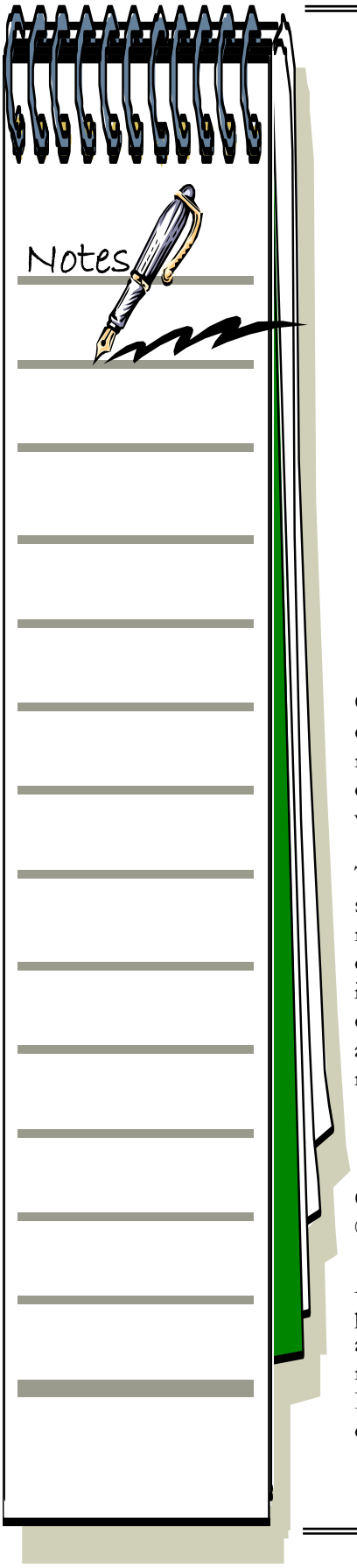
Cultural Influences on Infant Sleep

3 Contact Hours

271201

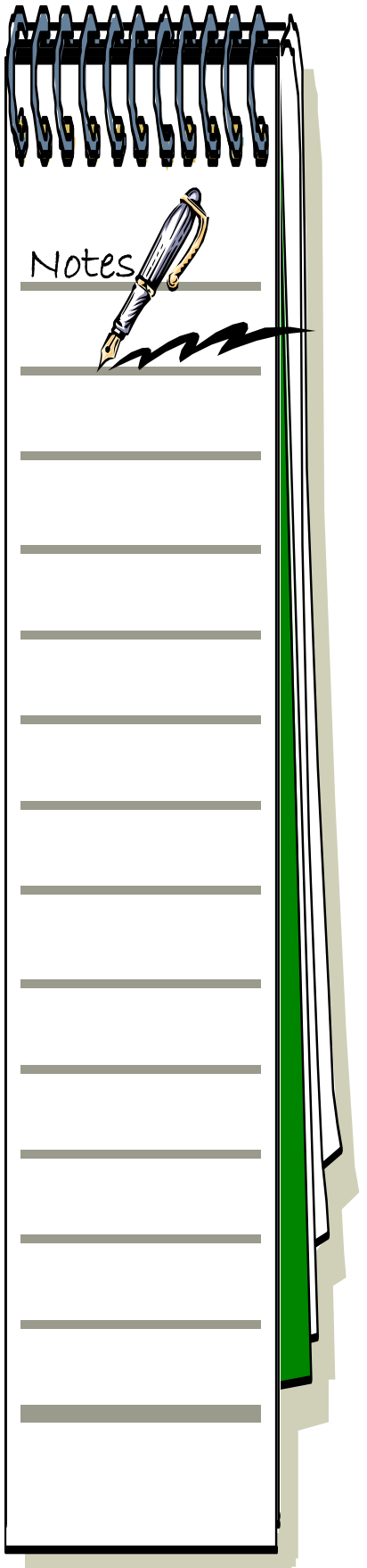
Institute for Continuing Education
8176 Center Street #A
La Mesa, CA 91942
(619) 504-4924 or toll free (800) 990-2377
www.ceu.org

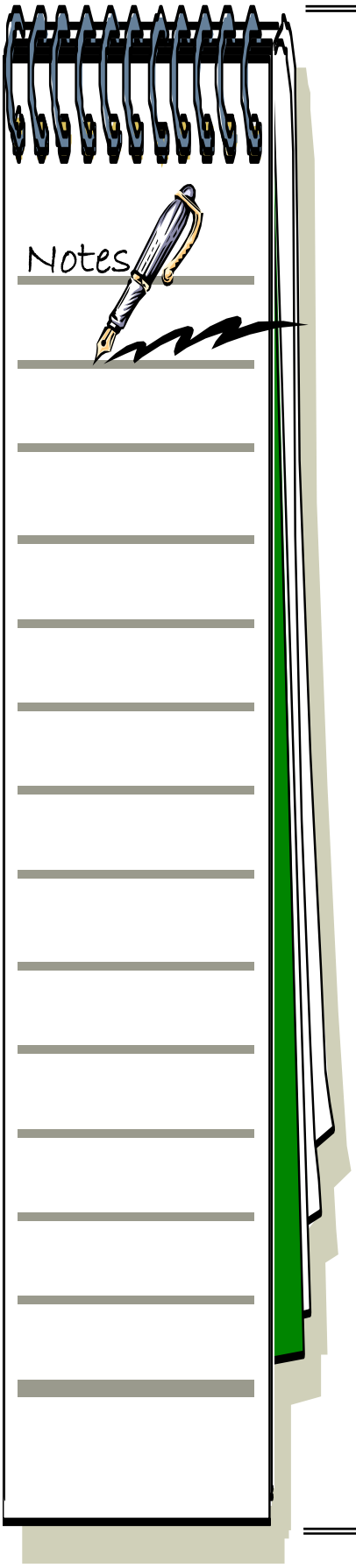


Care has been taken to confirm the accuracy of information presented in this course. The authors, editors, and the publisher, however, cannot accept any responsibility for errors or omissions or for the consequences from application of the information in this course and make no warranty, expressed or implied, with respect to its contents.

The authors and the publisher have exerted every effort to ensure that drug selections and dosages set forth in this course are in accord with current recommendations and practice at time of publication. However, in view of ongoing research, changes in government regulations, and the constant flow of information relating to drug therapy and drug reactions, the reader is urged to check the package inserts of all drugs for any change in indications of dosage and for added warnings and precautions. This is particularly when the recommended agent is a new and/or infrequently employed drug.

Table of Contents




Notes

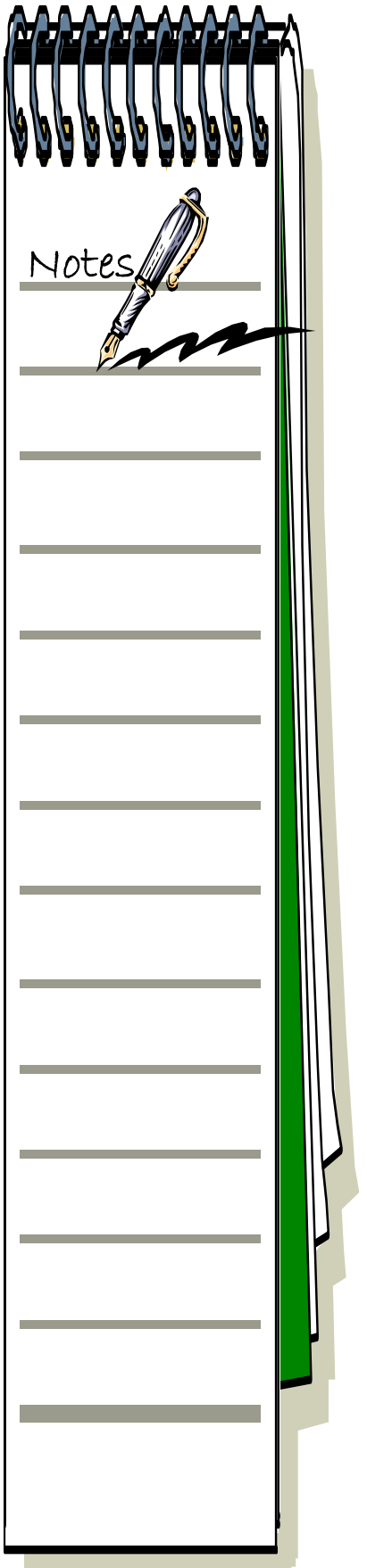
Cultural Influences on Infant Sleep

Course # 271201 **3 CEUs**

Learning Objectives

Upon successful completion of this course, you should be able to:

- Identify what constitutes "normal, healthy and desirable" infant sleep
- When was the importance of local cultural influences values on infant and childhood sleep first discovered and by whom
- Describe the critical relationship between the cultural ideologies that underlie sleep practices and desired developmental outcomes
- What are the conventional western understandings of "Healthy, Normal" Infant and Childhood Sleep

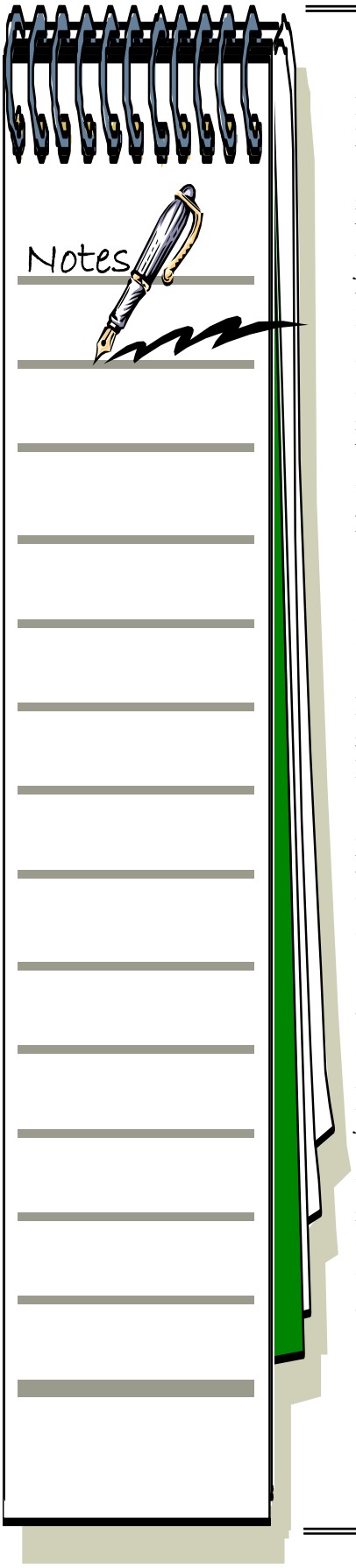


The Long-Term Effects of Sleeping with Children

Last Updated: Feb 02, 2014 | By Ed Donner

Ed Donner is a clinical psychologist and freelance writer. He has performed, presented and published research on a variety of psychological and physical health issues. He has a Bachelor of Science in psychology from Ohio State University, and a Ph.D. in psychology from the University of Chicago.

Children sleep with their parents for a few years. Photo Credit Jupiterimages/Creatas/Getty Images



Overview

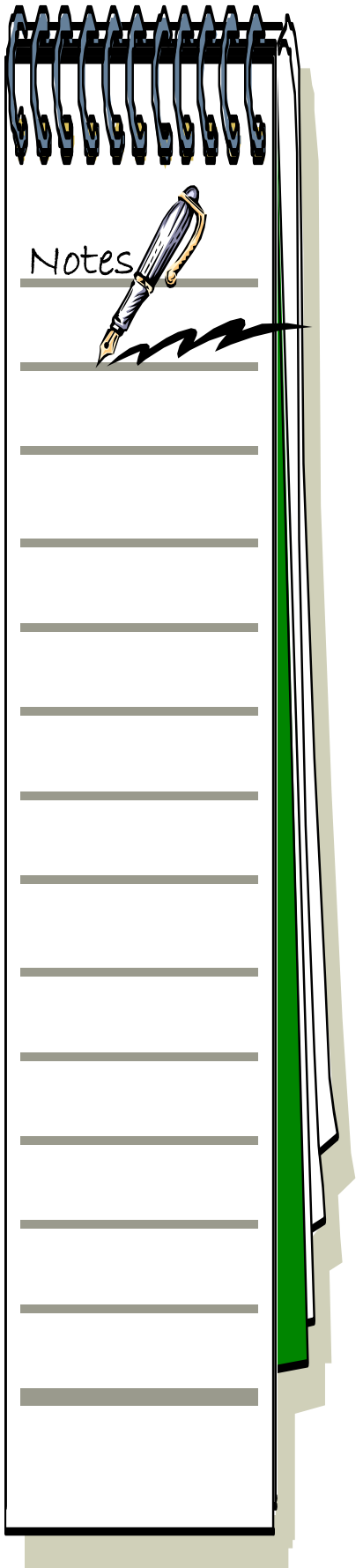
In most societies around the world, children sleep with their parents at least for the first several years of their life. Early anthropological studies found that in 90 percent of cultures, infants slept with their parents, and not in cradles or cribs, according to anthropologist Emmy Elizabeth Warner. Co-sleeping is not limited to primitive cultures. A majority of Japanese children co-sleep with their parents through the early school years, and half co-sleep with their parents until the mid teens, according to multiple sources including Sleep and Breathing in Children. Western culture has long emphasized independence in sleeping arrangements, encouraging parents to have infants sleep in cribs or cradles, often in rooms of their own. Despite marked differences in attitudes in most Western cultures, about 26 percent of American children between the ages of 2 to 9 months always or almost always co-sleep with their parents, according to Natural Child.

Independence from Stronger Attachment

One implicit rationale for having babies and children sleep separately from their parents is to encourage greater independence in the child. Ironically, most research suggests that co-sleeping fosters greater independence and autonomy as children grow, according to Kids Internet Radio. The notion that earlier experiences affect later functioning is the sine qua non of psychological and development theory. Satisfaction of infants' and children's need for attachment, attention and human contact, such as occurs in co-sleeping, establishes greater confidence and esteem in children, according to Mother-Baby Behavioral Sleep Laboratory.

Physical Health Benefits

Children who co-sleep have better health in the short and long term, according to Kids Internet Radio. Anthropologist and sleep researcher James McKenna from Notre Dame offers several explanations for this finding. First, babies are calmed by the presence of their parents and therefore cry less. Babies who cry due to separation from their parents release more of the the stress hormone, cortisol, during their distress. Chronic exposure to cortisol adversely affects immune functioning. On the flip side, babies who sleep with their mothers are breastfed twice as often, according to Dr. McKenna, which boosts their immune system functioning.



Cultural Influences on Infant and Childhood Sleep Biology, and the Science that Studies It: Toward a More Inclusive Paradigm

James J.McKenna Ph.D. Professor of Anthropology and Director, Mother-Baby Behavioral Sleep Laboratory University of Notre Dame

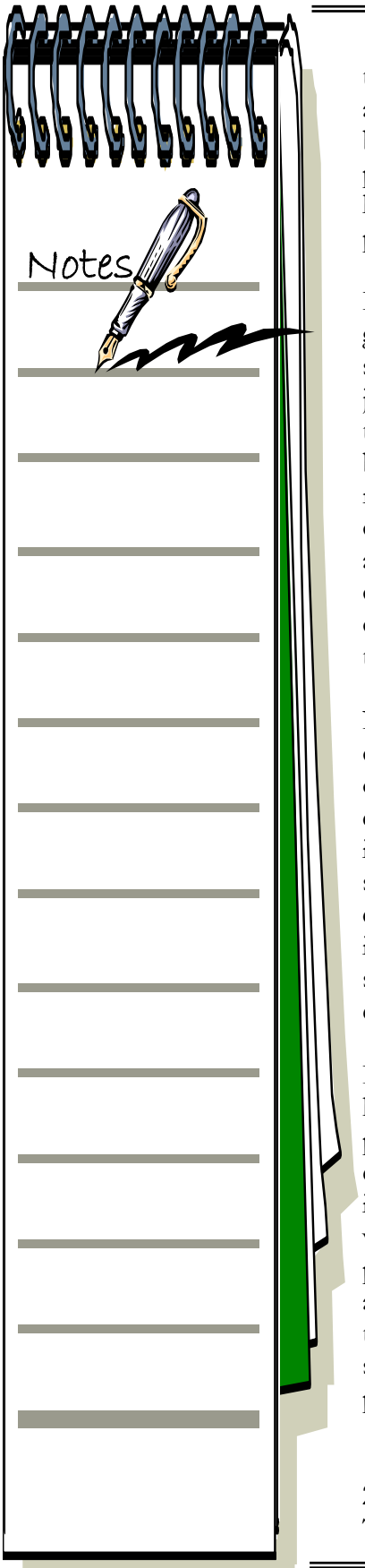
1. Introduction

"...we try to keep in mind cultural influences on the advice we give. We remind ourselves that much of what comes to the pediatrician's attention, as problematic sleep behavior--children who have difficulty falling asleep alone at bedtime, who wake at night and ask for parental attention, or who continue to nurse at night--is problematic only in relation to our society's expectations, rather than to some more general standard of what constitutes difficult behavior in the young child. Our pediatric advice on transitional objects, breast feeding, co-sleeping may be unknowingly biased toward traditional Euroamerican views of childrearing, especially those about bedtime and nighttime behavior. Thus, in giving advice about sleep, pediatric health professionals might do well to be aware of their own cultural values, to examine closely their patients cultural and family contexts, and to assess parental reactions to children's sleep behaviors".

"Who sleeps by whom is not merely a personal or private activity. Instead it is social practice, like burying the dead or expressing gratitude for gifts or eating meals with your family, or honoring the practice of a monogamous marriage, which (for those engaged in the practice) is invested with moral and social meaning for a person's reputation and good standing in the community". "In clinical pediatrics, co-sleeping is the political third rail. If you touch it, you die".

In this section, I provide a cultural background to our thinking about what constitutes "normal, healthy and desirable" infant sleep and show the interconnectedness between scientific research, cultural values, concerns for morality, and sleeping arrangements characteristic of Western society. Specific biological and psychological evidence is put forth supporting Sadeh and Anders and Ander's views on the importance of understanding what is "appropriate" infant sleep based on the overall social and physical context within which it occurs.

To illustrate this viewpoint I selected data on a variety of topics demonstrating how culturally guided parental childcare choices, including those involved in sleeping arrangements, set in motion a cascade of interconnected changes that affect the biology and behavior of the participants, appropriate to those choices. I suggest that clinicians generally fail to convey to parents the legitimacy of different choices, and



that the widely accepted research paradigm fails scientifically to include alternatives to the model of the solitary sleeping, bottle or minimally breast fed infant. The diversity of sleep-related arrangements and practices alter infant sleep development significantly in the first years of life and this argues against a simple cultural definition of infant sleep progression implied by the widely accepted (traditional) model.

Relatedly, perhaps no other issue has been so often misrepresented and grossly oversimplified as parent-infant co-sleeping. New data on the subject highlights the extent to which cultural ideologies, cultural judgments and concerns for morality often are mistaken for science, in this area. For example, data collected exclusively on the solitary sleeping, bottle-fed infant continue to provide the basis for definitions of, and research into, clinically "normal" infant sleep-wake patterns. These data continue to serve as the gold standard against which, eventually, parents and professionals evaluate infant sleep development, despite significant contextual differences which may invalidate the comparisons. Almost no consideration is given to other sleeping arrangements, however healthy they are.

New data from psychology are presented which raise the possibility that clinicians have overestimated the need for infants to sleep separately in order to assure "independence" from their parents, and recent biological data described here suggest that sleep researchers underestimate the importance of maternal proximity and breast feeding in regulating infant sleep physiology, and, thus, fulfilling infantile nighttime needs. By using data from only one type of sleeping arrangement and implying that there is only one context within which healthy infant sleep emerges, i.e. the solitary one, pediatric sleep research is thus held captive by Western ethnocentrism.

I conclude that to forge effective partnerships between parents and health professionals in our ever increasingly multicultural society, pediatric sleep medicine must come to terms with cultural biases embedded in sleep research medicine in general and clinical interpretations and advice in particular. At this point in the history of western societies, where an unprecedented convergence of cultural practices is underway— not the least of which involves sleeping arrangements--- it is critical that clinicians and researchers broaden their thinking about what constitutes appropriate and desirable childhood sleep practices. Failure do so will continue to limit both the accuracy of pediatric sleep science and the effectiveness of care.

2. Culture and Childhood Sleep

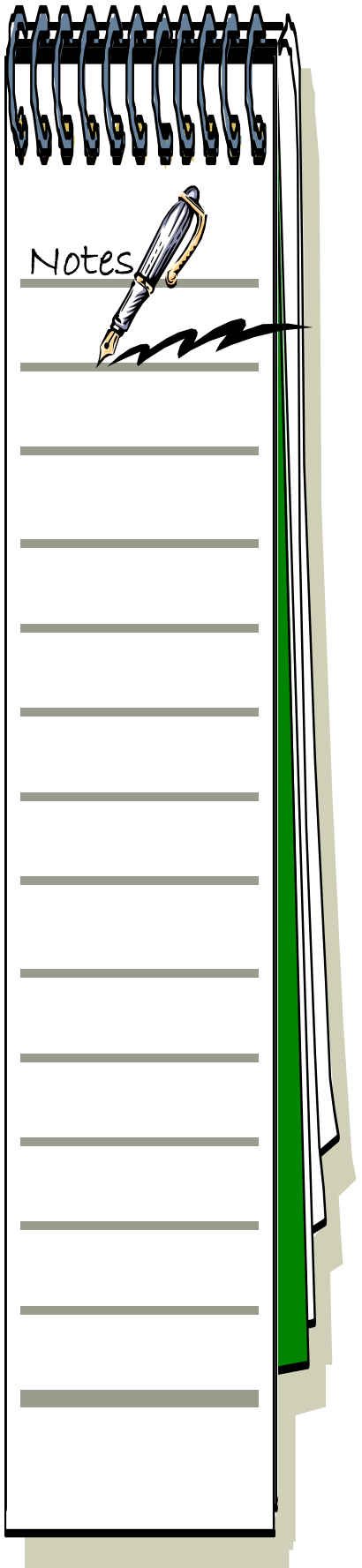
The importance of local cultural influences, including health professional

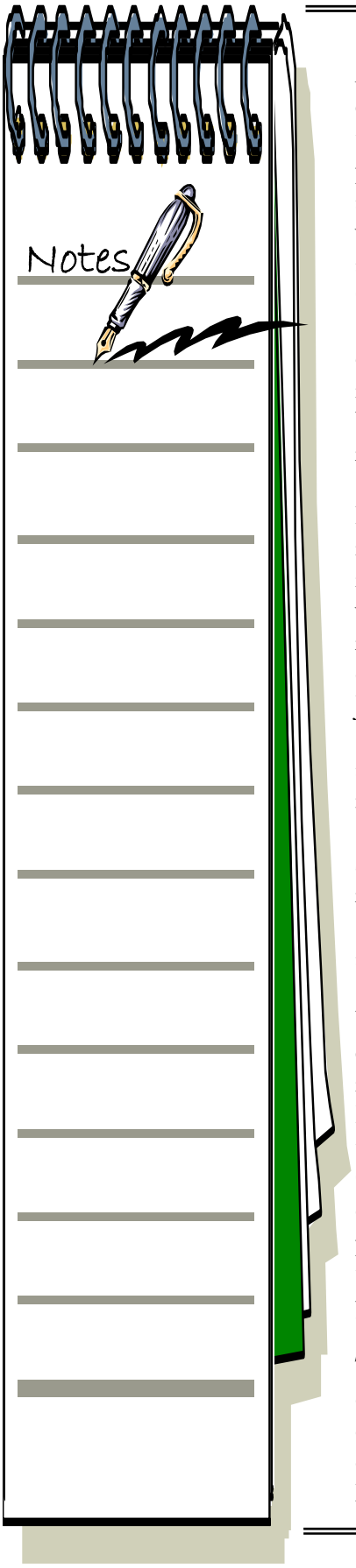
and family values on infant and childhood sleep, was anticipated more than a decade ago by Lozoff and her colleagues. In the first of the three passages quoted above they acknowledge as eloquently as any group of anthropologists or psychologists the critical, if not pivotal, role that personal beliefs, experiences, and societal values can play in pediatric research. The same applies to the advise given to parents regarding a range of nighttime sleep related issues, problems and possible solutions. Across different cultures, ideas vary about how, where and why infants and children should sleep, as well as what constitutes "normal" sleep and "sleep problems". Ethnographic studies of this variability worldwide are important because the data help to establish the extent to which species-wide sleep biology and development are subject to environmental manipulation and regulation. Local customs and traditions, irrespective of whether the society is industrialized or is structured around a hunting and gathering economy, all play roles.

Even within a single society, infant and childhood sleeping patterns and the social values and relationships that influence them are diverse, and significant differences cut across subgroups in unexpected but important ways. For example, infants and children not able to sleep alone and "through the night" are not uniformly regarded in our own culture as having a "sleep problem," Anders and Taylor point out. Most conceptualizations of "sleep problems" are based on culturally and parentally constructed definitions and expectations, not biology. In reality, infant sleep development plays out extraordinarily differently in diverse family settings wherein infant feeding and nighttime nurturing behaviors, and parental needs and goals, vary. These, in turn, affect both long and short term developmental processes. Yet, the legitimacy of these variations continue to be largely ignored in both professional as well as popular discourse and a "one size should fit all" approach to sleeping arrangements continues to be advocated.

2a) How Do Social Values and Cultural Goals Influence Infant Sleep Practices?

That a critical relationship exists between the cultural ideologies that underlie sleep practices and desired developmental outcomes (even when they are not achieved) is made dramatically clear when one compares Asian, Guatemalan, and American values, conceptualizations of infants at birth, and desired developmental outcomes. For example, interdependence and group harmony are positively valued in Japan where parent-child co-sleeping is practiced. As Christopher describes it "One monkey that does perch on the back of nearly all Japanese is a deeply engrained feeling that individual gratification is possible only in a group context--a feeling which like the taste for dependence, clearly stems from childhood experiences".





