

**A MULTIDIMENSIONAL MODEL OF DISSOCIATION**

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Presented at The Fifth Annual  
Western Clinical Conference on  
Multiple Personality and Dissociation:

CHRONIC TRAUMA DISORDER

Emerging Trends in Treatment

April 11, 1992

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ACKNOWLEDGMENTS

I would like to thank Michael Shiffman, Katharine Thompson, and Gladys Patterson for their invaluable assistance in the preparation of this paper.

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The purpose of this paper is to more fully examine a multidimensional model of trauma-induced dissociation that was introduced in an earlier paper (Smith, 1987). The purpose of dissociation in general is to allow a degree of functioning while preventing disruptive, disabling or painful material from emerging into conscious awareness.

The three primary dissociative processes that will be examined in some detail are:

- 1) Functional dissociation -- cognitive non-attention;
- 2) Direct physical dissociation using exogenous substances;
- 3) Engaging in activities (thoughts and behaviors) that release and modulate endogenous substances, often through negative excitement.

All three processes are idiosyncratically formed into a dissociative pattern (prototypical response pattern) specific to the individual. Traumatized people operate out of three basically fixed positions derived from early modelling, coercion, brutality, opportunity, availability and temperament.

These dissociative patterns are:

- 1) High arousal;
- 2) Extreme inhibition;
- 3) Bi-polar oscillation between arousal and inhibition.

These relatively "stuck" positions originate from the thwarting, blocking or collapse of the natural reactions of traumatized children to threat or pain. For instance, a child's need to protest injury may be suppressed by the presence of a brutal parent. A child who is staggering from fatigue may be blocked from going to sleep by a sadistic caregiver, or a child could be pushed to collapse.

Traumatized children tend to carry these destructive dissociative patterns into adulthood. There are several reasons why this occurs. These center around ontological insecurity, learned helplessness, and neophobia.

## ONTOLOGICAL INSECURITY

Smith (1987) proposed that trauma could be defined as the maximal arousal of the sympathetic nervous system (SNS) by pain or the threat of pain. Because children who are being traumatized cannot sustain maximal arousal for very long and are situationally bound to the family, group or cult, they are unable to escape rapid reversal of the autonomic nervous system (ANS) and a precipitous slide into near or complete shock. R.D. Laing's description of ontological insecurity describes a loss of connectedness with the self and others leading to a hypothetical end-state of chaotic nonentity -- a complete loss of connection to the self and others. This happens to parallel a decline into neurogenic shock: "...confusion, lethargy, agitation, stupor, and coma." (Kreis and Baue, 1984, p.164)

When this happens enough times, a pattern of extreme arousal, exhaustion and collapse is formed. The primary underpinning of dissociation stemming from early childhood trauma is the blocking of cognition and emotive and behavioral awareness surrounding the loss of ontological security at the hands of caregivers and familiar people. A traumatized person cannot afford to forget what he or she does not want to remember (Smith, 1990), because the early trauma experience represents how the world was, who to fear, and what must be done to maintain some degree of safety. Therefore, early trauma memories and emotions are always threatening to break through into conscious awareness. A dissociated person is preoccupied with dividing energy into maintaining dissociation and attempting to live some kind of meaningful life in the present.

Before addressing the roles of learned helplessness and neophobia in dissociation, we would like to offer two descriptions that seem to sum up the nature of the dissociative process. Dr. Marjorie Toomim notes that dissociation is like going 90 miles per hour with the brake on. Dissociating is also akin to continually shooting yourself in the foot and then jamming a morphine Syrette into your leg. Eventually something has to give. This combination of motivational conflict and destructive behavior leads to a polarity of agitated despair and inhibited rage because the essential irrationality of continuing this behavior causes immense ambivalence and doubt (subconsciously) in the dissociating person.

## LEARNED HELPLESSNESS AND NEOPHOBIA

Seligman's (1975) classic experiment with inescapable shock is quite frequently used to explain the absence of effective escape or cessation behavior in the traumatized person (the ending of dissociation). Van der Kolk, et al.'s 1985 paper was an important seminal work in this area.

