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Affective Neuroscience and the Treatment of Sexual Addiction

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CEU Eligible Article

Affective Neuroscience and the Treatment of Sexual Addiction

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Affective neuroscience illuminates the neuropsychobiological impact of traumatic early childhood attachment patterns on the affective, cognitive, and behavioral development of sexual addicts and their partners. It also guides therapists to access patients' blunted right hemisphere through awareness of their bodily states and, thereby, to remediate patients' hobbled capacities for establishing genuine relationships, achieving insight, and regulating emotions independently. By enriching the current cognitive-behavioral, task-oriented treatment with attention to the neurobiological causes, and costs, of sexual addiction, we create a recovery protocol that helps patients progress beyond sexual sobriety to achieve previously unattainable interpersonal connection, self-reflection, and internally regulated affective states.

A paradigm shift is taking place in the field of psychotherapy today as the insights of affective neuroscience inform—and unify—behavioral, medical, and cultural studies. With its findings about the centrality of the emotions in the development of our psychological, physical, and cognitive characteristics, affective neuroscience links such previously separate arenas as developmental psychology and psychoanalysis; endocrinology, neurology, and addiction studies; and ethology, cognition, and religious studies. The more we learn about the primacy of affect in human development, the more we appreciate its sway over every domain of the human mind. Panksepp (1998) underscores that “all subfields of psychology must begin to integrate [this] new and strange landscape into their thinking if they want to stay on the forefront of scientific inquiry” (p. 11).

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In particular, applying these discoveries to the treatment of sexual addiction holds novel explanatory and therapeutic promise. Carnes's cognitive-behavioral protocol engaging sexual addicts' prefrontal cortices to repair early childhood damage to brain functions has helped guide patients to sexual sobriety and has justifiably become a standard in the field. When we enrich his procedure with expanded knowledge about the developmental role of affect and its reparative power in clinical interventions, we can create long-term change in sexual addicts and their partners. Integrating this psychobiological insight into individual, couples, or group therapies permits profound healing of early attachment traumas at the heart of sexual addiction.

Consideration of the childhood attachment experiences of sexual addicts and their partners clarifies the benefits, and the challenges, of a treatment informed by affective neuroscience. In addition to the qualities it shares with other addictive and compulsive behaviors, sexual addiction and others' tolerance of it consistently indicate a dysfunction precisely in the patient's learned attachment patterns: that is, in his personality structure, in his inability to self-regulate or seek co-regulation, and in his manner of relating to others consistent with the neuronal paths constructed by his early affective life. (While the overwhelming majority of sexual addicts who come into treatment are male, and are referred to as such here, these findings apply equally to female sexual addicts.) Inevitably, therapists working with sexual addicts and their partners will observe, and at times become the object of, the disturbed attachment styles that invariably attend the disorder.

The most common source of such disruption appears to be the chronic emotional disconnection characterizing sexual addicts' families of origin. According to Carnes (1991), 78% of sexual addicts come from "rigidly disengaged" families (p. 97). While disengagement is not violent as are physical or sexual abuse, researchers in affective neuropsychobiology have established neglect as profoundly destructive. Tronick's still-face experiment with mother-infant pairs vividly illustrated the traumatic nature of neglect. In the experiment, the mother maintained eye contact with her baby but did not make any facial expression or vocalizations. The infant showed a sad facial expression, an averted gaze, self-comfort actions such as touching his head or face, twisting his clothing, or sucking his fingers—usually with the affective right-brain-controlled left hand—and eventual loss of postural control and bodily collapse. Tronick and colleagues (Tronick, Als, Adanson, Wise, & Brazelton, 1978) explained that infants become traumatized when there is a regulatory loss through episodes of abandonment. The babies discovered abandoned in Romanian orphanages in the 1990s provided additional, tragic proof that continual breaks of emotional connection engender pathological states (Gunnar, Morison, Chisholm, & Schuder, 2001).

Later studies confirmed and began to specify the harm produced by disengagement. Field, Diego, and Hernandez-Reif (2006) found that infants with depressed or withdrawn mothers display greater stress-induced EEG activation in the right hemisphere than do infants with intrusive mothers, and suggested that disengagement may be even more injurious than the intrusiveness of a poorly attuned caregiver. They elucidated that when an infant seeks, but does not receive, any emotional regulation (however imperfect) from the caregiver, his sympathetic nervous system shifts into what we commonly call the fight-or-flight response, exactly as if he had been attacked. The chain of reactions this shift inaugurates is significant. For whether this swing occurs through neglect or through direct or witnessed violence, if left in this heightened mode the baby's system will enter the more primitive state of hypoarousal known as parasympathetic withdrawal, which conserves his energies by protecting him against his own feelings. If such withdrawal is in its turn prolonged, it declines into a state of dissociation or dissociative collapse which, if habitual, may become a permanent trait in the infant (Perry, Pollard, Blakely, Baker, & Vigilante, 1995; Schore, 2003b). Research, then, indicates that neglect terrorizes the child enough to stunt his neurodevelopment, and may thus be included as a source of trauma along with direct or witnessed sexual, physical and emotional abuse (Laszloffy, 2007). Thus even noninvasive but chronic breaches in attunement appear to short-circuit growing attachment and self-regulatory abilities.

We are only now beginning to appreciate the results of these blighted attachment patterns and how they favor sexually addictive behaviors. Research in affective neuroscience indicates that damaged attachment capacities impede not only emotional maturation (causing internally dysregulated states) but also the cognitive abilities needed to integrate information, attend to tasks, understand and use language, think abstractly, weigh decisions, comprehend ethical principles, and monitor one's own activity. Clearly, deficits in such crucial areas of affect regulation and thought in turn impact behavior, and may manifest as hypersexuality and sexual addiction as well as depression, inattention, hyperactivity, difficulty with abstract reasoning, poor executive functioning and poor judgment.

To heal and strengthen attachment capacities, then, therapists should model and support the experience and acknowledgement of bodily based feelings in their sessions. The use of such an affective approach, however, implies that practitioners will need to examine their own attachment and intimacy skills. Clinicians must observe, and manage, their own reactions of fear and withdrawal—emotions commonly evoked by patients who are themselves scared, hostile, empty at the core, and desperately blocking intimacy. So the insights of affective neuroscience assist therapists in two ways: First, they help illuminate the causes and costs of sexually addicted patients' damaged maturation, and, second, they inform interventions to remediate those impairments.

REVIEW OF CNS, ANS AND HPA AXIS DEVELOPMENT

A brief review of the developing central nervous system (CNS), autonomic nervous system (ANS), and hypothalamic-pituitary-adrenal system (HPA axis) elucidates precisely how affective disturbance causes neurobiological deficits in infancy, how these deficits undermine both emotional and intellectual growth, and how such damage may manifest as sexual addiction.

Functions

The CNS is exteroceptive in nature: Sensory input enters the body via visual, auditory, tactile, gustatory and olfactory stimuli from outside sources. The ANS, on the other hand, is interoceptive, receiving information from bodily processes and transmitting that information to the brain, where it is mediated by the right orbital frontal cortex. All sensory information received by the CNS and conveyed by the ANS enters the HPA axis, which evaluates it as beneficial or hazardous. If the information is judged to predict danger, the HPA axis activates the ANS to respond to the stressor. ANS responses include the sympathetic, or active, system and the more primitive parasympathetic, or passive, system.

Active strategies involving the release of cortisol will be tried first: seeking the caregiver, then the upset fight-or-flight response. This initial sympathetic response occurs through chaining elevations in gluco-corticoid hormones: "The hypothalamus increases the amount of corticotrophin-releasing hormone (CRH) and arginine vasopressin (AVP)" and releases them into the anterior pituitary gland (Tarullo & Gunnar, 2006, p. 2). That gland in turn produces and releases adrenocorticotrophic hormone (ACTH). ACTH then stimulates the adrenal gland to produce the steroid hormone cortisol, and sends it directly to the brain, thereby increasing blood pressure and blood sugar levels and creating an immunosuppressive response. If a caregiver perceives and buffers the external stressor, the child's ANS will be regulated and his cortisol level will return to normal. Similarly, any novelty produces a cortisol spike in an infant or toddler, but with familiarity these same circumstances will not raise his cortisol level. Thus as the mature ANS regulates the younger one, the child's ANS becomes programmed to regulate stress by himself. When needed in emergencies, and when alleviated by the subsequent experience of co-regulation, the release of cortisol into the brain has been shown to help us survive and self-regulate.

