the Cranial Nerve Index Without Range of Motion

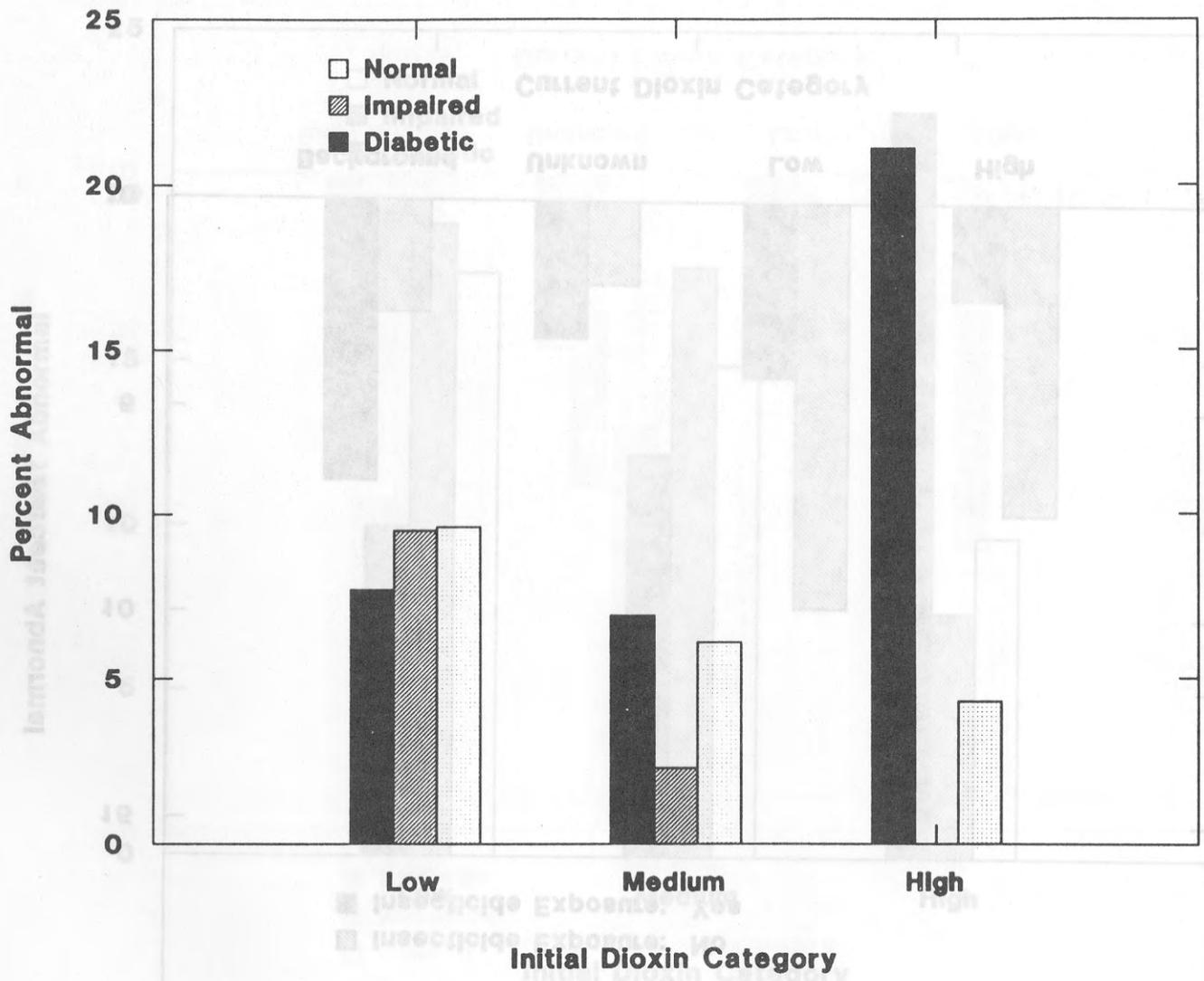


FIGURE G-2-6. Interaction of Initial Dioxin and Diabetic Class for Pin Prick (Ranch Hands, Minimal Assumption)

G-2-9

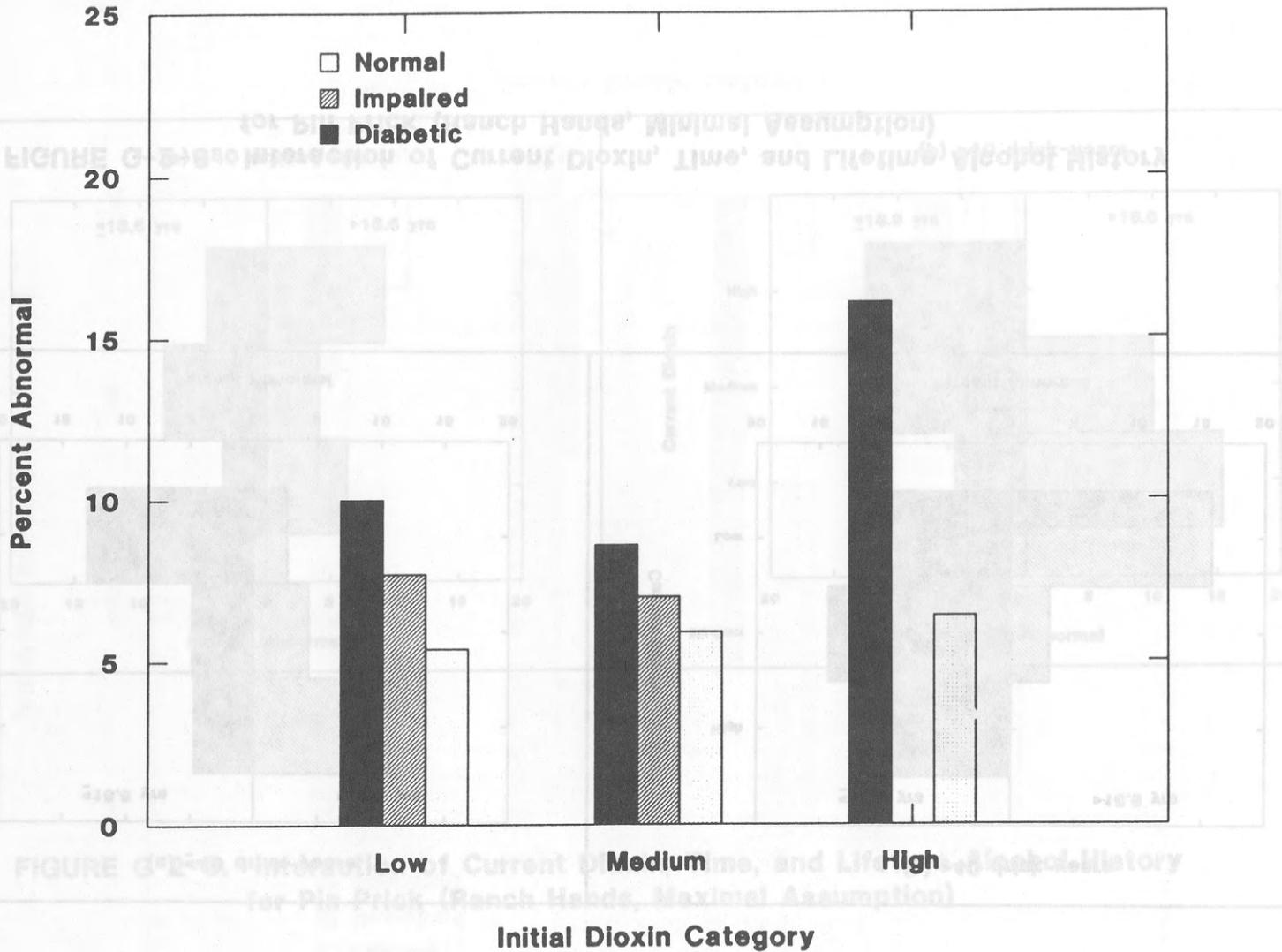


FIGURE G-2-7. Interaction of Initial Dioxin and Diabetic Class for Pin Prick (Ranch Hands, Maximal Assumption)

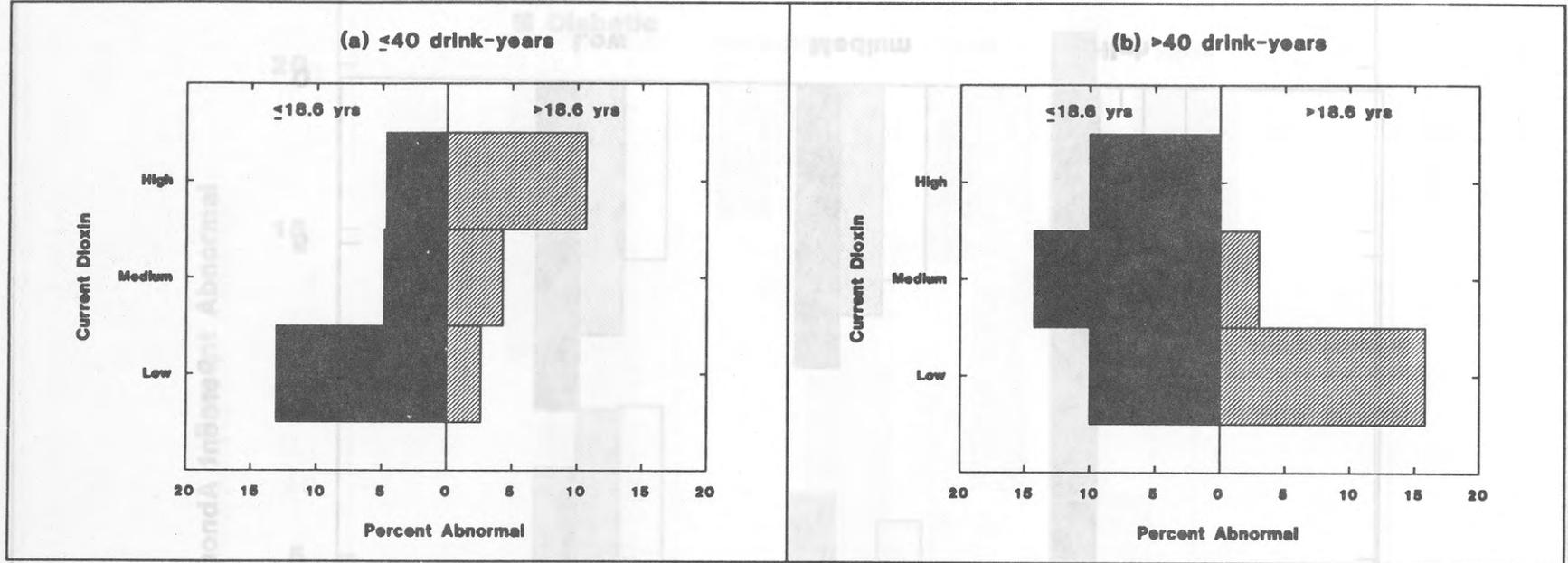


FIGURE G-2-8. Interaction of Current Dioxin, Time, and Lifetime Alcohol History for Pin Prick (Ranch Hands, Minimal Assumption)