American children are presumed to be trained to be self-reliant and to display their individuality by sleeping alone, and Japanese children are taught to "harmonize with the group" and, hence, "co-sleep" with their parents. These observations relate to the different attitudes that Japanese and American parents have concerning the"nature"of the infant at birth, what developmental outcomes are desired, and what sleeping arrangement are presumed necessary to achieve them. For example, Caudill and Weinstein cited in Shand state that: "In Japan the infant is seen more as a separate biological organism who from the beginning, in order to develop, needs to be drawn into increasingly interdependent relations with others. In America, the infant is seen more as a dependent biological organism who in order to develop, needs to be made increasingly independent of others".

Indeed, according to Brazleton "...the Japanese think the US culture rather merciless in pushing small children toward such independence at night". Kawakami's describes American and Japanese differences this way: "An American mother -infant relationship consists of two individuals...On the other hand, a Japanese mother infant relationship consists only one individual i.e. mother and infants are not divided." Japanese infants and children usually sleep adjacent to their mothers on futons with space availability playing a minor role in this arrangement, and in general children sleep with someone (fathers or extended family members) through the age of 15.

Similar to the Japanese, Mayan mothers from Guatemala do not believe in separate sleeping quarters for infants, children and parents. In fact, sleeping alone is considered so difficult for adult Guatemalans that in the absence of family members it is not uncommon for adults to seek out friends with whom they can share sleep. Upon hearing that American babies are made to sleep alone Mayan women respond with "shock, disapproval and pity" and think of the practice as "tantamount to child neglect". This evaluation contrasts dramatically with one offered by Ferber of the United States who advocates that all infants should be taught to sleep alone. In his popular selling book How To Solve Your Child's Sleep Problems , Ferber provides mothers who may be emotionally predisposed to sleep with their infants with a reason to ponder the status of their own mental health..He advises: "If you find that you actually prefer to have your child in bed, you should examine your feelings very carefully...".

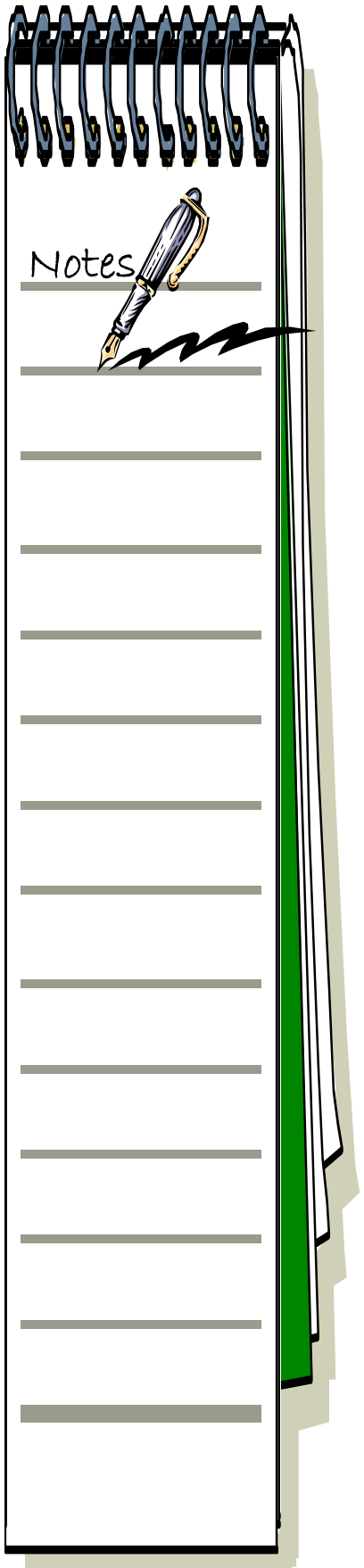
The study of Guatemalan (Mayan) women is one of the best cross-cultural (comparative) studies of childhood sleep to date. Morelli et al examined a group of middle class American (Caucasian) and contemporary Mayan (Guatemalan) mothers and found that all the 14 Mayan mothers slept in the same bed with their infants, and 8 older

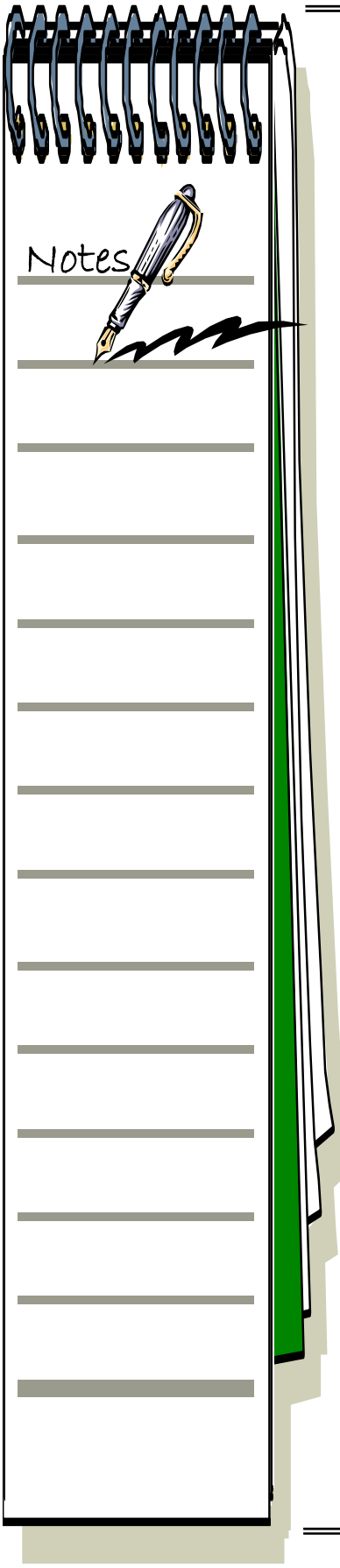
toddlers slept with their fathers. In the middle class American sample, none of the newborn infants regularly slept with its mothers. Mayan parents believe that co-sleeping is the only "reasonable way" for a parents and infants to sleep, while the Americans in Morelli's et al's sample felt comfortable keeping newborns and neonates next to their beds "to make sure that they were still breathing", but were not comfortable having them in the same bed. After their children's third to sixth month of life, the Americans parents felt their infants were no longer so vulnerable. Fearful of interfering with the infant's progress toward independence and autonomy, most American parents in the sample moved the infants to a separate room.

In another study, conducted in Australia, an immigrant Vietnamese mother was told about the sudden infant death syndrome (SIDS), with which she was unfamiliar. She surmised that "...the custom of being with the baby must prevent this disease. If you are sleeping with your baby, you always sleep lightly. You notice if his breathing changes...Babies should not be left alone". Further to the point, another of the Vietnamese mothers added: " Babies are too important to be left alone with nobody watching them".

Of 40 Chinese women interviewed (in Chinese) at Guagzho University Hospital by Wilson over 66% of new mothers were intending to have their infants sleep with them in the marital bed, and all of her sample were planning to have the infant sleep alongside the bed. One informant represented many when she stated that the baby is "too little to sleep alone", and that co-sleeping "make babies happy". Another Chinese informant tells Wilson: that "...the parents breathing effects the baby so co-sleeping is good" and, later, co-sleeping permits mothers to know "if the baby {was} too hot or too cold" ..to hear baby's sounds".

2b) Is Moral Character A Function of the Sleep Environment?
What might come as a surprise to some researchers is the work of cultural psychologist Shweder and his colleagues at the University of Chicago (second passage). They show explicitly that concerns for "moral goods" (taken here to mean concerns or preferences for particular personal qualities or behavior and personality or character outcomes) are deeply embedded in and reflective of notions about proper sleeping arrangements, regardless of whether these notions are scientifically based or simply folk assumptions. Their cross-cultural comparisons reveal that in choosing sleeping arrangements parents feel a powerful concern for what "looks" morally acceptable and for practices they've come to believe lead to certain moral traits. At least initially, not only is it believed that certain "types" of sleeping arrangements produce certain "types" of children, but that they reflect certain "types" of parents (i.e. good or moral parents) who are themselves judged by family, friends and





community, depending on where they place their infants or children for nighttime sleep.

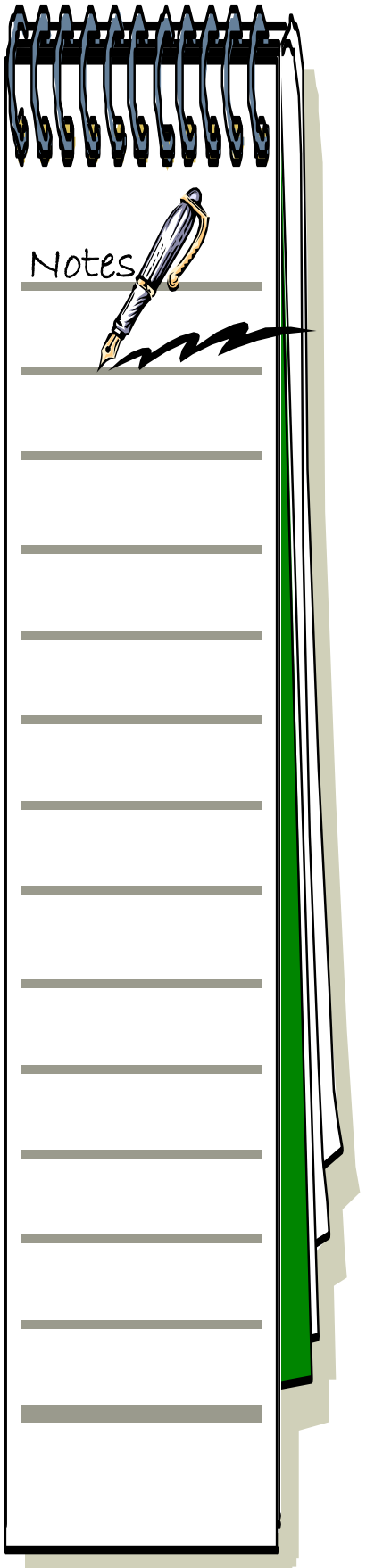
Shweder's et al showed specifically that where and with whom some American children are allowed to sleep is guided by concerns for three specific moral issues: the sacredness-separateness (from children) of the husband-wife relationship; the appearance of incest avoidance, and the importance of teaching the child self-reliance and independence by enforcing the infant/child to sleep alone.

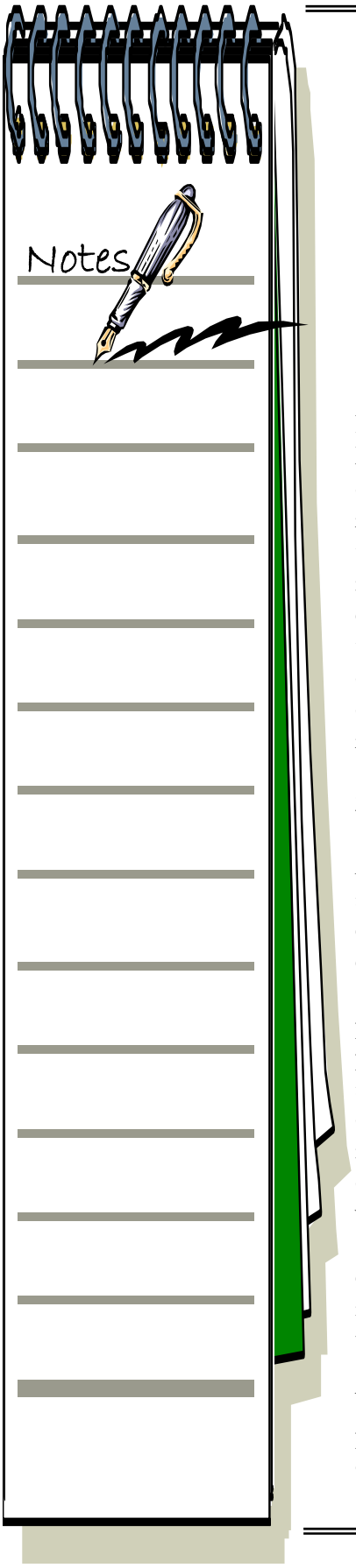
Perhaps the overriding importance of these moral goods in certain segments of American society helps to explain why culture-based"folk" and scientific understandings of infant and childhood sleep often intermingle, and mutually reinforce each other. In pediatric sleep medicine, for example, it is often difficult to distinguish between what is passed on to parents as proven scientific findings---in relation to how sleeping arrangements affect marriages, personality development, self confidence, independence and/or overall satisfaction with life---and what is simply personal judgment on the part of the advice giver. Interestingly, the "moral" outcomes parents desire to instill in their children through choices for particular sleeping arrangements contrast and often conflict with the sleep management strategies parents think they need to employ to obtain those outcomes. For example, western parents generally seek to instill sensitivity, kindness, trust and empathy in their children, at the same time as wanting to create separateness, self-reliance and/or autonomy through enforced solitary sleep, the latter of which can be facilitated through first withdrawing and then eliminating nighttime feeds and parental contact. Such emotionally conflicted parents will often display inconsistent (on-again, off-again) enforcement of solitary sleep, alternating between some form of co-sleeping and separate sleeping arrangements, an important phenomenon called reactive co-sleeping first introduced by Madansky and Edelbrock. But reactive co-sleeping only exacerbates parent-child sleep struggles, and certainly does not eliminate them, as their study illustrates .

2C) Do Solitary? or Social? Infant Sleeping Arrangements Produce Independent, Satisfied, (Moral) Children and Adults? Is This The Right Question?

The absence of systematic studies on the relationship between acquired infant/child personality characteristics and routine sleeping arrangements probably explains why western conventional understandings about the relationship between solitary infant sleeping arrangements and early independence are imprecise and misleading at best. Recent systematic studies are beginning to provide evidence that contradicts conventional wisdom on solitary sleep in early childhood. Consider:

- Heron's recent cross-sectional study of middle class English children shows that amongst the children who "never" slept in their parents bed there was a trend to be harder to control, less happy, exhibit a greater number of tantrums. Moreover, he found that those children who never were permitted to bedshare were actually more fearful than children who always slept in their parents bed, for all of the night.
- In a survey of adult college age subjects, Lewis and Janda report that males who co-slept with their parents between birth and five years of age had significantly higher self-esteem, experienced less guilt and anxiety, and reported greater frequency of sex. Boys who co-slept between 6 and 11 years of age also had higher self-esteem. For women, co-sleeping during childhood was associated with less discomfort about physical contact and affection as adults. While these traits may be confounded by parental attitudes, such findings are clearly inconsistent with the folk belief that co-sleeping has detrimental long-term effects on psycho-social development.
- Crawford found that women who co-slept as children had higher self esteem than those who did not. Indeed, co-sleeping appears to promote confidence, self-esteem, and intimacy, possibly by reflecting an attitude of parental acceptance (Lewis and Janda 1988).
- A study of parents of 86 children in clinics of pediatrics and child psychiatry (ages 2-13 years) on military bases (offspring of military personnel) revealed that co-sleeping children received higher evaluations of their comportment from their teachers than did solitary sleeping children, and they were under-represented in psychiatric populations compared with children who did not co-sleep. The authors state: "Contrary to expectations, those children who had not had previous professional attention for emotional or behavioral problems co-slept more frequently than did children who were known to have had psychiatric intervention, and lower parental ratings of adaptive functioning. The same finding occurred in a sample of boys one might consider "Oedipal victors" (e.g. 3 year old and older boys who sleep with their mothers in the absence of their fathers)--a finding which directly opposes traditional analytic thought".
- Again, in England Heron found that it was the solitary sleeping children who were harder to handle (as reported by their parents) and who dealt less well with stress, and who were rated as being more (not less) dependent on their parents than were the co-sleepers!





- And in the largest and possible most systematic study to date, conducted on five different ethnic groups from both Chicago and New York involving over 1,400 subjects Mosenkis found far more positive adult outcomes for individuals who co-slept as a child, among almost all ethnic groups (African Americans and Puerto Ricans in New York, Puerto Ricans,, Dominicans, and Mexicans in Chicago) than there were negative findings. An especially robust finding which cut across all the ethnic groups included in the study was that co-sleepers exhibited a feeling of satisfaction with life.

But Mosenkis's main finding went beyond trying to determine causal links between sleeping arrangements and adult characteristics or experiences. Perhaps his most important finding was that the interpretation of "outcome" of co-sleeping had to be understood within the context specific to each cultural milieu, and within the relational matrix within which it occurs. For the most part, co-sleeping as a child did not correlate with anything in any simple or direct way. He concluded that there is no one "function' of co-sleeping but that co-sleeping as a child interacts with a variety of cultural, social and unique developmental characteristics of the relational setting (34), and that sleeping arrangement is but a small part of a larger system affecting adult characteristics (34).

2D) Beliefs about the consequences of non-traditional sleeping arrangements: science or religion?

At least judging from public discourse, the validity of predicted outcomes associated with particular sleeping arrangements need not be demonstrated or proven scientifically, as long as people believe that they do, or that the outcomes promised reflect, compliment, or in some way support, the prevailing values and goals which justified the recommended practice in the first place. For example, in contrast with situations where parents and children sleep together (co-sleep) solitary childhood sleeping arrangements are believed to foster more independent infants and children. The problem is that no study has ever defined what exactly is meant by independence, or how it should be measured or, assuming it can be measured, or, assuming it can or could be achieved at a young age, whether this quality or character is causally linked to childhood satisfaction, competence or happiness. Furthermore, no study has ever determined if the ability to sleep alone through the night at an early age relates to the emergence of other skills or personality characteristics unavailable to infants and children sleeping under different conditions.

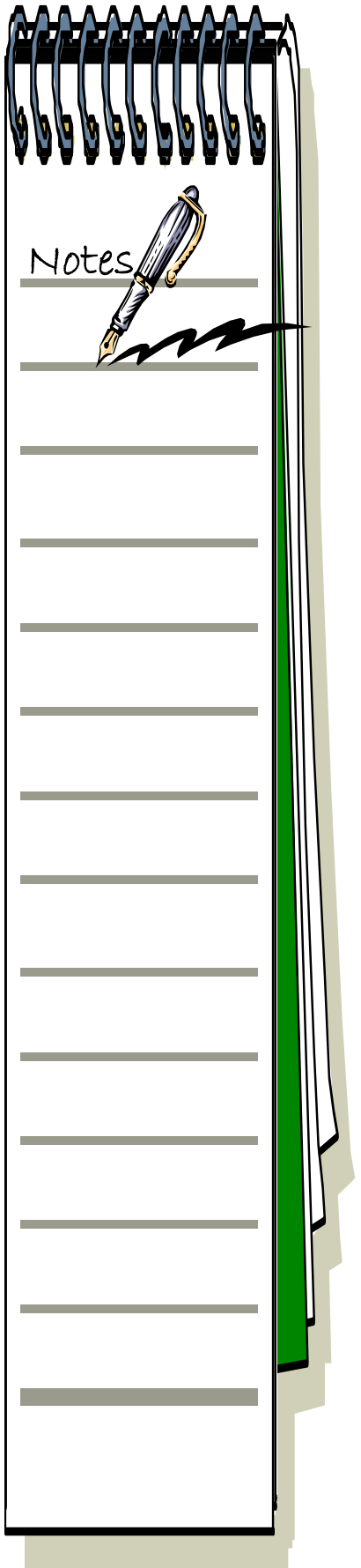
When discussions turn to non-traditional sleeping arrangements, much is presumed but little or nothing is proven. For example, it is often implied or stated outright that co-sleeping exacerbates or creates a parent-child sleep problems, but this appears to be true where parents do not value

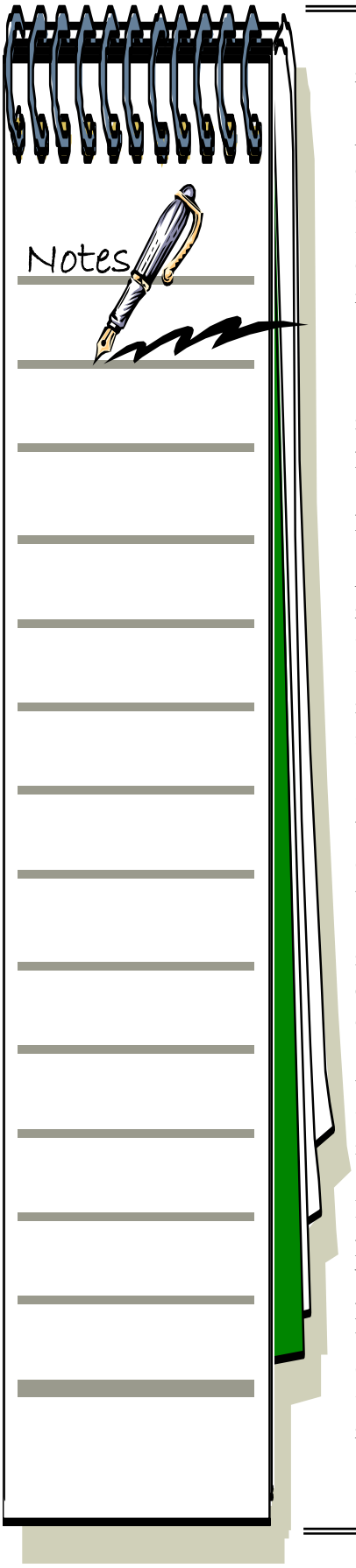
co-sleeping such as when parents permit a child to sleep in their bed as a response to on-going sleep difficulties. Furthermore, Hayes et al studied co-sleeping among 51 3-5 years olds and found that in the subgroup that were considered difficult sleepers, all but 1 (of the 51) had developed sleep problems in the context of sleeping alone; that is, originally all the children that developed into "problem sleepers" as defined by their parents, had been placed in a separate bed from infancy. And even where co-sleeping parents report problems, this does not necessarily mean that it is not still the preferred sleeping arrangement.

Whether sleeping alone or socially, the functions of the sleep environment for a child change in relationship to age, and/or changing circumstances. For example, the physiological consequences of a mother sleeping beside her 1-month -old infant are enormously different from the physiological consequences associated with her sleeping with this same child 13 months later when cognitive and psychological systems are much more mature. At one month, and owing to the human infant's extreme neurological immaturity at birth and continuing slow development, the mother's body acts as a cue or trigger in regulating the baby's body temperature, breathing, arousal patterns, cortisol levels and sleep architecture. But at two and/or five or thirteen years of age children will actively interpret the relational meaning and affects of co-sleeping with their parents while the initial important physiological effects will diminish. Indeed, whether the consequences of the sleeping arrangement is beneficial, benign or deleterious (at any given age) will depend not simply on the location, where the sleep occurs, but on the social meaning and psychological content of the relationship of the participants, as expressed within the family, of which sleeping arrangement per se is but a small reflection and part. Such critical analytic distinctions are mostly absent when the potential value of non-traditional sleeping arrangements (especially co-sleeping) are addressed.

3. Conventional Western Understandings of "Healthy, Normal" Infant and Childhood Sleep: Where Did They Come From? Is One Form Of Sleep As Good As Any Other?

It is tempting to use the concept cultural relativism to argue that regardless of differences in the ways infants or children's sleep worldwide, each culturally-based strategy is equally valid and appropriate. Such a simplistic perspective is fallacious, however, in a number of ways. First, it presumes that parents in all societies are equally satisfied with the way their infants and children sleep, or that parents (and children) are equally well rested despite differences in how or where they sleep. Though it is hard to compare across all cultures, the impression by many anthropologists is that (in general) parents living in western industrialized societies are much less satisfied with how their children sleep than are parents in nonwestern societies, and that in industrialized societies nightly





infant and childhood sleep comes about under more stressful conditions.

A second fallacy is the erroneous assumption that any society (including our own) necessarily produces a sleep management strategy that is appropriate for all, and that it is optimal (promote maximum health) for all, or is always compatible with the short or long term biological needs of the infant. Parental caregiving choices that satisfy parental best interests are not, for example, necessarily the same as those which best serve the infant's. And while modern lifestyles and/or technology offer some effective substitutes for parental nurturing (contact, protection and support) it is worthwhile to recall Bruner's warning that "it would be a mistake to leap to the conclusion that because human immaturity makes possible high flexibility in later adjustment, anything is possible for the species...we would err if we assumed a priori that man's inheritance places no constraint on his power to adapt.

A third problem with the relativist perspective is that it erroneously implies that within any given society each family's values and goals are the same, and that publicly preferred or "ideal" sleeping arrangements are those which are actually practiced. We now have evidence there is much more variability regarding sleep practices especially in the United States and the United kingdom than has ever been acknowledged.

Obviously, each culture is unique, and there must be some compatibility between family behaviors and the society within which they live. My criticism is that the pediatric sleep community continues to make it uncomfortable for many parents to practice sleeping and nighttime feeding arrangements that differ from their own. More importantly, I regret that the "science" of infant sleep continues, for the most part, to disregard the significance of mother's presence as a biological regulator of infant sleep as it unfolds and develops within the co-sleeping/breast feeding adaptive complex. I argue that this situation precludes a full understanding on infant sleep physiology and development and, therefore, a full understanding of the likely etiology of so many sleep-related problems infants, children and parents experience.

In my own work no particular sleeping arrangement is advocated to any particular family. Rather my colleagues and I advocate a perspective from which other kinds of analysis and concerns can proceed. An evolutionary perspective provides a more objective context, I believe, for understanding infant responses to the diverse sleep environments cultures provide. As a conceptual tool evolution offers a beginning point to consider how social factors come to predominate over and influence infant and childhood sleep biology and development. Anthropological studies which incorporate and evolutionary framework reveal that infant sleep physiology evolved in the context of continuous maternal contact

including baby-controlled nighttime breast feeding. This fact permits us to argue that in order to understand species-wide infant sleep-wake patterns and/or sleep architecture infant sleep must be studied under conditions that mimic this "environment of adaptedness".