Risks

But, as with any substance, having too much can prove deleterious (Tarullo & Gunnar, 2006). If initial active attempts fail to elicit comfort due to a

caregiver's absence or insensitivity, the infant's or toddler's cortisol maintains its elevated level and his system is deprived of the neurological imprinting of the regulatory power—a deprivation which hobbles his capacity for secure attachment. While children receiving adequate care demonstrate a peak in cortisol levels 30 minutes after waking, with a gradual decrease during the course of the day, children in orphanages show blunted early morning cortisol with no ensuing decrease. However, after adoption and, presumably, more attention, HPA function seems to recover and these children eventually establish a fairly normal daily cortisol rhythm. But if an infant or toddler is deprived of all caregiving, his cortisol level stays chronically high and he will decline into passive parasympathetic strategies of dissociation. Such chronic stress disables the child from responding effectively to any future danger, to which he responds uniformly by entering a withdrawn state. Habituation to either the active or the passive response programs the developing brain, and makes the repeated imbalanced state into a permanent trait: dysregulated anxiety or aggression, or dissociation.

To appreciate the import of the HPA axis in brain development we need only recall that all sensory input is delivered into the HPA axis, including information as intangible as prosody, the music of human speech: Well before the infant comprehends language, he discriminates safety from peril through the pitch of voices. Of course, genetics, gender and age color the functioning of each individual's HPA axis. But since it matures only after birth, experiential factors including unregulated childhood duress influence its degree of reactivity, and thereby program much of each child's affective, cognitive, and behavioral development.

AFFECTIVE, COGNITIVE AND BEHAVIORAL EFFECTS OF ATTACHMENT-BASED RIGHT BRAIN DEVELOPMENT

The left brain, adept in verbal and logical thinking, does not even begin its augmentation until approximately 18 months after birth. Prior to that all communication between mother and infant links the emotional, right brain of one to the emotional, right brain of the other. Manning et al.(1997) showed that healthy mothers instinctively cradle babies on the left side of their bodies, independent of their dominant hand—a behavior that “facilitates the flow of affective information from the infant via the left ear and eye to the center of emotional decoding, that is, the right hemisphere of the mother” (p. 327). The mother's own ANS picks up the baby's state and determines whether the baby is hungry, uncomfortable or afraid. It is this development of an individual's right brain in his first year and a half that allows, first, for connection with others, then for self-regulation of feelings, and finally for the cognitive accomplishments of the left brain. In fact, Schore (2001) understands attachment theory essentially as a regulation theory, since regulation

is mediated through the right brain's implicit, affect-based understanding of nonverbal facial, prosodic, and gestural communications. His research provides evidence that the infant's manner of attachment to the mother directly impacts the formation both of the neuronal pathways regulating affect and of the entire brain.

Emotional Consequences of Early Affective Experiences

If we visualize the right brain as a column, we see the brainstem at the bottom, regulating autonomic functions such as arousal and pain. Above the brainstem is the *limbic brain* where the hypothalamus, amygdala, cingulate and insula lie. This area houses emotion and motivation, and receives autonomic cues from the body. The amygdala is functional at birth, governing both the startle response and the passive avoidance response to external stimuli. In this way the amygdala accounts for the genetic predisposition of the infant's temperament as sympathetic or parasympathetic—innate proclivities which early experience may favor or fade. At the top of the column is the right orbital frontal cortex—the “apex of the limbic system,” managing attachment as the “executive control system of the entire right brain” and the “thinking part of the emotional brain” (Schore, 1994, p. 12).

We know that the cingulate becomes active at 3 to 9 months, allowing the infant to respond to social cues, share pleasure states with another, and experience separation anxiety (Schore, 2003b). During this period the ANS, administering both the sympathetic and parasympathetic nervous systems, continues to mature. Triggered by the release of cortisol, its sympathetic nervous system uses dopamine and all of its precursors and cofactors to function, and is excitatory in nature, enabling the infant to develop active coping strategies such as looking to the caregiver for regulation. As noted, if such external regulation is not available the sympathetic nervous system unleashes the neuronal and hormonal fight-or-flight reaction typified by wailing and arching the back, to remove the source of anxiety. Continued failure to ameliorate the infant's distress activates the partner within the ANS, the parasympathetic nervous system. Noradrenergic or inhibitory in nature, the parasympathetic system employs passive coping strategies, including dissociation, to reduce stress. It is thus a misconception that a baby has soothed himself when caregivers let him “cry it out”; In fact, the infant has entered a primitive, isolated, emergency state of auto-regulation known as parasympathetic withdrawal in which the active sympathetic system cedes command to the passive one.

Such abdication by the sympathetic system is not without risk. An infant simultaneously experiencing a high sympathetic state and a high parasympathetic state will enter the *freeze response* of immobilization. This paralyzing simultaneous hyperarousal and hypoarousal, if repeated frequently, can predispose the brain to a dissociative state: “The stressed child, with only

primitive abilities to cope with the overwhelming arousal induced by relational trauma and at the limit of his or her fragile regulatory capacities, experiences intense affect dysregulation, projects a distressing emotional communication, and then instantly dissociates” (Schore, 2003b, p. 68).

Equally significant, brain chemicals at play in dissociation favor the eventual development of addictive behaviors. Since the right brain has a high amount of opioids, a 3-month-old experiencing chronic stress will release high levels of these substances especially in the passive parasympathetic state which creates an opioid-mediated analgesic effect (Bernard & Bandler, 1998). Habituation of the brain to the opioid-releasing state of dissociation as its “default mode” of affect regulation predisposes the individual to addictive behaviors, including sexual addiction. Thus repeated auto-regulation through dissociation derails the proper growth of the infant’s nervous system and precludes the healthy flowering of each level of the limbic brain.

Damasio (1999) offers a theoretical framework for understanding the process by which emotional neglect inclines the brain toward affective, cognitive, and behavioral disconnection. He postulates that emotions are somatosensory states (bodily experiences) that respond to external and internal influences and represent the most important mechanism by which complex organisms bio regulate. If we imagine a child growing up in a family that ignores, shames, or punishes emotions, we can see that the cumulative denial of early interactive regulation would leave him only maladaptive forms of regulating affect, which would, Schore (2003a, 2003b) reasons, imprint his developing brain. Ito et al. (1993) propose that early childhood abuse may interfere with the maturation of the limbic system and create neurobiological changes that may underlie a wide range of psychiatric difficulties involving mood swings, limited stress tolerance, dissociative events and memory disturbances. Similarly, Creeden (2004) argues that extreme childhood neglect or stress “can lead to disrupted neuronal organization and diminished functional capabilities. These diminished capacities may exhibit themselves through a loss of cortical modulation of responses mediated through the lower and mid-brain (e.g., arousal, impulsivity, aggression) or a lack of integration between cortical and sub-cortical processing (e.g., learning difficulties)” (p. 236).

Evidently, then, for infants to attain a healthy self-regulating system they must first have the early experience of interactive regulation, without which they learn to auto-regulate preferentially. Gender influences which types of auto-regulation a child will attempt, as boys’ and girls’ limbic systems and HPA axes differ. Tronick and Cohen (1989) find the ability to dissociate available to very young girls, as their earlier brain development gives them access to inhibitory mechanisms sooner than boys. As a result, males seem to be more vulnerable to early childhood stressors than females. Girls’ ability to dissociate enables them to withdraw, while boys protest instead. Over time, males may externalize the pathology and shame they have under-regulated by acting out sexually, while females may over-regulate and internalize their

disturbances as feelings of inferiority and self-blame—habitual states that, as Perry et al. (1995) note, may over time become permanent traits of men and women.