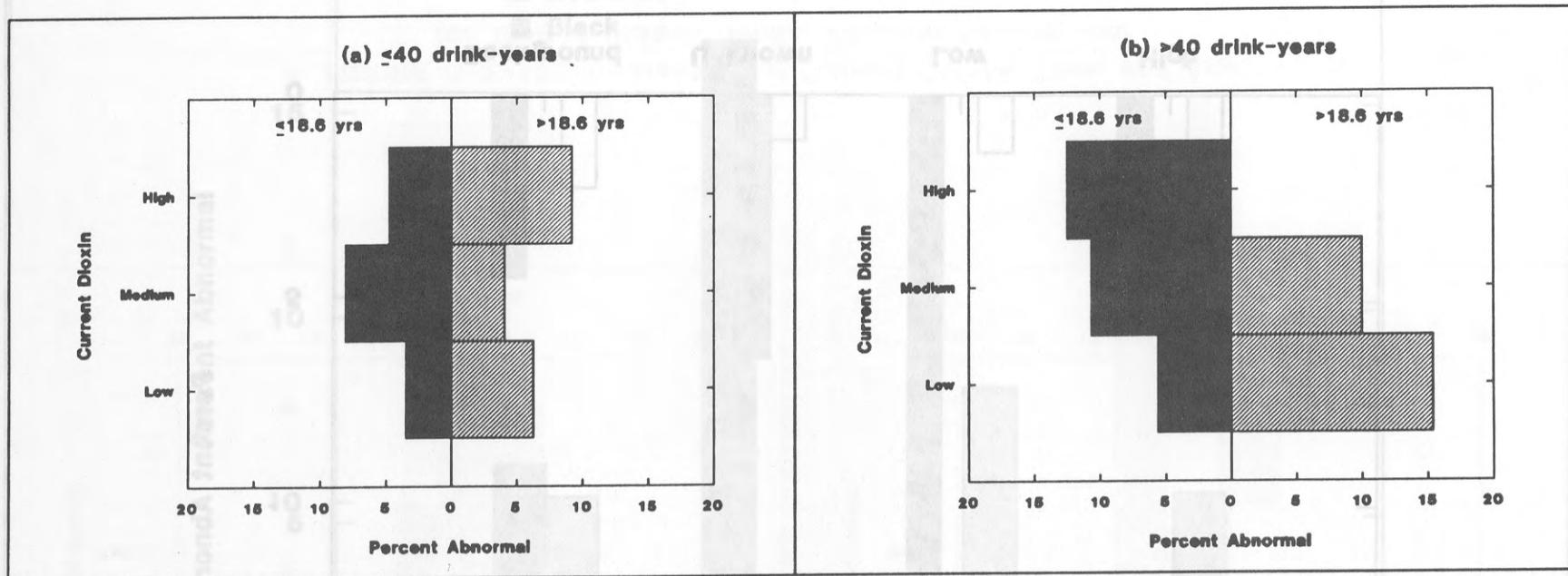


FIGURE G-2-9. Interaction of Current Dioxin, Time, and Lifetime Alcohol History for Pin Prick (Ranch Hands, Maximal Assumption)

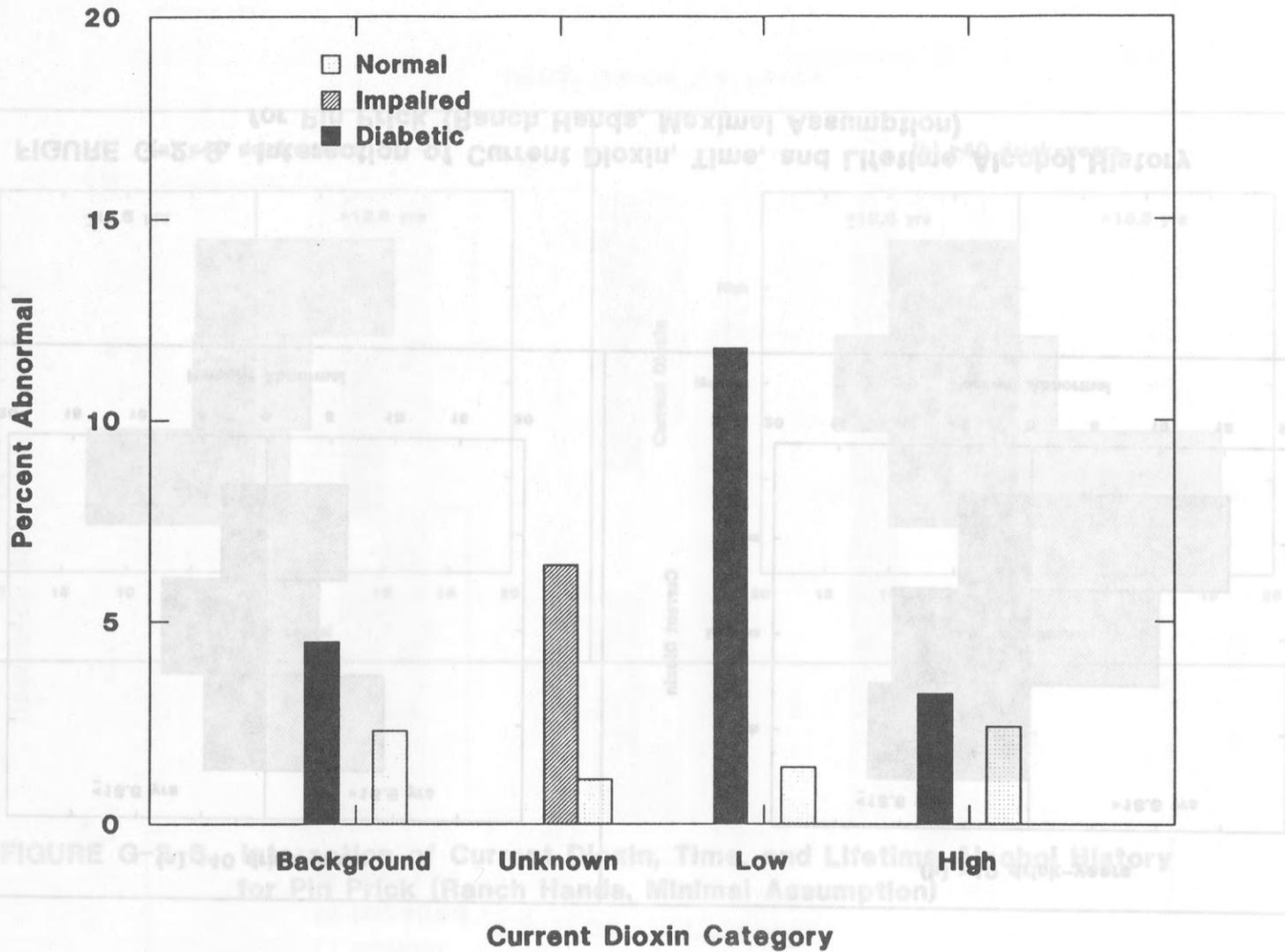


FIGURE G-2-10. Interaction of Categorized Current Dioxin and Diabetic Class for Muscle Status

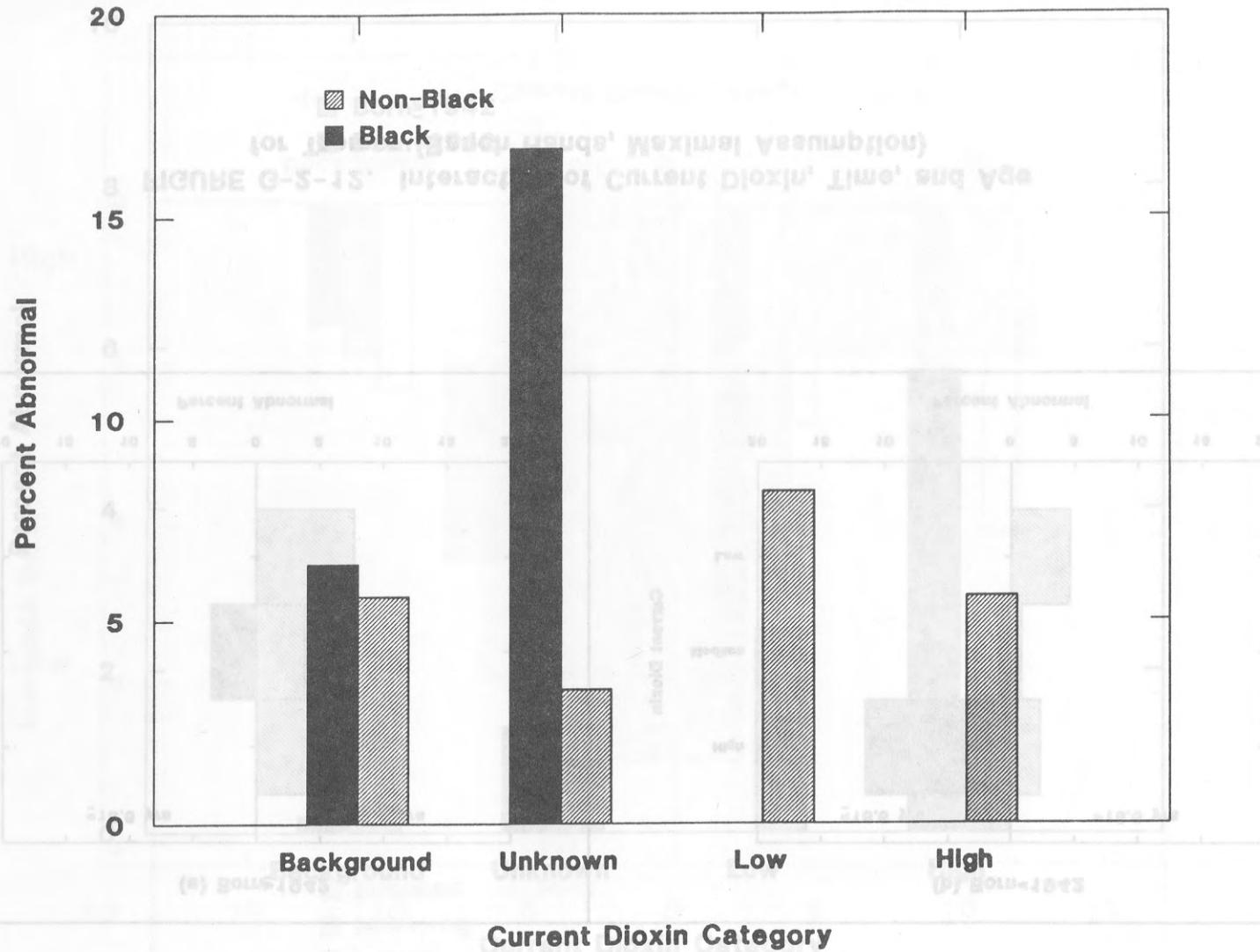


FIGURE G-2-11. Interaction of Categorized Current Dioxin and Race for Achilles Reflex

