

TOUCH AND HUMAN SEXUALITY

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It has not been usual for the majority of college-level Human Sexuality texts to discuss the topic of touch except in the most cursory of descriptions. Most of these texts do not have the word touch in their index. Few have more than a page or two on the subject. This is dismaying, for a couple of reasons. The most obvious is that the expression of much of our sexuality occurs through touch and the largest organ of our body is our skin. Also, there is a growing body of writings, theory, and research in the field of touch that is of extreme importance to the studies of human development, health, and sexuality. The contributors to this body of work span the fields of philosophy, medicine, physiology, psychology, sociology, and anthropology. This chapter is a summary and synthesis of this work, with a special emphasis on the findings related to touch and human sexuality.

Touch and Childhood Development: Arguably, it was not until the appearance of the clinical reports by Dr. Rene Spitz (1945, 1947) that the seeds of research in the field of touch were sown. Spitz's reports reflect his anguished quest for a solution to the unexplainable deaths and pathologies of infants and toddlers in his care. The diagnosis of that era for these terminal children was "marasmus" (translation - "the withering away and dying of no apparent cause.") Spitz finally discovered that medicine, good nutrition, and clean surroundings impacted not the least on the tragic outcome. Only what Harry Harlow (1958, 1962) was to later call "contact comfort" turned out to be the "cure" for the excruciating deaths of these children. Touch deprivation is probably most damaging to an infant because, unlike the other four senses, the neonate has an extremely small amount of control over somatosensory self-stimulation due to underdeveloped motor control capacities.

In the arena of social behavior and mother-offspring relationships, Harry Harlow could easily and appropriately be called the "father of touch research." His "deprivation and wire mother" primate research remains among those classic studies in the evolving history of psychology. However, we are only recently discovering just how very important Harlow's work was.

Prior to Harlow's research, Freudian thought dominated even in the informal field of touch. It was generally believed that touch is a somewhat minor component of the more important feeding process provided by a mother to her child (Freud, 1949). Mother-child attachment (or bonding) was assumed to occur in humans as a primary result of the mother providing food to the infant.

Harlow's studies (1962-79) involved taking newborn monkeys from their mothers and raising them in isolation. The young monkeys were deprived of maternal and social touch (i.e., "contact comfort"). In every other way the monkeys were very well cared for. They were well fed, their cages kept clean, and their medical needs attended to. They were "merely" isolated from any physical contact with their mother or other monkeys. Even physical contact with the researchers was severely limited.

In his original classic "wire mother" study, Harlow placed the touch deprived monkeys in a large cage that contained two crude dummy monkeys constructed of wood and chicken-wire. One dummy was bare wire with a full baby bottle attached. The monkeys had been regularly nursed from similar bottles. The other dummy was the same as the first except that it contained no bottle and the chicken wire was wrapped with terry cloth. Placed in this strange environment, the anxious young monkey very quickly attached

itself to the cloth wrapped dummy and continued to cling to it as the hours passed by. The infant monkey could easily see the familiar baby bottle no more than a few feet away on the other dummy. Many hours passed. Although growing increasingly distraught and hungry, the infants in these studies would not release their hold on the soft cloth of the food-less dummy. It was soon apparent that the young monkeys would likely dehydrate and starve before abandoning the terry cloth surrogate mother.

As the isolated monkeys grew older, they were observed to display a highly predictable constellation of behavioral symptoms, even when they were later reunited with their mother and social group (Berkson, 1968; Darian-Smith, 1982; Hansen, 1966; Harlow & Harlow, 1965; Harlow & Suomi, 1972; Hinde & Spencer-Booth, 1967; Hinde & White, 1974; Mineka & Suomi, 1978; Novak & Harlow 1975; Sackett et al., 1976; Suomi, 1979a, 1979b, 1983, 1984, 1990; Suomi & Harlow, 1975). They included: Highly unusual patterns of self-clasping and self-orality; idiosyncratic patterns of repetitive stereotyped activity; an almost total lack of gregariousness or interest in exploring the environment; timidity and withdrawal from virtually all social situations with concomitant self-directed stereotyped behaviors; obvious aversion to physical contact with others; hyperaggressivity; gross abnormalities in sexual behaviors; and later in adulthood, the inability to nurture offspring, with failure to nurse, neglect, and abusive behaviors being highly predictable. In addition, negative physical health consequences (Reite, 1990) and hormonal imbalances (Levine & Stanton, 1990) have been noted in these primate studies.