Cognitive Consequences of Early Affective Experiences

Equally significant, early nonverbal communications impact how the child's brain matures not only to regulate emotions, but to receive ideas as well. Schore (1994) holds that attachment interactions influence the experience-dependent maturation of prefrontal cortical circuits of the right hemisphere, which houses the sense of self and the highest levels of affect and ANS regulation. Additionally, Fonagy and Target (2005) argue that “the attachment relationship is indeed a major organizer of brain development” (p. 333), and Siegel (1999) reports that experience shapes the structure of the brain. Most notably, the exercise of feeling-mediated neuronal pathways allows insight to occur. Insight-based problem-solving has been shown to recruit the right hemisphere in the anterior superior temporal gyrus, amygdala, hippocampus and insula. The right anterior temporal area bridges neurons across distances, enabling the distinct neural and cognitive processes that suddenly link previously unconnected concepts. (Jung-Beeman et al., 2004). Unless such pathways have been established through attachment and interactive regulation of affect, such capacities seemingly remain primitive.

Behavioral Consequences of Early Affective Experiences

The next stage of brain development involves the activation of the orbital frontal cortex at 10 to 12 months. Housed in the right hemisphere, the right orbital frontal cortex is the brain's executive control system, permitting the baby to experience mutual emotional regulation and joint attention with the caregiver. At this point, every aspect of the infant-caregiver relationship happens between the eyes of both, and through the eyes themselves as well as through facial expression, gesture and prosody. But as we have seen, infants whose distress has not been interactively regulated by an attuned caregiver have not begun to learn how to manage their feelings, or even that feelings can be managed. A neglected child whose caregiver has set no attachment behaviors, it appears, will auto-regulate by turning to himself in solitary play. Solitary play states lend themselves to fantasy and create a one-person psychological system that does not, by definition, demand the social skills the child has never learned (Tatkin & Solomon, in press).

Interestingly, animal studies suggest that the mechanisms by which emotionally neglected children attempt to manage psychic tension may affect precisely their future relational capacities and may predispose them to sexual addiction as adults. Rats exposed to early stressors showed a life-long

elevation in vasopressin levels and depression in oxytocin levels in the hypothalamus. If childhood stress affects humans in the same way, Teicher (M. H. Teicher, personal communication, April 12, 2007) has theorized, persons who have survived repeated anxiety-producing occurrences in infancy may later “suffer from enhanced sexual arousal, diminished capacity for sexual fulfillment, deficient commitment to a single partner, and reduced capacity to experience stress reduction from non-sexual social contact.” Understanding the centrality of successful affect regulation in neuronal, psychological and cognitive development lets us view personality and addictive disorders anew, as resulting from failures to regulate emotion first interdependently, then independently: Affect dysregulation seems to be a fundamental mechanism of all Axis I and II disorders, especially severe self pathologies (A. N. Schore, personal communication, February 2, 2007; see also Sarkar & Adshead, 2006). This insight helps us comprehend and treat the behaviors and feelings that define sexual addiction.

EFFECTS OF CHILDHOOD TRAUMA ON SEXUAL ADDICTS AND THEIR PARTNERS

Affective, Cognitive and Behavioral Characteristics of Sexual Addicts and Their Partners

Ullman's (2007) study of sexual addicts substantiates the view that childhood trauma physiologically alters the prefrontal cortex to such a degree that, decades later, intelligent people make spectacularly ill-advised choices. Her research sample of sexual addicts displayed damage to the prefrontal cortex in the wake of childhood sexual abuse. Since the prefrontal cortex is the only area of the brain that can integrate information from the outside—including other people—with internal feelings (Goldberg, 2002), compromise to it entails difficulties with abstract thinking; focus, planning and decision-making; regulation of mood; behavior and impulse control. Indeed, impaired judgment in itself implies damage to the prefrontal cortex and is one of the hallmarks of a sexually addicted person as well as of persons with attentional, emotional, substance abuse, personality and dissociative disorders.

Other research has linked childhood tension to long-term emotional, cognitive, and behavioral difficulties. While primitive neural responses to stress may have been adaptive in the sexual addict's early environment, they become highly problematic later. As an example, sexual addicts persist in the solitary, dissociative self-soothing mode of their early years (albeit in its “adult” forms of sexual fantasy and masturbation). In addition, they continue to rely on its concomitant opioid release to enter an anesthetized state facilitating high-risk sexual behaviors that will further release dopamine, norepinephrine, adrenaline, and serotonin. Even as adults in

romantic relationships, sexual addicts drift easily into the one-person psychological system of the neglected child, and get “in the bubble,” or dissociate, to engage in sexually addictive behaviors. Sexual addicts also tend powerfully toward dissociation because, as Tatkin and Solomon (in press) argue regarding avoidant personalities, their frontal lobes have not been activated, and they are therefore not cognizant of space and time.

Perhaps not surprisingly, many partners of sexual addicts are in the same chronically dysregulated state and have also learned to auto-regulate at an early age, in their case by taking care of others to the exclusion of their own well-being. Thus they will feel especially abandoned and angered by a partner’s distancing and neglect, and may respond by engaging in the unhealthy behaviors they have habitually pursued to seek external regulation. Partners of sexual addicts need to learn that a sexual addict’s conduct is an established reflex, which recovery will lessen but may never erase completely (Tatkin & Solomon, in press). For at a deep level, the damaged attachment capacities demonstrated by sexual addicts’ emotions, cognitions, and behaviors bespeak not only a distancing from the other, but from the self.

Attachment and Selfhood

For many decades, psychologists have recognized the nonverbal communication of attuned caregiving as fundamental to the infant’s development of secure attachment. Bowlby (1969) considered this pre-verbal learning the essence of the internalized attachment system, and Winnicott noted it as the criterion of effective care. An attuned parent who is sufficiently sensitive and responsive—Winnicott’s “good enough mother”—is seen to function as an interactive regulator of the infant’s affective states (1958). Sarkar and Adshead (2006) specify that “interpersonal affective responses need to be both regulated and organized to be effective. . . . The most favorable management of relationships requires the capacity to regulate negative affects such as anger and anxiety” (p. 298). Such modulating of fear and repairing of breaches in attunement allow the infant to attach with confidence. As noted, from the vantage point of affective neuroscience these behaviors and gestures also serve to stimulate the infant’s brain and nervous system to grow in healthy ways. Schore (A. N. Schore, personal communication, February 3, 2007) has found that the right brain “is experience-dependent for maturation” and that “the right hemisphere stores a vocabulary for nonverbal affective signals such as facial expressions, prosody, and gestures. The infant can feel safe, maintain optimal arousal levels, rest, and digest (Porges, 2001). This stable state creates good ventral vegal tone, as the child retains normal levels of cortisol in the presence of the attachment figure, and the social engagement system functions in the form of eye contact, facial expressions and vocalization.

But in addition to allowing positive emotional connection, proper development of the brain lets both infant and caregiver maintain independent selves. Secure attachment can be thought of as the equivalent of “open and direct communication of intentions and feelings together with negotiation and compromise” (Crittenden, 1997, p. 47) Siegel (1999) further explicates the healthy blend of unison and selfhood: “Attachment is based on collaborative communication. Secure attachment involves contingent communication, in which the signals of one person are directly responded to by the other” (p. 21).

The centrality of secure attachment to the eventual development of the self stems from its interrelationship with the sensation of anxiety. If the caregiver is chronically anxious or is depressed enough to be emotionally unavailable, the infant will experience danger. Thus fear flourishes where attachment is weak, leaving the infant in a state of hyperarousal with high levels of cortisol, an increased heart rate, an activated sympathetic system mobilized into the fight-or-flight mode, and dissociated rage and panic. In the 1950s, Ainsworth and Bowlby (1991) studied infant attachment patterns in what came to be called the Ainsworth or Infant Strange Situation Procedure. Three distinct attachment styles were identified by this study, with a fourth named in 1986 by Main and Solomon: the secure attachment style, the anxious-avoidant, the anxious-ambivalent, and the anxious-disorganized (Main & Solomon, 1990).

