

THE CAROL GRUNFELD MEMORIAL LECTURE

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*Keep Me Close But Keep Me Safe: Cultural and
Biological Perspectives on Sleeping With Babies*



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Cultural and Biological Perspectives on Infant Sleep: Keep Me Close But Keep Me Safe

Don't sleep with your baby or put the baby down in an adult bed. The only safe place for a baby to sleep is in a crib that meets current safety standards and has a firm tight-fitting mattress.”

Ann Brown September 29, 1999 to US Media Press Conference.

or

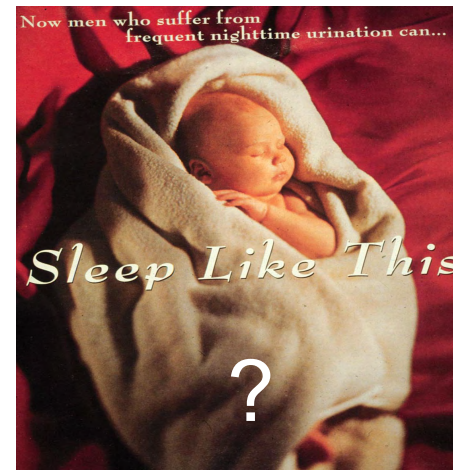
“There is no such thing as a baby, there is a baby and someone” D.Winnecott

A close-up photograph of a baby's face, sleeping peacefully with eyes closed. The baby is wearing a light-colored, striped onesie. The image is framed by a blue border.

For more information about how to keep your child safe, please call 311 in New York City and ask for a safe sleeping brochure or go to www.nyc.gov/acs; throughout New York State, call 800-345-KIDS, or go to www.ocfs.state.ny.us.

NYC Children's Services New York State Office of Children & Family Services
David A. Paterson, Governor, New York State
Michael R. Bloomberg, Mayor
Claudia Carnice, Commissioner,
NY State Office of Children and Family Services
John B. Mattingh, Commissioner, Children's Services

Babies Sleep Safest Alone



Present medical-cultural milieu:

warn mothers about what their their bodies can do TO their infants, rather than FOR their babies, to protect and nurture them.

- “Babies Sleep Safest Alone.”
 - New York State Public Health Campaign
- “For you to rest easy, your baby must rest alone.”
 - Philadelphia Public Health Campaign.
- “We know the value of holding your child, cuddling your child, loving your child. *But if you take the baby to bed with you and fall asleep, you are committing a potentially lethal act*”
 - Deanne Tilton Durfee, Director of the Los Angeles County Inter-Agency Council on Child Abuse and Neglect. Los Angeles Times 4/24/08.

Cosleeping Tombstone (for headboard)



City of Milwaukee: Anti- bedsharing Campaign. Anne Benton: “Bedsharing is dangerous...as far as we are concerned there is no debate...”

Implication: a good parent would never take their baby to bed with them..A responsible parent would never do this..which means only irresponsible parents would and should therefore be subject to prosecution and/or having their infant removed by child protective services.

Nothing illustrates the philosophical differences better than this:

Following the tragic death of a bedsharing infant whose teen mother drank **18 cans of beer before retiring to bed with her infant,**

Then President of a national SIDS organization wrote to the Editor of the San Antonio Tribune, 2000, saying:

- **“Sharing an adult bed with an infant is not cool, nor is it an indicator of educated parenting.”**

“Safe Infant Sleep” campaign rhetoric has become vitriolic, threatening, dismissive of legitimate alternative public health messages and any empirically-based scientific challenges; **safe infant sleep has become practically synonymous with ‘babies sleeping alone’ in the absence of their mothers (breastfeeding or not)**

see L.T. Gettler and J.J.McKenna (2010): Never Sleep With Baby? Or Keep Me Close But Keep Me Safe. Current Pediatric Reviews

born to breastfeed...contact, co-sleeping, engagement

Life, as we know it...a visually rich, ethnographic study?