Additional studies by the Harlow team and others (Gurski et al., 1980) clearly demonstrated that the psychoanalytic "wisdom" of the day was incorrect in its assumptions regarding mother-child attachment. At least with infant and young monkeys, there appeared to be a hunger more powerful than the craving for food. It was science's first view of the pervasiveness and intensity of "touch hunger."

Beginning in the same general era as the Harlow investigations was another direction of research in the area of mother-child attachment. These Attachment Theory studies were conducted by the British scientist John Bowlby (1953, 1969-80) and his American colleague, Mary Salter Ainsworth (1969-78). As a major extension of the work of Konrad Lorenz (1952), their investigations focused directly on the ways that human mothers and infants succeeded or failed to bond to one another. In general, Bowlby and Ainsworth discovered that there are highly predictable outcomes to the differing styles of early mother-child attachment patterns. More than two decades of scientific research on human parents and their offspring has generated a wealth of vital information regarding essential requirements for normal human development (Emde & Harmon, 1982; Shaver et al., 1988). Affectionate touch vs. neglect or punishing touch is a central theme of Attachment Theory and much of this work may be viewed as the human research counterpart to the Harlow studies.

Long before infants develop a useful vocabulary, they employ innate and powerful methods to communicate moods, interest, and needs to their caretakers. This is accomplished with a splendid and increasingly sophisticated variety of sounds, movements, and facial expressions. It is a difficult struggle for any infant to teach its parents about him or herself. However, we know that babies are universally good "teachers." Sadly though, it has been discovered that most parents and caretakers in the U.S. are less than adequate "students." As with all good teachers, if you have a poor student, the teacher must work harder to help the student learn (Bateson et al., 1956; Kaufman & Rosenblum, 1969).

Bowlby and Ainsworth learned that, for healthy parent-child attachments, the parent was a good "student." These parents usually noticed, understood, and responded appropriately to the "lessons" offered by the infant or toddler. Almost all the infants' lessons involved touch. They signal to their parents to, "pick me up, hold me, feed me, burp me, soothe me, stimulate me, change me, and make the pain or discomfort go away." Of course, occasionally the signal was, "I'm over-stimulated, so please leave me

alone for a few minutes." These healthy "parent students" and "child teachers" are synchronized to each other, communicating and learning in a rhythm of increasing complexity.

It was found that, for the "inadequately attached" parent and child, there is a great deal of obvious neglect of the offspring by the parent (Klaus et al., 1982). The parent "students" usually are disinterested in the lessons offered by their daughter or son and generally ignore the signals of the child. When the infant "teacher" tries even harder to interest these parents, the mother or father usually responds with even more neglect, or with verbal or physical abuse. These infants rapidly become impatient teachers and the home "classroom" is filled with the turmoil of rapidly escalating frustration of teacher and student. Within the first year or two, these children eventually give up most efforts to "teach" and learn to suppress their signals for attention, and are likely to become sullen, chronically miserable, or ill. Whichever child responses occur, the outcome is commonly devastating on many levels for the child, the parent-child attachment, and subsequent relationships as the child grows to adulthood (Cummings et al., 1981). Grade schools and high schools are filled with severely withdrawn and troublesome, acting-out children and teens who have given up hope of affectionate pleasure and happiness.

Ainsworth's third category of the "anxiously attached" child is not a median category somewhere between the "adequate" and "inadequate" attachment classifications. The parent of the anxiously attached child may sometimes appear to be a "super-mom" or "super-dad," in that they tend to hold and give just as much, or more attention to their child than do the parents of the healthy attachment children. The primary difference is that these, like the inadequate attachment parents, are also very poor parent "students" (Biggar, 1984). They and their child are, more often than not, out of synchronization with one another. This frequently "over-involved" parent is not actually responding to the signals of the child, but instead responds to his/her own personal needs and desires. Because these parents are busily working at trying to care for the child, the toss of the dice says that the parent and child will occasionally be in synch and the child's needs will be met. When this occurs, it confuses the child into believing that the parent is finally "getting it," only to be followed by the majority of situations in which the child's signals are unanswered (or incorrectly answered). The randomly reinforced and anxiously attached child usually does not give up, even though it may be in her best interest. In a frustrated and disconsolate manner, the child continues to try to get through to the unreceptive parent, and will likely continue these patterns into adulthood with poor choices of enabling relationships (Ainsworth et al., 1978; Gaensbauer & Harmon, 1982).