Certainly, the inborn capacity for attachment receives its fundamental shaping through each infant’s early experiences. Bowlby (1998) had called these patterns the “internal working model of attachment” to underscore the experiential conditionality of the attachment system. Siegel (1999) notes evidence of the plasticity and complexity of attachment pattern development and the growing brains that accommodate it: He finds that children may have distinct attachment strategies with different caregivers, and thus each distinct “interpersonal relationship directly shapes the neurobiological state of the infant’s brain within interactions with each caregiver” yielding, for example, an avoidant attachment to a parent but a more secure one with a grandparent (p. 77). Over time, both these patterns will shape the child’s brain. Siegel further points out that “the Strange Situation classifications at one year of age are associated with numerous findings as children grow into adolescence, such as emotional maturity, peer relationships, and academic performance” (p. 73), and suggests that they may be used to predict adult attachment styles. Tarullo and Gunnar (2006) demonstrate that disorganized toddlers retain heightened cortisol levels after the “Strange Situation” protocol while securely attached children do not.

Yet even though early attachment patterns have a monumental impact on an individual’s functioning, later experiences continue to influence his internal working model (or models) of attachment. Understanding these internal categories, and their continued malleability, directs sexual addiction

therapists to the most effective interventions they can use to change these patients' insecure attachment patterns through a highly attuned therapeutic relationship. To distinguish adult attachment styles from their childhood manifestations, we may use the Adult Attachment Inventory's denotation of the infant's secure pattern as the adult "secure/autonomous"; the infant's avoidant style as the adult "dismissing"; the infant's resistant pattern as the adult "preoccupied"; and the infant's disorganized/disoriented style as the adult "unresolved/disorganized" (George, Kaplan, & Main, 1996).

CLINICAL PRESENTATION OF ATTACHMENT STYLES IN SEXUAL ADDICTS AND THEIR PARTNERS

The current author's clinical experience accords with impressions of numerous practitioners working with sexual addicts and their partners (Creeden, 2004; Seedall & Butler, 2008; Zapf, Greiner, & Carroll, 2008). The insights of affective neuroscience greatly elucidate the powerful physiological and psychodynamic mechanisms contributing to this population's strikingly consistent presentations.

Dismissing Attachment Style

Patients with a dismissing attachment style often lack awareness of their emotional states. Usually from emotionally distant or rejecting families, such individuals most likely have developed prefrontal cortical pathways that over-regulate the limbic brain input, restricting both affect and activity. In addition, these patients are deficient in insight, which travels affect-mediated neuronal pathways of the right hemisphere to link previously unrelated ideas and to allow self-monitoring.

As a result, such patients generally provide only brief, perfunctory descriptions of their activities and feelings, seem emotionally cold, lack compassion for others and for themselves, and minimize the importance of attachment-related experiences such as their primary romantic relationship and their relationship with the therapist or group members. They often do not remember much of their childhoods or report them as "fine." They can present with blunt or flattened affect, and can be rigid in their responses to others or their social environment. Dismissing personalities seek external sources of regulation—whether food, gambling, love or sex—because using these produces a dopaminergic arousal that temporarily obscures the chronic emotional numbness they learned early, and all too well, as a survival skill.

Along with discounting their own feelings, these classic sexual addicts studiously protect themselves from the demands of genuine human connection. They are accustomed to doing everything in isolation, prizing their hyper-individuality and rejecting any need for connection, love and intimacy.

They become overwhelmed when relationships—personal or therapeutic—require intimacy, and avoid closeness by acting out sexually, disappearing emotionally in therapy, and resisting 12-Step group meetings. Clinicians may find it difficult to empathize with these patients, whose primary styles of relating include passive-aggressive behaviors: As Cohen and Shaver (2004) note, “emotional negativity and withdrawal motivation have been connected in psychophysiological studies with the right frontal lobe of the brain” (p. 799). They find also that avoidant individuals show “a right hemisphere advantage for processing negative emotion and attachment-related words” (p. 807). These habits of ignoring both the self and others allow them to evade the emotional threats of inner awareness and of social connections.

Preoccupied Attachment Style

Ambivalently attached individuals are similarly incoherent reporters about themselves, but demonstrate more explicitly the anxiety, anger and fear marking their personalities. In contrast to dismissing patients, individuals displaying a preoccupied manner of attachment have developed cortical pathways that generally under-regulate both affect and actions, and this under-regulation allows their verbal and behavioral responses to bypass the controlling neocortex and short-circuit any judgment about what they say and do. Typically, their caregivers were unpredictable, leaving them feeling constantly out of control, tense, and at the mercy of their own immediate impulses. Again unlike the laconic dismissing patient, the preoccupied individual may overwhelm the therapist with emotional material. The speaker remains caught up in past attachment experiences, and is irrelevantly verbose, especially when recounting childhood material. He maintains connection through negative affect, which may present as complaints, criticism, and rage. These individuals have very little capacity for self-soothing or becoming vulnerable with others, but tend to stay in relationships via their anger.

Unresolved/Disorganized Attachment Style

Individuals whose attachment style is unresolved/disorganized may appear both avoidant and ambivalent at once, and may present the bi-phasic fears of engulfment and abandonment characteristic of Borderline Personality Disorder. Because these patients often have suffered childhood abuse wherein the attachment figure from whom they sought comfort was also a threat, as Main and Hesse (1990) believe, they have been trapped within a “paradoxical injunction;” try as he might, the child could never achieve an organized, regulated state by way of the caregiver. Patients with such a history may exhibit contradictory coping mechanisms including negative attention-getting, or shifting from prolonged silence into an endless, unreasoned monologue.

Left at its worst, this style of attachment presents as sociopathy. Only the resolution of this early childhood trauma can allow these individuals to gain a congruent sense of self and healthy affective regulation.

The finding that “sexually addicted men are more likely to relate with insecure attachment styles. . . . [and that] treatment for male sexual addicts should address both addiction and relationship insecurity” (Zapf et al., 2008, p. 158) suggests the therapeutic centrality of developing a secure attachment between patient and therapist. Indeed, this “earned secure attachment” is one of the most powerful forces helping patients learn to regulate their nervous systems (Ginot, 2007). The factors that, over time, reveal neurally encoded attachment patterns, alter the brain, retrain the ANS, and help create a secure attachment emerge within the intersubjective field of the therapeutic dyad: limbic resonance, attunement, and play. In addition to a secure attachment with a clinician who has resolved his or her own conflicts, connection with other caring people in a 12-Step program, group therapy, or a healthy love relationship helps repair deficient attachment patterns.

IMPLICATIONS FOR TREATMENT OF SEXUAL ADDICTS AND THEIR PARTNERS: ESTABLISHING ATTUNEMENT IN INITIAL ASSESSMENT AND INTERVENTIONS

Initial Assessment

During the initial psychosociosexual assessment practitioners will likely hear information revealing early trauma from neglect, emotional abuse, or violence witnessed or received, and consequent disruptions in the development of the patient’s attachment capacities. It is also useful to inquire into the psychological state of the patient’s mother during pregnancy and the first 18 months of the patient’s life—the period crucial to right-brain development—as infant temperament, Schore (2003a) argues, is primarily shaped by the pre-natal environment rather than by genetics alone. Schore (1994) thus emphasizes the lasting impact of that first year and a half: “The beginning of living systems sets the stage for every aspect of an organism’s internal and external functioning throughout the lifespan” (p. 3). Therapists may also learn about disturbed patterns of relating in later childhood, adolescence and young adulthood. Yet clinicians must also be on the lookout for positive attachment experiences, as one good attachment figure may balance or alter negative experiences to a remarkable extent (Siegel, 1999).