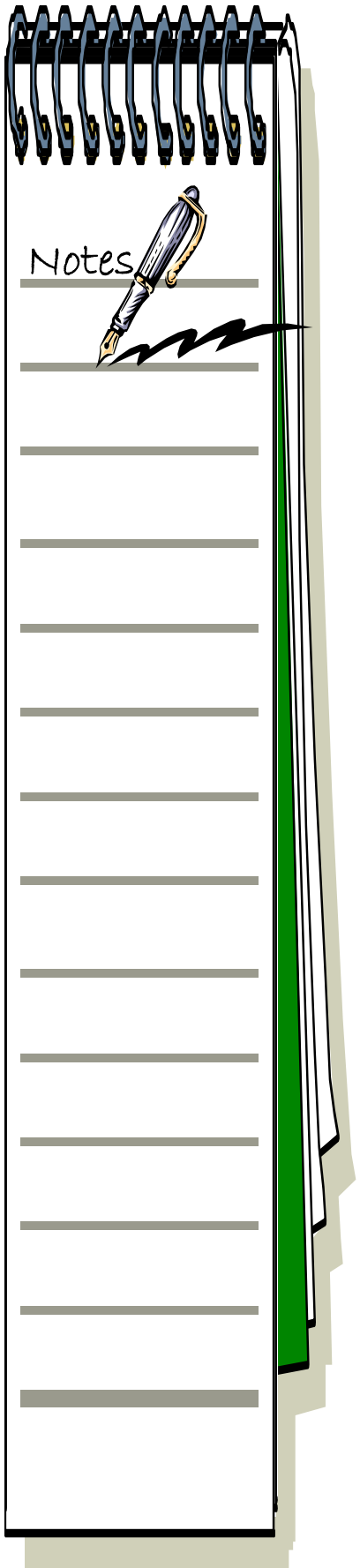
In western cultures (as described above) generally clinicians continue to advocate only one form of sleep for infants and children (i.e. solitary sleep) and sleep management strategies aimed at sharply reducing as early in life as possible parental handling and feeding of infants at bedtime. Parents are encouraged not to permit infants to associate falling asleep with food (including breast feeding) or parental touch, the very context within which the infant's "falling asleep", in relationship to parental emotions evolved. Breast feeding rates are increasing in the United States. If falling asleep at the breast is as common and, apparently, as biologically appropriate as cross-cultural data suggest, then this recommendation will prove problematic for many mothers and infants.

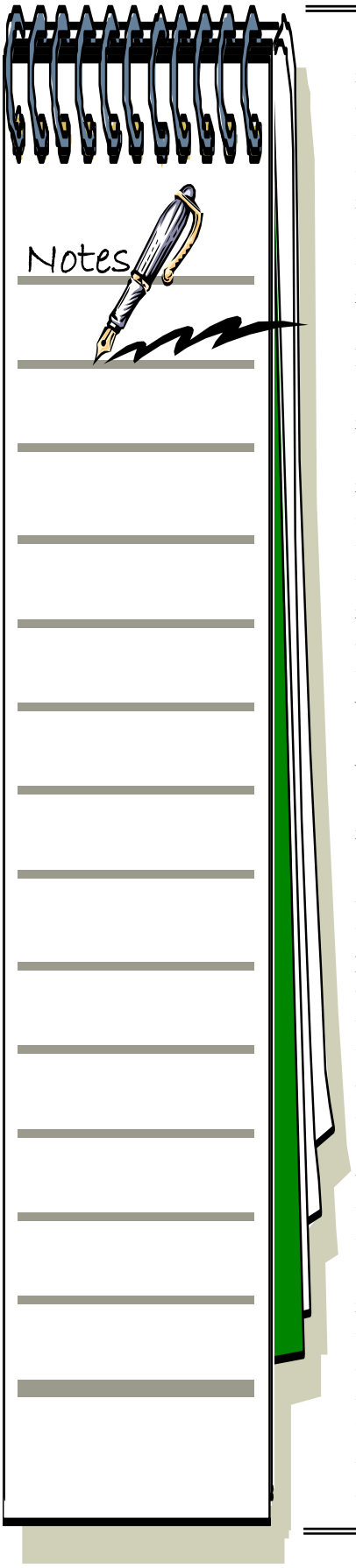
Given the western cultural and historical context within which infant sleep studies were begun, these contemporary recommendations are understandable. Both clinicians and pediatricians encounter parents who need simple, practical solutions to immediate, on-going problems associated with solitary infant sleep. Thus, clinicians impressions are colored by, and mostly limited to, families in crisis. They hear little testimony from parents who have found alternative sleeping arrangements (to the solitary model), and who enjoy their alternative choices. Second, infant sleep studies were first conducted by researchers in the fifties and sixties when breast feeding was at an all time low and co-sleeping was regarded as being aberrant, and definitely to be avoided. Since the significance of mother-infant co-sleeping with nighttime breast feeding was considered neither biologically nor culturally appropriate, it is not surprising that patterns of childhood sleep development considered clinically ""healthy" and normal" were those patterns expressed by bottle-fed infants sleeping alone in sleep laboratories.

3a) The Traditional Sleep Research Paradigm is Inadequate for the Diversity of Family Sleep Practices It Must and Should Accommodate

"It is hypothesized that the progressive organization of sleep and wakefulness at night in infancy reflects the integration of constitutional propensities of the infant (temperament) in interaction with the infants multiple contexts...Contextual relationships are mediated by the infants primary relationships which are different from, but have their origins in, the infant's social dyadic interactions."

Anders suggests in the quote above that patterns of "normal" and "appropriate" infant sleep development are extremely variable and

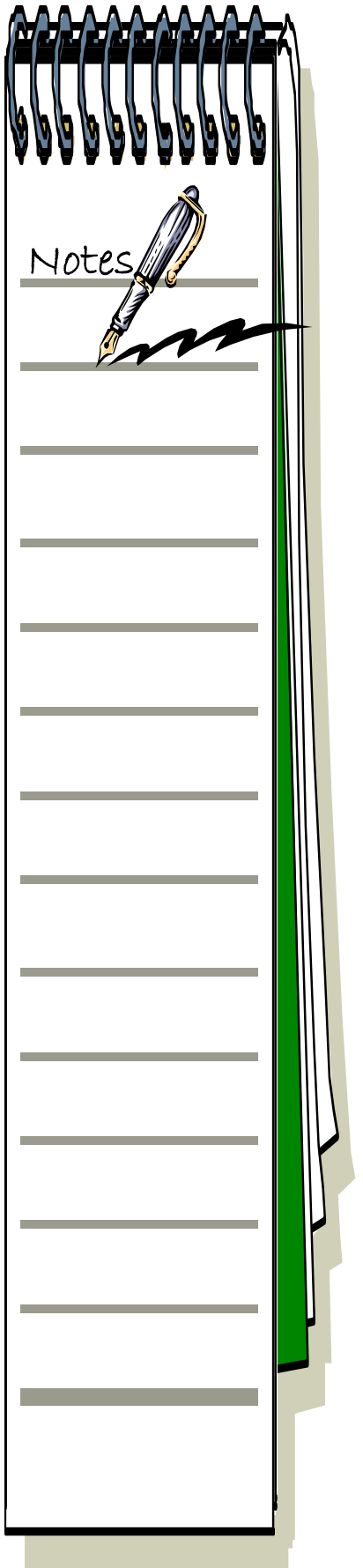




responsive to a variety of environmental i.e. contextual processes. Some of these processes involve family interactional factors which characterize the nature and affectional structure of the social relationships each parent experiences with their infant or child during the day. If fully realized by researchers and clinicians alike the "transactional" model that Anders and Sadeh and Anders envision offers a revolutionary approach to studying and understanding infant sleep development, and for creating the inclusive paradigm for which this chapter argues.

Indeed, a transactional approach takes Lozoff and her colleagues one step further. The approach acknowledges at the outset that "normal" infant sleep development not only can vary within different cultural subgroups, but also from one infant to the next, depending upon the interplay of intrinsic and extrinsic variables significant to each developing child. Intrinsic factors can include, but are not limited to, infant temperament, growth rate and neurological status (constitutional needs) at birth. Extrinsic factors, with which intrinsic variables interact, can involve such things as whether infants are breast or bottle fed, whether or not the infant feeds on its own or on it's parent's schedule, whether the infant sleeps in the same bed, same room, or different room (alone), whether the infant sleeps on it's back, side or belly, and whether the family generally favors nighttime contact or discourages or resists it, and whether the infant has siblings or is an only child. All of these factors (and others) can alter the trajectory of infant sleep development in important ways.

Harkness et al point out that the traditional theoretical models, explanations, and clinical treatments of infants with dysommnias and parasomnias continue to be predicated on the notion that the ontogeny or maturation of infant sleep is, in the vernacular, fairly predictable, clean and neat. Changes in infant sleep architecture, particularly the reversal of the predominance of active to quiet sleep, is reported to follow an orderly, unfolding pattern dominated by endogenous mechanisms. For example, during the first year of life a more stable "adult-like" pattern of sleep emerges. The infant sleeps for longer and longer (relatively uninterrupted) periods in increasingly deeper (Delta wave) sleep which is thought to reflect an increase in the level of "integrity and maturity" of the central nervous system. Indeed, the ability of infants to return to sleep unassisted after awakening (to self soothe), to "sleep through the night" as early in life as possible with minimal parental contact continues to be a developmental benchmark against which infants and their caregivers are evaluated, even when "sleeping through the night" is not an important issue for the parents. Such a criteria used to evaluate "developmental progress" may do more harm than good if the sleeping arrangements actually practiced are not the same as the one for which the evaluation was intended.

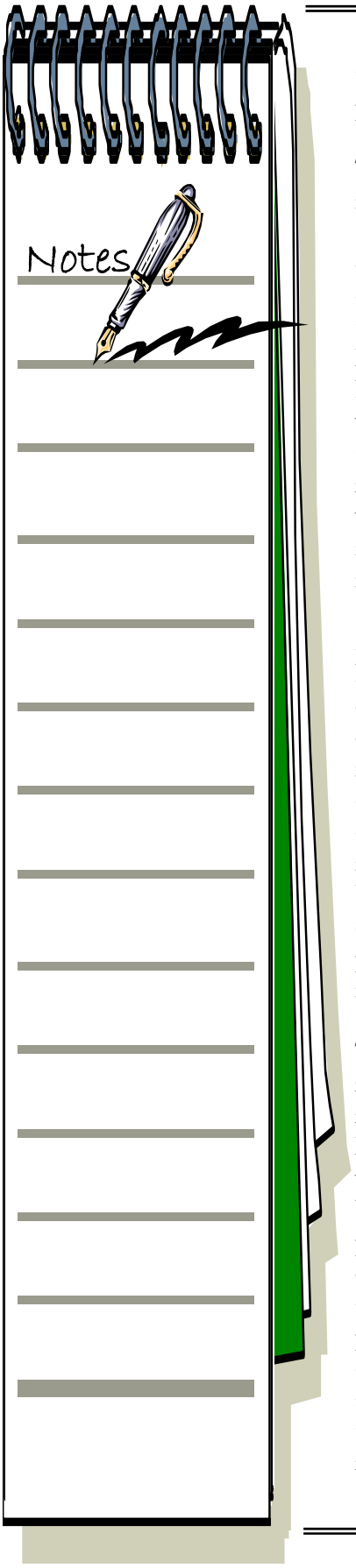


3B) Examples of how culturally guided "choices" concerning sleeping arrangements and related sleep practices matter biologically to the infant, and change "normative" sleep development.

Infant Sleep Position and SIDS Susceptibility

Consider how sensitive the infants sleep behavior, physiology and health is to culturally guided decisions about how, where, with whom (if anyone) infants should sleep. Indeed, while Lozoff and her colleagues hinted at it, they never could have predicted the degree to which culturally-based decisions regarding infant and childhood sleep affects development and nightly sleep physiology, including the chances of an infant dying from the sudden infant death syndrome (SIDS). In fact, the sleeping position of the infant has proven to be the single most important factor for reducing the chances of an infant dying of SIDS, although the reasons for increased risk remain unknown. The discovery that, merely by placing infants in the supine, rather than in the prone sleep position SIDS rates could decline as much as 90% in some countries continues to astonish many SIDS researchers worldwide. The decision to recommend the dangerous prone sleeping position emerged from the widely accepted belief that if prone sleeping helped premature infants to breathe and sleep better than it could probably do the same for older- term infants. The possibility that supine infant sleep could make the infant vulnerable to choking (esophageal reflux) only added to the resolve of physicians to lay infants prone for sleep.

Do infantile arousal mechanisms needed to protect infants during respiratory crises follow the same time course of development as the neurological mechanisms that promote longer periods of deeper sleep (delta wave, stage 3 and 4)? This is an important question, as pertains susceptibility to SIDS. Over twenty years ago Douthitt and Brackbill found that prone sleeping newborns slept longer and deeper (aroused less and slept longer) than did supine sleeping infants. That is, infants sleeping on their backs experienced twice as many motor activities during sleep and more awakenings than did prone sleeping newborns, findings recently confirmed by Kahn et al. Since the goal of both parents and health professionals in western societies was and continues to be to promote sleep, and not awakenings, it is easy to understand why these earlier data provided evidence for why infants should be placed in the prone position. Yet, it has been suggested that some infants who die of SIDS perhaps cannot arouse or awaken easily or fast enough to terminate a cardio-respiratory crisis during sleep, especially while in deep sleep where arousal thresholds are higher. These findings raise the possibility that the supine sleep might well be safer precisely because of the increased arousal and motor activity which accompanies it. even though



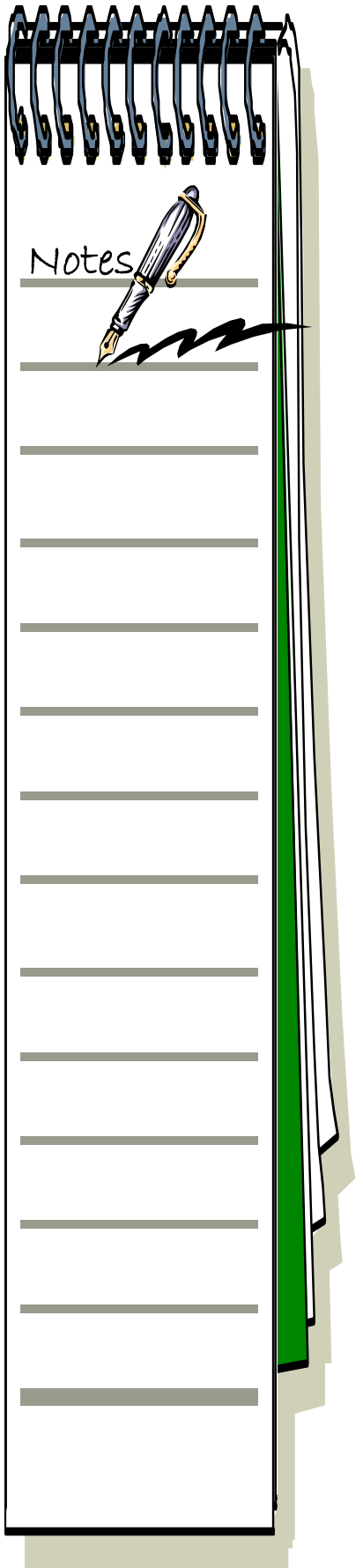
the implications of this possibility conflicts with cultural strategies to promote early "deep" sleep in infants as early in life as possible.

There are other parent-controlled "social" precautions that lower the risks of SIDS. Mitchell found that the presence of a responsible adult sleeping in the same room as an infant reduced by four -fold the chances of infants dying from SIDS. This protective effect did not generalize to co-sleeping among siblings indicating that a responsible role played by the caregiver is likely critical in reducing the chances of the infant dying. Moreover, the largest epidemiological study to date conducted in Great Britain also shows increased risks for infants sleeping in rooms alone, as well as for babies sleeping in their mother's beds, if the mother smokes. Other dangerous conditions include the use of duvets pulled up over the infants head, and the use of soft mattresses. Overheating by over-wrapping an infant also significantly increased SIDS risks. All of these new data illustrate the extent to which infant sleep physiology is directly mediated by parental intervention.

Feeding Practices

Bottle-fed infants exhibit significantly different nightly sleep profiles than do breast fed infants. And infants breast fed for a year or more, develop different sleep patterns than do infants breast fed for only the first three months. Recall that Oberlander et al found that among newborns a complete milk formula feed increased post-feed sleep by 46% and 118%, compared to water or carbohydrate-only feedings. Furthermore, the most recent Ross surveys indicate that 62% of contemporary mothers in the United States are breast feeding when they leave the hospital And new evidence suggests that at least among Latinos mothers continue to provide their infants with at least two breast feeds or more from midnight through to the morning.

That so many more mothers are now breast feeding their infants for increasingly longer periods makes sleep models based only on data from infants fed artificial or cows milk (from bottles) highly problematic for at least half of the population of contemporary American infants. And while breast feeding drops to 26% at six months the number of mothers breast feeding is continuing to rise in the United States. This is particularly significant since, as described below, in addition to sleep differences induced by breast vs. cows milk, sleep proximity to mother also influences the frequency and duration of feeding bouts. Maternal proximity in the form of bedsharing, in addition to breast feeding, especially changes the infant's nightly sleep architecture including arousals and sleep period time. Developmental models of infant sleep in the first year of life that do not consider feeding method and frequency in relationship to sleeping arrangements, are not therefore appropriate for many infants.



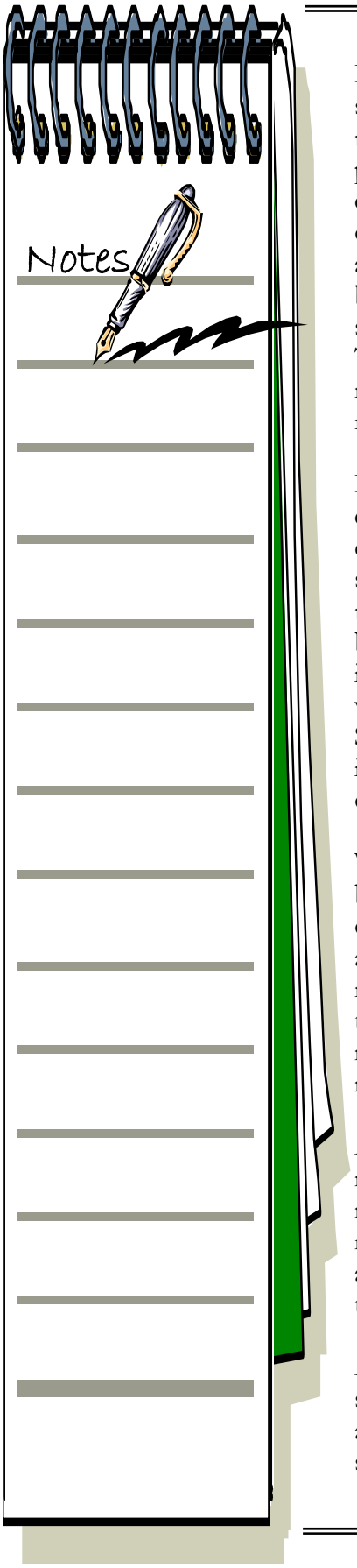
Over twenty years ago Harper et al argued that feeding behavior asserts an underestimated role in regulating infant sleep physiology and sleep architecture, even though most pediatric sleep research papers rarely include data on feeding method and frequency. For example, he and his colleagues found that among bottle fed, solitary sleeping infants the waking periods associated with feeding increased the probability of a subsequent REM period, a finding consistent with previous work on small mammals. They suggested that because REM sleep and quiet sleep followed each other in sequential fashion a change in the relative distribution of REM sleep altered the likely sequence of state. Their laboratory research on bottle fed infants showed that feeding tended to entrain the subsequent REM-QS cycle in that the percentage of REM increased after feeding and then dropped sharply approximately 20 minutes later, with a corresponding increase in quiet sleep. They concluded that "... the interpretation of behavior resulting from maternal-infant interaction should be viewed within the framework of incorporation of food, in that satiety play a large role in regulation of state integration and cardiac response".

"Choice" of sleeping arrangement was found to greatly increase not only the number of breast feeds, but the total nightly durations of breast feeding and the average intervals between the feeding sessions. For example, amongst 70 nearly exclusively breast feeding Latina mothers and their 2-4 month old infants, we found that when bedsharing the average interval between the breast feeds was approximately an hour and a half, but when sleeping apart in separate bedrooms (but still within earshot) the interval was at least twice as long (about three hours). Moreover, on their bedsharing nights we reported that babies breast fed twice as often for three times the total nightly duration than they did when they slept alone.

These differences in feeding were part of a broader complex of differences, a cascade of interconnected changes induced by the presence of the mother. Sleeping together altered not only feeding behavior within what was supposed to be a homogenous breast feeding group, but also infant and maternal arousal patterns, and sleep architecture mother-baby body orientations in bed, infant respiratory behavior and almost every major parameter important in understanding infant and maternal sleep physiology.

Infant and Maternal Arousals, Temporal Correspondences, and Sleep Architecture, Among Solitary and Bedsharing Mother-Baby Pairs

"Separate normative values for infant sleep need to be developed for infants who bedshare, and existing norms should be reinterpreted within the cultural context in which they were established".



In three, in-house laboratory studies of one form of mother-infant co-sleeping, bedsharing, we used standardized polysomnography and infra red photography. We quantified differences in the behavior and physiology of mother-infant pairs as they shared a bed or slept apart. The data show that while bedsharing a significant amount of temporal correspondence occurred between the sleeping pair's transient (brief) arousals, and between their larger epochal awakening. We also found that bedsharing mother-infant pairs exhibited a trend toward greater simultaneous overlap in all sleep stages (i.e., stages 1-2, 3-4, and REM). This synchronization of sleep states was not explained by chance and is not found when the sleep/ wake activity of infants is compared to randomly selected mothers with whom they did not co-sleep.

In our most extensive study we reported that in general small EEG defined transient infant arousals are facilitated in the bedsharing environment, selectively, and even when routinely bedsharing infants slept alone they continued to exhibit more transient arousals than do routinely solitary sleeping infants, sleeping alone. Furthermore, bedsharing significantly shortened the amount of time per episode infants remained in deeper stages of sleep (stage 3-4) compared with when they slept alone, with increases in the amount of time spent in Stage 1 and 2, and more total time asleep, since among other things, infants cried significantly less while sleeping with their mothers, compared with when they slept apart.

We also documented an acute sensitivity on the part of the routine bedsharing mothers to their infants presence in the bed. That is, compared to the number of overlapping arousals (in which the infant aroused first), routinely solitary sleeping mothers on their bedsharing night in the laboratory exhibited significantly less overlapping arousals than the routinely bedsharing mothers did indicating that bedsharing mothers do not habituate to the presence of their babies but become more sensitized to their behavior.

And while routinely bedsharing mother aroused and fed their infants more frequently while sleeping next to them, on average they received as much sleep as solitary breast feeding mothers, and routinely bedsharing mothers evaluated their bedsharing sleep experiences (in the laboratory) at least as positively as did routinely solitary sleeping mothers following the night when they slept in their routine (solitary) condition.

Altogether, these documented differences between the bedsharing and solitary sleep environments suggest the possibility that the presence or absence of the mother routinely in bed with the infant, should lead to significant changes in sleep development over the infant's first year of

Life— a "normative" trajectory of sleep development not represented by the traditional paradigm.

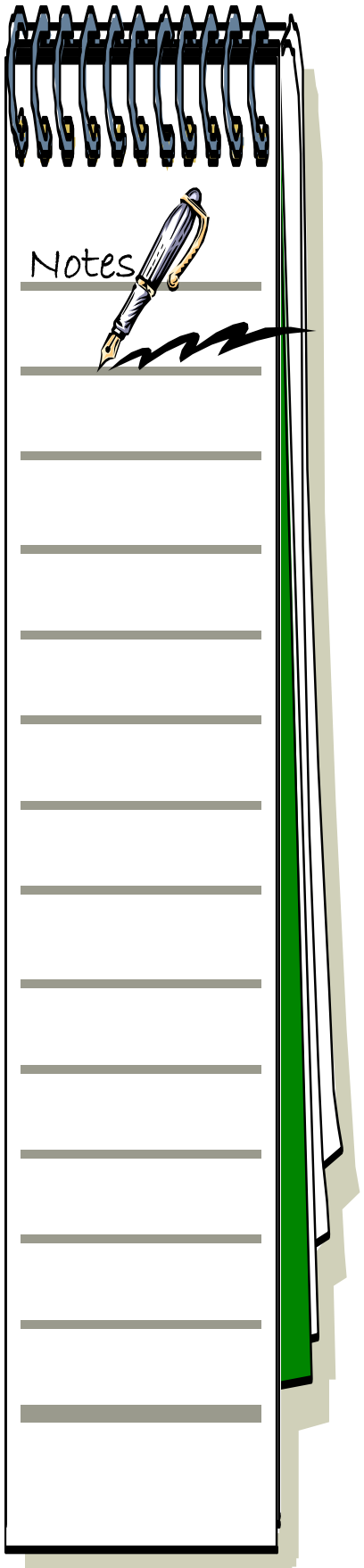
Culture (Vis a Vis Sleeping Arrangements) Regulates Infant Breathing?