These studies reveal that the potential for a great deal of psychological human damage occurs at a very early age. Essential aspects of development, including most importantly sexual-affective development, is arrested or severely damaged. In the U.S., some researchers estimate that only about 25% of children come from a functional home in which adequate attachment occurs.

In the early 1970's, noted developmental neuropsychologist James W. Prescott had been engaged in brain research studying the effects of touch deprivation on lab animals. He suspected that the early reports of neurological deterioration which had been found to be a predictable sequella to touch deprivation, was also a central and etiologic agent in the expression of the violent behavior as noted by Harlow. Prescott decided to test his hypothesis outside the animal research laboratory.

He hypothesized that, if he was correct, it would follow that cultures that lavished affectionate touch on their infants and children should be the least violent societies on Earth. Prescott reanalyzed anthropological data collected by others of over 400 world cultures. He published his findings (1975) in an article that may prove to be among the most important studies regarding human behavior. However, until fairly recently, his article went generally unnoticed by most professional colleagues beyond his acquaintance and highly specialized interests. This was largely due to his choice of

having his findings published in the journals, *The Bulletin of the Atomic Scientists* and *The Futurist*. Not many behavioral and biological scientists subscribe to or read these scholarly publications.

Prescott discovered that his single "touch variable" (the culture's affectionate touch with infants and children) was about 70% accurate in predicting, with a very high degree of statistical significance, the degree of violence in a society. He tested a second touch variable. Since he was of the opinion that affectionate touch is vital to humans of all ages, he examined societies which were tolerant (or even encouraging) of adolescent sexual-affectional behaviors. He found this variable also to be about 70% accurate in its ability to predict violent from nonviolent societies. He had discovered that those societies which lavished physical affection on their young, or who were tolerant of adolescent sexual-affectional behaviors were the most peaceful cultures known. Because there was no significant correlation between the infant affection and teen affection variables (the high infant touch societies did not significantly correlate with the high adolescent tolerance societies), Prescott was able to statistically combine these orthogonal variables into a single "touch variable", which he found to be a powerful and essentially perfect predictor variable. (Only one of the cultures examined did not meet the criteria.)

In short, Prescott found that those societies that lavish affectionate touch on their infants and children, and also are tolerant or encouraging of adolescent sexual/affectional behaviors were the least violent societies on Earth; with the converse also being true.

Employing many criteria, there is overwhelming evidence that the United States is one of the most violent societies on Earth (e.g., Colton, 1983; Montague, 1978). It certainly fits with Prescott's findings that the U.S. is also one of the least physically affectionate societies on this planet. We do not lavish affectionate touch on our infants and children; we push them aside into high chairs, play pens, car seats, baby beds, their rooms, the back yard, etc. (Belsky, 1978; Casler, 1968). We throw toys to them, and we expect television and video games to occupy their time. And, in the U.S., we have endless proscriptions against adolescent sexual/affectional behaviors (Prescott, 1975). From very early childhood, the parental admonition, "Don't touch!" has been a powerful one. But, just when our pubescent child begins the important physiological changes of puberty and the psychological separation-individuation task, our society warns, "Don't touch anyone... don't let anyone touch you... and don't touch yourself!" (McAnarney, 1990).

Since the normally developing adolescent is increasingly less interested in parental touch, and more interested in touch and other forms of interaction with his or her peers, the obedient girl or boy is therefore effectively sentenced to several years of extreme touch deprivation and arrested psychological development (Montague, 1971, p. 147; McAnarney, 1990). That the majority of teenagers eventually, to some degree, ignore these parental and societal warnings (Frank, 1957, p. 233; Willis & Reeves, 1976; Willis et al., 1976), actually results in placing today's teens at higher risk for anxiety, depression, unwanted pregnancy, and sexually transmitted diseases due to "sex guilt." Research by Donald Mosher and his colleagues (1968, 1971, 1973, 1979, 1985) demonstrates that sex guilt is powerfully related to the avoidance of self-care, as well as a lower self esteem. In the U.S., we have decided, with no data whatsoever to support our strongly held beliefs, that adolescents are "too immature" to deal with a sexual/affectional relationship. Actual developmental research has largely avoided this topic, although opinions are abundant.