The inescapability of trauma for children in brutalizing homes or groups creates a double-approach, double-avoidance double bind (Smith, 1987). The children must approach abusive caregivers for basic sustenance, yet they may be attacked or injured in the

process. At the same time, they want to seek help outside the traumatizing environment yet fear that outsiders may show disbelief, engage in ridicule and (because of expectations derived from the family) deliver pain and torture that surpasses what they have previously received. Trapped between need and fear, these children vacillate in the middle and go psycho-physiologically unconscious.

Although learned helplessness is of extreme value in understanding dissociation, Seligman's explanation is incomplete. He proposed a cognitive explanation for learned helplessness -- the animals had formed a belief about their ability to effect an escape and continued in this belief when the shock was turned off. However, neophobia (fear of the new) and maximal arousal by pain provide a critical missing piece to the problem of relative immobilization (perseverating in rigid patterns). Expanding on the work of Mitchell, et al. (1984, 1985), Smith (1987) postulated a more primitive form of anhedonic (non-feeling) learning that follows chronic numbing. Mitchell and his colleagues found that animals shocked at the choice point in a T-maze would continue to choose the same arm even though they were shocked after the choice and knew of the alternate no-shock arm from earlier in the learning trials. Mitchell proposed that the animals were no longer using pleasure and pain as reinforcers but novelty and familiarity. Organisms numbed by shock, in an ontological sense, are concerned with minimal presence and the avoidance of extinction. Familiar patterns of numbing or pain followed by numbing are superstitiously believed to be necessary for continued existence. The belief about avoiding near annihilation far outweighs the belief about helplessness. Additionally, there is considerable evidence (Smith, 1991) (Robbins, et al., 1989) that the neocortex, following trauma and chronic retraumatization, is relegated to doing little more than ratifying subcortically mediated responses that continue dissociation. The beliefs about helplessness and existence have so receded into unconsciousness that they are not even accessible for modification. The process has become almost entirely mechanical -- negative stimulus, minimal cortical ratification, subcortical mediation of stimulus and dissociative response. Therapeutic intervention in this process is difficult.

### PRIMARY DISSOCIATIVE PROCESSES

#### 1) FUNCTIONAL DISSOCIATION - COGNITIVE NON-ATTENTION

This form of dissociation is based on maintaining a perceptual gestalt. The foreground of the present, no matter how dysfunctional, is preferable to the background of childhood abuse. Projection - "I'm not angry; he is," rationalization - "I deserve to be treated that way," auto-induced hypnotic amnesia and other forms of denial and distortion support a massive reaction-formation that a difficult and excruciating life has nothing to do with the brutal behavior of family, groups or cults.

## 2) DIRECT PHYSICAL DISSOCIATION USING EXOGENOUS SUBSTANCES

Traumatized people, using easily available substances, such as alcohol, caffeine, nicotine and sugar as well as the less available substances such as cocaine, amphetamines and major tranquilizers, either alone or in combination, create a profound alteration in mood and behavior. Moreover, exogenous substances potentiate, stimulate and inhibit internal substances, providing even more dissociative possibilities.

## 3) ENGAGING IN ACTIVITIES (THOUGHTS AND BEHAVIORS) THAT RELEASE AND MODULATE ENDOGENOUS SUBSTANCES, OFTEN THROUGH NEGATIVE EXCITEMENT.

Tony A., the co-founder of Adult Children of Alcoholics (ACA), listed, early in the organization's history, 14 characteristics of people raised in alcoholic homes. Item 8 was, "We become addicted to excitement." (Tony A., p.xviii) He noted that he originally wanted to write "addicted to fear" but felt that to be too strong. Addiction to excitement has now been transformed to a concept of negative excitement, noting that ACAs prefer "constant upset to workable relationships." ("The Problem," 1984)

Four well-known internal chemicals are adrenaline (epinephrine), endorphins, melatonin, and acetylcholine. By using a classical conditioning paradigm, survivors of trauma can learn to "dose" their level of arousal by modulating the release of adrenaline. Third order conditioned stimuli (CSs) are everyday worries and anxieties. Second order CSs may be obsessions, phobias, dreams and taboos. The first order CSs are the actual memories of trauma and produce conditioned responses closest in magnitude to the original reactions of traumatic experiences. When hypervigilance threatens to break down, survivors can focus on lower order CSs (including glimpses of the first order CSs -- flashbacks) in an attempt to restore the former level of dissociative arousal.