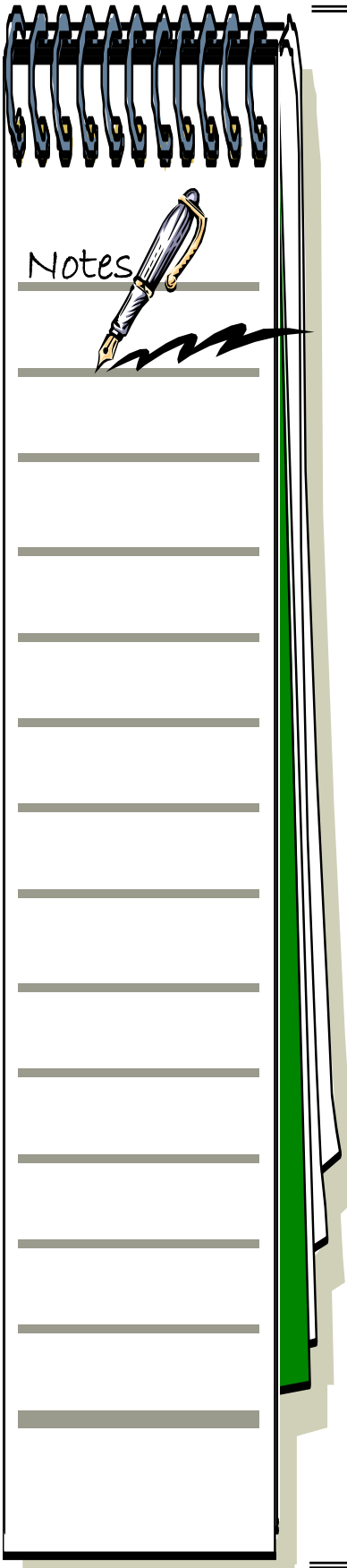
In this same study, Richard et al showed that the decision to sleep with an infant in the same bed, or to place it in a separate room for sleep, contributes to differences in the infant's nightly breathing patterns. For example, the bedsharing environment is associated with more central apneas, fewer obstructive apneas, and more periodic breathing in infants than the solitary environment. During bedsharing, irrespective of the routine sleeping arrangement at home, the infant experiences a higher frequency of central apneas during stages 1-2 and REM (and overall). Among routinely solitary sleeping infants, who slept with their mothers in the same bed in the laboratory, this increase largely reflected an increase in the shortest apneas (3-5.9 sec) while in stage 1-2; in routinely bedsharing infants, it reflected increases in apneas in the 6-8.9 second range during REM, and in the apnea range of 9-11.9 seconds during stage 1-2. In contrast to central apneas, however, obstructive apneas were decreased by bedsharing, but only among routinely solitary sleeping infants (while bedsharing) who had a lower frequency overall and specifically in stages 1-2 and REM.

The amount of periodic breathing was also significantly increased in the bedsharing environment. Routinely bedsharing infants had a higher frequency of periodic breathing and a longer mean duration over the entire night (overall) while bedsharing, and specifically during REM. Routinely solitary sleeping infants exhibited more frequent periodic breathing only during stages 3-4, while bedsharing in the laboratory with their mothers.

Social Determinants of Total Infant Sleep Time And Average Bout Lengths

The ethnographic studies of infant sleep in diverse settings confirm just how extensively the infant's endogenous mechanisms transact with parental behavior. Outside of the laboratory it is clear that the total amount of daily sleep an infant experiences is regulated by the environment, and cannot be considered dependent on endogenous factors at all. For example, in a recent in-home longitudinal study, Harkness et al compared 36 American families from Cambridge, Massachusetts. The children ranged in age from birth to 36 months and were studied for over a year. Sleep behavior of the children was compared to a Dutch sample of 66 families with children (living near Leiden and Amsterdam) from different age groups ranging from 6 months to 8 years. Analysis was based on diaries kept by parents in both settings. They found that, on average, Dutch babies slept two hours





longer (15 vs. 13 hours) than American infants, and the parent infant sleep "struggles" ubiquitous among the Americans was not as familiar to the Dutch.

The authors explained these differences between the American and Dutch infants' sleep behavior in terms of the importance of the "three R's" of Dutch childrearing: rust (rest), regelmaat (regulation) and rein held (cleanliness). The R's represent the complex of social values that underlie and validate the preferred context of solitary and prolonged infant sleep behavior. Harkness et al describe how Dutch parents bring to their child rearing an "ethnohistory" or set of beliefs, which explain why infants need a great deal of sleep and must not be over stimulated neither during the day nor night. Not only are babies put down to sleep earlier in the evenings, but rather than worrying about whether their infants are receiving enough intellectual stimulation during the day ---as American parents do ---- Dutch parents are concerned that they may be receiving too much stimulation, potentially threatening the infant's ability to sleep at night.

In another study, Elias et al. compared the development of sleep in infants of "standard-care" mothers (those following Dr. Spock's recommendations to minimize contact and feeding during the night), with the sleep of infants whose mothers practice care recommended by La Leche League, a worldwide health profession committed to promoting prolonged breastfeeding, physical contact, and co-sleeping. Among infants receiving standard, minimal, nighttime contact care, the maximum sleep bout length increased from an average of 6.5 hours at 2 months of age to 8 hours at 4 months and to greater than 8 hours during the second year. Infants of La Leche League mothers at 2 months of age slept an average of 5 hours during their longest sleep bout. Not until they were 20 months old did these infants sleep significantly longer than 5 hours during their longest sleep bout. In contrast to the consolidated sleep of the standard-care infants, their sleep was characterized by shorter bouts and frequent awakenings at night.

In addition to bout length, total sleep time developed differently for co-sleepers. La Leche League infants slept a total of 15 hours at 2 months, 12.5 hours at 4 months, and just over 11 hours by 2 years. Standard -care infants continued to sleep 13 to 14 hours per day throughout the two-year monitoring period. As such, Elias et al. concluded that weaning status and bed sharing have major effects on the development of sleep patterns. Indeed, in their sample these two factors explained 67 percent of the variance in bout length.

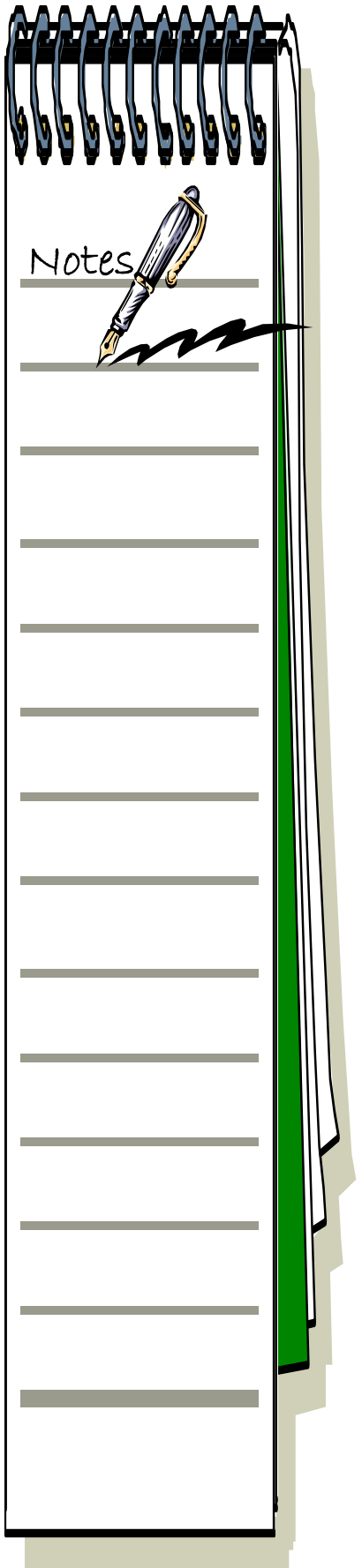
These data are consistent with babies born to mothers from a very different society but whose patterns of nighttime sleep and feeding were

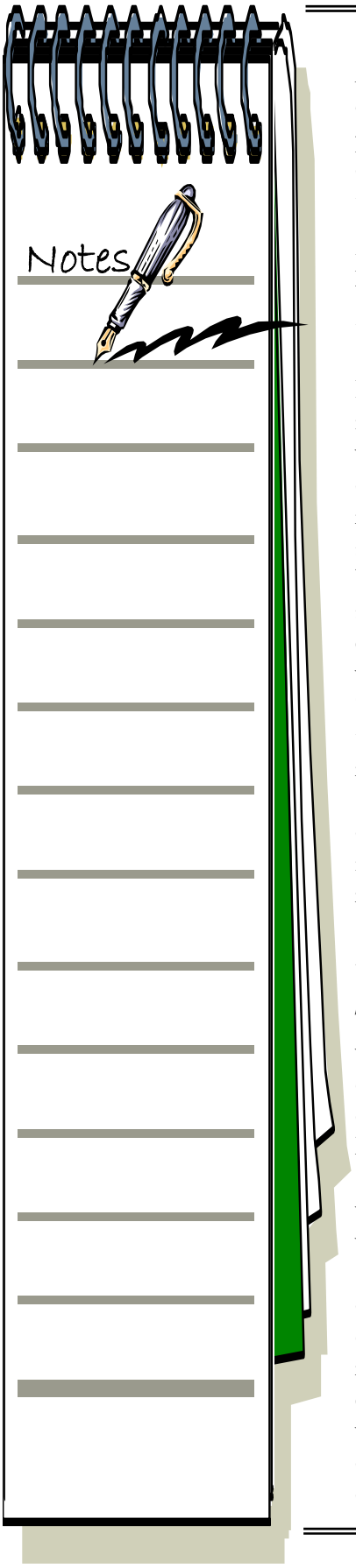
approximately the same as infants whose mothers practiced La Leche League recommended baby care. For example, for the first year of life and more Super and Harkness documented significant nighttime infant sleep behavior differences between the Kipsigis people of rural Kenya and infants living in Los Angeles. Ten Kipsigis infants were observed over a 24 hour cycle on a series of days during the first eight months of life with records kept on their sleep-wake state and feeding patterns, while comparison data for the Los Angeles sample was provided by work conducted by Parmelee, Wenner and Schultz. Kipsigis babies breast feed throughout the night in close contact with their mothers in one room dwellings while American babies slept either in their own rooms or own beds. Whereas the American babies averaged 8 hours of nighttime sleep by 16 weeks of age, the Kipsigis babies continued to wake at intervals of three to four hours up to 8 months of age, the oldest age for which we kept data. They also found that over the 24 hour cycle by the 3rd and 4th month of age American babies were sleeping about 2 hours longer).

Thumbsucking, and Transitional Objects

Winnicott first described the use of "sleep aids" by young children as part of the process by which they learn to sleep alone. In the absence of a parent or attachment figure, a young child might adopt a "special object" (blanket, favored toy, or stuffed animal) to which they attribute special qualities. These objects serve to comfort a young child during awakenings or while falling asleep. In western cultures transitional objects are so ubiquitous that current psychological models of development imply that their use is a natural stage through which all children pass. Use of such objects, however, is not universal, but again dependent upon the social context within which a child's nightly sleep experience begins and ends. As discussed in their review, Wolf and Lozoff report that American toddlers (mean age 21.7 months) who had an adult present when they fell asleep were significantly less likely to use an attachment object (such as a blanket or doll) or to suck their thumbs, practices that appear to provide a sense of security in the absence of parental contact.

In Japan and Korea, where co-sleeping is the norm, as a general rule children do not suck their thumbs at night or use transitional objects. One of the most convincing arguments that thumbsucking may well reflect the results of solitariness in young children comes from a study conducted among Turkish children, 96% of whom were thumbsuckers between the ages of 1 and 7 years. These children had been left alone as infants to fall asleep, while all of the children on the non-thumbsucking group (the majority of the total sample) had some type of adult contact or body contact, such as either being held or breastfed while falling asleep(in infancy). Even in American samples, children whose parents stayed with them at bedtime were less likely to suck their thumbs than were children who fell asleep alone.





Among contemporary Mayan children, on only a rare occasion were objects used to ease the transition to sleep and there were no preparations for bed time or bed time rituals, including special nighttime clothes. Babies mostly fell asleep in their mothers arms or were breast fed to sleep, and only one child observed by Morelli et al used a security (transitional) object while falling asleep. As they explain, among the Mayans infant sleep occurred in the same company with whom the babies spend their days and "no coaxing of any type is was needed to get the infant to sleep".

In sum, culture (including medical views)guide parental decisions regarding infant sleep position, feeding method and distribution , whether the baby sleeps alone or with it's mother, and parental notions concerning infant vulnerabilities. In turn, parental decisions influence infant sleep behavior and physiology. This includes: infant sleep architecture, arousals, sensitivity to the presence of the mother, breathing, amount of feeding, amount of sleep, nightly infant crying time, as well as thumbsucking and the use of transitional objects. These documented, interrelated effects support Ander's "transactional model" which sees the emergence of infant sleep patterns in terms of a "transaction" between extrinsic and intrinsic factors. He hypothesizes that: "the progressive organization of sleep and wakefulness at night in infancy reflects the integration of constitutional propensities of the infant (temperament) in interaction with the infant's multiple contexts....Contextual influences are mediated by the infant's primary relationships, which are different from, but have their origins in, the infant's social dyadic interactions".

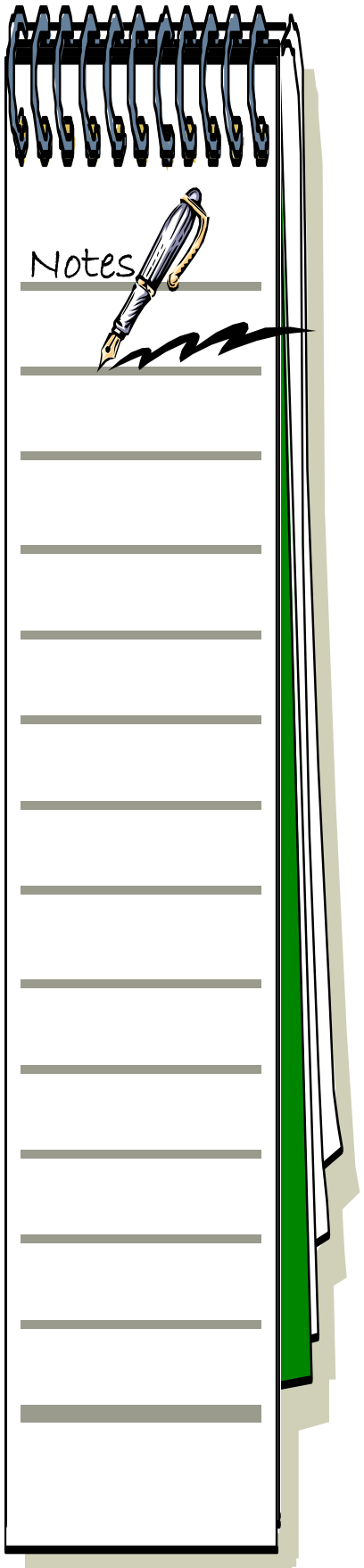
Does Solitary Infant Sleep And Rigid Parental Expectations Contribute To Infant-Parent Sleep Difficulties?

That infant sleep biology changes much more slowly than do the cultural values that underlie and regulate them raise the possibility that sleep environments optimal for infants may not be the ones encouraged by the culture within which an infant's family lives. And, of course, it is highly likely that widely accepted infant sleep management strategies are sufficient for some infants and children, but unsuitable for others who vary emotionally or psychologically. Moreover, some families may apply widely accepted developmental sleep norms established for one kind of sleep environment to their own when it is inappropriate to do so,. This can have the effect of disappointing parents leading them to conclude either that their parenting skills are deficient, or that their infant or child is uncooperative. Ironically, this situation best describes what occurs in developed countries, the United States, Great Britain, and Australia where 35%, possibly as many as one out of every three otherwise healthy children have problems falling or staying asleep, after having first been conditioned to sleep alone. Such high percentages probably do not reflect

infant or caregiver deficiencies, but perhaps over confidence in the validity of our definitions and expectations about how infants should sleep, and perhaps the rigidity by which parents hear, interpret and apply the message offered by health professionals.

Indeed, the rigidity by which parents are socialized to hold on to these expectations concerning how their infants should sleep can be used to predict the relative likelihood that infant-child sleep problems will manifest themselves. The more rigid parental expectations, the more likely parents report dissatisfaction with their child's sleep behavior. And as Anders and Taylor astutely point out, night awakenings constitute a problem for only those parents who expect their children to sleep through the night at very definite ages.

Only in the last hundred years or so, in a relatively small number of world cultures, have parents and health professionals become concerned with how infants should be conditioned to sleep. And only in western cultures are infants thought to need to "learn" to sleep, in this case, alone and without parental contact. Most cultures simply take infant sleep for granted. Consider this remarkable insight offered by Harkness et al: "...in the sense that normal children everywhere will eventually sleep throughout the night, will need less sleep as they get older and will go to bed and get up at approximately the same hours as other members of the family, and they will eventually fall asleep (and wake up) without immediate support from their mothers or fathers, all four of the major behavioral stages or components of infant sleep are 'developmentally based'.

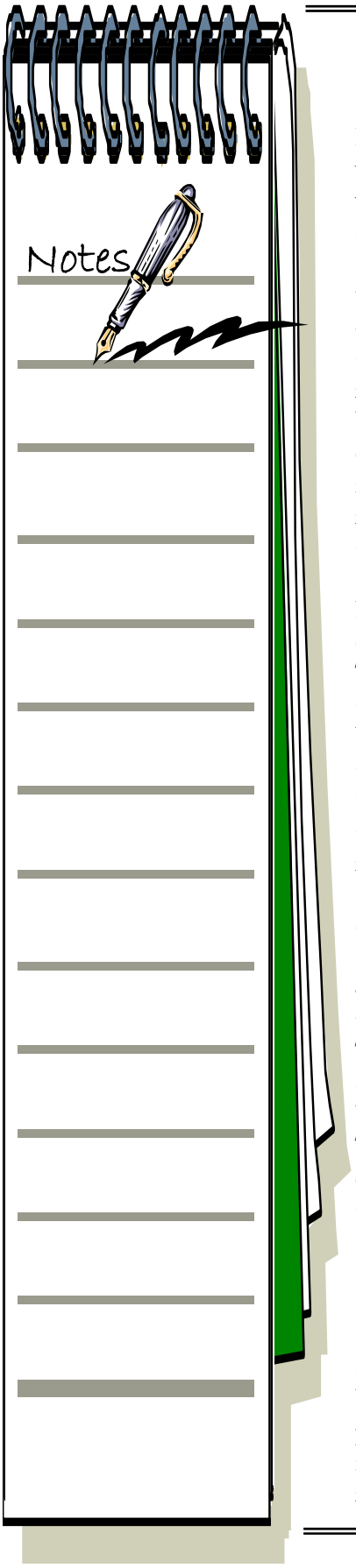


4) Infant-Parent or Child Co-sleeping: "The Political Third Rail"? Why So Controversial?

"...Although taking your child into bed with you for a night or two may be reasonable if he is ill or very upset about something, for the most part this is not a good idea".

"...The parents have to be firm and committed to returning the child to bed..parents have to learn to ignore crying until the child falls asleep. Sometimes children can cry for a couple of hours. Children may vomit with crying and so parents need to be prepared to go in to clean up the child and change the bedclothes quickly and, with the minimum of fuss, put the child back to bed, and walk out.".

"...sleeping in your bed can make your child feel confused and anxious rather than relaxed and reassured. Even a young toddler may find this repeated experience overly stimulating.



"...advise against co-sleeping may be overly simplistic"

Infant-parent co-sleeping is a generic concept referring to the diverse ways in which a primary (responsible) caregiver usually the mother sleeps within close proximity (arms reach) of the infant or child. This permits each to detect and respond to a variety of each other's sensory stimuli (sound, movement, smells, sights, touch). Co-sleeping represents the universal (species-specific) evolved context of human infant sleep development. The breast feeding /mother-infant co-sleeping arrangement is for the majority of contemporary people inevitable and inseparable, it is not a choice. This fact suggests that any universal biological understanding of infant sleep physiology and sleep-related difficulties which neglects the evolved connections between nighttime mother-infant proximity, breast feeding and infant neurological status including emotional needs, must be regarded as inaccurate, incomplete and/or fundamentally flawed.

Bedsharing is but one form of co-sleeping. Others are: futon co-sleeping, or infants sleeping alongside but not on the same surface as the mother. This occurs, for instance, when infants sleep in a basket or in a hammock above or on the side of the mother, or when mothers and infants lie beside each other on a mat on the floor. There can be no one outcome associated with co-sleeping--benign, beneficial, or deleterious--- just as there can be no one outcome associated with solitary infant sleeping arrangements. Physiological or psychological outcomes depend on the infants or child's age, as well as on the nature of the relational setting and social conditions and physical circumstances within which co-sleeping occurs.

4a How cultural/scientific bias manifests itself against the choice to "co-sleep": a social critique

The idea of parent-infant co-sleeping as a legitimate and appropriate choice for parents remains controversial in western societies probably because so many putative negative consequences are associated with it. These consequences are rarely contextualized or systematically documented, however. In popular parenting books, childcare bulletins and childcare magazines co-sleeping can be :

1. mostly described as if it were a unitary concept;
2. ignored completely;
3. presented to parents in terms of the likely or inevitable "problems" that will, might, or could, arise if it were practiced.

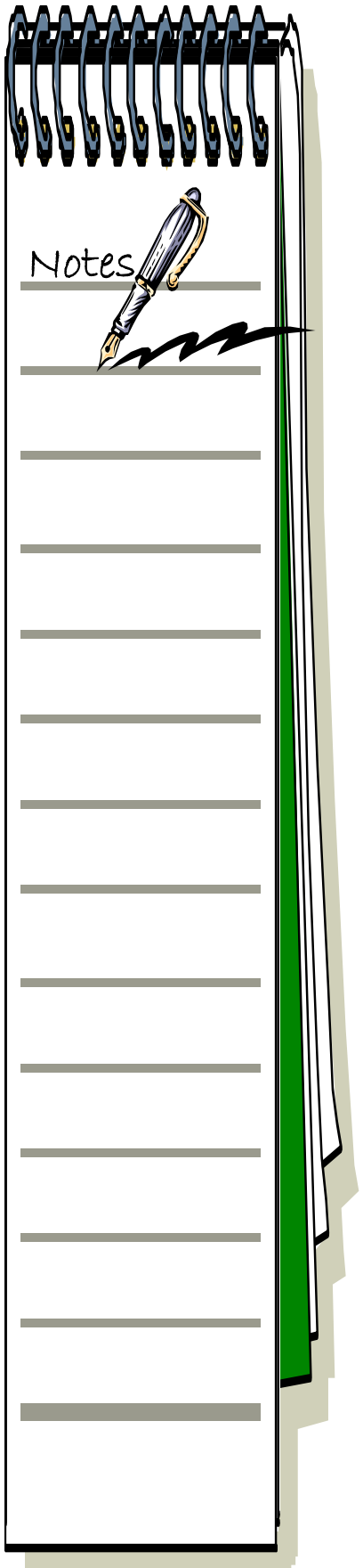
Sometimes it is explicitly discouraged, other times the message is similar but more subtle. The usual reasons that separate sleeping quarters for parents and children are recommended over co-sleeping include: marriages might best be nurtured and preserved; infant/child individualism and autonomy promoted; incest and suffocation avoided,

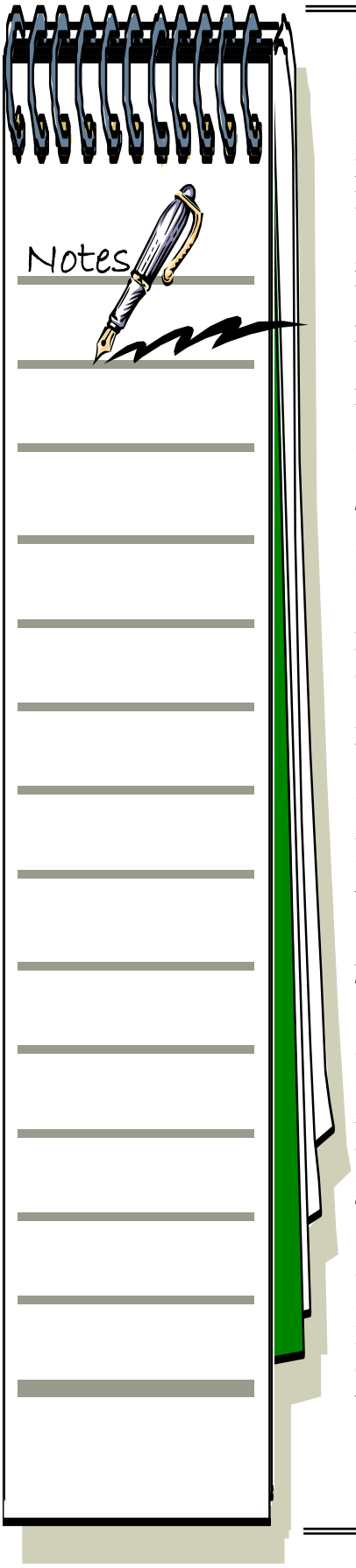
social (childhood) competence maximized; gender and sexual identities strengthened; and life satisfaction (for all family members) potentially realized.

Indeed, where a "problem" or potential problem with co-sleeping can be identified, rather than being considered simply a "problem to be solved" the putative problem becomes the argument against the practice, as if all families who co-sleep will experience the same "problem". Furthermore, possible problems associated with co-sleeping are presented as if they cannot be solved in the same manner as, for example, problems associated with solitary sleep can be solved. Throughout the literature, co-sleeping is described as the cause of marital discord, though recent data from Sweden refutes this notion, or the cause of sibling jealousies...which, while possible, may be only one of many causes of sibling jealousy! Moreover, without considering whether the particular parents involved consider co-sleeping a "bad" habit or a "good" habit, parents are warned that co-sleeping creates a "bad habit", one that's "difficult to break." Furthermore, co-sleeping is said to "confuse" the infant or child emotionally or sexually, or to induce "over" stimulation. But no evidence is offered which specifics how, when, and under what circumstances. A child needs to sleep alone, it is also said in order to create a sense of self, and comfort with aloneness, or skills which presumably foster self-reliance--all "moral goods", after Shweder. Again, no specifics are given, however, as to how this arrangement, only, produces these outcomes, leaving the readers to assume that solitary sleep is the only way.