Other researchers (Wallace, 1981; Hatfield, 1986; Main, 1990) have found that the affectional touch climate in the subject's family of origin and parental religiosity are the major psychosocial variables related to a person's current sexual attitudes and behaviors, as well as non-genital affectional behaviors with a partner. Subjects who originated from physically affectionate families were more likely to enjoy more pleasurable, and more frequent, experiences in the sexual-affectional aspects of their adult relationships. These

studies clearly demonstrate that adults who experienced rejection and touch deprivation in their childhood tend to treat their adult partners and their own offspring in a similar manner.

The rich findings of the Harlow and Bowlby/Ainsworth research teams, coupled with the reports of Rene Spitz and the later investigations of James Prescott have complimented, and in many ways paralleled each other. The outcomes of these studies provide clear facts regarding the most central components of human development and relationships. Whether in part, or taken as a whole, the results from these findings lead to one inescapable conclusion. That is, the quality of our relationships throughout our lives is massively effected by the quality of our attachments in infancy and early childhood. And, specific aspects of the communication and touch relationship between child and primary caretakers primarily influence the quality of these early attachments.

Developmental Neuropsychology of Touch: On the day of our birth, we entered the world with an intense touch hunger. Of all of our neonate senses, neural pathways subserving cutaneous sensation and responses to somasthetic stimulation are the first to develop in the human fetus and infant (Gottlieb, 1971; Hooker, 1952). Physiological primatologists instruct that the organism's biological systems that are first to develop are those most necessary to survival (Bayley, 1968). A substantial proportion of the central and peripheral nervous systems is dedicated to the reception and processing of somatosensory information and make up what have been labeled "topographic maps" of nervous system utilization (Merzenich & Kaas, 1980; Merzenich, 1990). The neonate derives the vast majority of useful information for the first several months of life through his or her skin.

It has been demonstrated that alterations in synaptic effectiveness that occur at one level of the neocortex necessitate changes in synaptic projections to other cortical and subcortical zones (Dellon, 1981; Haber, 1958; Prescott, 1971; Simons & Land, 1987). The relative size and efficiency of these functional brain locations are continuously altered by life experiences (Merzenich, 1984). A major portion of essential brain development has occurred during the first few years of life, and the quality and quantity of these neural interconnections will have a life-long impact on the individual's ability to process sensory stimulation (Huber et al., 1977; Killackey & Belford, 1979; Prescott, 1971; Sherman & Spear, 1982). An impressive group of animal studies have demonstrated that the higher levels of pleasurable somatosensory stimulation are positively correlated with measured thickness of areas of the brain cortex (e.g., Globus et al., 1973; Diamond et al., 1966, 1975; Malkasian & Diamond, 1971, 1990; Nyman, 1967). It has been further proposed that the devastating consequences of touch deprivation are also the result of disturbances in the hypothalamic regulation of autonomic activity and immune function (Bartrop et al., 1977; Epstein et al., 1975; Jacobs & Ostfeld, 1977; Laudenslager et al., 1982; Prescott, 1970; Reite 1990a; Reite et al., 1981; Schleifer et al., 1983). In addition, adequate infant sensory stimulation is associated with improved catecholamine production and neonate growth (Field & Schanberg, 1990).

Touch deprivation and somasthetic stress (e.g., pain and "touch trauma") are rapidly followed by dramatic elevations in pituitary-adrenal plasma cortisol levels, while affectionate and soothing touch are associated with low serum plasma cortisol levels. Plasma cortisol levels have been shown to be a reliable physiological indicator of an organisms detection of environmental change or stress (Hennessy et al., 1979; Hennessy & Levine, 1977, 1979; Meaney et al., 1990). Further, it has been shown that with chronic imbalances of plasma cortisol and other hormones and neurochemicals, there results abnormal brain tissue development as well as the destruction of previously normal brain tissue (Diamond, 1984; Floeter & Greenough, 1979; Greenough, 1990; Mendoza et al., 1978; Prescott, 1971; Rosenweig et al., 1969). In other words, frequent pleasurable touch results in positive changes in brain tissue and chronic touch deprivation or trauma results in measurable significant brain damage.