Dwelling on negative cognitions, seeking out dangerous situations or staying in abusive relationships often result in extreme myofasciitis, referred pain, trigger points (painful muscle knots) and muscular bracing. By attending to the most distressing cognitions and regulating the approach to triggering situations, adult survivors can stimulate the release of adrenaline and cause an increase in painful muscle tension bringing about a form of stress-induced analgesia through the release of pain-killing endorphins.

Melatonin, a pituitary secretion, regulates the wake-sleep cycle. Abused and frightened children who remain awake and vigilant all night for protection may experience a permanent shift in melatonin levels so that they become insomniacs and experience profound fatigue in the day, necessitating the use of an internal or external stimulant to avoid social stigmatization.

Finally, acetylcholine may be "dumped" into a person's system following exhaustion. This leads to an over-compensation of the parasympathetic nervous system resulting in stupor or shock.

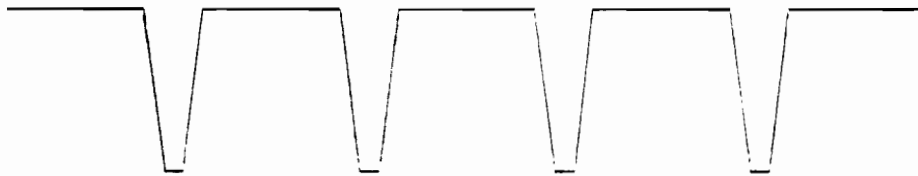
Additional neuromodulators used in dissociation are dopamine, serotonin, norepinephrine, and GABA.

### DISSOCIATIVE PATTERNS

The following diagrams may help the reader to gain a better understanding of prototypical dissociative patterns.

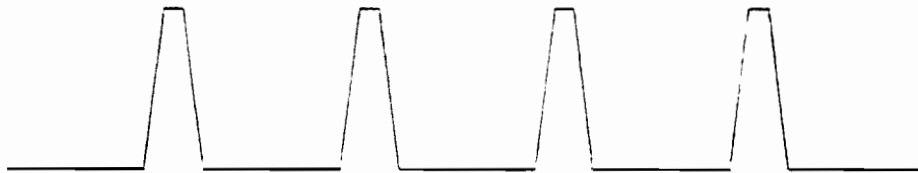
1)

HIGH AROUSAL  
HIGH OR MAXIMAL AROUSAL



PERIODIC FORCED DOWN-REGULATION OR "CRASHING"

PERIODIC UP-REGULATION, ALSO KNOWN AS "GETTING A RUSH"

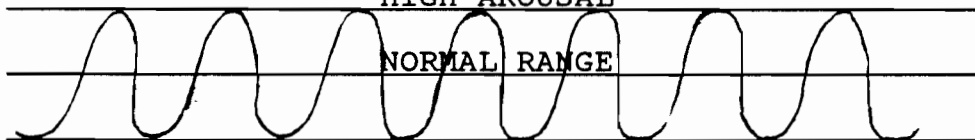


2)

EXTREME INHIBITION

3)

BI-POLAR OSCILLATION  
HIGH AROUSAL



EXTREME INHIBITION

## OVERVIEW

### ADRENERGIC

(Pavlov) Shapiro (1989), Smith (1987), Holden (1976), Milkman & Sunderwirth (1982)

Excitatory      Trauma      Sympathetic Excess Syndrome      Arousal

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Normal

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Inhibitory      Shock      Parasympathetic Excess Syndrome      Sedation  
(Pavlov) Shapiro (1989), Smith (1987), Holden (1976), Milkman & Sunderwirth (1982)

### CHOLENERGIC

It is important to remember, as Kappeler (1992) notes, that all dissociative patterns lean heavily in the direction of inhibition. Although there is a plethora of examples of people "losing it" and harming or killing themselves and others, a large number of heavily dissociated people manage to "hold the line."