Certainly, concerns for infant safety top the list of reasons why some health professionals suggest that all co-sleeping should be avoided. And it is true that modern beds were not designed for infant safety. Suffocation and the sudden infant death syndrome (SIDS) which are mostly indistinguishable from each other are argued to be two potential consequences of parents-infant co-sleeping. Indeed, where mattresses are soft, the mother smokes and/or any adult co-sleeper is desensitized by drugs, bedsharing should definitely be avoided--and there are many other conditions which would make bedsharing less than an ideal choice, including the parents discomfort with the idea. But recognizing when and where co-sleeping in the form of bedsharing should be avoided is different than assuming that all bedsharing is dangerous--as laboratory, home, and epidemiological studies of unexpected deaths in infants are making clear.

Co-sleeping /bedsharing is not synonymous with dangerous sleep environments, although dangerous conditions are used inappropriately as a proxy for the act itself i.e. mothers and infants lying side by side), as current debates about co-sleeping are beginning to reveal. The





exaggerated fear of suffocating an infant while co-sleeping may, in part, stem from western cultural history. During the last 500 years many economically destitute women living in Paris, Brussels, Munich and London (to name but a few locales) confessed to Catholic priests of having murdered by overlaying their infants, in order to control family size. Led by the priests who threatened ex-communication, fines or imprisonment (for actual deaths) infants were banned from parental beds. The legacy of this particular historical condition in western history probably converged with other changing social mores and customs (values favoring privacy, self-reliance, individualism) providing a philosophical foundation for contemporary cultural beliefs. This foundation makes it far easier to find dangers associated with co-sleeping than to find (or assume) hidden benefits.

The proliferation and expansion of the idea of "romantic love" throughout Europe, coupled with the belief in the importance of the "conjugal" (husband-wife) relationship probably also promoted separate sleeping quarters. This physical separation, especially of the father from his children, maximized his ability to dispense religious training and to display moral authority, it has been proposed.

Like many relational issues, parent-child co-sleeping may require unique solutions to assure, in this case, safety and "private adult time. However, that "problems" in need of solving can be associated with co-sleeping is no more an argument against it's legitimacy, than is the fact that thousands of parents purchase books to solve the "problems" associated with solitary infant sleep.

As Kuhn noted, scientific paradigms change neither quickly nor easily. The controversy surrounding co-sleeping and the value of mother-infant co-sleeping studies might partially be explained by these topics being part of a new paradigm that is not readily or necessarily easily assimilated by those who have worked all of their scientific lives documenting the normality of solitary infant sleep, and accepting uncritically the alleged deleterious consequences of infant-parent co-sleeping. Researchers, clinicians and parents alike share many common cultural experiences . This common background probably means that most or very few of them routinely co-slept with their own parents, which strongly influences ones comfort with the practice. Perhaps an appreciation of diverse childcare practices including co-sleeping will come only when non-European immigrants come to dominate Western countries. As demographics on that score suggest, the question is not if the paradigm will change, but how soon.

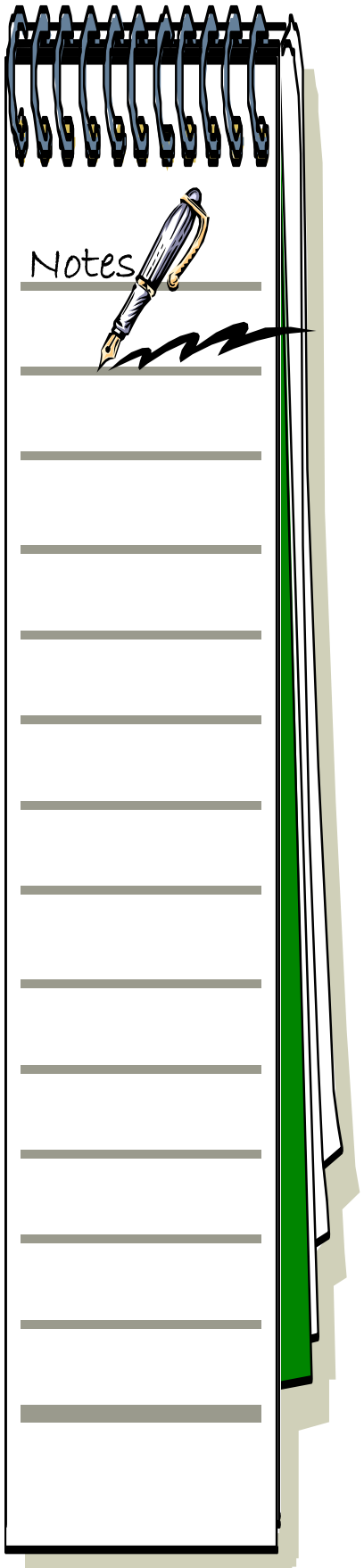
4b) Co-sleeping/ Bedsharing in Western Societies: How Often? How Much of the Night? Who Really Knows?

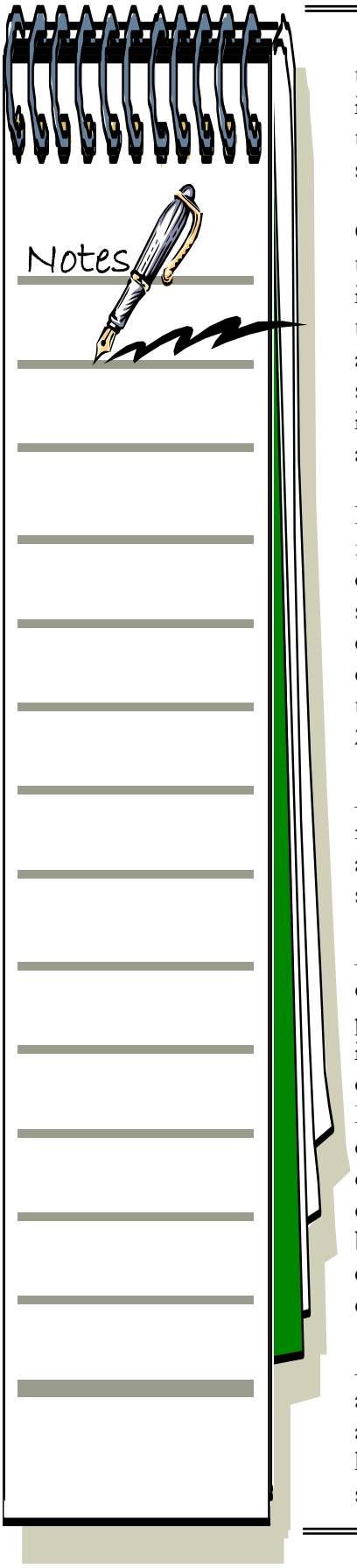
Infant-parent co-sleeping represents the universal, species-wide pattern of sleep for children worldwide. Barry and Paxson surveyed the sleeping practices of 186 independent societies in a sample representative of all known major cultural types in the world. Of the 119 cultures with reliable ethnographic data on parental nighttime sleeping proximity to infants, mothers slept in the same bed with their infants in 76 cultures (64%). In 20% of these cases, the father slept in the same bed as well. In none of the cultures was the infant actually isolated at bedtime. Always the baby was placed in sensory proximity of another person, but not necessarily sleep on the same surface.

Few studies have addressed the prevalence of parent-infant co-sleeping in the United States and most surveys are now dated. It is a difficult subject on which to collect accurate information. Some American subgroups are comfortable reporting that they co-sleep while others are not. Fear of censure and/or parental perceptions that bedsharing is outside of the cultural norm probably leads to underreporting. Until recently, popular parenting books and magazines warned parents about the psychological consequences of co-lseeping. That parents might fear disapproval and be reluctant to admit to co-sleeping is justified. One survey in 1984 found that 94% of pediatricians disapproved of co-sleeping. Although that number is likely considerable lower today negative opinions about co-sleeping probably remain high.

That said, even within western industrialized cultures it appears that diverse forms co-sleeping is not uncommon. For example, Abbott found that in Eastern Kentucky (Appalachia) infant-parent co-sleeping is prevalent among white Americans who seem not "...to care what doctors say" believing rather that " it is best for the mother and child to be together..." Says another informant, "These new mothers are losing two of the greatest blessings that God gave mothers: the pleasure of sleeping with your child and letting it nurse". Abbot argues that Eastern Kentucky practice of parents sleeping with or near their infants throughout the first two years of life is a strategy used by parents in this subgroup to induce interdependence, which is preferred to independence. As one Eastern Kentucky woman phrased it :...how can you expect to hold on to them later in life if you begin their lives by pushing them away".

In the well-cited study conducted of parent-infant co-sleeping among urban Americans in Cleveland. Lozoff et al found that 35% of poor urban whites and 79% of poor urban blacks routinely slept with their children, who ranged in age from 6 months to 4 years. In contrast, Anders and Keener recorded the nighttime sleep of forty newborns and found that between the time the infant was initially laid in the crib and





the time it was removed in the morning, at 2 and 4 weeks of life, the infant spent less than 20 percent of the night outside of the crib. After the age of 20 weeks (5 months) through to the first birthday, infants spent less than 3% of the night outside their cribs.

Of the 150 mothers in the Cleveland area 71% of the mothers indicated that they did not practice co-sleeping during the month before the interview, and 65% disclosed that they did not provide any body contact to their child at bedtime. However, what parents say and what they actually do are often two different things. For example, in this same survey fewer than 35% of these mothers indicated that they were "firm" in adhering to these stated practices when their child continued to awaken during the night, was ill, or was frightened.

In the Boston metropolitan area (Worcester) Madansky and Edelbrock found similar differences between black and white families. The majority of parents in the sample, 55% reported that their 2- to 3- year olds had slept in their bed at least once in the last 2 months, and 14 % reported co-sleeping several times a week. Seventy-six percent of the black families co-slept while 53% of the white families did. Black families were more than twice as likely as whites to co-sleep more than twice a week (50% to 21% respectively).

A relatively recent study of co-sleeping in Harlem by Schacter-Fuchs et al reveals that 20% of Hispanic Americans slept with their children all night at least three nights a week, compared with only 6% of the white families sampled there.

Among US La Leche League mothers, a worldwide organization committed to promoting frequent nursing, late weaning, and close parent-infant physical contact, mothers frequently share a bed with their infants and children. Elias et al (15)showed that between 2 to 13 months of age, 60-90% of La Leche League infants slept with their mothers. Especially for upper middle class families nighttime nurturing in the form of co-sleeping is one way that mothers and fathers feel they can compensate for time spent apart from children during the day. Says one career woman interviewed in Southern California: "Sleeping with my baby lets me make up some time I couldn't spend with her during the day, since my husband and I do not return to the house until early evening. Co-sleeping gives me more time to feel and nurture my baby".

Among middle to upper class (Caucasian) families co-sleeping no longer appears to be taboo as it was just a decade ago. The fact that over half of all American mothers are breast feeding for between 3 and 6 months or longer make it even more likely that increasing numbers of mothers are sleeping with or near their infants or children to facilitate nighttime feeds.

Breast feeding promotes bedsharing. Still, fear of censure by pediatricians, family and friends prevent many parents from discussing their nighttime caregiving practices if they happen to vary from the expected "norms".

4c) Closet Co-sleepers, Changing Demographics of Co-sleeping Families and Dear Abby?

That many more parents sleep with their infants or children in western societies than is ever reported is further indicated by recent anthropological field studies in Great Britain. Ball and Hooker studied a white working class community in northeast England. They found that parents often respond to questions regarding the place where the infant sleeps at night by identifying the place where the infant starts the night, or where the infant "is supposed to sleep" but not necessarily with where the infant spends most of the night!

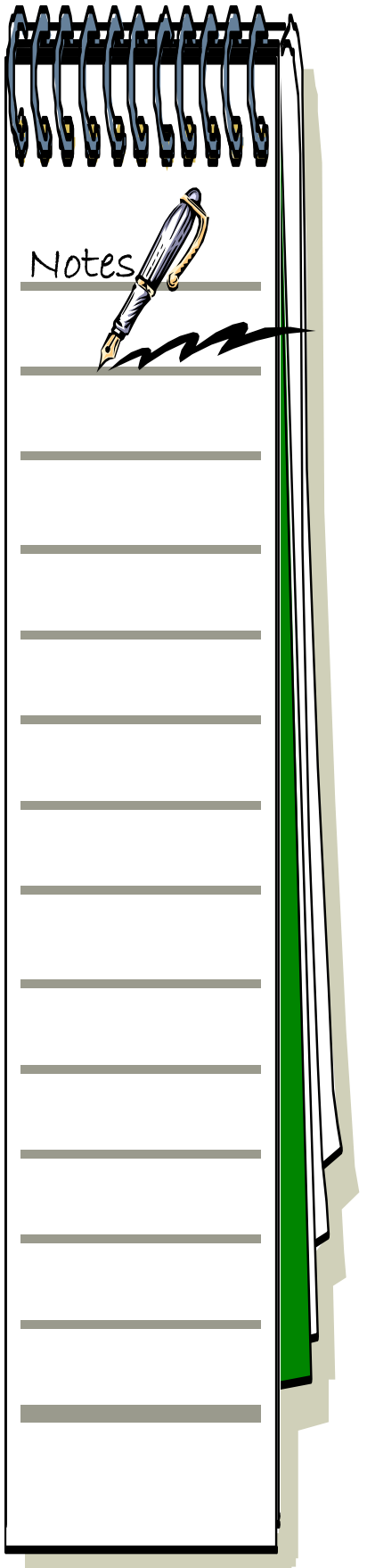
Ball and Hooker filmed nighttime parenting behavior using infra red cameras placed in the parents' bedroom. In addition, they conducted two sets of interviews-- one before the infant was born, the other when the infant was 2 months old. Their study revealed that unless researchers specifically asked parents if the babies were moved during the night possibly as many as half the infants would not have been identified as co-sleepers, who actually were.

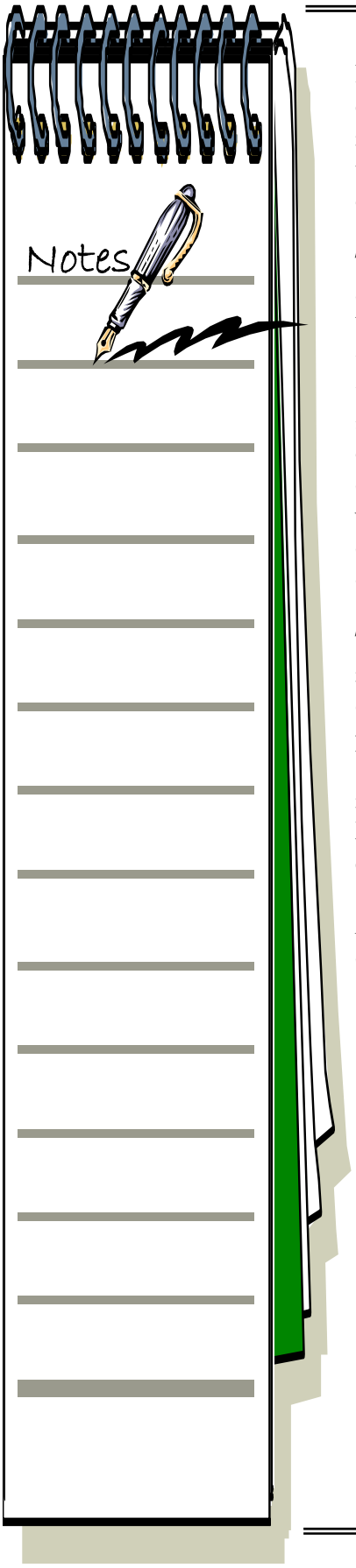
Attitudes regarding the validity of the choice to "co-sleep" are changing in western countries. Perhaps advice columnist Abigail van Buren (Dear Abby) reflects where popular culture is headed on this issue. Recently a "Dear Abby" letter published in the Chicago Tribune was received from a husband who signed his letter: "Crowded Bed". He complained to Abby about his wife's insistence that their 16 month old daughter be permitted to sleep in their bed and he asked for Abby's opinion. She responded with: "Dear Crowded Bed: In some cultures it is normal for a baby to share the parents bed until mid-childhood. .An infant will adjust to the style parents choose...but Alicia can learn to sleep comfortable in her own bed, if that is what you choose to teach her.

5. Conclusions/Recommendations/Afterthoughts

"People order their universe through social bias. By bringing these biases out in the open, we will understand better which policy issues can be reconciled and which cannot".

Lozoff and her colleagues were right. Culture and medical practice affect each other in powerful ways. I like to keep in mind that cultural biases in science do not invalidate or make any less important the methods or insights that science provides (to change Lozoff's phrasing just a bit).





Biases do, however, require scientists to constantly rethink what questions are asked, which are ignored, and why. This reconsideration must include examining what cultural assumptions underlie, direct and ultimately limit the interpretation of data. That scientists strive to be objective cannot, of course, ameliorate intellectual prejudice.

This essay revisits insights offered over a decade ago. Lozoff and her colleagues suggested that it is important to be conscious of Euroamerican biases regarding "proper" childhood sleep habits that find expression in the pediatricians office. This chapter builds on their work. I call attention to the way specific ideologies continue to effect and constrain pediatric and clinical sleep practice and research. By broadening working models of childhood sleep, and encouraging the use of a more diverse range of concepts to be used by parents, researchers and clinicians, I suggest that we have a better chance of finding a better fit between family characteristics, sleeping arrangements, and the needs of particular infants, children and parents.

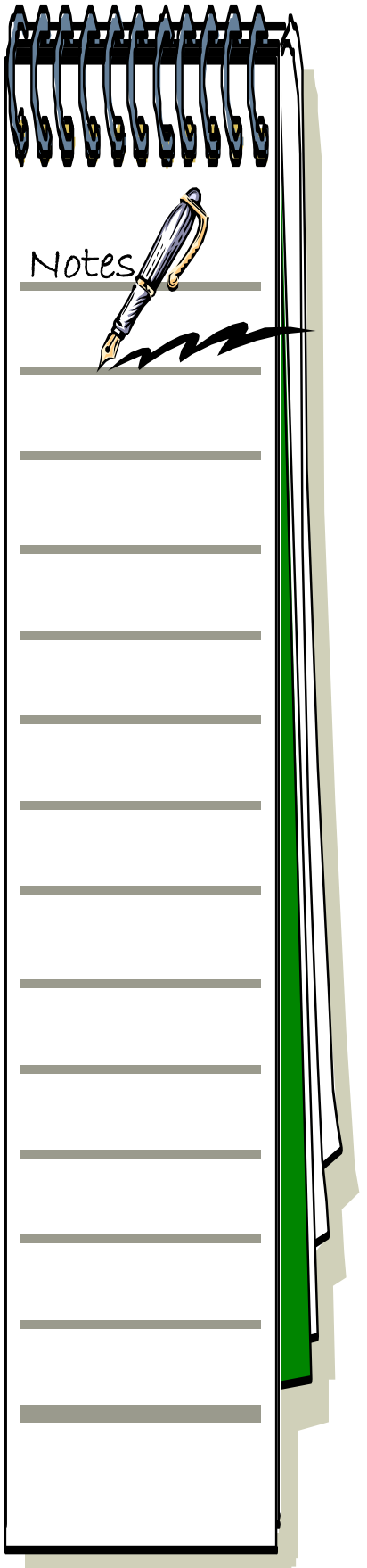
This critique is not meant to malign any of my colleagues whose work makes my own possible. I am aware that my own training and research experiences (in anthropology) lead to yet another type of bias. But this is precisely why the intersection of different perspectives and disciplines is so critical. Not only are unstated assumptions in each area of inquiry made explicit, but we are made aware that discipline biases shape and limit research. Surely, all of this means simply that no one discipline can do it all.

Along these lines many different ideas and issues are proposed in this chapter. Perhaps the most important are:

1. In pediatric practice physicians should be prepared to give advice relevant to culturally diverse parental childcare goals, attitudes, desires and approaches , and attempts should be made to inform parents about a broad range of sleeping and feeding patterns, which means discussing choices that might differ from those chosen by the physician. The potential advantages and disadvantages of all sleeping arrangements should be raised, and mention of safety precautions for all choices should be included in discussions;
2. Problems associated with non-traditional sleeping arrangements, such as co-sleeping, do not by themselves constitute arguments against the validity of the choice. Nor do the existence of "problems" suggest that they cannot be solved, or that particular problems are intrinsic to the practice and inevitable;
3. The human infant's extreme neurological immaturity at birth makes social care (including sleeping arrangements of young infants) practically synonymous with physiological regulation.

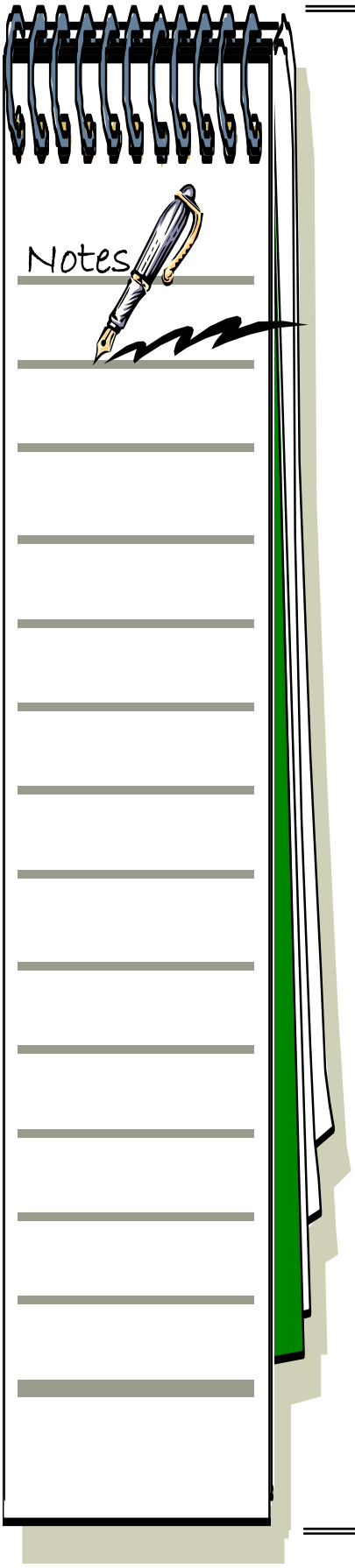
This is an extraordinarily important and unique aspect of the importance of the sleep environment for the human infant--a significance that is not acknowledged by the traditional paradigm or, in general, by pediatricians and sleep clinicians;

4. Unless it is determined that mothers want to reduce nighttime breast feeding, it should not automatically be assumed by sleep clinicians or pediatricians that the best approach is: the fewer feeds, the earlier in life, the better. The benefits of breast milk including nighttime breast feeds are far too significant, as recent scientific studies have revealed. The choice belongs to fully informed parents, not to advice givers;
5. Regardless of where parents want their children to sleep, as a beginning point for understanding, parents should be reminded that, biologically and psychologically, infants, children and their parents are designed to sleep close. It is perfectly appropriate that some parents, perhaps many, may choose not to do so. However, it should be explained to parents that the infant's inability to "sleep through the night" or to sleep alone easily, should not be interpreted as a deficiency or as manipulation on the part of the infant. Such an understandings may help prevent parents from evaluating their own caregiving skills negatively and/or their infants or children's behavior as abnormal, bizarre or deficient;
6. A more scientifically accurate, or "user-friendly" approach to infant-childhood sleep problems and potential solutions requires sensitivity to the legitimacy of diverse choices parents might make. The transactional model described by Anders and Sadeh and Anders can guide both research and clinical practice into the new millennia. They describe a model that can accommodate biological as well as socio-cultural and psychological influences on sleep development.--and, indeed, it is a model which sees these factors as being inseparable. This model can help researchers to formulate new questions, further demonstrating how culturally guided choices influence infant sleep and potentially induce significant physiological regulatory effects – some of which can be life saving, as discussed.