Beyond the study of body chemicals and neural tissue, it has been discovered that pleasurable touch is associated with enhanced learning (e.g., Karner & Thomas, 1970, 1972; Mason, 1968, 1979; Rose, 1990; Satz et al., 1984), improved IQ, language acquisition, reading achievement, memory, general neonate development, preterm infant development, reduced self-mutilating behavior in the severely mentally retarded, expanded external awareness of autistic patients, improved geriatric health, decreased childhood clinginess and fears of exploring their environment, the elimination inappropriate self-stimulation and public masturbation behavior in children, and improved visual-spatial problem solving (Boll et al., 1977; Evans, 1990; Fanslow, 1990; Gewirtz & Hollenbeck, 1990; Gorski et al., 1990; Healy, 1990; Korner & Thoman, 1972; Millot 1988; Older, 1990; Oller, 1990; Reite, 1990b; Rohmann & Hartmann, 1985; Rose, 1990; Satz et al., 1990; Schanberg & Field, 1987; Schanberg et al., 1990; Sussman & Rosenfeld, 1978; Tribotti, 1990; White & LeBarbara, 1977). Hospitalized patients recover more rapidly from injury and physical or psychiatric illness with attention to touch needs (Fisher & Gallant, 1990; Heidt, 1981, 1990; Krieger, 1979; Larson & Field, 1990; Meehan, 1990; McCorkle & Hollenbach, 1990; Rausch, 1990; Smith, 1990) and significant improvements in heart arrhythmias and red blood cell count have been observed in comatose patients in cardiac care units (Lynch, et al., 1974). Current thinking defines touch as the primary organizer (or, in the case of neglect and abuse, "disorganizer") of normal human development when viewed at biological, psychological and even social levels (Colton, 1983; Gottfried, 1984; Korner, 1990; Prescott, 1975; Reite & Fields, 1987). A person's sense of self apparently originates in body awareness, body functions, and body activities which center around the sense of touch (Fisher & Cleveland, 1968; Groman, 1969; Peto, 1972; Wapner, 1965; Weiss, 1990; Witkin et al., 1962).

A mounting number of scientific studies are providing the biological microscopic view of the etiology of particularly serious human problems. At our current state of scientific investigations there can be no doubt that touch deprivation results in the deterioration of formerly healthy brain tissue which leads to sadly predictable deficits in health, behavior, emotions, and relationships.

Touch and Relationships: Prescott found that societies low in affectionate touch are the most violent on this fragile planet. A paucity of brain nourishing touch causes neurological atrophy and increased violence toward others, property, and self. The most deprived and violent individuals in these societies prey on the weakest and most vulnerable of its members; women and children, in almost all cases inflicting upon their victims "touch trauma" in the forms of physical abuse, sexual manipulation and sexual violence. We know that abuse victims are much more likely to become abusers themselves (Belsky, 1978; Blount & Chandler, 1979). It is less publicized that abuse victims are most likely to abuse themselves and struggle throughout their lives with anger, depression, anxiety, and failed relationships. Prescott found that the touch deprived are more likely to become dependent on drugs and alcohol (1975, 1980), perhaps in search of the pleasure and serenity that physical affection brings. He also discovered that touch deprived people have more difficulty discriminating between pleasure and pain. They are more likely to engage in self-destructive conduct, and have more serious problems with behaviors that are innately pleasurable, such as affectionate touch and sexual behaviors.

The gradual destruction of this brain tissue by the effects of touch deprivation results in a predictable syndrome of behaviors (Prescott, 1975, 1980), as well as disrupted emotions and interpersonal relations. In fact, it has been proposed that many of the symptoms that clinicians observe in their psychotherapy clients and patients are the direct result of malfunctioning areas of the brain which have been damaged by touch deprivation. Prescott has labeled the constellation of neuropsychological deficits described in this chapter the Somatosensory Affectional Deprivation (SAD) syndrome.

As research in this area continues, this syndrome will likely be more precisely defined as a formal diagnostic category.