The universal inhibitory substance, GABA, is utilized by approximately 70 percent of the neurons in the brain (Kappeler). There is a drive towards effective movement in crisis and a need for closure of previous experiences. Displaced, acting out activity is not effective but dissociative in nature and dissociated people cannot remember the experiences that require closure. They therefore do not know what to do to end dissociation.

The three dissociative processes using functional dissociation, exogenous chemicals and endogenous substances maintain the primary dissociative patterns of high arousal, extreme inhibition and bipolar oscillation by manipulating four basic functions. These functions are arousal, sedation, analgesia and thought regulation (stop, start, and focus).

The following are research examples illustrating the functions.

### DISSOCIATIVE FUNCTIONS

#### Arousal by Exogenous Substances

Lovallo, et al. (1991) found that caffeine in combination with mental stress may produce undesirable high blood pressure in those at risk for hypertension.

Davidson and Smith found that caffeine acts multidimensionally. Caffeine increased arousal as measured by sweat gland activity, slowed habituation under repetition which maintained arousal, and



enhanced the effects of novel stimuli which independently raised arousal.

Lane, et al.'s (1990) experiment showed caffeine elevated blood pressure and plasmaepinephrine at rest, which added significantly to the effects of stress. Caffeine also potentiated stress-related increases in plasmaepinephrine and cortisol stress, more than doubling responses observed in control subjects.

A single moderate dose of alcohol caused marked tachycardia in both the supine and erect postures that lasted beyond the time of detectable blood alcohol levels (Stott, et al., 1987).

#### Exogenous Substances in Combination

Caffeine (64 mg), when added to aspirin (800 mg) significantly improved vigilance performance and increased self-reported efficacy compared to placebo or aspirin alone. (Pons, et al., 1988)

Patients who consumed high amounts of caffeine reported higher anxiety than other patients, binged more often, used diet pills and laxatives more frequently, showed pathological patterns of alcohol use and smoked more. This supports the hypothesis that patients with high rates of caffeine use would abuse other chemicals. (Krahn, et al., 1991)

#### Sedative Effects of Exogenous Substances

A marked reduction in alertness and related performance deficits that normally occur at night are worsened by alcohol. Sleepiness due to any cause and ethanol may well be a dangerous combination (Walsh, et al., 1991).

Snyder, et al. (1989) found that tobacco dependency resulted in a significantly increased response latencies on all performance tests and decreased accuracy on two tests. Performance decrements that lasted throughout the deprivation phase were partially reversed after one hour of resumption of smoking; all values returned to baseline within 24 hours of resumption of smoking.

#### Use of Exogenous Substances

Balfour (1991) summarizes results which suggest that chronic nicotine evokes changes in the mesolimbic dopamine system which resemble those seen in animals treated chronically with antidepressant drugs and proposes that the mechanisms which mediate the ability of antidepressant drugs to alleviate the effects of stress may also mediate the apparent anxiolytic properties of nicotine.

#### Use Miscellaneous Bi-polar

Griffiths, et al. (1988) noted that compared to placebo, caffeine produced increases in subjective ratings indicating arousal while producing decreases in headache and "craving" for caffeine-

containing foods, even at the lowest dose of 100 mg. At higher doses, caffeine produced dysphoric anxiety-like subjective effects.

Normal amounts of caffeine worsened symptoms of psychosis and mania in schizophrenics.

### Exogenous and Endogenous Substance Interaction

Direct serotonin activation reportedly attenuates alcohol consumption while depletion enhances use pattern. Acute alcohol consumption is also associated with reduced blood serotonin and uptake. Such altered characteristics of serotonin secondary to chronic alcoholism may explain the frequent morbidity of anxiety and/or depression. (Tollefson, 1989)

Goodwin (1989) suggests that drinking may be an effort to correct serotonin depletion which only serves to produce further depletion as the drug's effect wears off. This may set up a vicious cycle of repeated attempts to self-medicate.