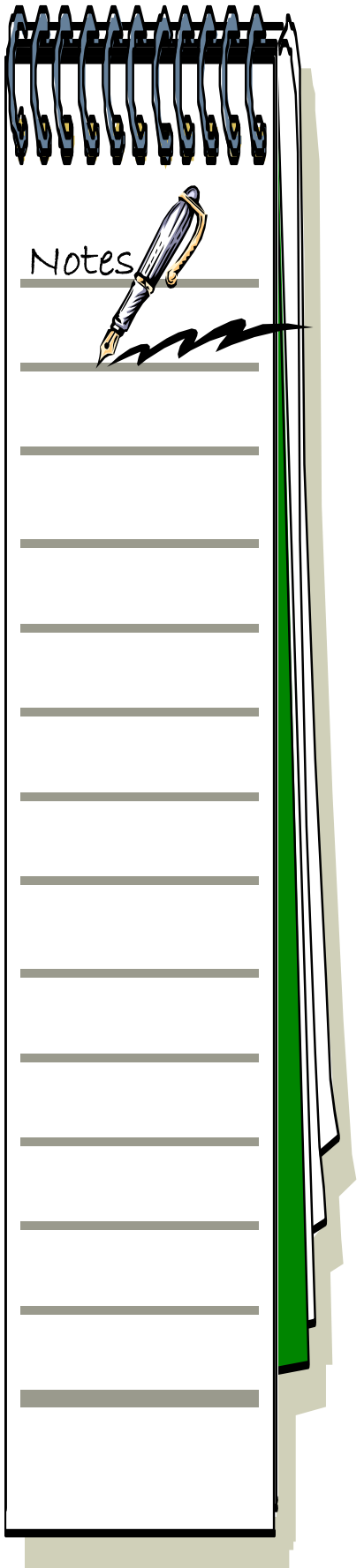
References

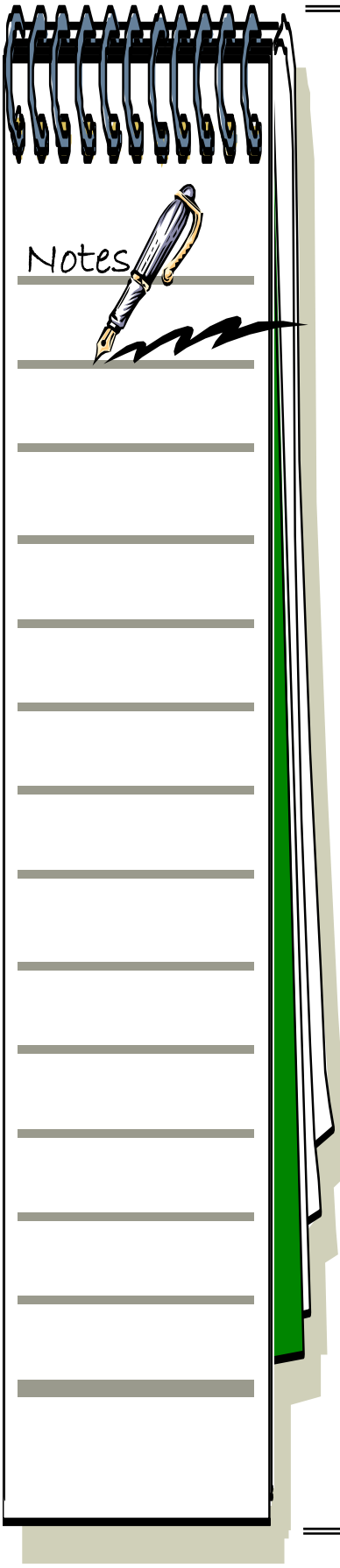
1. Lozoff B, Wolf A, Davis NS. Sleep problems seen in pediatric practice. Pediatrics 1985; 75:477-483.
2. Shweder R, Jensen LA, Goldstein WM. Who sleeps by whom revisited: A method for extracting moral goods implicit in practice. In: Goodnow JJ, Miller PJ, Kessel F, eds. Cultural Practices As Contexts For Development. San Francisco: Jossey-Bass, 1995: 21-40
3. Shifrin, D. A nod to family togetherness. In: Feeney S. New York Daily News, August 1997, p. 32 (Pers. comm).



4. Sadeh A, Anders T F. Infant sleep problems: origins, assessment, interventions. Inf Ment Health J 1993; 14 (1):17-34.
5. Sadeh A, Anders T. F. Sleep disorders. In C. H. Zeanah, eds. Handbook of Infant Mental Health. New York: Guilford Press, 1993:305-316
6. Anders TF. Infant sleep, nighttime relationships, and attachment. Psychiatry 1994; 57:11-21.
7. Anders TF, Eiben LA. Pediatric sleep disorders: a review of the past 10 years. Journal of the American Academy of Child and Adolescent Psychiatry 1997; 36(1):9-20.
8. Anders TF, Taylor TR. Babies and their Sleep environment. Children's Environments 1994; 11(2):123-134.
9. Balararian R, Raleigh VS, Botting B. Sudden infant death syndrome and post-neonatal mortality in immigrants in England and Wales. BMJ 1989; 298:716-20.
10. Barry H III, Paxson LM. Infancy and early childhood: cross-cultural codes. Ethology 1971; 10:466-508.
11. Chisholm JS. Navajo Infancy. Hawthorne, N.Y.: Aldine, 1983.
12. LeVine R, Dixon S, LeVine S. Child Care and Culture: Lessons from Africa. Cambridge: Cambridge University Press, 1994.
13. LeVine R. A cross-cultural perspective on parenting. In Fantini MD, Cardenas R, eds. Parenting in a Multicultural Society. San Diego: Academic Press, 1980.
14. Whiting JWM. Environmental constraints on infant care practices. In Munroe RH, Munroe RL, Whiting JM, eds. Handbook of Cross-Cultural Human Development. New York: Garland STPM Press, 1981:155-164.
15. Elias MF, Nicholson N, Bora C, Johnston J. Sleep-wake patterns of breast-fed infants in the first two years of life. Pediatrics 1986; 77(3):322-329.
16. Forbes JF, Weiss DS, Folen RA. The co-sleeping habits of military children. Military Medicine 1992; 157:196-200.
17. Heron P. Nonreactive Co-sleeping and Child Behavior: Getting a Good Night's Sleep All Night Every Night. Masters Thesis, University of Bristol, Bristol, United Kingdom , 1994.
18. Godfrey, AB, Kilgore A. An approach to help young infants sleep through the night. Zero ToThree 1998;19 (2):15-21.
19. Christopher RC. The Japanese Mind: The Goliath Explained. New York: Linden Press/Simon and Schuster, 1983.
20. Caudill W, Weinstein H. (1969). Maternal care and infant behavior in Japan and America. Psychiatry 1969; 32:12-43.
21. Shand N. Culture's influence in Japanese and American maternal role perception and confidence. Pschiatry 48:52-67, 1985.
22. Brazelton T. Parent-infant co-sleeping revisited. Ab Initio. 2:1, 1990.
23. Kawakami, K. Comparison of mother-infant relationships in Japanese and American Families. Paper presented at the meetings of the Inter.Soc. Study of Beh. Dev., Tokyo, Japan, 1987.
24. Morelli GA, Rogoff B, Oppenheim D, Goldsmith D. Cultural variation in infants' sleeping arrangements: questions of independence. Developmental Psychology 1992; 28:604-613.

25. Caudill W, Plath DW. Who sleeps by whom? Parent-child involvement in urban Japanese families. Psychiatry 1966; 29:344-366.
26. Ferber R. Solve Your Child's Sleep Problems. New York: Simon and Schuster, 1985.
27. Yelland J, Gifford S MacIntyre M. Explanatory models about maternal and infant health and sudden infant death syndrome among Asian-born mothers. 1996, 175-189
28. Wilson, E. Sudden Infant Death Syndrome (SIDS) and Environmental Perturbations in Cross-Cultural Context. Masters Thesis. University of Calgary, Calgary Alberta, 1990
29. Abbott S. Holding on and pushing away: comparative perspectives on an eastern Kentucky child-rearing practice. Ethos 1992; 20(1):33-65.
30. Lewis M, Havilland J. The Handbook of Emotion. New York: Gulford Press, 1993.
31. Mandansky D, Edelbrock C. Co-sleeping in a community of 2- and 3-year-old children. Pediatrics 1990; 86:1987-2003.
32. Lewis RJ, LH Janda. The relationship between adult sexual adjustment and childhood experience regarding exposure to nudity, sleeping in the parental bed, and parental attitudes toward sexuality. Arch Sex Beh 1988; 17:349-363.
33. Crawford, M. Parenting practices in the Basque country: Implications of infant and childhood sleeping location for personality development.Ethos 1994, 22;1:42- 82.
34. Mosenkis, J The Effects of Cxhildhood Co-sleeping On Later Life Development. Masters Thesis. University of Chicago. Chicago, Ill, 1998
35. Hayes MJ, Roberts SM, Stowe R. Early childhood co-sleeping: parent-ccchild and parent-infant interactions. Inf Men Health J 1996;17:348-357
36. Anders TF, Keener MA. Developmental course of nighttime sleep-wake patterns in full-term and premature infants during the first year of life: I. Sleep 1985; 8(3):173-192.
37. Weissbluth M. Naps in children: 6 months-7 years. Sleep 1995; 18(2):82-
38. Hofer Myron. Parental contributions to the development of offspring. In: Parental Care in Mammals. Gubernick David, P Klopfer, eds. New York: Academic Press, 1981:77-115.
39. Hofer M. The Roots of Human Behavior. San Francisco: W. H. Freeman, 1981.
40. McKenna JJ. An anthropological perspective on the sudden infant death syndrome (SIDS): The role of parental breathing cues and speech breathing adaptations. Medical Anthropology 1986; 10:9-53.
41. McKenna JJ. (1995). The potential benefits of infant-parent co-sleeping in relation to SIDS prevention: overview and critique of epidemiological bed sharing studies. In Sudden Infant Death Syndrome: New Trends in the Nineties. TO Rognum, ed. Oslo: Scandinavian University Press, 1995:256-65.
42. McKenna JJ. SIDS in cross-cultural perspective: is infant-parent co-sleeping protective? Ann Rev in Anthropo 25:201-216,1996.
43. Super CM, Harkness S. The infant's niche in rural Kenya and metropolitan America. In L. L. Adler ed. Cross Cultural Research at Issue. New York: Academic Press, 1987:47-56.





44. Konner M. Super C. Sudden infant death syndrome: an anthropological hypothesis. In Harkness S, Super C, eds. The Role of Culture in Developmental Disorder. New York: Academic Press, 1987:95-108.

45. Bruner, J. Nature and uses of immaturity. Amer Psych.1972 27 687-708.

46. Ball, H and Hooker, E The North Tees Colseeping project: the first three years. American Anthropologist in press

47. Medoff D, Schaefer CE. Children sharing the parental bed: a review of the advantages and disadvantages of co-sleeping. Psychology A Journal of Human Behavior1993; 30(1):1-9.

48. Schachter FF, Fuchs ML, Bijur PE, Stone RK. Co-sleeping and sleep problems in Hispanic-American urban young children. Pediatrics 1989;84:522- 530.

49. McKenna JJ, Thoman E, Anders T, Sadeh A, Schechtman V, Glotzbach S. Infant-parent co-sleeping in evolutionary perspective: Implications for understanding infant sleep development and the Sudden Infant Death Syndrome (SIDS). Sleep 1993;16:263-282.

50. Mosko S, McKenna JJ, Dickel M, Hunt L. Parent-infant co-sleeping: the appropriate context for the study of infant sleep and implications for SIDS research. Journal of Behavioral Medicine 1993;16(3):589-610.

51. McKenna JJ, Mosko S, Richard C, Drummond S, Hunt L, Cetal M, Arpaia J. Mutual behavioral and physiological influences among solitary and co-sleeping mother-infant pairs: implications for SIDS. Early Human Development 1994;38:182-201.

52. Konner MJ. Evolution of human behavior development. In RH Munroe, RL Munroe, JM Whiting, eds. Handbook of Cross-Cultural Human Development. New York: Garland STPM Press, 1981:3-52.

53. Konner MJ, Worthman C. Nursing frequency, gonadal function and birth spacing among !Kung hunter-gatherers. Science 1979; 207:788-791.

54. Bowlby, J. Attachment and Loss, Volume I. London: Pergamon, 1959.

55. Cuthbertson J, Schevill S. Helping Your Child Sleep Through the Night. New York: Doubleday, 1985

56. Douglas J. Behaviour Problems in Young Children. London: Tavistock/Routledge, 1989.

57. Ross Mothers Survey (1997). Published and available through Ross Laboratories. Ross Products Division of Abbot Laboratories

58. Kaplan SL, Poznanski E. Child psychiatric patients who share a bed with a parent. Journal of American Academy of Child Psychiatry 1974;13:344-356.

59. McKenna J, Mosko S, Richard C. Bedsharing promotes breast feeding, Pediatrics 1997:100:214-219

60. Pinilla T, Birch LL. Help me make it through the night: behavioral entrainment of breast-fed infants' sleep patterns. Pediatrics 1993;91(2):436-444.

61. Mosko S, Richard C, McKenna J, Drummond S. Infant sleep architecture during bedsharing and possible implications for SIDS." Sleep 1996;19:677-684.

62. Fleming P, Blair P, Bacon C, Bensley D, Smith I, Taylor E, Berry J, Golding J, Tripp J. Environments of infants during sleep and the risk of the sudden infant death syndrome: results of 1993-1995 case control study for confidential inquiry into stillbirths and deaths in infancy. British Medical Journal 1996; 313:191-5.

63. Kahn A, Picard E, Blum D. Auditory arousal thresholds of normal and near- miss SIDS infants. Dev Med Child Neurol 1986;28:299-302.

64. Harkness S, Super C, Keefer CH, van Tijen N, van der Vlugt E. Cultural Influences on sleep patterns in infancy and early childhood. Meeting of the Amercian Association for the Advancement of Science, Atlanta, Februaru 1995.

65. Guntheroth WG, Spiers P. Sleeping prone and the risks of the sudden infant death syndrome.J Amer Med Assoc 1992; 2 :359-363.

66. Rognum TO, ed. SIDS in the 90s. Oslo: Scandinavian University Press, 1995.

67. Fleming P, Blair P.Safe environments for infant sleep: community and laboratory investigations or folk wisdom? Symposium on Breast Feeding, Parental Proximity and Contact in Promoting Infant Health. Univeristy of Notre Dame, South Bend, 1998

68. Sterman MB, Hodgman J. The role of sleep and arousal in SIDS. In: PJ Swartz The Sudden Infant Death Syndrome. New York: New York Academy of Sciences, 1988: 48-61

69. Douthitt TC, Brackbill Y. Differences in sleep, waking and motor activity as a function of prone or supine resting position in the human neonate. Psychophysiology 1972;9:99- 100.

70. Kahn A, Grosswater J, Scottiaux M, Rebuffat E, Franco P, Dramaix M. Prone or supine position and sleep characteristics in infants. Pediatrics 1993:91:1112- 1115.

71. Mitchell EA, Thompson JMD. Co-sleeping increases the risks of the sudden infant death syndrome, but sleeping in the parent's bedroom lowers it. In: Rognum TO Sudden Infant Death Syndrome in the Nineties. Oslo: Scandinavian University Press, 1995, 266- 269.

72. Oberlander TF, Barr R, Young S, Brian JA, Short, TR. Effects of feed composition of sleeping and crying in newborn infants. Pediatrics 1992, 90; 5: 733-740.

73. Harper, R, Hoppenbrouwers T, Bannett D, Hodgman J, Sterman MB, McGinty DJ. Effects of feeding on state and cardiac regulation in the infant. Dev Psychobiol 1976, 10; 6 :507-517.

74. Mosko SS, Richards C, McKenna JJ, Drummond D, Mukai D,. Infant sleeping position and the CO2 environment during co-sleeping: the parents contribution. Amer J Phys Anthro 1997; 103:315-328

75. Mosko S, Richard C, McKenna J. Infant arousals during mother-infant bedsharing: implications for infant sleep and SIDS research. Pediatrics. In press.

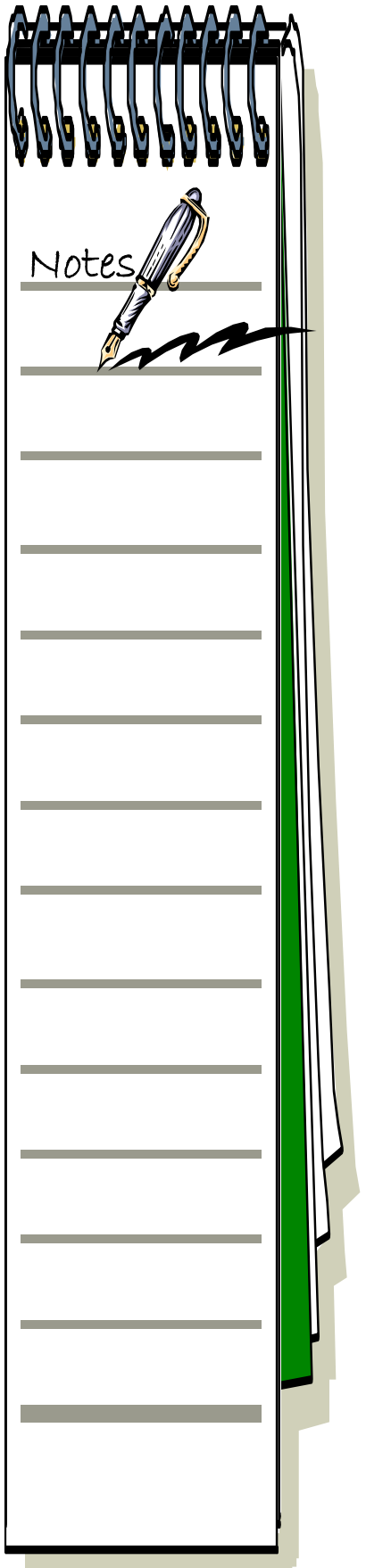
76. Mosko S, Richard C, McKenna J. Maternal sleep and arousals during bedsharing with infants. Sleep 1996;20(2):142-150.

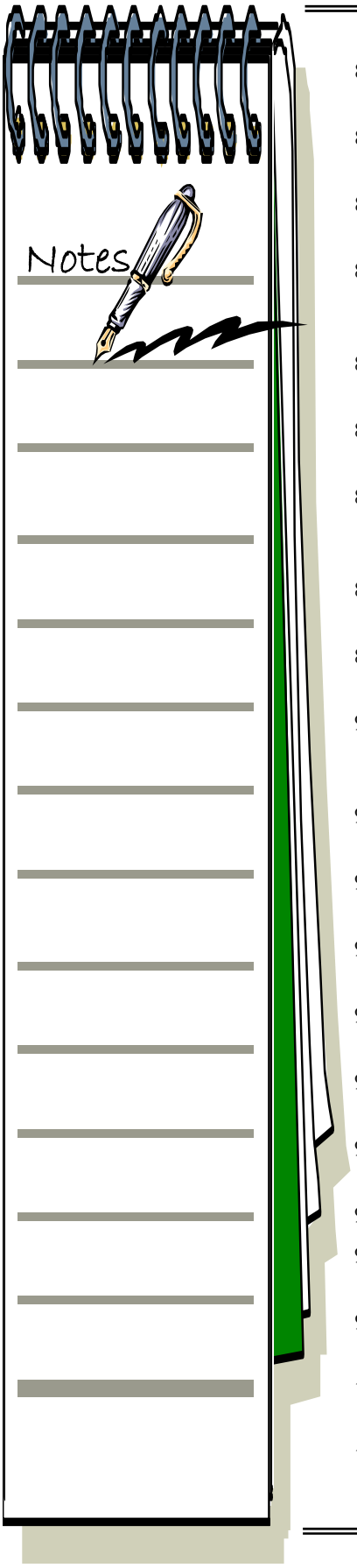
77. Richard C, Mosko S, McKenna, J . Sleeping position, orientation, and proxmity in bedsharing Infants and mothers Sleep 1996 19:667-684.

78. Richard C Mosko S, McKenna J. Apnea and periodic breathing in the bedshaaring infant. Amer J Applied Phys 1998 84;4:1374-1380

79. McKenna JJ, Mosko S, Dungy C, McAninch P. Sleep and arousal patterns of co-sleeping human mothers/infant pairs: A preliminary physiological study with implications for the study of Sudden Infant Death Syndrome (SIDS). American Journal of Physical Anthropology 1990;83:331-347.

80. Spock B. Baby and Child Care New York: Pocket Books, 1968.





81. Minturn L.and Lambert WW. Mothers of Sleep Cultures: Antecedents of Child Rearing. John Wiley and Sons: New York, 1964.

82. Parmalee AH, Wenner An, Schultz HR. Infant sleep patterns: From Birth to Sizteen weeks of Life. J. Ped 1964. 65: 576-582.

83. Winnicott, DH Transitional objects and transitional phenomena. In: Collected Papers of D.W. Winnicott. Basic Books: New York. 1958, 23-45.

84. Wolf AW, Lozoff B. Object attachment, thumbsucking, and the passage to sleep. Journal of the American Academy of Child and Adolescent Psychiatry 1989;28:287-292.

85. Ozturk M, Ozturk OM. Thunbsucking and falling asleep. Br J Medical Psychol 1977;50:95-103.

86. Litt CJ. Children's attachment to transitional objects. American Journal of Orthopsychiatry 1979;51:131-139.

87. Wolfson A, Lacks P, Futterman A. Effects of parent training on infant sleeping patterns, parents' stress, and perceived parental competence. Journal of Counseling and Clinical Psychology 1992;60(1):41-48.

88. Lozoff B, Wolf AW, Davis NS. Co-sleeping in urban families with young children in the United States. Pediatrics 1984;74(2):171-82.

89. Klackenberg, G. Sleep behaviour studied longitudinally. Acta Paediatr Scand 1982; 71:501-506.

90. Young J, Pollard KS. Blair P, Fleming PJ, Sawczenko A. Sleep position, proximtiy, Orientation and Physical contact betwen mother-infant pairs: a longitudinal study of room-sharing and bed-sharing Early Human Development, in press.

91. Fleming, PJ Infant sleep pysiology: does mum make a difference? Ambulatory Child Health 1998:4 (Suppl 1):153-154

92. McKenna J. Bedsharing promotes breast feeding and the AAP task force on infant postioning and SIDS. Pediatrics 1998:102;3:663-664

93. Hauck F, and Kemp J. Bedsharing promotes breast feeding and the AAP tak force on infant postioning and SIDS. Pediatrics 1998:102;3:662-663

94. Flandrin J-L. Families in Former Times: Kinship, Household and Sexuality. New York: Cambridge University Press, 1979.

95. Kellum BA. Infanticide in England in the Later Middle Ages. History of Childhood Quarterly: The Journal of Psychohistory 1974;1(3):367-388.

96. Stone L. The Family, Sex and Marriage in England, 1500-1800. New York: Harper and Row, 1977.

97. Aries P. Centuries of Childhood. New York: Vintage, 1962.

98. Kuhn TS. The Structure of Scientific Revolutions. University of Chicago Press: Chicago, 1962

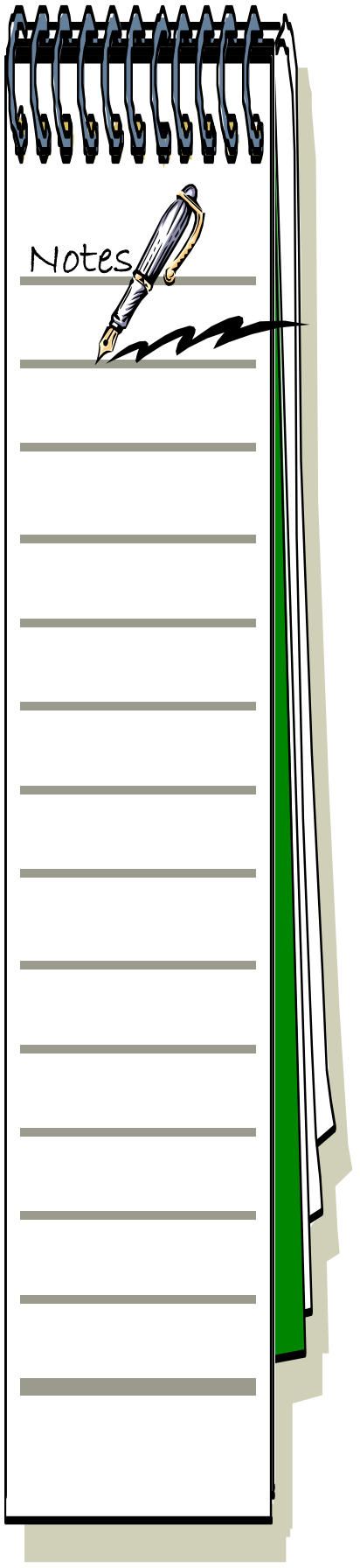
99. Hanks CC, Rebelsky FG. Mommy and the nighttime visitor: a study of occasional co-sleeping. Psychiatry 1977;40:277-280.

100. Mitchell, EA, Scragg L, Clements M. Factors related to infant bedsharing.NZ Med J 1994;107: 466-467.

101. Oleinick MS, Bahn AK, Eisenberg L, Lilienfeld AM. Early socialization experiences and intrafamilial environment: a study of psychiatric outpatient and control group children. Psychiatry 1966;15:344-353.

102. Dear Abby Column. Chicago Tribune, January 27, 1998

103. Douglas M, Wildarsky A. Risk and Culture. University of California Press: Berkeley, 1982.



A Reasonable Sleep

by Meredith F. Small

Evolution suggests that if we sleep with our babies, we might help some of them escape sudden infant death syndrome.

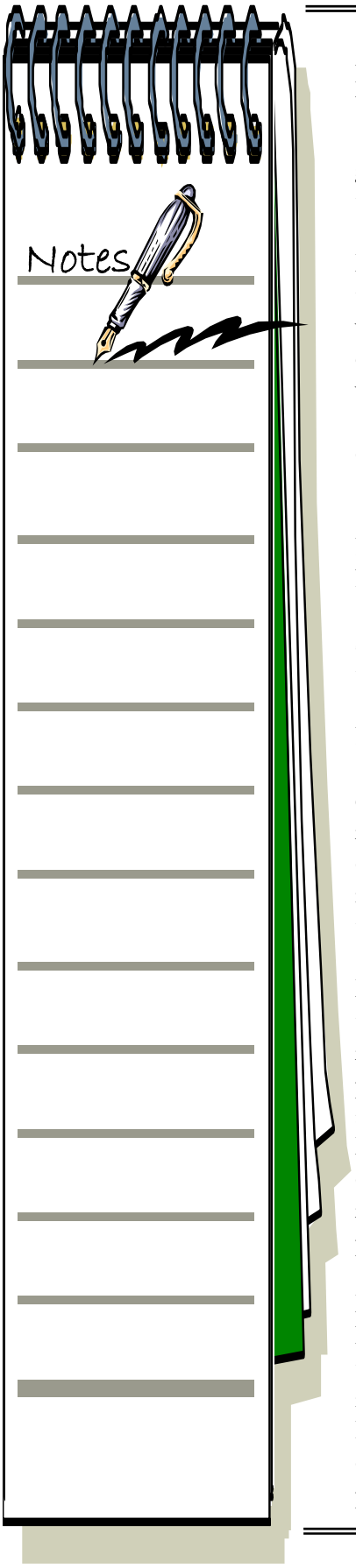
Three-month-old Jenny lies in the crook of her mother's arm.