Harlow's discoveries that his isolated and touch deprived primates developed in highly predictable and bizarre patterns certainly have relevance to human emotions and relationships. Harlow's primates over-reacted to most situations and engaged in a depressive withdrawal to the others. Almost none of their responses to common stimulation and situations were normal. They were hyperaggressive and unable to form adequate relations with other monkeys when reintroduced to their group. Highly unusual sexual responses were typical. They were unable to perform sexually and found it exceedingly difficult to locate a receptive partner for their inadequate attempts at quieting their sexual impulses and drives. In adulthood, they were completely inadequate and abusive partners and parents. Throughout their lives, they engaged in strange stereotyped movements and behaviors that isolated and set them apart from their group. These pathetic touch deprived primates demonstrated a high level of aversion to any form of touch from others. Their usual response to appropriate touch by other monkeys vacillated between fearful and aggressive. The review of all touch research to date leads to the inescapable conclusion that Harlow's primate research has provided us with a highly useful human model of the behavioral impact of touch deprivation.

Bowlby and Ainsworth's longitudinal research clearly shows that the inadequately attached child will usually grow to be an isolated and depressed adolescent and adult. The anxiously attached offspring develops into an anxious, attention-seeking, angry, and unhappy teen and adult. Both types have an exceedingly difficult time forming or maintaining healthy relations with anyone.

The growing number of biological studies are reporting findings that show that affectionate touch is an essential "nutrient" to normal brain functioning. They have found that permanent neurological deterioration occurs in several important areas of the brain when the large, richly enervated organ, our skin, fails to receive affectionate touch and send those signals to our brain. Missing, exaggerated, muted, or otherwise distorted perceptions and responses present a barrier to adequate human functioning at all levels.

If these sequellae of touch deprivation were minor or rare, it would be cause for only mild concern. However, available sociological and anthropological studies tell us that touch deprivation and all the associated problems, disorders, and brain damage is exceedingly severe and common. In some societies, such as the U.S., these difficulties affect a large majority of its citizens. Of particular concern are the indications that, within many cultures such as the U.S., the described problems are growing worse. For example, if violent behaviors such as murder, rape, spouse abuse, incest, and child abuse are, in some part, an expression of the neurological damage which results from touch deprivation (i.e., neglect and abuse of children), then there can be no doubt that a degenerating and dangerous pattern exists. It may not be an overstatement to say that brain damaged adults are creating brain damaged children at an ever-increasing rate in some cultures. The very thing that these adults most hunger for (due to their own experience of deprivation) is the response they are least capable (due to neurological and psychological damage) of adequately enjoying; affectionate touch and relationships.

Touch and sex and solutions: Relative to the other human senses, touch is the most difficult to study (Schutte et al., 1988). Of course this is largely due to the size and dispersion of the system. Compared to touch, it is relatively easy for the experimental researcher to, for example, blind a rat, study the rat's behavior, and be somewhat accurate in the observations regarding the likely effects of blindness on rat behavior. Similarly, it will be easier for the clinical researcher to study the effects of blindness on such things as self-concept, locus of control, and propensities to certain psychopathologies, such as depression. And, the social researcher could investigate the impact of blindness on social systems, or the relations of the blind to their sighted and unsighted social networks.

But what methodologies can be employed to isolate touch for useful studies? Even if there exists a tiny area of the rat brain that we could easily cauterize to eliminate the sense of touch, we know that confounding interactions due to other sensory losses (such as proprioception, the sense of movement) would be exceedingly difficult to isolate and study. The studies reported in this chapter have historically been late in their appearance for several reasons, not the least of which is the relative difficulty of the endeavor of touch research.

There is an old bromide that, "If the only tool you own is a hammer, then everything needs to be hammered." It is a good saying because it reminds professionals that we often tend to be reductionists regarding our specialty areas. To the psychologist, the world is psychological. To the surgeon the world is tissue and bone. To the poet the world is a rainbow or a dungeon. And so on... As the sciences evolve, it will become increasingly important for the researcher to understand the neural substrata of human behavior. Just as the speech therapist works to behaviorally "rewire" the brain of the stroke victim, psychologists must better understand the locations and extent of neural disorders so that they can develop more effective therapies that go beyond the analysis of behavior and cognition.