After the initial assessment, identifying the patient’s attachment style can help the therapist orient his early treatment, gauge how best to attune to him, and when and how to confront him to teach him to self-regulate. Since sexual addicts and their partners have learned too well to guard themselves from the affect they could not regulate, clinicians may need to rely on their

own bodily reactions during the assessment process to aid them in tracking patients' affect, noticing their capacity to hold gaze, and monitoring their levels of anxiety and depression.

Numerous attachment assessment tools are available to practitioners. George, Kaplan, & Main's (1996) formal Adult Attachment Inventory requires certification to interpret, but Shaver's Self-Report Measurement of Adult Attachment (Cohen & Shaver, 1999) provides an informal measure. In addition to these tools, the sensitive listener will note a patient's habitual indulgence in the disconnected social behaviors, so available in contemporary culture, which may indicate sexual addiction: Instead of personal relationships, one may participate in "virtual community" via the Internet, and instead of stably coupled sexuality, one may find anonymous pornography and transient sexual encounters. In brief, information from initial assessment sessions will give a remarkably reliable picture of the degree of caregiver-child attunement, the childhood organization of the nervous system, and the resultant attachment style. Yet even without explicit information about his first years, this author's experience suggests that a patient's character traits provide a good roadmap to the arrangement of his nervous system, his attachment style, and, therefore, to the mode of care he needs.

Early Interventions

As treatment begins, practitioners will note therapeutic difficulties specific to this population. To understand these it is crucial to recall that addictive behaviors create a non-metabolic state in which there is little or no oxygen in the right orbital frontal cortex. Without oxygen to fuel the higher cortical functions, the sexual addict has neither the right-brain function of conscious reflection, nor the left-brain capacity to reflect upon and express such observations. Additionally, his right orbital frontal cortex cannot regulate the sub-cortical emotional states occurring in his limbic brain. These patients generally lack any familiarity with healthy mother-infant relating, in which the mother looks at and listens to the child, and thus regulates his entire limbic system including the anterior cingulate, insula and amygdala by repeatedly creating a dialogue between the amygdala and the right orbital frontal cortex. Schore (A. N. Schore, personal communication, March 28, 2008) argues that severe attachment failures negatively impact this right limbic circuitry, producing an immature, inefficient stress regulation in the borderline personality. They react with aversion to the proximity of the therapist and tend to down-regulate their nervous systems, usually by averting their gaze. This auto-regulation creates a sense of distance so they are spared what they would experience as the oppressiveness of the therapist's presence (Tatkin & Solomon, in press). Indeed, in view of the attachment and social deficits that mark sexual addiction, we may regard it as a phobia of long-term proximity: Sexual addicts can tolerate closeness for short periods

of time, and they can stay in more distant relationships for long periods of time, but they cannot maintain a long-lived intimacy.

Ironically, while sexual addicts' gaze-averting separates them from others, their superficially opposite behavior of visual objectification or pornographic lust also serves as an auto-regulatory stratagem of isolating. Although all humans are predators who scan for salience such as threats, food and sex, sexual addicts have conditioned themselves to be on the hunt for sexual "hits" at all times, to the exclusion of genuine human connections. In addition, the dorsal lateral prefrontal cortex, instrumental to the fairness-related behaviors which inhibit seeing others only as objects, has been shown to be quite underdeveloped in this population (Knoch, Pascual-Leone, Meyer, Treyer, & Fehr, 2006, p. 829; see also Ullman, 2007). Partners of such persons thus feel tremendous frustration when trying to relate genuinely with the addict, especially if the partner habitually tries to auto-regulate through an invasive, needy style of caretaking. It is an especially cruel irony for partners that there is a direct correlation between interoception and the ability to feel empathy, both of which capacities are profoundly compromised in sexual addicts.

Intermediate Interventions

As a result, when working with this population clinicians must pay attention to the physical space between themselves and the patient and to how often patients avert their gaze, as these distancing markers provide clues to patients' tolerance for physical and emotional closeness. Keeping in mind that a healthy attachment distance between infant and caregiver is 6 to 12 inches, therapists will note that as they move nearer to the patient there will be more eye-to-eye contact, creating a synergy that is novel to the patient's brain and, over time, engages him. Practitioners must gauge optimum proximity at each stage of treatment from initial assessment to termination; gradually, patient tolerance for physical closeness and the affect it elicits should increase.

When in session, therapists will derive advantage by monitoring their tendency to analyze the conversation rather than to observe their own internal, physical cues. Schore (2007) advises us that healing does not derive from clinicians' use of the left brain upon the patient, but from their ability to move into the right brain and its deeper feeling states together with the patient, so that they may interactively regulate the patient's dysregulated affect within the intersubjective field. To be mindful of this interaction means not only that therapists constantly query patients about what patients are noticing in their bodies during session; therapists must track their own interoceptive cues with equal attention.

In this way, clinicians can use their own reactions to attune to patients and to gain their attention gradually. At this beginning stage, therapists can

most effectively utilize facial expression, gesture and prosody rather than words. The left hemisphere creates and captures linguistic sequences, but it is the right hemisphere that comprehends the emotional communication conveyed by the face, gesture, body, and voice. The practitioner's tone of voice will especially trigger the patient's amygdala, located close to the auditory canal, to listen for any threat. A dismissive patient will look away to down-regulate, and will thus rely even more on prosody alone to assess for waves of sympathetic and parasympathetic arousal. These patterns will be read by the patient's right brain and will register in his body as interoceptive cues foretelling the therapist's impending acts. His ANS is thus being prepared to respond to either affectionate or dangerous behaviors.

For this reason, therapists need to be highly attuned to their patients' patterns of communication as well as to their own intuition and the sensations in their own bodies. Clinicians cannot pretend an empathy they do not feel, as patients' ANS will recognize it as false and the content of the therapeutic message will be negated if the patient feels risk. As Schore (A. N. Schore, personal communication, February 3, 2007) points out, Holmes correctly reminds us that therapists may themselves need therapy, not just to "immunize" themselves against the matter they encounter but to broaden their understanding of human experience, upon which they can draw when working with patients.

Tailoring Interventions According to Attachment Style

For yet another reason, dismissive sexual addicts will habitually down-regulate. Because caregivers did not meet their needs, they avoid relationships and dismiss their value, a behavioral habit manifested—and contributed to—physiologically by their low level of frontal lobe activity. However, frontal lobe activity can be heightened by exercises guiding patients to feel and thus to become aware of their bodies.

But this task is easier said than done. Physiologically, avoidant persons already bear a high allostatic load as their bodies are overtaxed by constant cortisol and adrenaline production, leaving them too fatigued for new expenditures of energy. Indeed, the effort it costs them to connect to themselves and to others hardly seems worthwhile, since they have rarely or never derived any relief by doing so. Also, their exclusive orientation towards salience—scanning continually for basic survival needs such as food, sex, and safety—obscures any realization of other less immediate but more lasting and meaningful desires.

These patients must first learn to identify their disavowed feelings, and then learn how to express them to others. The therapist's role at this point is constantly to direct the patient back to his body so he can learn to notice, identify, and express what he feels. Mirroring the patient's gaze, the tilt of

his head, and his stance may remind the practitioner of the play state with an infant or small child, similarly characterized by attunement of prosody and movement, attention to spontaneous laughter and discovery, and intuitions received by sharing and amplifying affective states. Here the therapist acts as a healthy regulator in the relationship and, according to Bowlby (1998), gradually becomes an attachment figure. The therapist helps regulate the patient's experience of emotions through what Schore (2003b) calls a "crescendo-decrescendo" process, functioning as a secure base from which the patient can explore the language of his bodily sensations and the novel skill of self-monitoring, and simultaneously apply his new knowledge in 12-Step meetings and group therapy.