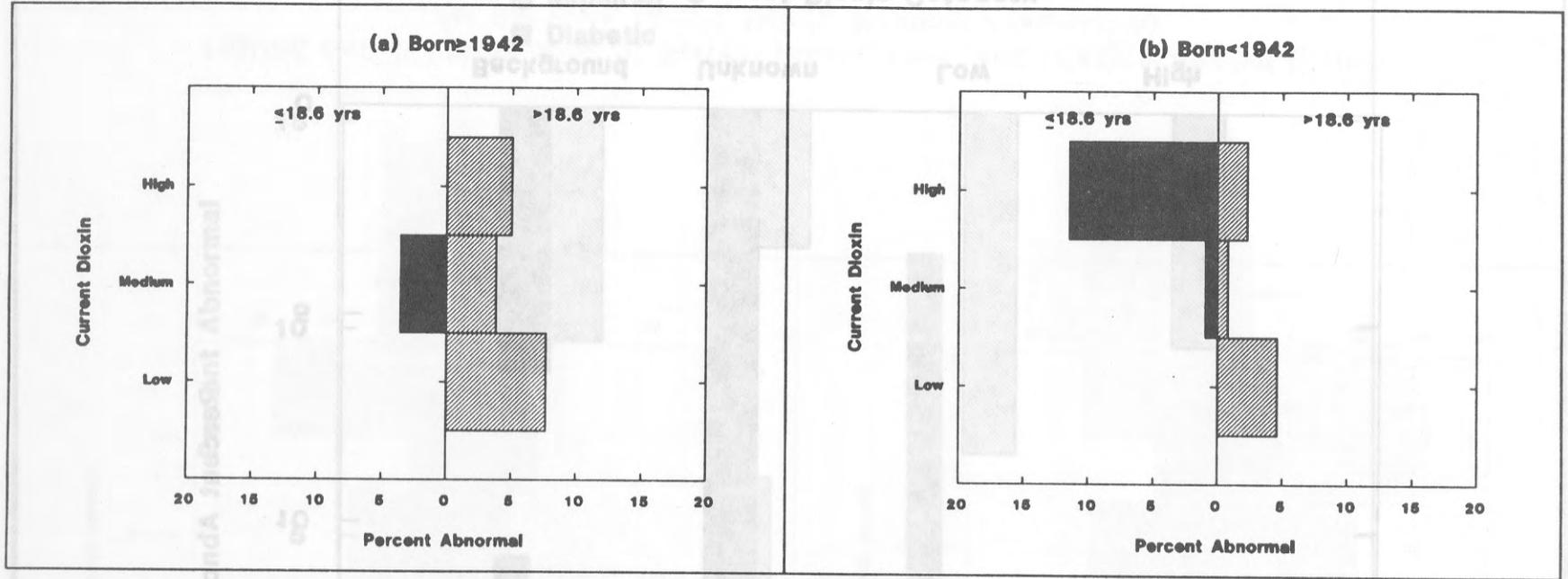


FIGURE G-2-12. Interaction of Current Dioxin, Time, and Age for Tremor (Ranch Hands, Maximal Assumption)

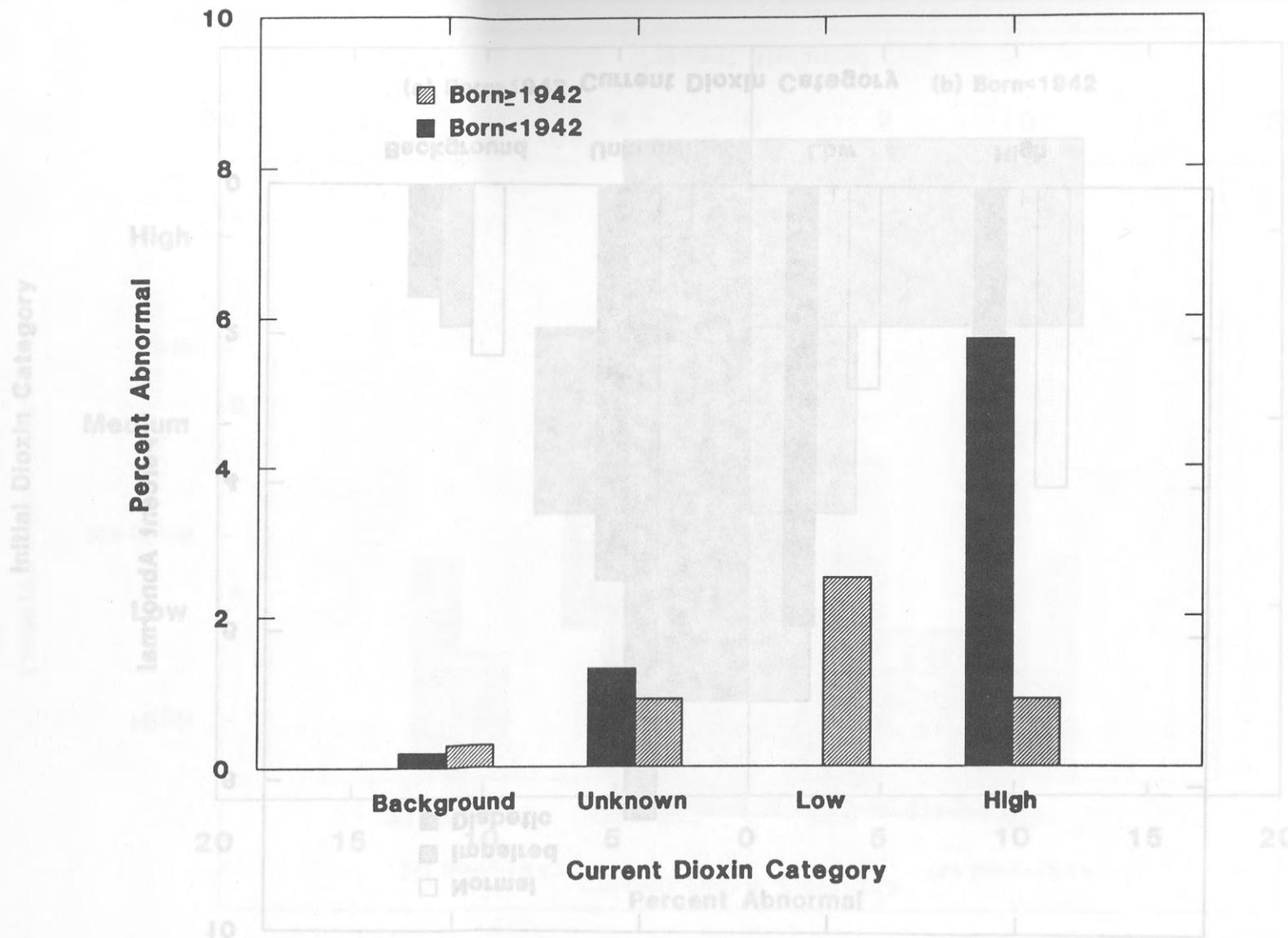


FIGURE G-2-13. Interaction of Categorized Current Dioxin and Age for Coordination

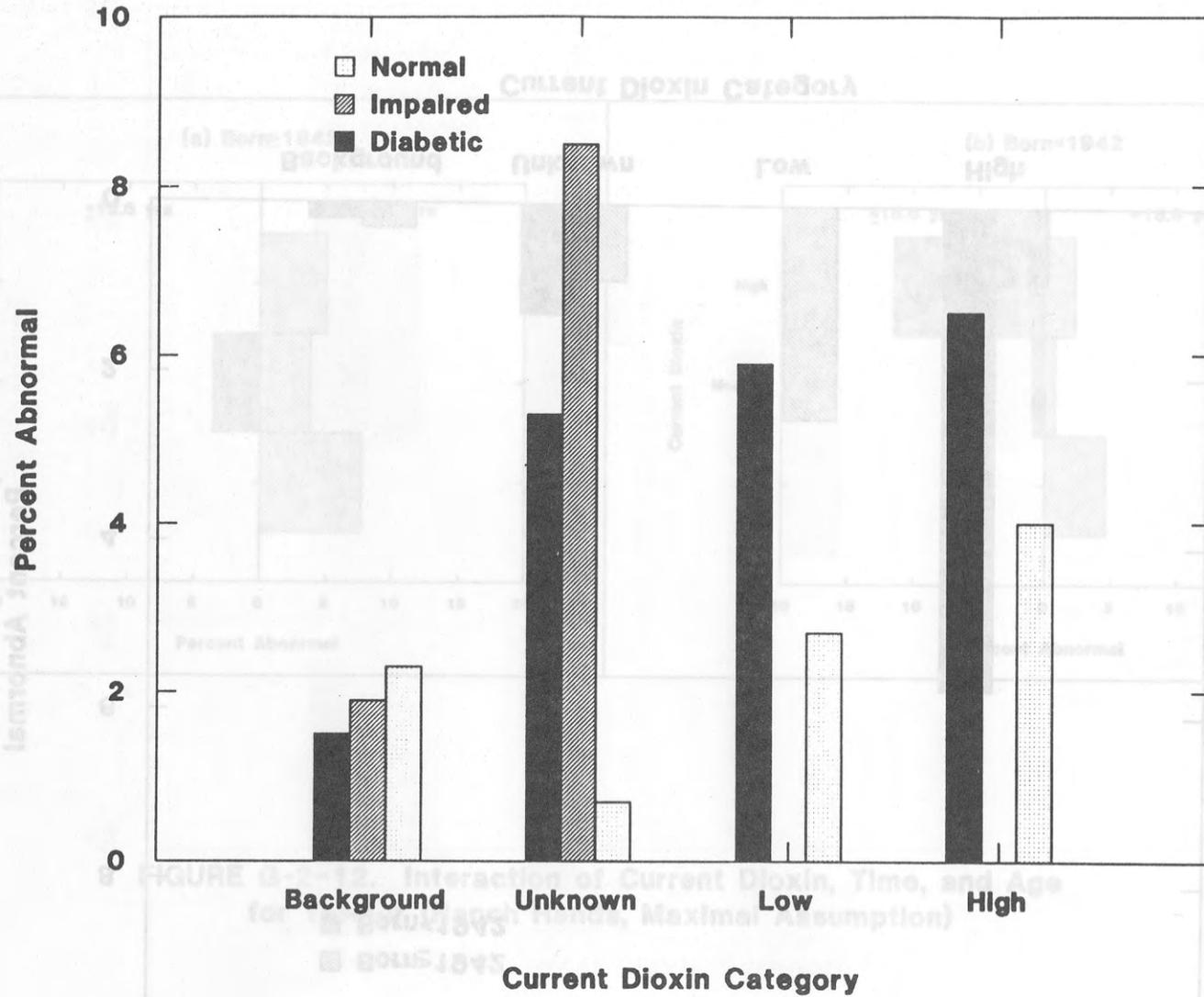


FIGURE G-2-14. Interaction of Categorized Current Dioxin and Diabetic Class for Gait