As the infant twitches in her sleep, nine thin wires taped to her face and bald head wiggle in all directions, giving her a baby Medusa look. Jenny's mother opens her sleepy eyes in the dimly lit room and stares blankly into the tiny face only inches away. The matching wires on the mother's head nod toward her baby as she unconsciously reaches out and pats Jenny reassuringly a few times. She adjusts the baby's blanket, and they both drift back into a deeper level of sleep.

One room away James McKenna watches the needles on a 12-channel polygraph jump in tandem as Jenny and her mother experience this mutual arousal. An elfin grin spreads across his face. He's recorded so many of these unconscious stirrings that they now seem to him to map out a nightlong dance.

McKenna, an anthropologist at Pomona College, has come to the nearby Sleep Disorders Laboratory at the University of California at Irvine to test a hypothesis: he believes that the Western practice of placing babies in their own beds at night is at odds with human nature--so odd that sudden infant death syndrome (SIDS), the mysterious killer of babies, can more easily come stalking. But he is just as interested in the vast majority of babies who don't succumb to SIDS. Sleeping in isolation affects them too, he suspects, though more subtly than in the rare cases of SIDS. Jenny and her mother are providing the numbers to support what McKenna has been advocating for the past eight years: If you have a baby, sleep with it.

His idea developed from years of watching infant monkeys cling to their mothers day and night. He also knew that babies sleep with their parents in the vast majority of human cultures. Both facts suggested to McKenna that it's inconsistent with our evolutionary roots to put babies in their own beds at night. What's more, he points out, the current Western practice is only a century or two old, just a wink in human history. As an anthropologist with no formal medical training, however, McKenna



hesitated to push for co-sleeping. Most pediatricians, after all, thought babies should sleep alone. Yet as he began to talk about his ideas, he found a receptive audience. His words, some parents told him, finally gave them permission to do what seemed to come naturally--sleep with their babies.

Many parents have fears about the safety of co-sleeping. They've been told that bed-sharing puts a squirming baby at risk of being suffocated by well-meaning but exhausted parents. This is probably no more than an old wives' tale. As McKenna points out, most babies worldwide sleep with an adult without ill effects. Other parents feel that they need a break from the baby's constant demands, or they crave time for intimacy. And current advice books uniformly reinforce the idea that sleep practices should accommodate parents, not babies.

Parenting advice in the 1990s, post-Dr. Spock, tends to be permissive. But in one area discipline survives: when, where, and how much babies should sleep. In The Well Baby Book, a popular guide, Mike and Nancy Samuels give parents hints to aid their quest to get tiny infants to sleep through the night. Don't bring the baby into the parents' bed and let it sleep there till morning, they say. It is more likely to be disturbed. Penelope Leach, in Babyhood, admits that babies sleep better when snuggled between adults. But Leach also writes that parents are often disturbed by the baby's fidgeting, and many are uncomfortable with an infant in the marital bed. What's worse, she and other authorities claim, co-sleeping establishes a dependency that will be difficult to break, making it hard for the older child to fall asleep when alone, although there is no evidence to support this.

McKenna believes the notion that solitary sleep is healthier for babies in the long run is based not on biology but on a recent adoption of urban-industrial values. Modern society requires good citizens-- independent people not making too many demands on others. In this scenario, autonomy must be fostered as soon as possible. We begin early, McKenna claims, by placing babies alone at night so that busy parents can get on with their lives. In our modern day, he says, the biological interests of the infants might not coincide with the best interests of the parents. But evolution never promised us a rose garden.

McKenna's observation of mothers and infants began decades ago, with his training in primate behavior. As a junior at U.C. Berkeley in 1969, I took a course in primatology, he says. I learned that monkeys and apes need so much physical attention and contact. I remember thinking, when I have a baby, I'm going to give it as much affection as it can take. You cannot understand primates without coming to appreciate that very early physical contact is everything. It's what we're all about.

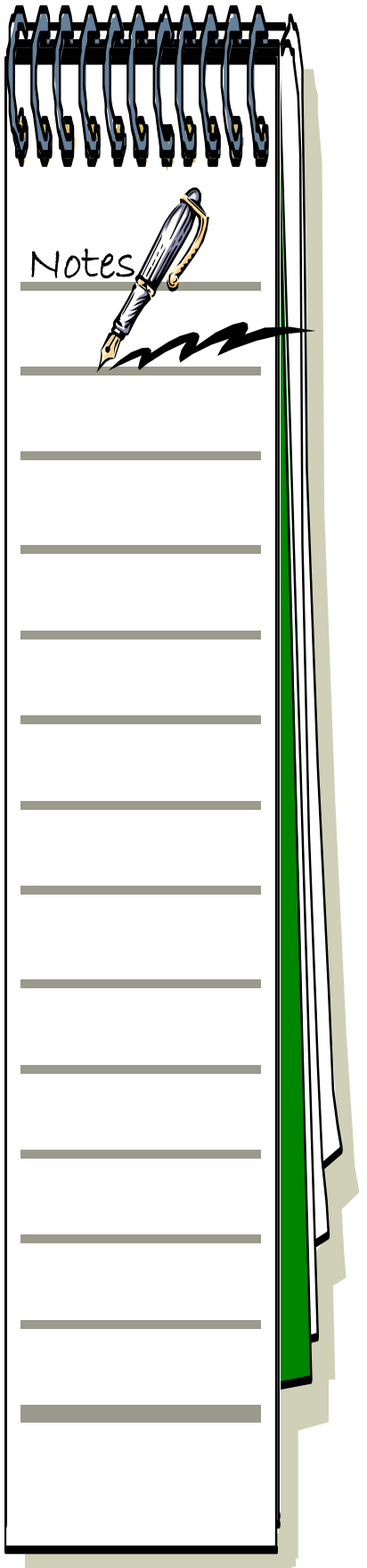
Now, at 43, he realizes that his later diversion to sleep research has even earlier origins. I grew up in a large family of six children. There weren't enough beds in my house and we all shared beds. I slept at my brother Tommy's feet for over a year! But it wasn't until the birth of his son Jeffrey, in 1978, that McKenna put those research interests together.

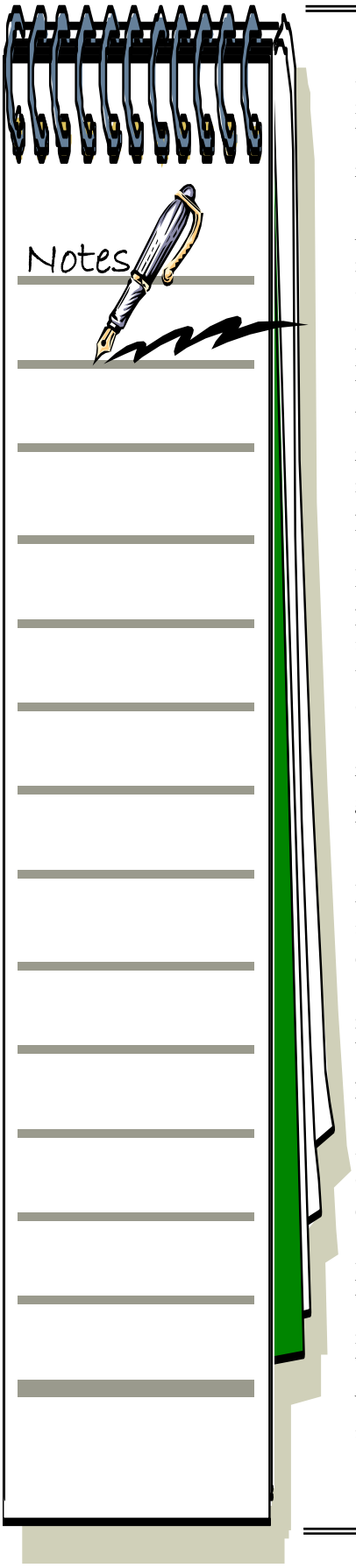
I noticed that one way to get Jeff to sleep was to nap with him. I'd lie down with him and breathe as if I was asleep. He breathes in and out, in and out, pumping his chest up and down as if baby Jeff were still bundled on top of him. I became really skilled at getting him to sleep. I also found it totally amusing. But the scholar in McKenna was intrigued. I noticed he was so responsive to these breathing cues. And then I wondered why I was surprised. Here was a primate baby, undeveloped at birth, selected to be responsive to parental contact and care. The fact that he was responsive to my sounds and breathing patterns was everything the last ten years of anthropological research had told me he would be.

McKenna soon realized the implications of what he'd observed. In the United States one in every 500 babies is found dead during the first year of life, most often between two and four months of age. These babies usually show no previous signs of illness, and no known cause of death can be determined at autopsy--although recent research suggests that abnormalities in fetal development may predispose some infants to an early death. But it now occurred to McKenna that the absence of cues from co- sleeping parents might also play a role.

Since the medical community concentrates on physiological causes for SIDS, McKenna knew that any suggestion of a cultural influence would be considered radical. He knew he would need to explain how co-sleeping had evolved--how it contributed to a baby's physical well-being. The difficulty is explaining to medically trained specialists what it means to apply evolutionary theory in the context of infancy and parenthood. That's where I thought I could fill a role--making evolution alive and meaningful in the context of clinical research.

There were experiments McKenna could cite. As several psychologists showed in the 1960s, the infant's physical dependence on its mother is a primate universal, and it involves more than simple providing. When infant macaque monkeys were separated from their mothers, even for a few hours, they experienced physiological effects such as changes in heart rate and body temperature, sleep disturbances, increases in cardiac arrhythmias, and signs of clinical depression. In short the animals' immature nervous system just didn't function as well. In the natural state, McKenna adds, monkey and ape babies always sleep with their mother, clinging to her belly until the infant initiates independence.





Human babies are even more dependent on adults. No other animal needs so much nurturing and takes so long to mature. The advantage to being so unformed at birth is the great capacity for learning and social interaction.

As with other primates, McKenna speculates, in humans the strong mother-infant bond was selected for because it helped babies get through their long formative period. But human babies are so helpless they can't even cling to their mothers like monkeys. Instead, they are carried. In humans, McKenna says, infant sleep evolved against a background of being jerked up and down in the back of a sling. Even today you can see babies carried this way throughout Africa and Asia: mothers out hoeing in the garden, baby sleeping on their back. There is a physicality in the relationship, he says. We can't go on assuming that there are no physiological consequences to sleeping alone.

McKenna suggests that all human babies benefit from hearing their parents breathe, feeling their parents' touches, and just being close to adults. Although the long-term effects of solitary versus co-sleeping are unknown, McKenna suspects there's a connection between nocturnal closeness and mental health later on, even into adulthood. A feeling of social- psychological connectedness allows infants to later become more independent from parents. It may also result in higher self-esteem and a good sense of empathy for others. These infants might also be able to better monitor nonverbal cues given by others.

More dramatically, McKenna believes, co-sleeping may be important in avoiding the particularly human problem of SIDS. Humans, he notes, are different from other primates in a way that makes us vulnerable: we rely so heavily on speech that we use voluntary, or controlled, breathing far more than any other mammal. We have to learn how to modulate our breathing to talk, though we never lose the ability to return to automatic pilot--the involuntary, reflexive breathing we use during sleep or reading.

Human babies begin switching back and forth from automatic to controlled breathing between two and four months of age. At this developmental stage, the infant neocortex, the higher brain, becomes functionally connected to the primitive brain stem. Behavior becomes less a series of reflex actions and more voluntary. Babies start to smile because they want to, and their vocalizations are no longer mere reactions to hunger or wet diapers. They begin to manipulate their breathing by changing airflow rates, air pressure, and lung volume. A cry will suddenly carry specific information to a carefully listening parent; it's a form of speech-breathing that will later become talking. This is also a susceptible time for infants. Most do fine, but McKenna thinks some

can't manage the flip-flop between the two types of breathing. They stop, and succumb to SIDS.

To support his claims about the importance of co-sleeping, McKenna knew he would first need to show that babies are physically affected when they spend the night in contact with an adult. His co- sleeping hypothesis works only if infants sleep differently--presumably better--when tucked in with Mom.

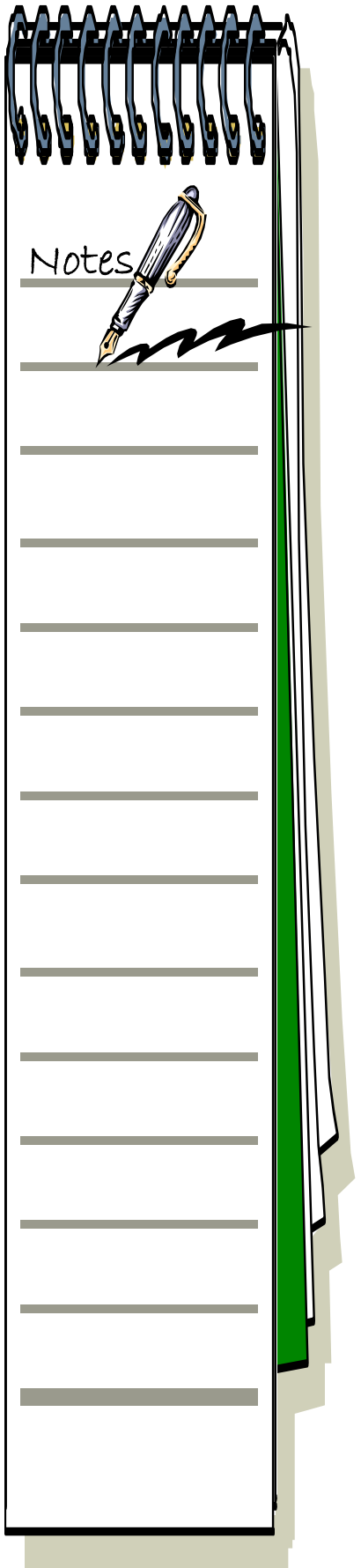
One day in 1984 McKenna walked into the first open door in the pediatrics department at the University of California at Irvine and bent the ear of pediatrician Claibourne Dungy. Dungy quickly assembled what McKenna recalls as four people in white lab coats staring at me skeptically. One of them was Sarah Mosko, a clinical psychologist, a sleep expert, and most important for McKenna, a trained polysomnographer--a person who knows how to wire sleepers and interpret the squiggles on the polygraph. McKenna asked if she'd like to collaborate with him on his research. It didn't take much for me to say yes, recalls Mosko, who now works as a sleep-disorders consultant in addition to her research with McKenna.

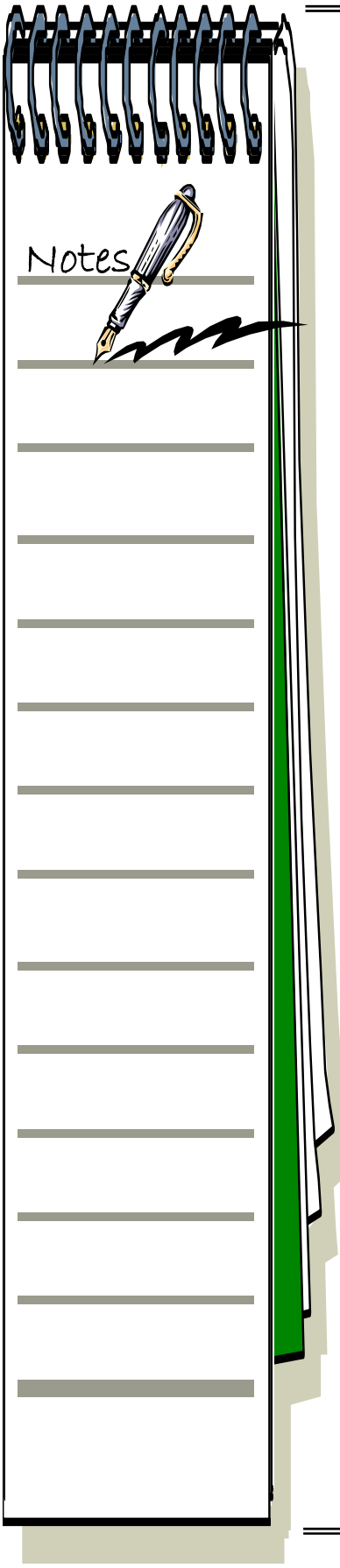
Together McKenna and Mosko have collected sleep data on eight mother and infant pairs at the Sleep Disorders Lab. In the first study, conducted from 1986 to 1987, five mother-infant pairs were tracked for one night. In the second study, finished last year, three mothers and infants spent the first two nights sleeping alone but in adjacent rooms, so that the mothers could get up and feed the babies. The third night each mother and baby slept in the same bed--an unusual event for two of the pairs.

Mothers and their infants report to the lab at 8:00 P.M. The sleep room, with a hospital bed and blackout curtains, seems to them an inviting haven. These are sleep-deprived new mothers, says Mosko. They usually say the time in the lab is the first reasonable night's sleep they've had since the baby was born.

Before mother and baby settle down for the night, each has four wires taped to the head to record electroencephalographic, or brain wave, signals. Another two wires, placed close to each eye orbit, monitor eye movements, and three more wires on the chin measure muscle relaxation. Heartbeats are picked up by two wires on the chest. A thin wire placed beneath the nose monitors breathing by sensing the temperature of the passing air; exhaled air is warmer than inhaled air. (Breathing is also recorded as chest-wall movement.)

The data from all these sources help differentiate the five levels of sleep a person traverses during the night. Rapid eye movement, or REM, sleep is





the most active--the eyes flicker, the face and limbs twitch as muscles tense and relax, brain waves come faster but with lower voltage, and breathing and heart rate become less regular. This is a dreaming state, although dreams sometimes occur in other stages. There are four non-REM levels; deep sleep occurs in levels three and four. Individuals vary in the amount of time they spend at each stage, and infants have fewer distinct levels--at three months they typically have three. In any case, several cycles through the various levels seem to be important for a satisfying snooze.

As McKenna and Mosko's subjects sleep, impulses from the wires travel to the recording room, where inked needles leave tracks on long sheets of paper. Later Mosko gathers the pages and marks out sleep levels in 30-second intervals. She determines if each subject is sleeping at a certain level, awake, or experiencing transient arousal--moving into lighter levels of sleep but not to full wakefulness. McKenna, with his animal-behavior background, scores the videotape--baby lifts head, mother opens eyes, and so on. The two researchers eventually compare mothers and babies sleeping alone and together, interval by interval.

These data choreograph the nocturnal dance of mothers and babies- -the dance McKenna had predicted--but with mutual promptings and responses. It's not that mothers regulate their babies' breathing. The sleepers are, instead, physiologically entwined; the movements and breathing of each partner affect the other. When one arouses, the other often wakes up a bit, too.

McKenna proposes that transient arousals are especially important because they give babies practice in waking up. All babies experience apneas, or pauses in breathing, several times a night. If a pause becomes prolonged, a healthy baby will wake up to breathe. Many researchers believe that SIDS babies have some deficiency that inhibits their arousal. When they stop breathing, they're less apt to wake up--and thus more likely to die. But if aroused more often by a parent, McKenna reasons, they may learn better how to do it on their own, and wake up one night when it really matters.

McKenna also suggests that co-sleeping helps a baby master breathing techniques. During sleep, just as during wakefulness, adults shift through periods of controlled or automatic breathing, switching between neocortical-driven breaths and brain stem-operated breaths. Babies undergo that flip-flop each time they wake up. When sleeping with Mom, a baby reacts to her movements and wakes up more times during the night--an average of 24 percent more, McKenna finds, than when sleeping alone--thus getting more practice in the repeated hop from one kind of breathing to the other. Sleep has evolved against these

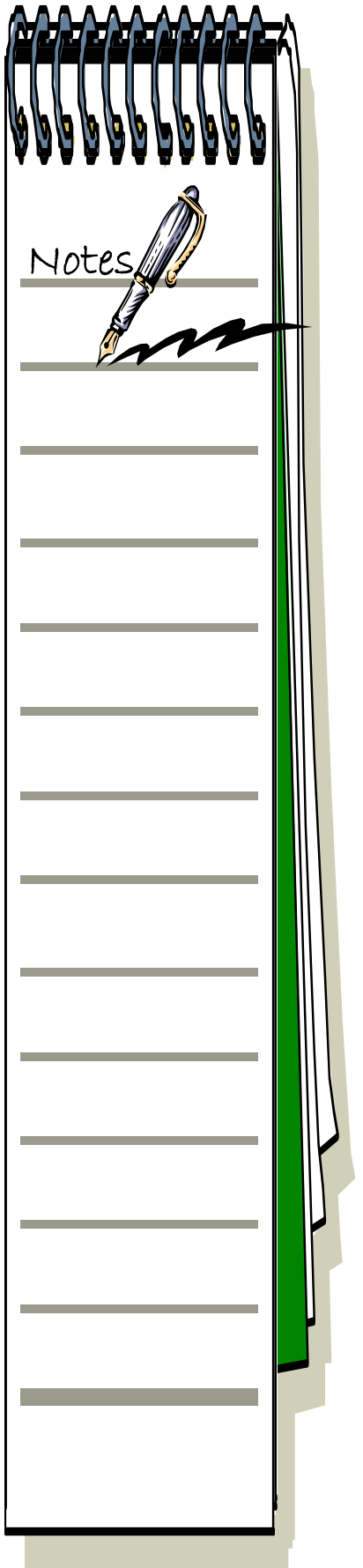
interruptions, says McKenna, and they may serve as practice for the baby when it has more serious internally based interruptions in breathing.

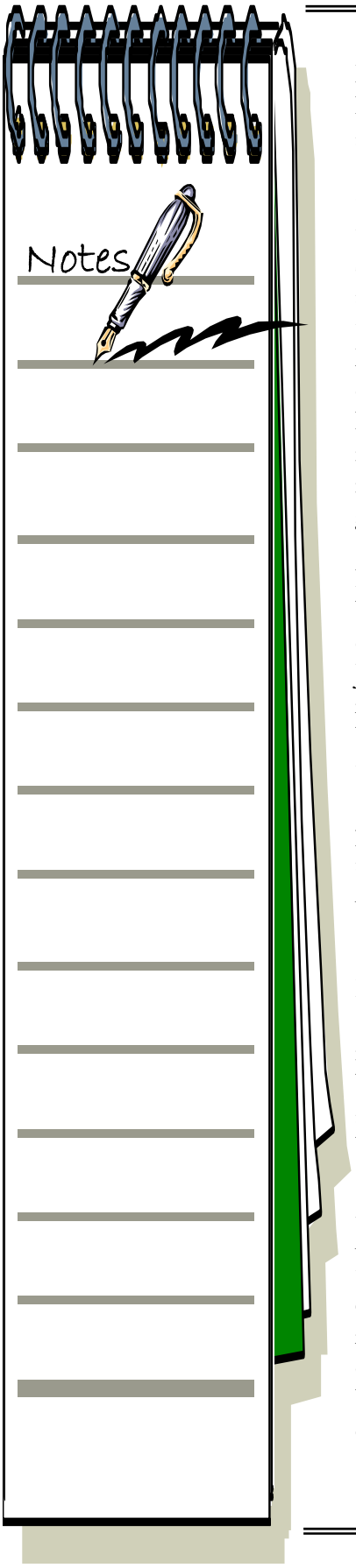
Such fitful sleep may, in fact, be the norm for adults as well. The mothers in McKenna's experiments passed through transient arousals 60 percent more frequently when sleeping with their babies than when sleeping alone. We Westerners have the 'die' theory of sleep, McKenna says, laughing. You close your eyes, fall asleep, and basically die--you become totally unconscious until you wake up in the morning--and you hope for the best. If there's anything in between, there's something wrong with you. Other people in the world don't sleep like that. The !Kung bushmen, for example, get up, tend the fire, talk, then go back to sleep. Western culture has streamlined what we think is normal. And if people can't conform, there's a disease out there for them--it's called insomnia. A small group of sleep researchers have also admitted that humans are not monophasic sleepers--they are biphasic. The afternoon nap is biologically based.

His point is that cultures dictate norms unrelated to what might or might not be evolutionarily natural--that is, bred into human physiology. He feels that the extreme American emphasis on individualism, and the view that husband and wife have a relationship apart from the children, have reinforced notions that infants are born too dependent and should sleep by themselves as soon as possible. In contrast, Japanese infants normally sleep with their parents. This, too, is a culturally bound notion, but instead of opting for independence, the Japanese foster interdependence. Interestingly enough, the rate of SIDS is significantly lower in Japan than in the United States: less than one per 1,000 births.

Data for immigrant populations in the United States suggest that such cultural differences may indeed play a role. For example, Chinese immigrants in California have an incidence of SIDS 38 times higher than nonimmigrant Chinese in Hong Kong. Among other Asian-American populations the SIDS rates vary, but the rate increases the longer a group has lived in the United States. The Vietnamese, for example, arrived later than the Japanese, and their SIDS rate is lower. McKenna feels that the pattern may be explained by immigrants' adopting the American style of placing babies in their own beds. His speculation cannot be confirmed, of course, until other possible influences--such as changes in feeding practices--are ruled out.

McKenna began giving talks about his ideas in the early eighties. Then, in 1986, he published a massive paper on his work, which attracted a lot of attention. So far the response from the medical community has not been as critical as McKenna first feared. Marian Willinger, who directs SIDS research at the National Institute of Child Health and Human





Development, says, In general this is a new area for infant and child health--tying parenting styles with physiology--and therefore McKenna and Mosko's basic research is important for all babies.