The preoccupied patient, on the other hand, will up-regulate his affect in session because his ANS is primed to magnify distress signals for insensitive caregivers. At the start of therapy his parasympathically driven emotional activation may need external regulation by another to calm down. To aid a patient with this affective profile, practitioners should calm their own nervous system, notice their own breathing as well as the patient's, and heed their own gestures, prosody and body language to modulate the patient's. As the patient's nervous system becomes attuned, the dyad will interactively regulate one another via the face and eyes. At that point the therapist has even more opportunity to help the patient learn to self-soothe and to recognize his ANS activation. Persons with a preoccupied attachment style need cognitive restructuring to contain their persistently troubling material; over time, they can learn to monitor their body-based feelings as a way to unlock unconscious issues and thus to effect long-term change.

The therapist may well find working with unresolved/disorganized patients overwhelming. Beginning a treatment plan with a task-centered, cognitive-behavioral approach as a form of containment is a good intervention until such persons attain stability. Indeed, eliciting too much affect at first can be further disorganizing, making these patients feel vulnerable in proximity to another. If the patient cannot follow treatment recommendations or stay sexually sober, it may be necessary to resolve early childhood trauma in an in-patient setting before he is ready to examine his behavior and emotions in session.

Completion of Treatment Tasks

The practitioner must keep in mind that the patient's and the partner's initial use of the therapist's more mature affective abilities represents an immature stage of attachment that must become internalized to avoid an unhealthy dependence. We see this undeveloped utilization most often in the partners of sexual addicts, usually as verbal discharge or too-frequent phone calls. Themselves dysregulated, possibly due to their own childhood trauma and

subsequent damage to their attachment abilities, partners will employ the therapist to self-regulate until they are taught to manage affective states independently. They may at first persist in interpreting their pain as caused by external factors, typically the sexual addict's behaviors, and may exhibit the primitive reactions of excessive externalization and negative affect that should have been superseded around the age of 5. Thus partners may reprise their own unconscious unresolved issues, which have been exacerbated by the current trauma of the sexual addict's errant actions. For both the sexual addict and the partner, the aim of treatment must now broaden to permit the safe experience, sharing, and independent management of affect.

A SPECIFIC INTERVENTION FOR AFFECT REGULATION

"Walking in Your Shoes," a group protocol this author co-developed in 1992, provides what Cogswell (1993) calls "an empathic way of deeply relating to one another" (p. 99) and shares features of other modalities seeking to integrate body and mind. Prominent among these are steps to utilize patients' and therapists' bodily sensations to track feelings and respective emotions.

1. Observing physical signs of anxiety:

Anxiety manifests first as tension in the striated muscle tissue, apparent as wringing or fidgeting hands, shaking legs or feet, pursing of the lips, and reports of tension in the extremities. Extremity tension indicates the most superficial defense against affect, and thus informs the therapist that the patient is available to move into deeper feeling states without decompensating. The patient should be encouraged to recognize the inseparability of his body and his mind.

A slightly higher level of anxiety—one step closer to the parasympathetic withdrawal response—reveals itself in the breath. Holding one's breath or exhaling heavily enough to engage the intercostal muscles denotes defense and arousal in the interconnected body and mind.

2. Tracking signs of anxiety and pointing them out as defenses against deeper affect:

It is important to educate the patient about his blocking of feelings through these physical signifiers of anxiety. The therapist may ask, "Do you notice you're wringing your hands/ shaking your foot/ holding your breath/sighing heavily? What are you actually feeling in your body? And where do you feel the feeling? Do you recognize this tension as a manifestation of anxiety? Do you see how you use this tension to block your feelings?" In this context, therapists must use their somatic countertransference to guide them and may self-disclose about their own bodily sensations and the emotions they represent.

3. Asking about bodily functions:

Reports of dry mouth and throat, tightness in chest or gut, chronic constipation or diarrhea tell the therapist that the defenses are higher, since the feelings have been somatized. Perceptual disturbances such as ringing in the ears or tunnel vision warn that trauma is buried deep in the body and the implicit system, and should not be exposed rapidly. Practitioners should help the patient recognize these symptoms as displays of anxiety and a defense against deeper feeling states. If the therapist can teach him to tolerate the underlying affect by first honoring the defenses, and then reminding the patient that these feelings are occurring as a present-day response to a past experience, physical manifestations will gradually dissipate and the emotions will be able to emerge.

On the other hand, if symptoms increase, it is likely that therapy is challenging the defenses too radically. A patient without the ego strength and flexibility to stay present with the intervention may then begin to exhibit perceptual disturbances. Thus therapists must constantly assess each individual's ability to sustain deeper affect by tracking physical symptoms. Practitioners may help the patient become grounded by having him breathe consciously, feel his feet on the floor, and identify specific objects in the room and their specific qualities. Slow, supportive therapy is indicated when physical functioning is disturbed, and more systematized therapies such as EMDR may be indicated.

4. Tracking affect:

The vagus nerve runs from the brain stem, through the larynx and heart, and into the gut. For this reason scientists refer to the heart and the gut as our "second and third brains." Precisely because the vagus nerve conveys emotion to the body core, therapists are able to track physical manifestations of affect and to teach patients to do the same. Practitioners may begin by noticing any shifts in the patient's facial expression and then asking what he is feeling, where in his body he notices the feeling, if the feeling has a shape, color or temperature, if the body part wants to move in a particular way, or how he might describe the feeling. If the patient persistently describes his ideas, the therapist should direct him back to his bodily sensations. Facial changes occur in milliseconds at levels beneath our awareness, but we read these state changes in our ANSs. Tracking and commenting on what the therapist notices in the patient keeps the session focused on the process and permits entry into deeper affect. Therapists should be aware that the meaning of facial gestures differs depending on what side of the face they appear. Research by Elfenbein, Mandal, Ambady, Harizuka, and Kumar (2004) informs us that the right side of the face—that controlled by the left hemisphere—presents socially appropriate expressions, while the left side—the one controlled by the right hemisphere—reveals private emotions. If the therapist notices tears in the patient's eyes, the therapist should ask him to identify the exact feeling eliciting

the tears. If the patient cannot do so, the therapist should report back to him what the therapist has been tracking in his or her own body and emotions.

5. Attending to the therapist's prosody and body language:

Therapists should proceed slowly, reinforcing progress with positive statements and paying close attention to their own tone of voice and gestures. Schore (2008) contends that "just as the left brain communicates its states to other left brains via conscious linguistic behaviors so the right non-verbally communicates its unconscious states to other right brains that are tuned to receive these communications." Schore (A. N. Schore, personal communication, February 3, 2007) also draws on Horton's insight that the clinician's regulatory capacities permit the patient to trust and to feel safety at the deepest level, and that the therapist's right brain is a source of comfort for the patient. The clinician's prosody—the emotional tone of the voice—will also powerfully change affect states in the patient, whose right anterior temporal lobe has been found to adapt to it (Belin & Zaforre, 2003). Kahr (2005) notes that "the musicianship of the psychotherapist may well prove to be one of the most transformational ingredients in the clinical encounter. . . . The patient will be deeply affected by our tone of voice, our accent, the volume of our voice, the pitch of our voice, its cadence, its flow, its pressure as well as by our sentence structure, our knowledge of grammar and by the richness and paucity of our actual vocabulary" (p. 10). Thus therapists must be genuine in their prosody, as limbic resonance does not lie. Male therapists may need to take special care, as research suggests that, in male brains, male voices activate visual channels while female voices activate auditory ones and may thus be more easily interpreted (Sokhi, Hunter, Wilkinson, & Woodruff, 2005).

As does prosody, gestures and body language transmit emotional states. Early on, Sapir (1949) had taught that "we respond to gestures . . . in accordance with an elaborate and secret code that is written nowhere, known by none and understood by all" (p. 556). An individual's ANS reads these gestures to predict and prepare for another person's behavior. Even where the practitioner sits in relation to the patient influences what the patient will feel. If the therapist sits too close for the patient to tolerate at a given stage, the patient may feel danger. If the therapist sits too far away, the patient may feel abandoned. Clinicians must continually assess the stage of work they are in with each patient to determine the appropriate distance at which to seat themselves.