G-2-17

Initial Dioxin Category

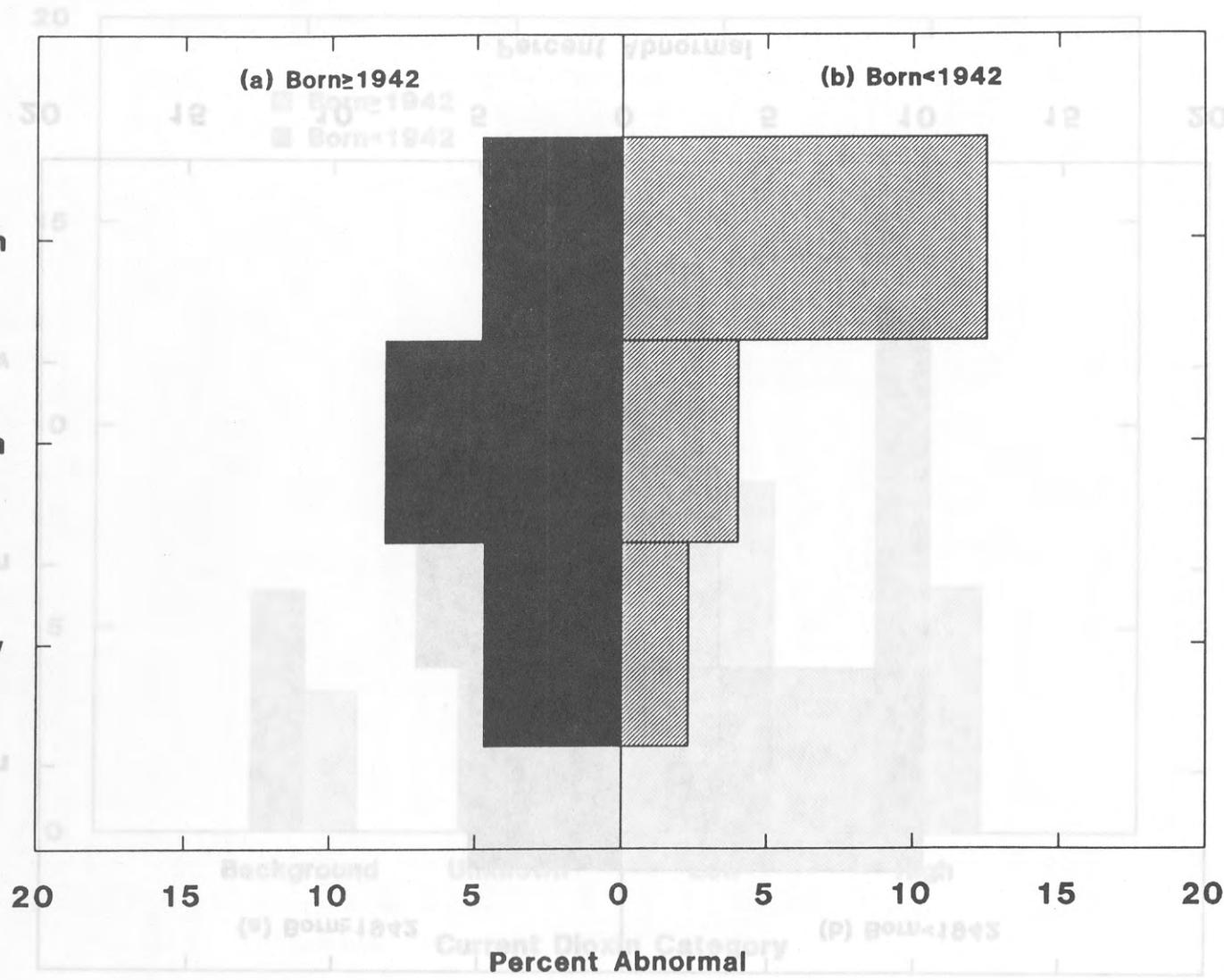
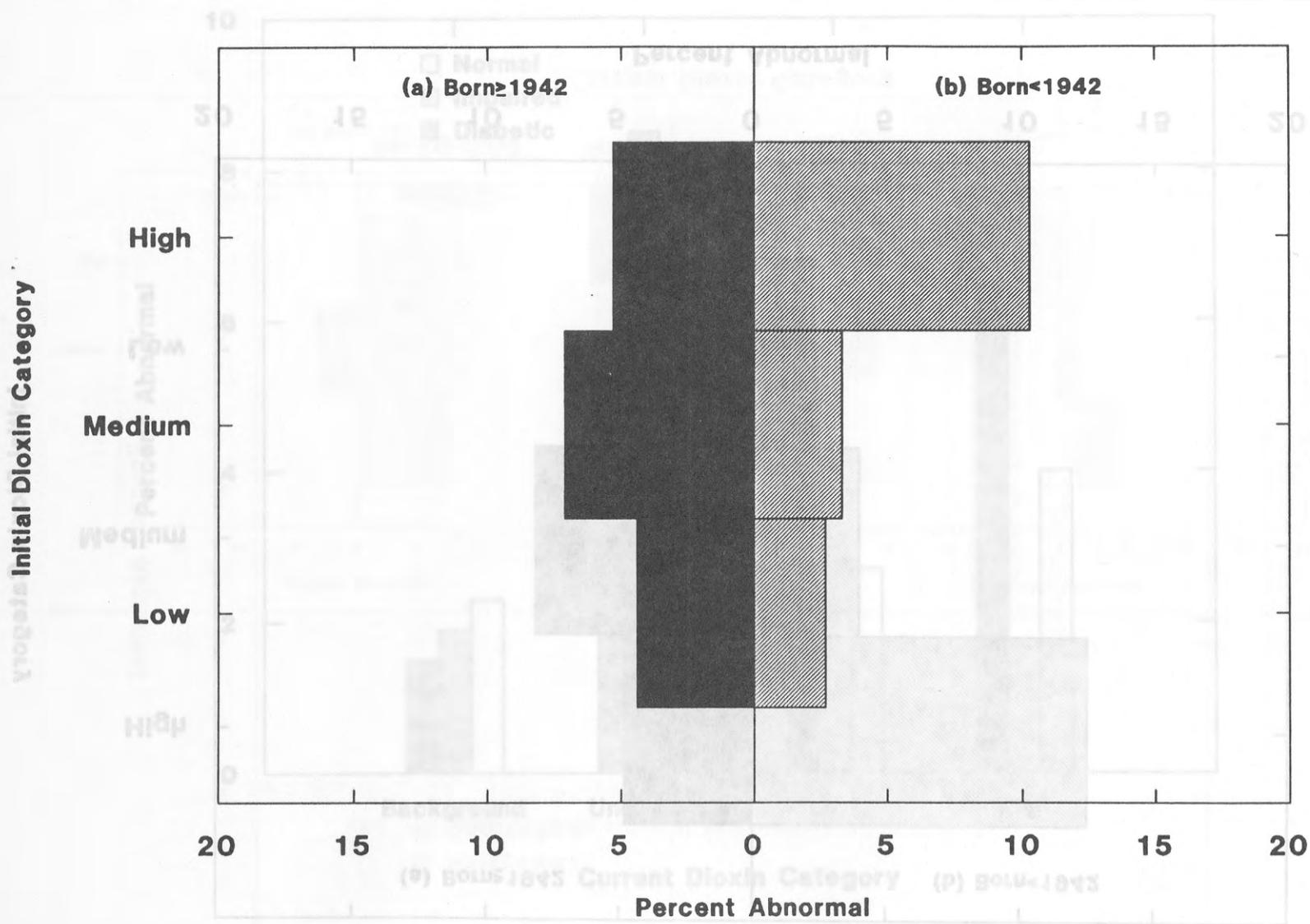


FIGURE G-2-15. Interaction of Initial Dioxin and Age for the CNS Index (Ranch Hands, Minimal Assumption)

FIGURE G-2-12. Interaction of Initial Dioxin and Age for



G-2-18

FIGURE G-2-16. Interaction of Initial Dioxin and Age for and the CNS Index (Ranch Hands, Maximal Assumption)