*From: "The Science of Shared Sleep." Mothering Magazine (2009)
Lee T. Gettler and James J. McKenna*



American Academy Of Pediatrics New SIDS Prevention Recommendations (I served as an ad hoc expert member)

“proximate but separate sleep for baby i.e.
“roomsharing”

i.e. parent-infant co-sleeping!

no side position sleeping;

cuddling but no bedsharing

pacifiers for sleeping infants, after breast feeding is
established;

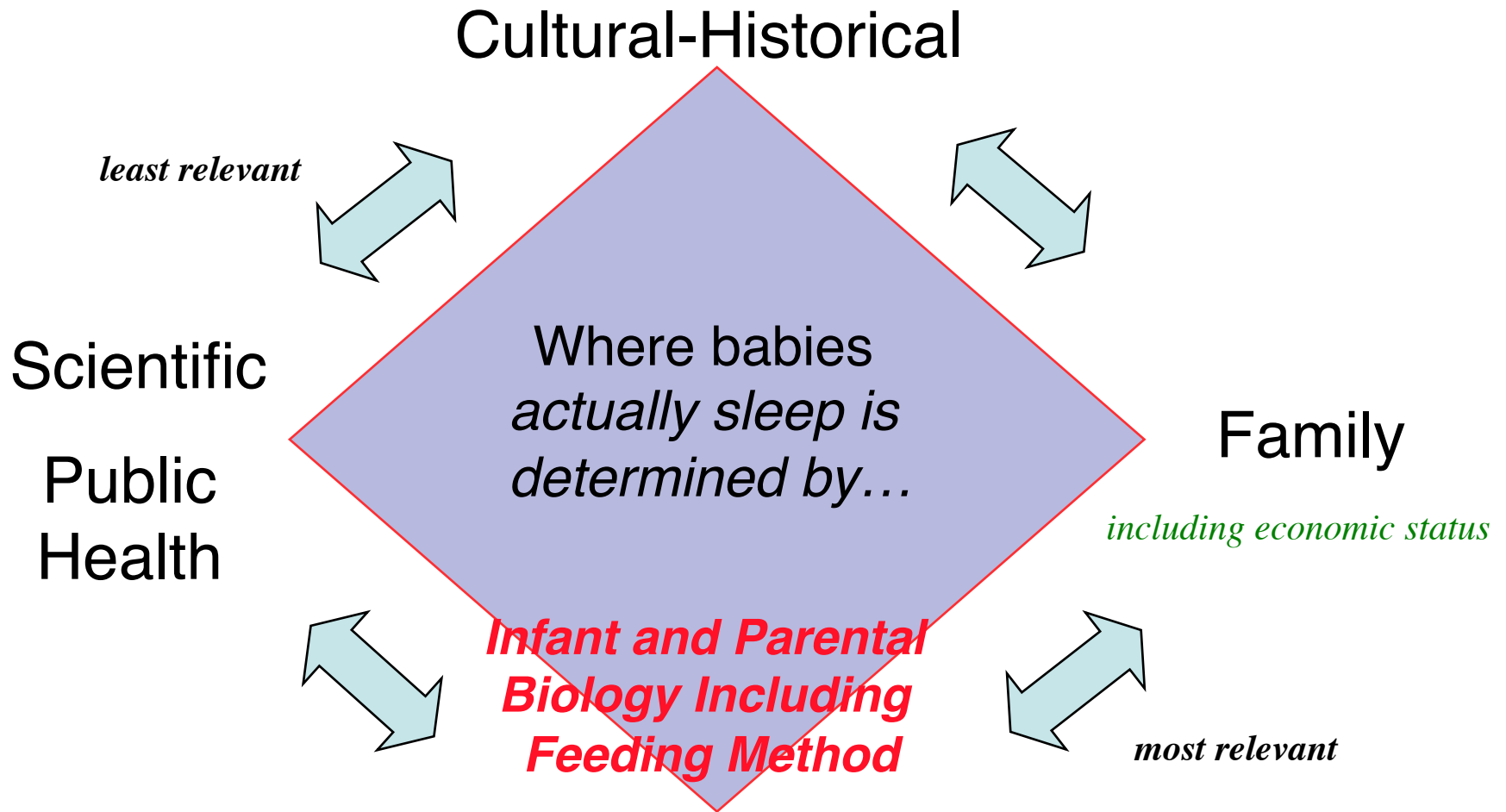
more holding and carrying

(but no bedsharing, described as hazardous)

What Makes Infant Sleep Safer?