6. Enabling insight and intuition:

Sexual addicts characteristically demonstrate deficient insight due to poor development of the right orbital frontal system. They lack secure attachment and, therefore, the communication skills that human connection brings, and their posterior right hemisphere is shut down by too much or too little activation. Sexual addicts cannot observe transference or

counter-transference—the paradigmatic interrelation of the self and the other—because their orbital frontal systems cannot regulate independently. So there must first be interactive regulation through the agency of the therapist, and an abandonment of the left orbital frontal functions to allow insight and intuition to arise out of the sub-cortical regions of the right hemisphere.

The therapist will aim for an intersubjective flow so the patient can move more deeply into his affective material in safety. The patient has to become able to tolerate being seen by the other while out of control, without feeling shame. Raised in a family that habitually humiliated, but could not regulate shame, such a patient may respond with anger when embarrassed. Shame is deeply disorganizing and parasympathetic, and rage becomes the defense against unregulated childhood feelings of being annihilated. The therapist can reflect these emotions, create a holding environment, and respond with sensitivity and flexibility to whatever the patient is experiencing. The therapist thus acts as the regulator for the patient so that the patient can hold material in mind long enough for insight to arise and for changes in his reactions to be made. Insight, the ability to see oneself from a different perspective, can be mortifying for persons with little sense of self and other. Yet small insights are critical to reorganizing the self to higher levels of complexity. Therapists should thus avoid premature interpretations, which come from the left brain and halt the patient's and the therapist's further movement into the affective right brain. Often, such derailment occurs when the therapy gets uncomfortable for the therapist. When moving into deeper work, we would do well to keep Siegel's (1999) concept of the "window of tolerance" in mind. He defines this phrase as an individual's ANS response "in which various intensities of emotional arousal can be processed without disrupting the functioning the system" (p. 253). After the patient has achieved approximately three months of sexual sobriety by working with the therapist at the affective level permitted by the development of his right hemisphere, the clinician can begin to push this boundary in increase affect tolerance. To do so the therapist must be willing to enter sympathetic hyperarousal with the patient to experience his dysregulated rage, pain and terror, as well as his parasympathetic hypoarousal to experience his dysregulated shame and hopelessness. The left-brain reflective functions of both patient and therapist have to give way for both to go deeper. The therapist must be willing to stay in deeper feeling states rather than in reflective states to facilitate the patient's doing so as well. Here again, the eye contact, prosody and gesture of the therapist are crucial. Alignment of these is true affective empathy, not cognitive empathy. Limbic resonance is at play in the inter-subjective field, and the therapeutic dyad enters a spontaneous dance in which both parties feel their way together, leading to higher levels of complexity in the brain, and so to profound, lasting change.

We can now understand precisely why meditation, yoga, tai-chi, chi-gong, healthy massage and other treatments uniting body and mind are useful for sexually addicted patients with trauma, which has divorced the emotions from the intelligence. All these modalities help teach self-regulation and restore good vagal tone or heart rate variability, which encourages sympathetic and parasympathetic balance and, thereby, regulation of the ANS. This fact suggests that some sexual addicts turn to sexual massage as their preferred form of regulation because touch helps quiet their ANS. Field et al.'s (Field, Pickens, Fox, Nawrocki, & Gonzalez, 1995) research on healthy massage therapy bears out this theory by showing that massage increases vagal tone, defined as "the amount of inhibitory influence on the heart by the parasympathetic nervous system" (p. 227). Ventral vagal states increase the complexity of one's reflections as more blood flows to and oxygenates the right orbital frontal cortex. When the right orbital frontal cortex has more oxygen, there is more synaptic connectivity in the system. In addition, studies suggest that meditation appears to strengthen both the insula and cingulate—the empathic, relational center of the brain (Schorer 2007; Siegel, 2007). These modalities, along with physical movement in general, appear to help regulate affective life (van der Kolk, 2006).

CASE NARRATIVES

Among my clients three (renamed here) illustrate the applicability of this protocol across genders, sexual orientations, and therapeutic settings. The narratives detail not only the clients' presentations but my own reactions, since attending to these is crucial when attempting to connect with persons previously incapable or rejecting of genuine attachment, personal reflection, and affective self-management.

Common themes emerging from these cases include the neuropsychobiological damage wrought by early, repeated and traumatic breeches in attunement; ensuing dysregulation (and consequent repression) of affect; and the gradual nature of cognitive, emotional and behavioral recovery through a painstaking establishment of secure attachment.

Wife and Mother in Individual Therapy

Carla, a 35-year-old Caucasian woman with an ivy-league education, a 2-year-old child, and a history of overeating, had extreme difficulty attaining orgasm by her husband and frequently pursued emotional and sexual affairs. Flirtatious during their courtship, she felt aversion for her husband upon marriage and recoiled at the thought of sex with him despite reporting that she loved him, felt safe with him, and wanted to stay married. Even with

her lovers she dissociated during the sexual act and remained inorgasmic. She would often say, "I don't feel anything down there."

Carla's father had been sadistic towards her mother, and as a small child she would hear them fight and have sex immediately after. She constantly feared for her mother, who made Carla her confidante and presented herself to Carla as a helpless victim. Emotional violence thus became equated in Carla's mind with foreplay. While she was never directly sexually abused, she was traumatized repeatedly by what she witnessed and what she was told. Indeed, she presented exactly like someone who had been herself sexually abused, for these experiences had left her ANS in the defensive hypoaroused state of withdrawal. Threatened by any resemblance in herself to her mother's dangerous dependency, and feeling in her body that sex was unsafe, Carla was avoidant in her attachment style.

During our early sessions Carla often exhibited shallow breathing. She presented with both great urgency and a stunning lack of insight. Her diminished ability to reflect on herself indicated her low level of right orbital frontal cortex activity resulting from her not having received attentive soothing early in life. I would feel tension in my own body due to her anxiety, and often experienced a need to rescue her. I had to breathe mindfully and settle myself down so that I could attune to her. Using Patrick Carnes's task-centered approach I immediately created a sobriety plan to stop Carla's sexual acting out. She began attending Sex and Love Addicts Anonymous meetings and was willing to follow treatment recommendations.

After she had achieved 3 months of stable sexual sobriety according to her plan, I began to focus more on affective issues. At first, Carla would want only to report the events of her day. As I began to link these to her past to encourage her making associations to her sexual behaviors, she would report horrifying childhood events without any affect, as if she were reciting a grocery list. I had to identify repeatedly the tension I noticed in her body, her pressured speech, and the internal deadness she reported as her habitual defenses against deeper feelings. She exhibited frustration with me when I made such comments but could not express anger directly, for it had been unsafe to do so as a child. Then she would give up, as her nervous system had been trained to withdraw in adverse situations.

In contrast I would myself feel a profound sorrow and compassion for the child who had been made her mother's witness and guardian. I made explicit the constant apprehension and risk inherent in that role. I recognized and validated her suffering, and helped her see that her sexual behaviors made perfect sense as she reenacted her childhood trauma in the futile hope of finding peace. I had also to notice my own discomfort in exploring her painful, "not knowing" position while we explored the shadows together. Having traversed dark corridors in my own therapy helped me convey to Carla that there would eventually be light.

Over time, through my making direct eye contact, remarking when she held her breath, tracking her facial gestures and body movements, helping her label and stay present with her bodily feelings, attending to the prosody of my voice and attuning as finely as possible to her affect, Carla's defenses started to soften. She began to access the sub-cortical regions of her brain where unresolved, implicit memories still lived. As she came to trust and attach to me, she was able to experience the terror and grief of her youth. With assistance, she began to link her sexual numbness to the fear of men and of intimacy she learned through the impossible burden of being her mother's confidante and protector. She came to understand that her body had shut down to protect herself, and that she both used and abused men by acting seductive in a vain effort to recapture her blunted sensation and emotions.