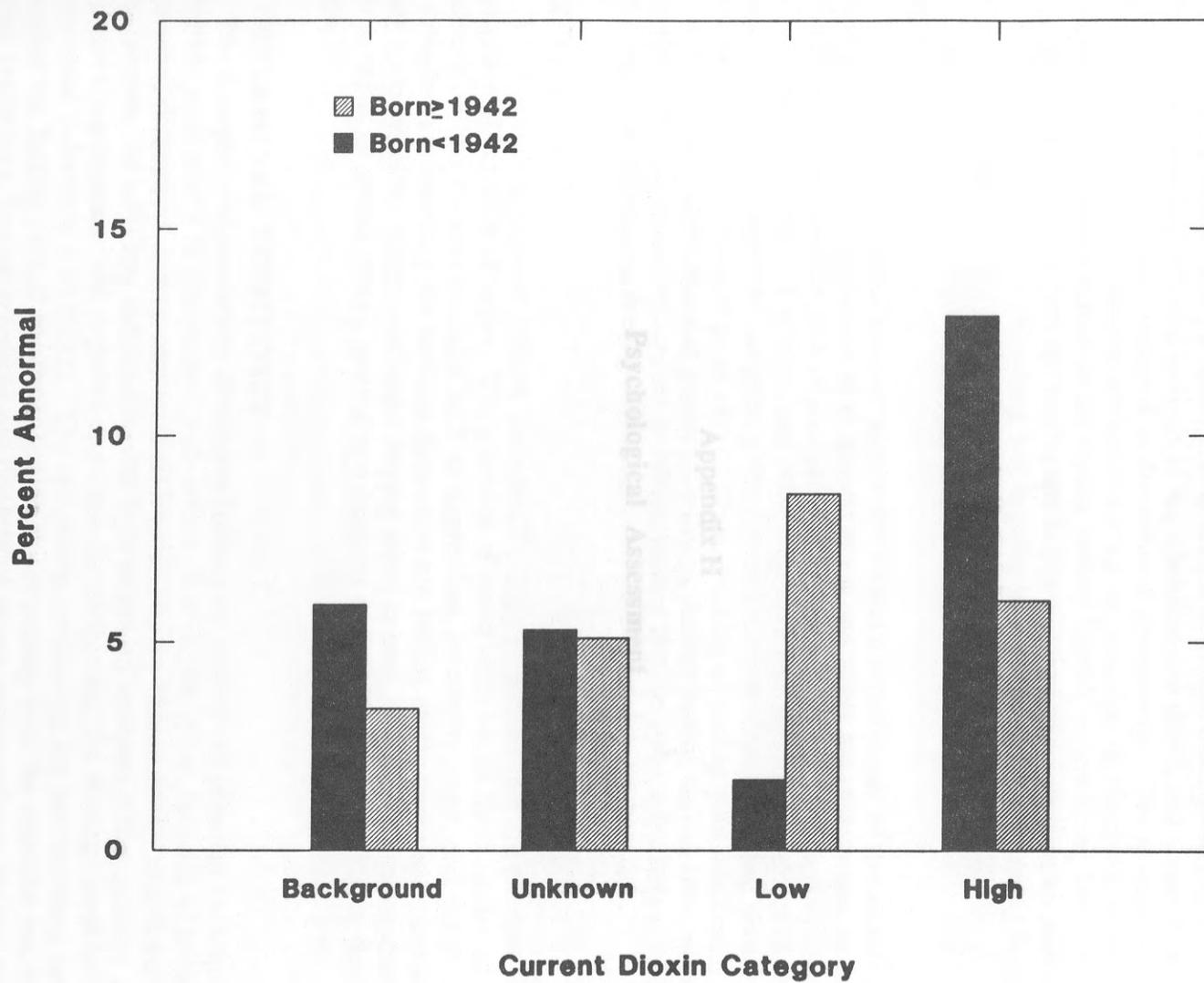


FIGURE G-2-17. Interaction of Categorized Current Dioxin and Age for the CNS Index

Appendix H

Psychological Assessment

DESCRIPTION OF SCL-90-R DIMENSIONS*

ANXIETY

The anxiety dimension is composed of a set of symptoms and signs that are associated clinically with high levels of manifest anxiety. General signs such as nervousness, tension, and trembling are included in the definition, as are panic attacks and feelings of terror. Cognitive components involving feelings of apprehension and dread, and some of the somatic correlates of anxiety are also included as dimensional components. The symptoms comprising the anxiety dimension are experiencing nervousness or shakiness inside, trembling, being suddenly scared for no reason, feeling fearful, experiencing heart pounding or racing, feeling tense and keyed up, keying spells of terror and panic, feeling so restless you couldn't sit still, feeling that something bad is going to happen, and experiencing frightening thoughts and images.

DEPRESSION

The symptoms of the depression dimension reflect a broad range of the manifestations of clinical depression. Symptoms of dysphoric mood and affect are represented, as are signs of withdrawal of life interest, lack of motivation, and loss of vital energy. In addition, feelings of hopelessness, thoughts of suicide, and other cognitive and somatic correlates of depression are included. The symptoms comprising the depression dimension are losing sexual interest or pleasure, feeling low in energy or slowed down, thinking of ending your life, crying easily, feeling trapped or caught, blaming yourself for things, feeling lonely, feeling blue, worrying too much about things, feeling no interest in things, feeling hopeless about the future, feeling everything is an effort, and feeling worthless.

HOSTILITY

The hostility dimension reflects thoughts, feelings, or actions that are characteristic of the negative affect state of anger. The selection of items includes all three modes of manifestation and reflects qualities such as aggression, irritability, rage, and resentment. The symptoms comprising the hostility dimension are feeling easily annoyed or irritated; having uncontrollable temper outbursts; having urges to beat, injure, or harm someone; having urges to break or smash things; getting into frequent arguments; and shouting or throwing things.

INTERPERSONAL SENSITIVITY

The interpersonal sensitivity dimension focuses on feelings of personal inadequacy and inferiority, particularly in comparison with others. Self-depreciation, feelings of uneasiness, and marked discomfort during interpersonal interactions are characteristic manifestations of this syndrome. In addition, individuals with high scores on interpersonal sensitivity report acute self-consciousness and negative expectancies concerning the communications and interpersonal behaviors with others. The symptoms comprising the interpersonal sensitivity dimension are feeling critical of others, feeling shy or uneasy with the opposite sex, having feelings easily hurt, feeling others do not understand or are unsympathetic, feeling that people

* Taken from the SCL-90-R.

are unfriendly or dislike you, feeling inferior to others, feeling uneasy when people are watching or talking about you, feeling very self-conscious with others, and feeling uncomfortable about eating or drinking in public.

OBESSIVE-COMPULSIVE

The obsessive-compulsive dimension reflects symptoms that are highly identified with the standard clinical syndrome of the same name. This measure focuses on thoughts, impulses, and actions that are experienced as unremitting and irresistible by the individual but are of an ego-alien or unwanted nature. Behaviors and experiences of a more general cognitive performance attenuation are also included in this measure. The symptoms comprising the obsessive-compulsive dimension are experiencing repeated unpleasant thoughts that won't leave the mind, having trouble remembering things, worrying about sloppiness or carelessness, feeling blocked in getting things done, having to do things very slowly to ensure correctness, having to check and double-check what is done, having difficulty making decisions, having mind go blank, having trouble concentrating, and having to repeat the same actions (e.g., touching, counting, washing).

PARANOID IDEATION

The present dimension represents paranoid behavior fundamentally as a disordered mode of thinking. The cardinal characteristics of projective thought, hostility, suspiciousness, grandiosity, centrality, fear of loss of autonomy, and delusions are viewed as primary reflections of this disorder; item selection was oriented toward representing this conceptualization. The symptoms comprising the paranoid ideation dimension are feeling others are to blame for most of your troubles, feeling that most people cannot be trusted, feeling that you are watched or talked about by others, having ideas and beliefs that others do not share, not receiving proper credit from others for your achievements, and feeling that people will take advantage of you if you let them.

PHOBIC ANXIETY

Phobic anxiety is defined as a persistent fear response to a specific person, place, object, or situation that is characterized as being irrational and disproportionate to the stimulus, and which leads to avoidance or escape behavior. The items of the present dimension focus on the more pathognomic and disruptive manifestations of phobic behavior. The actual structure of the dimension is in close agreement with the definition of "agoraphobia" (Marks, 1969), also termed "phobic anxiety depersonalization syndrome" by Roth (1959). The symptoms comprising the phobic anxiety dimension are feeling afraid in open spaces or on the street; feeling afraid to go out of the house alone; feeling afraid to travel on buses, subways, or trains; having to avoid certain things, places, or activities because they are frightening; feeling uneasy in crowds, such as shopping or at a movie; feeling nervous when left alone; and feeling afraid of fainting in public.

PSYCHOTICISM

The psychoticism scale was developed in a fashion to represent the construct as a continuous dimension of human experience. Items indicative of a withdrawn, isolated, schizoid lifestyle were included, as were first-rank symptoms of schizophrenia, such as hallucinations and thought-broadcasting. The psychoticism scale provides a graduated continuum from mild interpersonal alienation to dramatic evidence of psychosis. In this

respect, the present definition owes much to the work of Eysenck (1968). The symptoms comprising the psychoticism dimension are having the idea that someone else can control your thoughts, hearing voices that other people do not hear, believing that other people are aware of your private thoughts, having thoughts that are not your own, feeling lonely even when you are with people, having thoughts about sex that bother you a lot, believing that you should be punished for your sins, thinking that something serious is wrong with your body, never feeling close to another person, and thinking that something is wrong with your mind.

SOMATIZATION

The somatization dimension reflects distress arising from perceptions of bodily dysfunction. Complaints focusing on cardiovascular, gastrointestinal, respiratory, and other systems with strong autonomic mediation are included. Headaches, pain, and discomfort of the gross musculature and additional somatic equivalents of anxiety are components of the definition. These symptoms and signs have all been demonstrated to have high prevalence in disorders demonstrated to have a functional etiology, although all may be reflections of true physical disease. The symptoms comprising the somatization dimension are headaches, faintness or dizziness, pains in heart or chest, pains in lower back, nausea or upset stomach, soreness of muscles, trouble getting breath, hot or cold spells, numbness or tingling in parts of body, lump in throat, weakness in parts of body, and heavy feelings in arms or legs.

ADDITIONAL ITEMS

Seven items that are a part of the SCL-90-R which are not subsumed under any of the primary symptom dimensions; these symptoms actually "load" on several of the dimensions but are not univocal to any of them. While in this sense they violate one of the statistical criteria for inclusion in the test, they are a part of the item set because they are clinically important. These items contribute to the global scores on the SCL-90-R and are intended to be used configurally. Thus, a high depression score with "early morning awakening" and "poor appetite" may mean something quite different from a similar score with these symptoms absent. By the same token, the presence of conscious "feelings of guilt" is an important clinical indicator that communicates important information to the clinician. The additional items are not scored collectively as a dimension but are summed into the global scores. The additional items in the SCL-90-R are having a poor appetite, overeating, having trouble falling asleep, awakening in the early morning, experiencing restless or disturbed sleep, thinking of death or dying, and feeling guilty.

The Global Indices of Distress

There are three global indices of distress associated with the SCL-90-R: the GSI, the PSDI, and the PST. The function of each of these global measures is to communicate in a single score the level or depth of the individual's psychopathology. Each measure does this in a somewhat distinct fashion and reflects somewhat different aspects of psychopathology (Derogatis, Yevzeroff, & Wittelsberger, 1975). The GSI represents the best single indicator of the current level or depth of the disorder and should be utilized in most instances where a single summary measure is required. The GSI combines information on numbers of symptoms and intensity of perceived distress. The PSDI is a pure intensity measure, in a sense, "corrected" for numbers of symptoms. It functions very much as a measure of response style in the sense of communicating whether the patient is "augmenting" or "attenuating" symptomatic distress in his style of reporting his disorder. The PST is simply a count of the number of symptoms the patient reports as positive--that is, that he

experiences as having to any degree. When used configurally in conjunction with the GSI, information on style of response and numbers of symptoms endorsed can be very helpful in appreciating the clinical picture.