Dackis, et al. (1990) found that the major drive of drug addiction is craving and euphoria. Central stimulants, cocaine and amphetamines, work on endogenous pleasure centers. Stimulation and depletion of central dopamine pathways can lead to intense vasospasm, autonomic arousal, and direct toxic effects on the brain and heart resulting in seizures and heart attacks.

### Neurological Depletion

Acute psychosis may be associated with a relative increase in dopamine impinging on supersensitive post synaptic receptors made so by chronic synaptic depletion of the transmitter. (Heritch, 1990)

Decreased 5-HIAA, the principal metabolic product of serotonin, has been correlated with increased despair and with suicide in Humans. (van der Kolk, 1987, p.45)

### Endogenous Analgesia

Bandura, et al. (1988) tested the hypothesis that perceived self-inefficacy in exercising control over cognitive stressors activates endogenous opiod systems. The group of subjects with high perceived self-efficacy exhibited little stress. The group of stressed, self-inefficacious subjects were able to withstand increasing amounts of pain stimulation with the administration of an inert saline solution. However, with naloxone, an opiate antagonist that blocks the analgesic effects of endogenous opiates, the subjects were unable to bear much pain stimulation.

### Outside Activation of Internal Chemicals and Responses

Heikkonen, et al. (1991) found that acute physical exercise activates the human adrenergic systems, with an increase in both plasma catecholamines and lymphocytic beta adrenergic receptors.

Van der Kolk, et al. (1989) studied eight Vietnam veterans with PTSD and eight matched veterans without PTSD. They viewed a combat videotape under naloxone and placebo conditions. In the placebo condition but not after naloxone, the PTSD subjects reported a 30 percent decrease in pain intensity ratings of standardized heat stimuli after the combat videotape.

### Suspension of Medication as Dissociational Practice

Grigsby's (1991) study of two Vietnam combat veterans found that there is an attachment to flashbacks which re-stimulate the autonomic hyperarousal of the combat rush in which there was a feeling of invulnerability, aliveness, and lack of self-awareness. When medications decreased the ability to feel this arousal, vets may discontinue the medication in order to get the needed "fix" of the flashback produced autonomic arousal.

### Normalization

Bruce and Lader (1989) found that six cases of anxiety disorder showed improvement with only caffeine abstinence and remained well for at least six months of follow-up. Increased sensitivity to caffeine in these patients has been suggested as contributing to their symptoms.

Data from a study about high caffeine consumption and poly substance abuse led Krahn, et al. (1991) to question patients about caffeine use, to limit caffeine use by inpatients, and to educate patients about the effects of caffeine. Clinicians need to be aware that some symptoms of eating disorders might be due to caffeine.

McPeake, et al. (1991) address the need for an altered state of consciousness in substance abusers. They refer to Alcoholics Anonymous' goal of a spiritual awakening as a model and propose an Altered State of Consciousness Therapy that can be used to teach patients to consciously manipulate affect and cognition to achieve a new consciousness.

Miller (1991) treated a World War II vet for a phobia with relaxation, visual imagery desensitization, and in vivo exposure. Relaxation was used while an imaginal scene of aerial combat was presented. When the vet showed 5 on an anxiety scale, focus was directed to areas of tension and arousal. Relaxation was again instituted and the stressor re-introduced.

## IMPLICATIONS FOR TREATMENT

It is obvious that treating multidimensional dissociation requires a combination of psychiatric, psychological, nutritional and case-management expertise. By uncovering and reflecting the client's idiosyncratic dissociative system, therapist and client can begin to develop a plan for normalizing dysregulation.

## SUMMARY

This model of dissociation and the supporting research is by no means a comprehensive examination of the subject. However, we believe that it provides a solid direction for further research and for enhancing present clinical practices.

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