One year later, Carla was pregnant by her husband, to whom she had finally been able to make a full disclosure. She had also maintained a year's sobriety and reported *feeling*, for the first time in her life, both her body and her affect. Together, they were working on touch so she could stay present and experience him as the man who loved her, not as the father who had created fear and pain.

Cyber-sex Addict in Group Therapy

Mitch, a 34-year-old Caucasian, had violent fantasies of raping women and masturbated compulsively while viewing Internet pornography depicting such scenes. He stated that he had never hurt a woman and never imagined he could. He attended 12-Step meetings and followed treatment recommendations, and came to my group after having achieved 30 days' sexual sobriety on his task-centered plan.

Mitch's mother, a practicing alcoholic, raged and beat her four sons as his father stood by passively. Mitch told innumerable stories about his horrific abuse as a boy and becoming alcoholic himself. Mitch reported 10 years' sobriety in Alcoholics Anonymous. Despite this achievement he initially presented as arrogant, rigid and surly, with little respect for me as a woman. I had difficulty concealing my dislike of Mitch and I believe he knew it.

Once in group, however, he admitted to lying constantly and eventually, on his own volition, began to carry around a "lie notebook" in which he recorded all his week's lies to report at group. But he was still afraid to talk about his feelings because that had proven so dangerous in his household. Mitch had been traumatized early, and lived in the hypoaroused state of parasympathetic withdrawal. He was ambivalent in his attachment style, seeking closeness then pushing it away.

Initially, a group member's feedback or any intervention I would make would send Mitch into shame. Yet he would hold his resentment for weeks

before talking about it. When he did confront me in group, I found myself at first impatient with him, and had constantly to remind myself how wounded he was. I would consciously manage my reactivity and modulate my voice, make eye contact with him, and stay steady as he told me how I had “failed” him. Once I could feel compassion for him as a child who had endured atrocities, I was able to provide the validation of his feelings he seemed to need constantly. Over time our relationship began to shift, and intimacy was no longer modeled, but genuine. Interestingly, the more empathy I felt and showed Mitch, the closer we grew—not only with each other but with the group as a whole. Our inter-subjective connection thus included, and altered, everyone present.

As the group dynamic began to operate on him—the attachment born of a caring community, the experience of being fully seen, the reduction of shame and loneliness, learning to care for others, and seeing that I, a woman, was actually on his side—Mitch gradually revealed his feelings. Weekly, he would risk talking about how scared he felt in the world, and confessed that he had married his wife because he was afraid of her rather than because he loved her. He started to formulate a clearer sense of self as I and the group reflected back what we felt in our bodies when he shared. He grew slowly to hear, see and feel that he mattered and that he could stand up for what was true in his heart.

In time, Mitch began to acquire greater solidity as a person. He could now confront other members on the spot, refer to his bodily sensations and emotions, and allow himself to cry in group. He was able to hear feedback without automatically going into shame, and if he felt shamed by anyone he was able to tell him directly. He eventually left his wife, began dating in a healthy way, and met a woman he genuinely liked. Although he was afraid of intimacy with her, he found himself being honest with her and he found her kindness towards him refreshing and novel. Sex became an expression of his love for her; they eventually married and had a child. Mitch no longer had any interest in violating women once he took back his power as a feeling, truthful man. He remained in group for 7 years, and at the point of leaving had just earned a promotion to manager of a large team at work—an advancement that depended on the communication and cooperation skills he learned in group.

Gay Executive in Individual and Group Therapy

Judd, a 45-year-old, gay, Caucasian entertainment-industry executive, came to my practice at the insistence of his attorney to help fight lewd conduct charges following attempted relations with an undercover police officer in a public restroom. At the initial assessment Judd was tense, extremely verbal, but circumstantial and resistant. His “fast-lane” life suited his thirst for constant, intense stimulation. He had never been in a committed relationship,

and the thought of curtailing his compulsive sexual behaviors alarmed him. As his anxiety increased, he evinced more rapid speech patterns and dramatic declarations about his status and “who he was.”

Judd had grown up in a working-class Texas family, neglected by his mother and abandoned by his father when he was 6. His mother had a string of men after that, one of whom secretly fondled him from the ages of 9 to 11. He admitted that although he felt afraid and ashamed, he liked the attention. Leaving home at 16 and working odd jobs, he began having anonymous sex with men. He headed to California where his good looks brought him profit as a prostitute on the streets of West Hollywood. By 21 he had a full clientele of well-heeled men in the entertainment industry. Smart and likeable, he was supported and given a college education by a patron. After graduation and a brief stint using cocaine, Judd landed a job in the entertainment industry. By the age of 30 he was an agent; today, he is a powerful one.

As treatment started he grudgingly agreed to attend 12-Step meetings where he was surprised to see people he knew, having assumed he was the only gay man who would even consider something as ridiculous as sexual sobriety. I found I had to resist feeling bullied by his sense of entitlement. Had I not resolved my own issues in relation to narcissistic, angry men, my amygdala would have registered danger and I would have begun to withdraw and dissociate—tactics learned in my family of origin. Instead, I could note the tension in my body, provide oxygen to my higher cortex, and stay present so that he could not rattle me. Interestingly, my calm demeanor was both disorienting and comforting to Judd, as intimidation was his primary defense mechanism: Hard as a rock only on the outside, he survived in an almost perpetual hyperaroused state, denying his depression and unaware of his anxiety.

In fact, Judd struggled with twin terrors: fear of abandonment and fear of engulfment. He had innumerable boyfriends to whom he could not attach because he always hedged his bets by cruising for another, then became enraged when they left him. His sympathetic nervous system preferentially released dopamine in a fight-or-flight state, and his attachment style was unresolved/disorganized. He rocketed back and forth between the high of the hunt to the numbness, shame, panic and dissociation of parasympathetic withdrawal. Since Judd had no internal source of affect regulation and could not tolerate an intimate relationship that might have offered co-regulation, he “needed” sex to make him feel clear-headed and alive.

It took a year before Judd could refrain from acting out sexually. His early sobriety plan required only that he know a partner by first and last names for at least 24 hours, and have sex only in his or the partner’s home, but he could hardly maintain even these restrictions. It also took that long for him to begin to attach to me as he “didn’t see the point” and was always on the verge of leaving therapy. At last, though, he began to let me see him and to see my empathy for him. He had clearly connected when, after a

fight with a friend, he felt like acting out but could not reach his sponsor, so drove to my office and sat in his car for 30 minutes until he calmed down and could reach someone in the program.

Still, he attached in a disorganized borderline manner that demanded my proving my concern for him but assured that I would not be too close. As with other borderline clients, I tried to avoid setting myself up for idealization and inevitable devaluation, and returned the locus of control to him, telling him, "You have to decide whether or not I care about you, I can't decide that for you," and, "I'm here now, I'm with you when you are here, and I will be here next week." I never budged from this position and he eventually got the message that while I would not pander to him because of "who he was," neither would I leave him. After about 1 1/2 years, Judd agreed to enter an in-patient treatment center for 30 days to work intensely on his early childhood trauma. Soon after, he was able to commence group therapy where he could begin to experience the benefits of giving to and receiving from others.

CONCLUSION

By better understanding the impact of early childhood attachment patterns on the neuropsychobiology of sexual addicts and their partners, we can create a more effective model for recovery. Carnes's cognitive-behavioral, task-oriented approach has enabled therapists to help patients achieve sexual sobriety. But to effect long-lasting characterological change, we believe we must access the affective right hemisphere through bodily felt states in both patient and practitioner. To repair the self, treatment must explore and mitigate the effects of early childhood trauma on the emotional, cognitive, and behavioral capacities of sexual addicts and their partners. Further research into the efficacy of this protocol using instruments such as the Adult Attachment Inventory may let us broaden our recovery expectations to include genuine interpersonal connection, insight, and internally regulated affective states.

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