DESCRIPTION OF MCMI SCALES*

BASIC PERSONALITY PATTERNS

The following descriptions of high-scale scorers focus on everyday ways of functioning that characterize these patients even when they are not suffering acute symptom states. They reflect relatively enduring and pervasive traits that typify patient styles of behaving, perceiving, thinking, feeling, and relating to others. Although patients may currently exhibit more distinctive pathological symptoms, the features noted refer to their premorbid characterological pattern.

Schizoid (Asocial)

1. Affectivity deficit (e.g., exhibits intrinsic emotional blandness; reports weak affectionate needs and an inability to display enthusiasm or experience pleasure).
2. Mild cognitive slippage (e.g., evidences impoverished and obscure thought processes inappropriate to intellectual level; social communication often tangential and irrelevant).
3. Interpersonal indifference (e.g., possesses minimal "human" interests; prefers a peripheral role in social and family relationships).
4. Behavior apathy (e.g., experiences fatigue, low energy, and lack of vitality; displays deficits in activation, motoric expressiveness, and spontaneity).
5. Perceptual insensitivity (e.g., reveals minimal introspection and awareness of self; is impervious to subtleties of everyday social and emotional life).

Avoidant

1. Affective dysphoria (e.g., describes a constant and confusing undercurrent of tension, sadness, and anger; vacillates between desire for affection, fear, and numbness of feeling).
2. Mild cognitive interference (e.g., is bothered and distracted by disruptive inner thoughts; irrelevant and digressive ideation disrupts social communication).
3. Alienated self-image (e.g., describes life as one of social isolation and rejection; devalues self and reports periodic feelings of emptiness and depersonalization).
4. Aversive interpersonal behavior (e.g., tells of social pan-anxiety and distrust; seeks privacy to avoid anticipated social derogation).
5. Perceptual hypersensitivity (e.g., vigilantly scans for potential threats; overinterprets innocuous behavior as a sign of ridicule and humiliation).

* Taken from the MCMI.

Dependent (Submissive)

1. Pacific temperament (e.g., is characteristically docile and noncompetitive; avoids social tension and interpersonal conflicts).
2. Interpersonal submissiveness (e.g., needs a stronger, nurturing figure, and without one feels anxiously helpless; is often conciliatory, placating, and self-sacrificing).
3. Inadequate self-image (e.g., perceives self as weak, fragile, and ineffectual; exhibits lack of confidence by belittling own aptitudes and competencies).
4. Pollyanna cognitive style (e.g., reveals a naive or benign attitude toward interpersonal difficulties; smooths over troubling events).
5. Initiative deficit (e.g., prefers a subdued, uneventful, and passive lifestyle; avoids self-assertion and refuses autonomous responsibilities).

Histrionic (Gregarious)

1. Fickle affectivity (e.g., displays short-lived, dramatic, and superficial affects; reports tendency to be easily excited and is easily bored).
2. Sociable self-image (e.g., perceives self as gregarious, stimulating, and charming; attracts fleeting acquaintances and enjoys rapidly paced social life).
3. Interpersonal seductiveness (e.g., actively solicits praise and manipulates others to gain attention and approval; exhibits self-dramatizing and childish exhibitionistic behaviors).
4. Cognitive dissociation (e.g., integrates experiences poorly, which results in scattered learning and unexamined thought; reveals undependable, erratic, and flighty judgment).
5. Immature stimulus-seeking behavior (e.g., is intolerant of inactivity, leading to unreflected and impulsive responsiveness; describes penchant for momentary excitements, fleeting adventures, and short-sighted hedonism).

Narcissistic

1. Inflated self-image (e.g., displays pretentious self-assurance and exaggerates achievements; is seen by others as egotistic, haughty, and arrogant).
2. Interpersonal exploitiveness (e.g., takes others for granted and uses them to enhance self and indulge desires; expects special favors without assuming reciprocal responsibilities).
3. Cognitive expansiveness (e.g., exhibits immature fantasies and an undisciplined imagination; is minimally constrained by objective reality, takes liberties with facts, and often lies to redeem self-illusions).
4. Insouciant temperament (e.g., manifests a general air of nonchalance and imperturbability; appears coolly unimpressible or buoyantly optimistic except when narcissistic confidence is shaken).

5. Deficient social conscience (e.g., flouts conventional rules of shared social living, viewing them as naive or inapplicable to self; reveals a careless disregard for personal integrity and an indifference to the rights of others).

Antisocial (Aggressive)

1. Hostile affectivity (e.g., has a pugnacious and irascible temper that flares readily into argument and attack; exhibits frequent verbally abusive and physically cruel behaviors).
2. Assertive self-image (e.g., proudly characterizes self as independent, vigorously energetic, and hardheaded; values tough, competitive, and power-oriented life style).
3. Interpersonal vindictiveness (e.g., reveals satisfaction in derogating and humiliating others; is contemptuous of sentimentality, social compassion, and humanistic values).
4. Hyperthymic fearlessness (e.g., exhibits high activation level in impulsive, accelerated, and forceful responding; is attracted to and undaunted by danger and punishment).
5. Malevolent projection (e.g., claims that most persons are devious, controlling, and punitive; justifies own mistrustful, hostile, and vengeful attitudes by ascribing them to others).

Compulsive (Conforming)

1. Restrained affectivity (e.g., is unrelaxed, tense, joyless, and grim; keeps emotional expression under tight control).
2. Conscientious self-image (e.g., sees self as industrious, dependable, and efficient; values self-discipline, prudence, and loyalty).
3. Interpersonal respectfulness (e.g., exhibits unusual adherence to social conventions and proprieties; prefers polite, formal, and correct personal relationships).
4. Cognitive construction (e.g., constructs world in terms of rules, regulations, and hierarchies; is unimaginative, indecisive, and upset by unfamiliar or novel ideas and customs).
5. Behavior rigidity (e.g., keeps a well-structured, highly regulated, and repetitive life pattern; prefers organized, methodical, and meticulous work).

Passive-Aggressive (Negativistic)

1. Labile affectivity (e.g., is frequently irritable and displays erratic moodiness; reports being easily frustrated and explosive).
2. Behavioral contrariness (e.g., frequently exhibits passively aggressive, petulant, and fault-finding behaviors; reveals gratification in demoralizing and undermining the pleasures of others).

3. Discontented self-image (e.g., reports feeling misunderstood, unappreciated, and demeaned by others; is characteristically pessimistic, disgruntled, and disillusioned with life).
4. Deficient regulatory controls (e.g., expresses fleeting thoughts and impulsive emotions in unmodulated form; external stimuli evoke capricious and vacillating reactions).
5. Interpersonal ambivalence (e.g., assumes conflicting and changing roles in social relationships, particularly dependent acquiescence and assertive independence; uses unpredictable and sulking behavior to provoke edgy discomfort in others).

PATHOLOGICAL PERSONALITY DISORDERS

The following three scales describe patients who clearly evidence a chronic or periodically severe pathology in the overall structure of personality. There is a checkered history of disruptions, predicaments, and disappointments in personal relationships and in school and work performance. These patients achieve modest levels of social competence because of an apparent inability to learn from previous difficulties; a tendency to precipitate self-defeating vicious circles, digressions, and setbacks; and a failure to achieve a niche in life that is consonant with natural aptitudes and potentials. Although frequently able to function on an ambulatory basis, they may have had transient but repetitive psychotic episodes involving extreme or bizarre behaviors.

Schizotypal (Schizoid)

1. Social detachment (e.g., prefers life of isolation with minimal personal attachments and obligations; over time, has drifted into increasingly peripheral social and vocational roles).
2. Behavioral eccentricity (e.g., exhibits peculiar habits frequently; is perceived by others as unobtrusively strange or different).
3. Nondelusional autistic thinking (e.g., mixes social communication with personal irrelevancies, obscurities, and tangential asides; appears self-absorbed and lost in daydreams with occasional blurring of fantasy and reality).
4. Either (a) anxious wariness (e.g., reports being hypersensitive and apprehensively ill-at-ease, particularly in social encounters; is guarded, suspicious of others, and secretive in behavior); or (b) emotional flatness (e.g., manifests a drab, sluggish, joyless, and spiritless appearance; reveals marked deficiencies in activation and affect).
5. Disquieting estrangement (e.g., reports periods of depersonalization, derealization, and dissociation; experiences anxious feelings of emptiness and meaninglessness).

Borderline (Cycloid)

1. Intense endogenous moods (e.g., continually fails to accord mood with external events; is either depressed or excited or has recurring periods of dejection and apathy interspersed with spells of anger, anxiety, or euphoria).

2. Dysregulated activation (e.g., experiences desultory energy level and irregular sleep-wake cycle, describes time periods that suggest that affective-activation equilibrium is constantly in jeopardy).
3. Self-condemnatory conscience (e.g., reveals recurring self-mutilating and suicidal thoughts; periodically redeems moody behavior through contrition and self-derogation).
4. Dependency anxiety (e.g., is preoccupied with securing affection and maintaining emotional support; reacts intensely to separation and reports haunting fear of isolation and loss).
5. Cognitive-affective ambivalence (e.g., repeatedly struggles to express attitudes contrary to inner feelings; simultaneously experiences conflicting emotions and thoughts toward others, notably love, rage, and guilt).

Paranoid

1. Vigilant mistrust (e.g., exhibits edgy defensiveness against anticipated criticism and deception; conveys extreme suspicion, envy, and jealousy of others).
2. Provocative interpersonal behavior (e.g., displays a disputatious, fractious, and abrasive irritability; precipitates exasperation and anger by hostile, deprecatory demeanor).
3. Tenacious autonomy (e.g., expresses fear of losing independence and power of self-determination; is grimly resistant to sources of external influence and control).
4. Minidelusional cognitions (e.g., distorts events into personally logical but essentially irrational beliefs; embellishes trivial achievements to accord with semigrandiose self-image).
5. Persecutory self-references (e.g., construes incidental events as critical of self; reveals tendency to magnify minor and personally unrelated tensions into proofs of purposeful deception and malice).