As an example, the writer often refers his partnerless and isolated psychotherapy clients to a masseuse or massage therapist whenever appropriate. Couples in treatment are usually instructed and assigned touch and massage homework exercises, even for the non-sex therapy clients. Although Masters and Johnson borrowed extensively from researched therapy techniques developed by others when constructing their broad sex therapy treatment regimen, the unique technique they called Sensate Focus (Masters & Johnson, 1970) was one of their most important contributions. Perhaps unknowingly borrowing from the treatment methods of physical therapists and speech therapists who deal with their patient's neurological damage, Masters and Johnson devised a method of graduated, lengthy, and redundant touch exercises for their patients.

The neurological damage discussed in this chapter is, by definition, permanent damage since the brain produces no new nerve cells beyond about age five. Fortunately, if the neurological damage is not too severe, the remaining healthy portions of the brain may be "taught" to recover functioning given the appropriate treatment method. The highly motivated individual or couple can begin to engage in specific graduated and frequent touch exercises to improve receptivity, sensation, and functioning. Masters and Johnson and the large body of subsequent sex therapy research provides potentially important solutions to a large and multi-axial problem for those individuals and societies who seek answers to repairing the damage. Of course, the most obvious solution would be to change the childrearing practices of those same individuals and societies. To say, "All we need is to be receptive and affectionate with our children", though correct, may miss the greatest obstacle to this major change. That most parents are not neurologically receptive to reciprocal affectionate touch with their child is only one, though important, dilemma.

An obstacle to affection: This research review leads to an important question; "Why are some cultures so aversive to affectionate touch, and so over-involved with touch violence?" (Thayer, 1987). What could possibly interfere with so powerful and basic a hunger as touch; one that appears so inherently rewarding? According to another body of research, one answer is the same we can insert to explain many cultural differences (e.g., Allinsmith et al., 1978; Bock et al., 1983; Bullough, 1976; Burkett, 1977; Clouse, 1972; Gorsuch, 1984; Hatfield, 1986; Kinsey et al., 1948, 1953; Landers, 1990; Neufeld, 1979; Notzer et al., 1984; Reiss, 1964, 1965; Tronick et al., 1990). The word is "philosophy." As Bill Dember pointed out (1974), cultural philosophies have been known to lead to an seemingly endless variety of bizarre and disgraceful behaviors such as cannibalism, human sacrifices, the carnage of war, nuclear proliferation, misogyny, slavery, torture, rape as reward to soldiers, racial hatred, etc., etc. Surely a philosophy

can also strongly influence the touch behaviors of a culture (Weber, 1990). And, surely, one does. The dominant philosophy in the U.S. is our own brand of the Judeo-Christian ethic. At the risk of offending, our country was founded by religious zealots of Europe, many of whom were social outcasts of their own communities due to their rigid authoritarian belief systems which they felt compelled to foist upon their neighbors. America became the Promised Land to them and simultaneously the ideal "dumping ground" for their governments. Cheap and free boat rides to the "New World" were common.

In its most rigid and fundamentalist form, the Judeo-Christian philosophy is staunchly anti-touch, anti-body, anti-pleasure, and anti-sexual. To our not so distant ancestors the formula "Touch=Sex=Sin" was a bromide to live by. This non-equation is now our cultural heritage in the U.S. Some may argue that this is an overstatement of the present-day importance of a dying or changing philosophy. Some may feel a bit smugly insulated because their upbringing did not include a highly fundamentalist or highly orthodox religiosity.

One of the outcomes of prolonged touch deprivation and the resulting neurological deterioration, is a hypersensitivity to touch. Some researchers (e.g., Prescott, 1975) propose that the average person's experience with affectionate touch in the U.S. and several other countries is so inadequate that it is almost a certainty the majority of the citizens suffer from some degree of significant neurological impairment. This is especially true if you are male, since males in the U.S. tend to receive far less affectionate touch from birth than do females (Hewitt & Feltham, 1982; Juni & Brannon, 1981; Kennell, 1990; Major, 1990). By early adulthood most of these males have as much or more experience with overstimulating, aversive, painful, and traumatic touch than with soothing and affectionate touch. Even though they move through life with a growing touch hunger, most of these males can tolerate prolonged physical contact with another human only if forced, or if they are sexually aroused.