One medical researcher was deeply impressed. I think their work is terrific, says Jeffrey Laitman, an anatomist at New York's Mount Sinai School of Medicine. His own research on the development of the throat and voice box in infants supports Mc-Kenna's hunch that SIDS is linked to the evolution of speech making. In newborns, as in many animals, the larynx locks into the back of the nasal cavity, Laitman explains. This enables them to breathe and swallow at roughly the same time. But in humans the larynx begins to drop down into the throat in the first few months of life. No other mammal goes through such a tremendous metamorphosis, and there's a great possibility of miscues--as well as a far greater ability to make the wide range of sounds used in talking.

But McKenna's not just out to prevent SIDS; his approach has always been more anthropological than medical. His larger goal is to show that early sleeping practices are important to everyone's health. This past January he and Mosko brought the first of 30 mother-baby pairs, including 15 co-sleepers, into the lab to investigate whether the sleep and breathing patterns of the co-sleeping babies are different from those of the babies who habitually sleep alone. McKenna expects to finish this study by the end of the year, but even then he'll be a long way from proving that co- sleeping is best for everyone in the long run. His argument that it seems to work well in traditional cultures cuts two ways. After all, most American babies, with their background of solitary sleeping, also grow up apparently healthy.

For now, McKenna aims to prove that co-sleeping is natural and normal for the average baby, a reasonable option rather than a dangerous, misguided practice that should be discouraged, as stated in current advice books. Should a parent or parents feel good about co-sleeping, elect it as a favored strategy, and it is done responsibly, he writes, nothing could be better for their infant or child.

He is also philosophical about his potential role as a revolutionary in American parenting styles. There is nothing profound about what I am trying to document or argue for--it's based on evolutionary history. It doesn't take any genius to know there may be some naturalistic interactions between co-sleeping babies and mothers, or babies and caretakers. Like those who have discovered in the twentieth century that breast-feeding is good for babies, I spend all my time documenting the obvious.

Medical Research On...

Each year hundreds of papers are published on SIDS, pointing the finger at a host of possible culprits. Mothers who smoke during pregnancy, for example, have been told they're upping their baby's risk of SIDS about threefold. Babies may also be at higher risk if they are born prematurely or of low birth weight, as a sibling rather than a firstborn, or to a young mother. Babies who lie on their stomach have a higher risk; more babies die of SIDS in winter; elevated body temperature from a stuffy room or overdressing may be a factor.

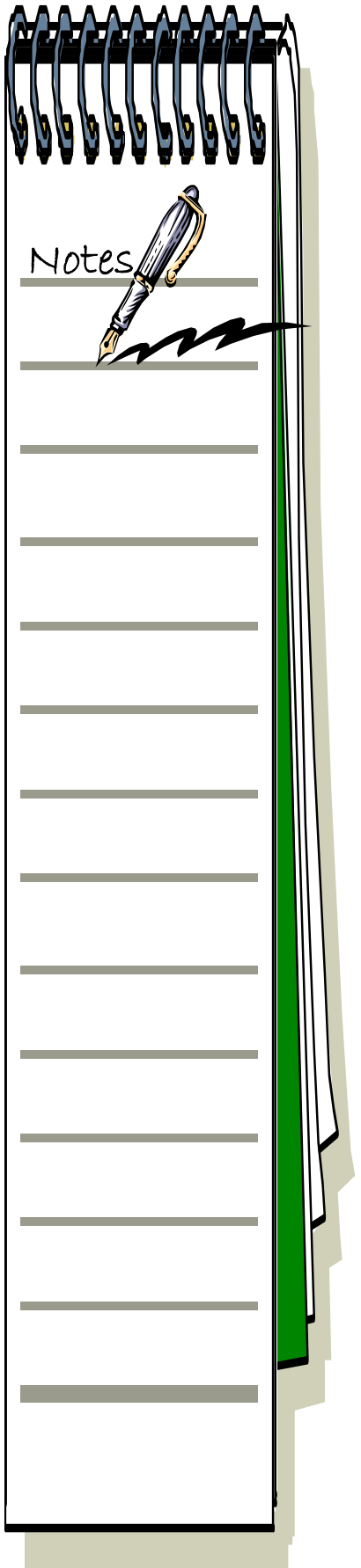
Still, none of this explains the actual cause of sudden death. Risk factors are simply things that may make a baby more vulnerable, explains Marian Willinger, who directs SIDS research for the National Institute of Child Health and Human Development. Just because cigarette smoking is linked with an increased risk doesn't mean that cigarette smoking causes SIDS. A lot of SIDS babies' mothers don't smoke. There's something about the baby itself that predisposes it to SIDS.

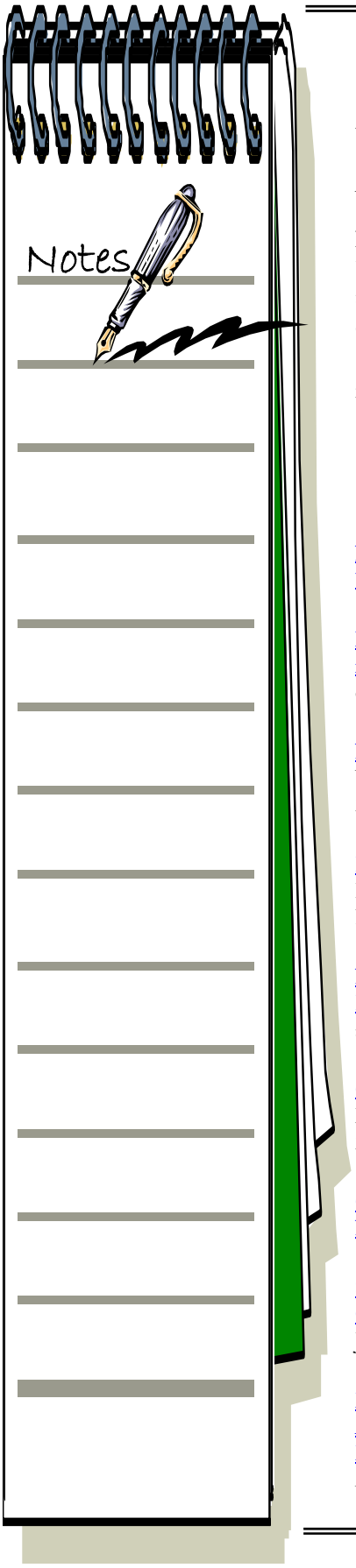
Pinning down that something, however, has so far proved impossible. At this point, explains Willinger, SIDS is a diagnosis of exclusion. If you can't find any other cause of death after a full postmortem, then it's called SIDS--so by definition we're starting without much to help us.

Nevertheless, some strides have been made. The most popular theory is that something is wrong with the way vulnerable babies arouse themselves from sleep--they're supposed to wake up when they stop breathing for an unusual length of time, but they don't. To investigate this idea, neurophysiologist Ron Harper and his colleagues at UCLA checked the records of nearly 7,000 babies whose heartbeats and breathing were recorded in a British study. Sixteen of those babies later died of SIDS; Harper found that they had gone through far fewer short respiratory pauses while sleeping than the ones who were still alive. Although the reason for this difference is not yet known, it is a true disparity.

Other researchers are looking at where respiration is controlled- -in the brain. The brains of all newborns are still developing; for instance, the neurons are not all covered by their protective sheaths of myelin. Early last year Hannah Kinney of Children's Hospital in Boston and her colleagues showed that myelination in the brains of 61 infants who died of SIDS lagged significantly behind myelination in 89 children who died of other causes--though again this is so far just a clue.

Of course, a disease with such a nebulous definition can easily fool you. Researchers are fairly certain that 3 to 10 percent of SIDS cases are actually the result of inborn metabolic defects. And a study published last





summer showed that a few babies diagnosed as succumbing to SIDS--fewer than 1 percent--might have suffocated on soft bedding such as beanbag cushions.

Yet researchers do feel that SIDS is a discrete entity with its own physiological mechanism, not just a conglomeration of other syndromes that simply need to be teased apart. The scientists really believe that after all is said and done there will be a core of babies with a certain characteristic abnormality that makes them vulnerable to sudden death, says Willinger. We won't keep peeling away layers of onion until there is nothing left. -Lori Oliwenstein

Articles and Essays Available for Download

Night waking among breastfeeding mothers and infants: Conflict, congruence or both?, by James J. McKenna. Evolution, Medicine, & Public Health. pp 3-17, 2014.

Evolutionary Perspectives on Mother-Infant Sleep Proximity and Breastfeeding in a Laboratory Setting, by Lee T. Gettler and James J. McKenna. American Journal of Physical Anthropology 144: 454-462. 2011.

Nighttime Parenting Strategies and Sleep-Related Risks to Infants, by Lane E. Volpe, Helen L. Ball, and James J. McKenna. Social Science and Medicine [online] 2012.

Introduction and Overview of Evolutionary Medicine, by Wenda R. Trevathan, E.O. Smith, and James J. McKenna. Evolutionary Medicine and Health: New Perspectives: 1-54. 2007.

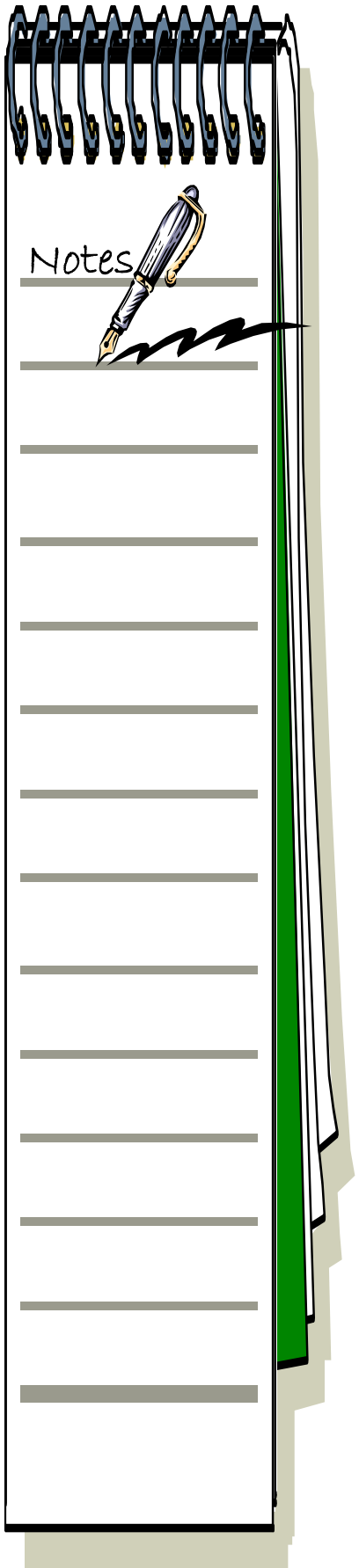
Never Sleep with Baby? Or Keep Me Close But Keep Me Safe: Eliminating Inappropriate "Safe Infant Sleep" Rhetoric in the United States, by Lee T. Gettler and James J. McKenna. Current Pediatric Reviews 6:1, 1-6. 2010.

Co-Sleeping, Breastfeeding and Sudden Infant Death Syndrome, by James J. McKenna and Lee T. Gettler, Encyclopedia on Early Childhood Development [online] 2010.

Cosleeping and Biological Imperatives: Why Human Babies Do Not and Should Not Sleep Alone, by James J. McKenna. in Neuroanthropology [online], 2008.

Sleeping with Baby: An Internet-Based Sampling of Parental Experiences, Choices, Perceptions and Interpretations in a Western Industrialized Context, by James J. McKenna and L. Volpe. Infant and Child Development 16:359-385. 2007.

Mother-Infant Cosleeping, Breastfeeding and SIDS: What Biological Anthropology Has Discovered About Normal Infant Sleep and Pediatric Sleep Medicine, by James J. McKenna, Helen Ball and Lee T. Gettler.Yearbook of Physical Anthropology 50:133-161. 2007.



Mother-Infant Cosleeping with Breastfeeding in the Western Industrialized Context: A Biocultural Perspective, by James J. McKenna and Lee T. Gettler. Textbook of Human Lactation. T.W. Hale and P.E. Hartmann, eds. Amarillo, Texas: Hale Publishing, 2007.

New Knowledge, New Insights and New Recommendations: Scientific Controversy and Media Hype in Unexpected Infant Deaths, by Peter Fleming, Peter Blair and James J. McKenna. Invited Editorial: Archives Disease in Children. 2006.

Why Babies Should Never Sleep Alone: A Review of the Cosleeping Controversy in Relationship to SIDS, Breastfeeding and Bedsharing, by James J. McKenna and Thomas McDade. Pediatric Respiratory Reviews 6: 134-152. 2005.

Chronologically From Most Recently Published

Night waking among breastfeeding mothers and infants: Conflict, congruence or both?, by James J. McKenna. Evolution, Medicine, & Public Health. pp 3-17, 2014.

Evolutionary Perspectives on Mother-Infant Sleep Proximity and Breastfeeding in a Laboratory Setting, by Lee T. Gettler and James J. McKenna. American Journal of Physical Anthropology 144: 454-462. 2011.

Nighttime Parenting Strategies and Sleep-Related Risks to Infants, by Lane E. Volpe, Helen L. Ball, and James J. McKenna. Social Science and Medicine [online] 2012.

Introduction and Overview of Evolutionary Medicine, by Wenda R. Trevathan, E.O. Smith, and James J. McKenna. Evolutionary Medicine and Health: New Perspectives: 1-54. 2007.

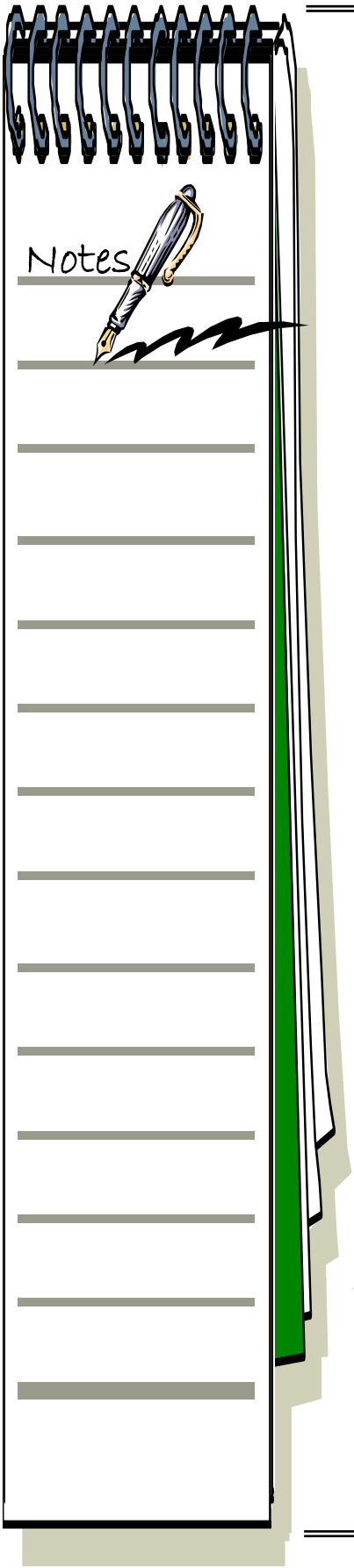
Never Sleep with Baby? Or Keep Me Close But Keep Me Safe: Eliminating Inappropriate "Safe Infant Sleep" Rhetoric in the United States, by Lee T. Gettler and James J. McKenna. Current Pediatric Reviews 6:1, 1-6. 2010.

Who Wants to Sleep Alone? Mothering Magazine Reprint, including: The Science of Sharing Sleep, by Lee T. Gettler and James J. McKenna. Mothering Magazine, 153 (Jan-Feb issue). 2009.

Sleeping with Baby: An Internet-Based Sampling of Parental Experiences, Choices, Perceptions and Interpretations in a Western Industrialized Context, by James J. McKenna and L. Volpe. Infant and Child Development 16:359-385. 2007.

Mother-Infant Cosleeping, Breastfeeding and SIDS: What Biological Anthropology Has Discovered About Normal Infant Sleep and Pediatric Sleep Medicine, by James J. McKenna, Helen Ball and Lee T. Gettler.Yearbook of Physical Anthropology 50:133-161. 2007.

Mother-Infant Cosleeping with Breastfeeding in the Western Industrialized Context: A Biocultural Perspective, by James J. McKenna and Lee T. Gettler. Textbook of Human Lactation. T.W. Hale and P.E. Hartmann, eds. Amarillo, Texas: Hale Publishing, 2007.



New Knowledge, New Insights and New Recommendations: Scientific Controversy and Media Hype in Unexpected Infant Deaths, by Peter Fleming, Peter Blair and James J. McKenna. Invited Editorial: Archives Disease in Children. 2006.

Assessing Tradeoffs between Potential Benefits and Risks of Increased Nighttime Contact between Mothers and Infants, by James J. McKenna. Pediatrics and Infant Health. Journal of the Canadian Pediatric Society, Vol. 11 Supplement A. 2006.

Why Babies Should Never Sleep Alone: A Review of the Cosleeping Controversy in Relationship to SIDS, Breastfeeding and Bedsharing, by James J. McKenna and Thomas McDade. Pediatric Respiratory Reviews 6: 134-152. 2005.

Mother-Infant Cosleeping with Breastfeeding: Adaptive Behaviors Worth Fighting For, by James J. McKenna. Breastfeeding Abstracts 23(1): 3-4, 2004.

Sudden Infant Death Syndrome: Infant Sleep, Breastfeeding, and Infant Sleeping Arrangements, by James J. McKenna. Encyclopedia of Medical Anthropology, Health and Illness in the World's Cultures, Vol. 1. C. Ember and M. Ember, Eds. New York: Plenum Publishers. 2004.

Mother-Infant Cosleeping: Toward a New Scientific Beginning, by James J. McKenna and Sarah Mosko. Ch. 16 in Sudden Infant Death Syndrome: Puzzles, Problems and Possibilities. R. Byard and H. Krous, eds. London: Arnold Publishers, 2001.

Cosleeping (Bedsharing) among Infants and Toddlers, by M. Stein, C. Caloruso, J. McKenna and N. Wight. Pediatrics, April 2001.

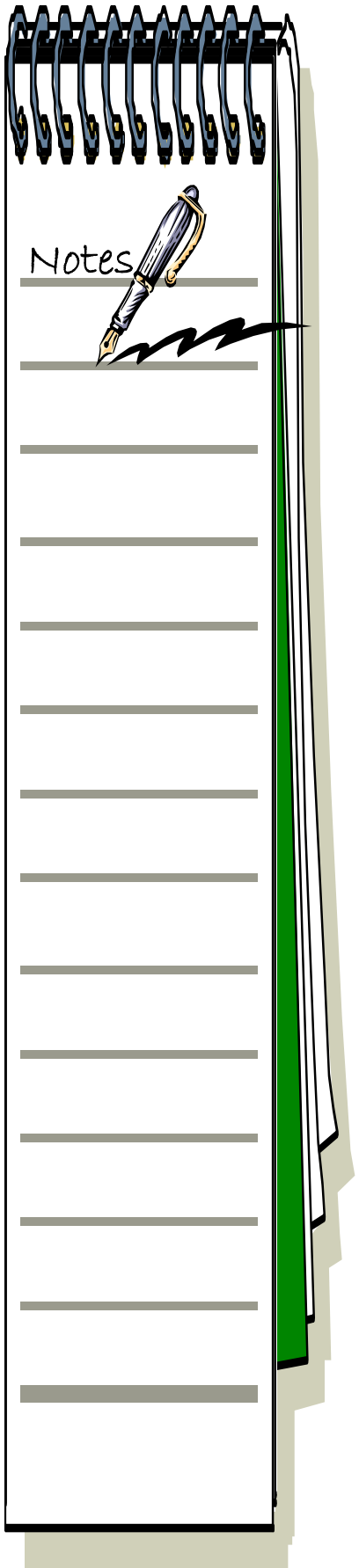
In Defense of Maya's Mother, by James J. McKenna. Contemporary Pediatrics, 16:7 (June) 116-117. 2000.

Sleep Location and Suffocation: How Good Is the Evidence? by James J. McKenna and Lawrence M. Gartner. Letters to the Editor in Pediatrics 105 (4):917-919. 2000.

Cultural Influences on Infant and Childhood Sleep Biology and the Science that Studies It: Toward a More Inclusive Paradigm, by James J. McKenna. Sleep and Breathing in: Children and Pediatrics. J. Laughlin, C. Marcos and J. Carroll, eds. Marcel-Dekker Publishers. 2000.

Breast-feeding and Mother-Infant Cosleeping in Relation to SIDS Prevention, by James McKenna, Sarah Mosko and Christopher Richard. Ch. 3 in Evolutionary Medicine. W. Trevathan, E.O. Smith and J. McKenna, eds. New York: Oxford University Press, 1999.

Apnea and Periodic Breathing in Bed-Sharing and Solitary Sleeping Infants, by Christopher Richard, Sarah Mosko and James J. McKenna. Journal of Applied Psychology 84(4): 1374-1380. 1998.



Maternal Sleep and Arousals During Bedsharing with Infants, by Sarah Mosko, Christopher Richard and James McKenna. Sleep 201(2): 142-150. 1997.

Infant Arousals During Mother-Infant Bed Sharing: Implications for Infant Sleep and SIDS Research, by Sarah Mosko, Christopher Richard, and James McKenna. Pediatrics 100 (2): 841-849. 1997.

Maternal Proximity and CO2 Environment During Bedsharing and Possible Implications for SIDS Research, by S. Mosko, C. Richard, J. McKenna, S. Drummond and D. Mukai. American Journal of Physical Anthropology 103:315-328, 1997.

Challenging Cases: Cosleeping (Bedsharing) Among Infants and Toddlers, by James J. McKenna. Developmental and Behavioral Pediatrics, 18(6): 408-413. 1997.

The Potential Benefits of Infant-Parent Co-Sleeping in Relation to SIDS Prevention, by James J. McKenna. In: SIDS in the 90s. Torliey O. Rognum, Ed. Scandinavian Press, 1995.

Experimental Studies of Infant-Parent Co-Sleeping: Mutual Physiological and Behavioral Influences and Their Relevance to SIDS, by J. McKenna, S. Mosko, C. Richard et al. Early Human Development 38:182-201. 1994.

Sleep Arousal, Synchrony and Independence among Mothers and Infants Sleeping Apart and Together (Same Bed): An Experiment in Evolutionary Medicine, by James J. McKenna and Sarah Mosko. Acta Pediatric, International Journal of Pediatrics, Supplement 390. 1994.

Evolution and Infant Sleep: An Experimental Study of Infant-Parent Cosleeping and Its Implications for SIDS. Acta Pediatrica: An International Journal of Pediatrics, Vol. 2 Supplement 389. 1993.

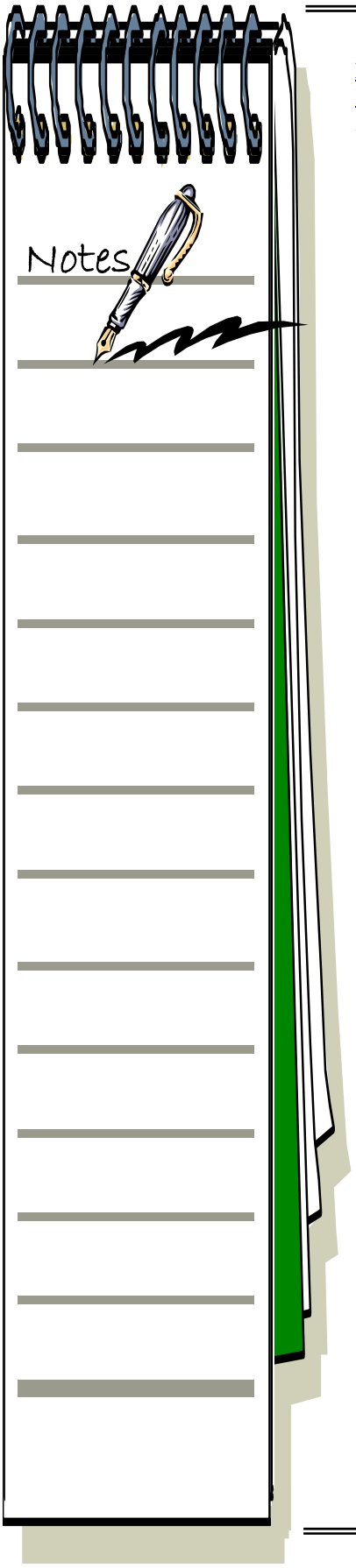
Parent-Infant Cosleeping: The Appropriate Context for the Study of Infant Sleep and Implications for SIDS Research, by Sarah Mosko and James McKenna et al. Journal of Behavioral Medicine 16(6): 589-610. 1993.

"Cosleeping" entry in the Encyclopedia of Sleep and Dreaming, by James J. McKenna. Encyclopedia of Sleep and Dreaming, ed. Mary A. Carskadon. New York: MacMillan Publishing Co, 1993.

Infant-Parent Co-sleeping in an Evolutionary Perspective: Imperatives for Understanding Infant Sleep Development and SIDS, by James J. McKenna et al. Sleep 16(3): 263-282, 1993.

Sleep and Arousal Patterns of Cosleeping Human Mother-Infant Pairs: A Preliminary Physiological Study with Implications for the Study of SIDS, by James J. McKenna, Sarah Mosko, Claibourne Dungy and Jan McAninch. American Journal of Physical Anthropology, 83:331-347. 1990.

Evolution and the Sudden Infant Death Syndrome (SIDS) Part II: Why Human Infants? by James J. McKenna and Sarah Mosko. Human Nature 1 (2). 1990.



Evolution and the Sudden Infant Death Syndrome (SIDS), Part III: Parent-Infant Co-sleeping and Infant Arousal, by James J. McKenna and Sarah Mosko. Human Nature: 1(2). 1990.