CLINICAL SYMPTOM SYNDROMES

Most, but not all, of the symptom disorders described in this section are of the reactive kind that are of substantially briefer duration than the personality disorders. They usually represent states in which an active pathological process is clearly manifested. Many of these symptoms are precipitated by external events. Most typically, they appear in somewhat striking or dramatic form, often accentuating or intensifying the more prosaic features of the premorbid or basic personality style; that is, in their active form, these symptoms tend to stand out in sharp relief within the context of the more enduring and characteristic mode of functioning. During periods of active pathology, it is not uncommon for several symptoms to covary at any one time and to change over time in their degrees of prominence. The first six scales represent disorders of moderate severity; the last three scales reflect disorders of marked severity.

Anxiety

The high-scoring patient often reports feeling either vaguely apprehensive or specifically phobic; is typically tense, indecisive, restless; and tends to complain about a variety of physical discomforts, such as tightness, excessive perspiration, ill-defined muscular aches, and nausea.

Somatoform

The high-scoring patient expresses psychological difficulties through somatic channels, reports persistent periods of fatigue and weakness, and may be preoccupied with ill health and a variety of dramatic, but largely nonspecific pains in different and unrelated regions of the body.

Hypomanic

The high-scoring patient evidences periods of superficial, elevated but unstable moods; restless overactivity and distractibility; pressured speech; and impulsiveness and irritability.

Dysthymic

The high-scoring patient remains involved in everyday life, but is downhearted, preoccupied with feelings of discouragement or guilt, exhibits a lack of initiative and behavioral apathy, and frequently voices futility and self-deprecatory comments.

Alcohol Abuse

The high-scoring patient probably has a history of alcoholism, has made efforts to overcome the difficulty with minimal success, and as a consequence, experiences considerable discomfort in both family and work settings.

Drug Abuse

The high-scoring patient has a recurrent or recent history of drug abuse, tends to have difficulty in restraining impulses or keeping them within conventional social limits, and displays an inability to manage the personal consequences of these behaviors.

Psychotic Thinking

The high-scoring patient, usually classified as "schizophrenic," periodically exhibits incongruous, disorganized, or regressive behavior; often appears confused and disoriented; and occasionally displays inappropriate affects, scattered hallucinations, and unsystematic delusions.

Psychotic Depression

The high-scoring patient is usually incapable of functioning in a normal environment, is in a severely depressed mood, and expresses a dread of the future and a sense of hopeless resignation. Some exhibit a marked motor retardation, whereas others display an agitated quality, incessantly pacing about and bemoaning their sorry state.

TABLE H-1.

Summary of Dioxin-by-Covariate Interactions for Psychology Variables

Ranch Hands - Log₂ (Current Dioxin) and Time									
Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Time (Yrs.)	Percent Yes/(n) <u>Current Dioxin</u>			Adj. Relative Risk (95% C.I.) ^a	p-Value	
				Low	Medium	High			
Waking Up During the Night (Minimal-- 9-9 [g])	Current-by- Time-by-Age	Born ≥1942	≤18.6	25.0 (24)	10.8 (65)	15.0 (40)	0.76 (0.48,1.22)	0.136 ^b 0.258 ^c	
			>18.6	16.7 (12)	12.8 (47)	14.0 (43)	1.24 (0.80,1.90)	0.336 ^c	
		Born <1942	≤18.6	16.7 (48)	14.5 (62)	23.1 (13)	1.34 (0.81,2.20)	0.033 ^b 0.253 ^c	
			>18.6	17.8 (45)	8.9 (79)	9.4 (32)	0.61 (0.34,1.07)	0.082 ^c	
			0-1	≤18.6	11.0 (82)	12.0 (150)	13.0 (69)	0.90 (0.67,1.21)	0.909 ^b 0.486 ^c
				>18.6	14.5 (62)	14.5 (138)	9.9 (81)	0.92 (0.71,1.19)	0.521 ^c
>1	≤18.6	18.2 (22)	25.0 (36)	41.7 (12)	1.39 (0.86,2.25)	0.007 ^b 0.181 ^c			
	>18.6	20.0 (15)	11.4 (35)	5.6 (18)	0.42 (0.17,1.03)	0.058 ^c			

Ranch Hands and Comparisons by Current Dioxin Category

Variable/ (Table Ref.)	Interaction	Stratum	Current Dioxin Category	n	Percent Yes	Contrast	Adj. Relative Risk (95% C.I.)	p-Value
Waking Up During the Night (9-9 [j])	Categorized Current Dioxin-by- Race	Black	Background	47	2.1	All		0.041
			Unknown	12	16.7	U vs. B	19.01 (0.91,396.6)	0.057
			Low	12	0.0	L vs. B	- -	- -
			High	8	25.0	H vs. B	15.38 (0.90,263.8)	0.059
		Non- Black	Background	734	14.7	All		0.632
			Unknown	326	12.0	U vs. B	0.79 (0.53,1.17)	0.237
			Low	181	12.7	L vs. B	0.88 (0.54,1.43)	0.601
			High	173	12.7	H vs. B	0.89 (0.53,1.47)	0.640

TABLE H-1. (Continued)

Summary of Dioxin-by-Covariate Interactions for Psychology Variables

Ranch Hands - Log₂ (Initial Dioxin)

Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Initial Dioxin	n	Percent Yes	Adj. Relative Risk (95% C.I.) ^a	p-Value
Waking Up Too Early and Can't Go Back to Sleep (Minimal-- 9-10 [c])	Initial-by- Age	Born ≥1942	Low	43	16.3	0.75 (0.53,1.05)	0.094
			Medium	107	15.0		
			High	81	7.4		
	Born <1942	Low	87	11.5	1.11 (0.80,1.56)	0.526	
		Medium	145	6.9			
		High	47	14.9			

Ranch Hands - Log₂ (Current Dioxin) and Time

Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Time (Yrs.)	Percent Yes/(n) Current Dioxin			Adj. Relative Risk (95% C.I.) ^a	p-Value		
				Low	Medium	High				
Waking Up Unrefreshed (Minimal-- 9-11 [g])	Current-by- Time-by-Age	Born ≥1942	≤18.6	20.8 (24)	13.9 (65)	7.5 (40)	0.70 (0.42,1.16)	0.227 ^b 0.163 ^c		
			>18.6	25.0 (12)	19.2 (47)	18.6 (43)			1.02 (0.70,1.49)	0.902 ^c
			Born <1942	≤18.6	2.1 (48)	4.8 (62)				
		>18.6	8.9 (45)	6.3 (79)	18.8 (32)	1.05 (0.68,1.62)	0.832 ^c			

TABLE H-1. (Continued)

Summary of Dioxin-by-Covariate Interactions for Psychology Variables

Ranch Hands - Log₂ (Initial Dioxin)									
Variable (Assumption-- Table Ref.)	Interaction	Stratum	Initial Dioxin	n	Percent Yes	Adj. Relative Risk (95% C.I.) ^a	p-Value		
Involuntarily Fall Asleep During the Day (Minimal-- 9-12 [c])	Initial-by- Race	Black	Low	12	0.0	--	--		
			Medium	16	0.0				
			High	3	33.3				
		Non-Black	Low	118	5.1			0.78 (0.53,1.16)	0.220
			Medium	236	4.7				
			High	125	4.0				
Involuntarily Fall Asleep During the Day (Maximal-- 9-12 [d])	Initial-by- Race	Black	Low	4	0.0	--	--		
			Medium	26	0.0				
			High	7	14.3				
		Non-Black	Low	176	4.0			0.97 (0.74,1.28)	0.852
			Medium	340	4.1				
			High	172	4.7				

Ranch Hands - Log₂ (Current Dioxin) and Time

Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Time (Yrs.)	Percent Yes/(n) Current Dioxin			Adj. Relative Risk (95% C.I.) ^a	p-Value	
				Low	Medium	High			
Great or Disabling Fatigue During the Day (Minimal-- 9-13 [g])	Current-by- Time-by-Age	Born ≥1942	≤18.6	8.7	7.7	2.5	0.61 (0.28,1.30)	0.526 ^b 0.197 ^c	
				(23)	(65)	(40)			
			>18.6	8.3	12.8	2.4	0.83 (0.45,1.55)	0.566 ^c	
				(12)	(47)	(42)			
			Born <1942	≤18.6	2.1	4.9	7.7	1.13 (0.44,2.92)	0.008 ^b 0.805 ^c
					(48)	(61)	(13)		
>18.6	6.7	0.0		0.0	--	--			
		(45)	(78)	(32)					

TABLE H-1. (Continued)

Summary of Dioxin-by-Covariate Interactions for Psychology Variables

Ranch Hands - Log₂ (Initial Dioxin)

Variable (Assumption-- Table Ref.)	Interaction	Stratum	Initial Dioxin	n	Percent Yes	Adj. Relative Risk (95% C.I.) ^a	p-Value
Frightening Dreams (Minimal-- 9-14 [c])	Initial-by- Education	High School	Low	64	6.3	0.78 (0.47,1.28)	0.321
			Medium	164	4.3		
			High	84	6.0		
	College	Low	65	1.5	1.59 (0.94,2.68)	0.083	
		Medium	85	4.7			
		High	42	9.5			

Ranch Hands - Log₂ (Current Dioxin) and Time

Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Time (Yrs.)	Percent Yes/(n) Current Dioxin			Adj. Relative Risk (95% C.I.) ^a	p-Value
				Low	Medium	High		
Frightening Dreams (Minimal-- 9-14 [g])	Current-by- Time-by-Race	Black	≤18.6	0.0 (7)	14.3 (7)	-- (0)	--	--
			>18.6	0.0 (4)	10.0 (10)	0.0 (3)	--	--
			Non-Black					
		≤18.6	3.1 (65)	6.7 (120)	9.8 (51)	1.11 (0.67,1.84)	0.694 ^c	
		>18.6	5.7 (53)	0.9 (116)	6.9 (72)	1.32 (0.78,2.21)	0.299 ^c	
		Non-Black						0.723 ^b
Frightening Dreams (Maximal-- 9-14 [h])	Current-by- Time-by-Race	Black	≤18.6	0.0 (4)	0.0 (12)	50.0 (2)	--	--
			>18.6	0.0 (1)	8.3 (12)	0.0 (6)	--	--
			Non-Black					
		<18.6	1.0 (100)	4.5 (177)	10.4 (77)	1.41 (0.97,2.06)	0.071 ^c	
		>18.6	2.6 (76)	1.9 (162)	6.4 (94)	1.28 (0.85,1.93)	0.230 ^c	
		Non-Black						0.723 ^b

TABLE H-1. (Continued)

Summary of Dioxin-by-Covariate Interactions for Psychology Variables

Ranch Hands - Log₂ (Initial Dioxin)

Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Initial Dioxin	n	Percent Yes	Adj. Relative Risk (95% C.I.) ^a	p-Value
Sleepwalking (Minimal-- 9-16 [c])	Initial-by- Education	High School	Low	64	6.3	0.38 (0.15,1.00)	0.049
			Medium	165	1.8		
			High	85	0.0		
	College	Low	65	1.5	1.57 (0.80,3.08)	0.190	
		Medium	85	2.4			
		High	42	4.8			
Snore Loudly in All Sleeping Positions (Minimal-- 9-19 [c])	Initial-by- Age	Born ≥1942	Low	42	16.7	0.72 (0.49,1.07)	0.106
			Medium	109	10.1		
			High	80	5.0		
		Born <1942	Low	87	5.8	1.30 (0.90,1.89)	0.165
			Medium	143	8.4		
			High	48	14.6		

Ranch Hands - Log₂ (Current Dioxin) and Time

Variable/ Assumption-- Table Ref.)	Interaction	Stratum	Time (Yrs.)	Adj. Mean/(n) Current Dioxin			Adj. Slope (Std. Error) ^d	p-Value		
				Low	Medium	High				
Average Sleep Each Night (Minimal-- 9-22 [g])	Current-by- Time-by-Race	Black	≤18.6	5.90 (7)	6.92 (7)	-- (0)	0.906 (0.472)	0.006 ^e 0.056 ^f		
			>18.6	6.59 (4)	5.98 (11)	6.03 (3)			-0.646 (0.300)	0.032 ^f
			Non-Black	≤18.6	6.98 (65)	6.76 (121)				
		>18.6	7.02 (53)	7.04 (118)	6.85 (73)	-0.022 (0.057)	0.704 ^f			

TABLE H-1. (Continued)

Summary of Dioxin-by-Covariate Interactions for Psychology 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) ^d	p-Value
				Low	Medium	High		
Average Sleep Each Night (Maximal-- 9-22 [h])	Current-by- Time-by-Race	Black	≤18.6	6.83 (4)	6.23 (12)	7.46 (2)	0.296 (0.319)	0.068 ^e 0.353 ^f
			>18.6	6.00 (1)	6.55 (13)	5.19 (6)	-0.431 (0.237)	0.070 ^f
			Non-Black	≤18.6	7.02 (101)	6.87 (178)	6.73 (81)	-0.061 (0.045)
		>18.6	6.86 (77)	7.01 (163)	6.96 (96)	0.006 (0.040)	0.884 ^f	

Ranch Hands - Log₂ (Initial Dioxin)

Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Initial Dioxin	n	Percent Abnormal	Adj. Relative Risk (95% C.I.) ^a	p-Value
Interpersonal Sensitivity (SCL-90-R) (Minimal-- 9-26 [c])	Initial-by- Education	High School	Low	58	6.9	1.32 (0.93,1.88)	0.124
			Medium	150	8.0		
			High	78	11.5		
		College	Low	57	5.3	0.45 (0.13,1.50)	0.192
			Medium	73	2.7		
			High	39	0.0		

TABLE H-1. (Continued)

Summary of Dioxin-by-Covariate Interactions for Psychology Variables

Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Time (Yrs.)	Percent Abnormal/(n) <u>Current Dioxin</u>			Adj. Relative Risk (95% C.I.) ^a	p-Value
				Low	Medium	High		
Phobic Anxiety (SCL-90-R) (Minimal-- 9-29 [g])	Current-by- Time-by-Race	Black	≤18.6	0.0 (7)	16.7 (6)	-- (0)	--	--
			>18.6	50.0 (4)	0.0 (8)	0.0 (3)	--	--
	Non-Black		≤18.6	8.8 (57)	9.5 (105)	6.3 (48)	0.83 (0.49,1.38)	0.114 ^b 0.466 ^c
			>18.6	2.0 (49)	5.9 (102)	9.1 (66)	1.37 (0.91,2.05)	0.132 ^c
	Current-by- Time-by-Race	Black	≤18.6	0.0 (4)	8.3 (12)	0.0 (1)	--	--
			>18.6	0.0 (1)	20.0 (10)	0.0 (6)	--	--
Non-Black		≤18.6	2.3 (87)	9.0 (156)	5.7 (70)	1.09 (0.76,1.57)	0.980 ^b 0.636 ^c	
		>18.6	8.2 (61)	4.1 (146)	9.3 (86)	1.08 (0.79,1.49)	0.613 ^c	

TABLE H-1. (Continued)

Summary of Dioxin-by-Covariate Interactions for Psychology Variables

Ranch Hands - Log₂ (Current Dioxin) and Time

Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Time (Yrs.)	Percent Abnormal/(n) Current Dioxin			Adj. Relative Risk (95% C.I.) ^a	p-Value
				Low	Medium	High		
Somatization (SCL-90-R) (Maximal-- 9-31 [h])	Current-by- Time-by- Current Alcohol Use	0-1	≤18.6	1.4 (72)	11.9 (134)	8.1 (62)	1.07 (0.74,1.56)	0.460 ^b 0.702 ^c
			>18.6	6.1 (49)	10.4 (125)	15.4 (78)	1.27 (0.96,1.69)	0.094 ^c
		>1	≤18.6	10.0 (20)	14.7 (34)	10.0 (10)	0.85 (0.42,1.73)	0.459 ^b 0.651 ^c
			>18.6	30.8 (13)	0.0 (31)	6.3 (16)	0.56 (0.23,1.39)	0.212 ^c

Ranch Hands and Comparisons by Current Dioxin Category

Variable/ (Table Ref.)	Interaction	Stratum	Category	n	Percent Yes	Contrast	Adj. Relative Risk (95% C.I.)	p-Value
Somatization (SCL-90-R) (9-31 [j])	Categorized Current Dioxin-by- Race	Black	Background	42	14.3	All		0.048
			Unknown	10	30.0	U vs. B	3.19 (0.50,20.41)	0.221
			Low	10	0.0	L vs. B	--	--
			High	7	0.0	H vs. B	--	--
		Non- Black	Background	643	7.3	All		0.180
			Unknown	283	6.7	U vs. B	0.97 (0.56,1.70)	0.924
			Low	159	10.1	L vs. B	1.32 (0.72,2.40)	0.371
			High	159	12.0	H vs. B	1.69 (0.95,3.02)	0.076

TABLE H-1. (Continued)

Summary of Dioxin-by-Covariate Interactions for Psychology Variables

Ranch Hands - Log₂ (Current Dioxin) and Time

Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Time (Yrs.)	Percent Abnormal/(n) Current Dioxin			Adj. Relative Risk (95% C.I.) ^a	p-Value	
				Low	Medium	High			
Global Severity Index (SCL-90-R) (Minimal-- 9-32 [g])	Current-by- Time-by-Race	Black	<18.6	14.3 (7)	16.7 (6)	-- (0)	2.51 (0.10,60.52)	0.176	
			>18.6	50.0 (4)	0.0 (8)	0.0 (3)		0.07 (0.00,68.14)	0.571
		Non-Black	≤18.6	8.8 (57)	8.6 (105)	16.7 (48)	1.04 (0.67,1.60)	0.221 ^b	
			>18.6	4.1 (49)	6.9 (102)	13.6 (66)		0.866 ^c	
								1.46 (1.01,2.12)	0.046 ^c

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			
Schizoid Score (MCMI)g (Maximal-- 9-35 [h])	Current-by- Time-by- Lifetime Alcohol History	0	≤18.6	33.6 (8)	27.2 (18)	25.7 (9)	-0.027 (0.080)	0.136 ^e	
			>18.6	24.6 (6)	20.1 (11)	31.4 (21)		0.734 ^f	
		>0-40	≤18.6	23.3 (79)	22.2 (141)	24.1 (56)	0.011 (0.029)	0.064 ^e	
			>18.6	22.4 (58)	22.9 (111)	28.7 (53)		0.702 ^f	
								0.085 (0.028)	0.003 ^f
		>40	≤18.6	23.3 (17)	27.1 (27)	27.4 (16)	0.026 (0.056)	0.799 ^e	
			>18.6	25.3 (13)	27.1 (50)	29.0 (25)		0.643 ^f	
							0.044 (0.044)	0.317 ^f	

TABLE H-1. (Continued)

Summary of Dioxin-by-Covariate Interactions for Psychology Variables

Ranch Hands - Log₂ (Initial Dioxin)

Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Initial Dioxin	n	Adj. Mean	Adj. Slope (Std. Error)	p-Value
Avoidant Score (MCMII) ^g (Minimal-- 9-35 [c])	Initial-by- Education	High School	Low	63	21.0	0.041 (0.036)	0.249
			Medium	165	19.7		
			High	85	21.3		
	College	Low	65	10.5	0.167 (0.048)	<0.001	
		Medium	85	13.4			
		High	42	17.5			

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		
Histrionic Score (MCMII) ⁱ (Maximal-- 9-38 [h])	Current-by- Time-by-Race	Black	≤18.6	57.6 (4)	72.4 (12)	83.2 (2)	1752.7 (532.9)	0.003 ^e 0.001 ^f
			>18.6	68.5 (1)	67.3 (12)	70.4 (6)	-173.8 (389.5)	0.656 ^f
			Non-Black	≤18.6	62.4 (100)	63.6 (174)	62.5 (79)	-12.4 (76.4)
		>18.6	63.9 (76)	64.0 (160)	59.7 (93)	-199.1 (67.8)	0.003 ^f	

TABLE H-1. (Continued)

Summary of Dioxin-by-Covariate Interactions for Psychology Variables

Ranch Hands - Log₂ (Initial Dioxin)							
Variable/ (Assumption-- Table Ref.)	Interaction	Stratum	Initial Dioxin	n	Adj. Mean	Adj. Slope (Std. Error) ^d	p-Value
Antisocial Score (MCMI) (Minimal-- 9-40 [c])	Initial-by- Current Alcohol Use	0-1	Low	105	61.1	-0.320 (0.788)	0.685
			Medium	205	63.0		
			High	105	62.7		
		>1-4	Low	20	54.4	1.491 (2.276)	0.513
			Medium	42	57.2		
			High	18	49.4		
		>4	Low	4	54.2	-7.450 (3.256)	0.023
			Medium	5	38.6		
			High	5	25.2		
Antisocial Score (MCMI) (Maximal-- 9-40 [d])	Initial-by- Current Alcohol Use	0-1	Low	142	59.2	-0.005 (0.574)	0.993
			Medium	292	62.7		
			High	152	61.5		
		>1-4	Low	34	65.2	-0.666 (1.432)	0.642
			Medium	66	61.2		
			High	20	59.7		
		>4	Low	4	82.6	-7.561 (2.227)	<0.001
			Medium	7	65.5		
			High	7	37.5		