So, the cultural philosophy that may have initiated our ancestor's avoidance of touch may not be as important a maintaining factor as some might believe. It is possibly not the direct impact of religious philosophies today that causes a culture to be relatively touch-phobic, but rather, a long history of parents who, due to the neurological damage unknowingly inflicted by their parents, were hypersensitive to touch and therefore did not nurture their offspring with the necessary somatosensory stimulation. Very highly religious homes tend to provide significantly less affectionate touch (and more punishing touch) beginning in late childhood as the child approaches puberty and more overt sexuality (Hatfield, 1986; Neufeld, 1979). For many adults highly fundamentalist religions probably become an attraction for those who are most touch and sex phobic. The child of the high religiosity parent or parents will likely experience significantly more difficulty with affectionate touch and sexuality in their adult relationships, even if the offspring no longer subscribes to their parents' beliefs (Hatfield, 1986).

Conclusion: We are beginning to understand many more of the developmental issues that impact on our attempts at healthy sexuality and relationships. Touch experiences in childhood appear to be powerful determining influences.

Many people tell of their highly interested and attentive lovers (mostly male) who seem to disappear very soon after orgasm occurs. He or she rolls away, goes to sleep, or gets up, grabs a beer, and goes to the den to watch the ball game... without even saying good-bye! Without benefit of continuing high levels of sexual arousal, he can no longer tolerate prolonged tactile contact. One report of touch deprived women revealed that only a tiny percent had ever had an orgasm (Prescott & Wallace, 1975). A study of touch deprived men revealed; when given the hypothetical forced choice between giving up their recreational drugs and alcohol vs. giving up sex and orgasm, almost all of them said they would give up sex and orgasm (Prescott & Wallace, 1975). It seems that those who harbor these conflicts between a strong desire for touch and the confusing discomfort with it, resolve the conflict by avoiding the difficulties and discomforts

associated with touch, and find a replacement in the form of behaviors and chemicals; prescription and nonprescription (Prescott, 1980). Palliatives that ultimately pile brain damage upon brain damage.

Virtually everyone has an intense need to be held and soothed and stimulated, but we find ourselves receptive at relatively brief moments of our lives. If we are not receptive to a given touch, the effect is deleterious rather than beneficial. So it is that we do not hold our partners or our infants for very long or very often.

In addition, the U.S. culture has created handy myths and philosophical constructs that merely serve our touch discomforts. Most parents are too easily convinced that they will "spoil" the child if they run to her "too quickly" when she cries; or hold him "too often" or for "too long." We find a substantial percentage of parents who justify their homophobia by withdrawing the meager extant affectionate touch to their toddlers and young children, stating, "Well, I don't want him to turn out homosexual." Obviously, some of our incorrect theories of the past are still with us, perhaps doing more damage than ever. Anti-touch and anti-sexual societies have spawned fathers who panic if they happen to experience sexual arousal with their child squirming on their lap, and essentially punish the child severely by withdrawing physical affection from his daughter or son. Or worse still, is the father who acts on his sexual arousal using the child as the defenseless object.

Rigid anti-touch philosophies, which explain that we are uncomfortable with touch because we are "hopeless sinners", are taught to children before they learn to read. The loving affectionate touch that so many have been deprived of since birth, continues to be held just out of reach in adulthood and, tragically, we pass it on to our kids. Many cultures appear obsessed with touch and sex, but don't know how to act. Hollywood and the porn industry seem generally unable to depict sexuality unless it involves a naked teenager who is being disemboweled by a chain saw. There are higher proportions of sexual dysfunctions in many high-tech low-touch countries, with over 50% of all marriages in the U.S. experiencing at least one significant sexual dysfunction (Masters & Johnson, 1970). It is estimated that only 10-15% of all marriages beyond the first few years is sensually healthy (Zilbergeld, 1988). The U.S. has more pets per capita than any other culture to help, in a non-demand fashion, make up for some of the touch deprivation. Caring teachers and some in the helping professions who would like to give a hug or pat on the back are increasingly fearful of malpractice and abuse charges. Women complain to their male lovers, "you never hold me anymore; the only time you touch me is when you are grabbing my breasts or butt or crotch!" Men counter with, "Well, you never touch me at all any more." To which she replies, "Well, if I do you start taking off my clothes!" These and many other examples provide evidence to add to the scientific findings that something is seriously wrong.

It is necessary to ask how a society such as the U.S. which is so technologically advanced and civilized in appearance can be simultaneously so violent and unsuccessful in interpersonal and intercultural relations? Studies in the area of touch are providing some answers for those who wish to listen.

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