- Exclusive breastfeeding with..
- Supine infant sleep position;
- Maternal/Paternal presence; *infants should never sleep alone!*
- Absence of maternal smoking during pregnancy and after;
- Parental knowledge of safe crib and co-sleeping including bedsharing environments;
- Light blanketing, no duvets;
- no children co-sleeping with infant, or unrelated adult males;
- If routinely bedsharing, pull frame off of bed, center in middle of room on floor;
- If bottle feeding, or a smoker, avoid bedsharing, place crib or bassinet next to bed, *separate surface co-sleeping*;
- Adhere to routine practice;
- *Avoid co-sleeping on couches, armchairs, recliners, or waterbeds;*
- *Avoid **indifferent** attitude; if bedsharing, agree that each adult has responsibility for monitoring presence of baby;*
- *If bedsharing, do so enthusiastically with both partners agreeing committing to infant care and concern;*

Factors/Processes Determining Where Baby Really Sleeps?



References:

Ball 2007; Baddock et al. 2007; McCoy et al. 2007; McKenna and Volpe 2006

*Bobby Bowdin...Florida State
University Head Football Coach*

*“I slept in the same bed with my
grand daddy..and then in the
same bed with my four cousins..I
never slept alone t’il I got
married”!*

South Bend Tribune.. 9/29/2000

Infant-parent cosleeping

a generic concept referring to the *diverse ways* in which a primary caregiver usually the mother sleeps within close proximity (arms reach) of the infant permitting each to detect and respond to a variety of sensory stimuli (sound, movement, smells, sight etc..) emitted by the other

cosleeping is the universal (species-wide) sleeping arrangement

USA National Percentages of Full or Part-Time Bedsharing Mothers

- **Willinger et al. 2003...as high as 50% (part of night, sometimes)**
 - **Since 1990, from 5 to 12.2 % routine bedsharing..**
- **McCoy et al.(2000) 22% (always), to 50% (sometimes);**
- **More recently, Lahr et al. 2006 73% of Oregon mothers bedshare for some or part of night;**
- **National Prams data set..show minority of US infants never bedshare...**

Percent Parents Who Bedshare (USA)

Source: National Center For Health Statistics 1999

• Almost Always...	Sometimes.....	Never	
• Alaska	38.5	39	22.5
• Alabama	32	38	31.4
• Colorado	14.4	48	37.5
• Oregon	34.4	41	23.4
• West Va.	20.4	37	42.5

*A minority of our mothers do not bedshare at
some time with their infants!!!*

Diversity of Co-sleeping *(requires taxonomic distinctions)*



Co-bedding twins



partial, mixed



(within sensory range)



bedsharing with Dad

Parent -infant co-sleeping is biologically and psychologically expectable, if not inevitable?





In all it's forms....

Koala



Maori, New Zealand



napping desert Aborigine



recliner co-sleeping (unsafe)

To be fair... Solitary Sleep



Until recent historic periods in the western industrialized world

- *no human (primate) infant (ancestral or modern) was ever separated from their caregivers...nocturnally, or any other time*
 - *Most human infants know only social proximity and/or contact, with someone*
 - *And nobody ever asked: where will my baby sleep, how will my baby feed, how will I lay my baby down for sleep (most still don't)*
 - ***Any study which claims to understand 'normal' human infant sleep absent of mother's role, breastmilk metabolism, and breastmilk delivery, sensory exchanges, is at very least inaccurate, but most likely, incorrect.***

Now men who suffer from
frequent nighttime urination can...

The western infant is
disarticulated from the
mother's body...

No touch;

No smells;

No sounds

No movement (of
others) to respond to;

No body heat
exchange

No breath
exchange;

No parental
inspections..physiological
regulation

A newborn baby is shown sleeping peacefully, wrapped in a white, textured blanket. The baby is lying on a red surface, possibly a bed or a blanket. The lighting is soft, highlighting the baby's face and the texture of the blanket.

Sleep Like This

Formula and cow's
milk made it possible to
“*Sleep Like This*”

In contrast....

- Hofer' s “physiological regulatory effects.”
- Human infants need and expect proximity and contact from caregivers;
- *Social care for human infants is synonymous with physiological regulation...*
- *Sleep research community favors consolidation of sleep over frequent nighttime breastfeeding*

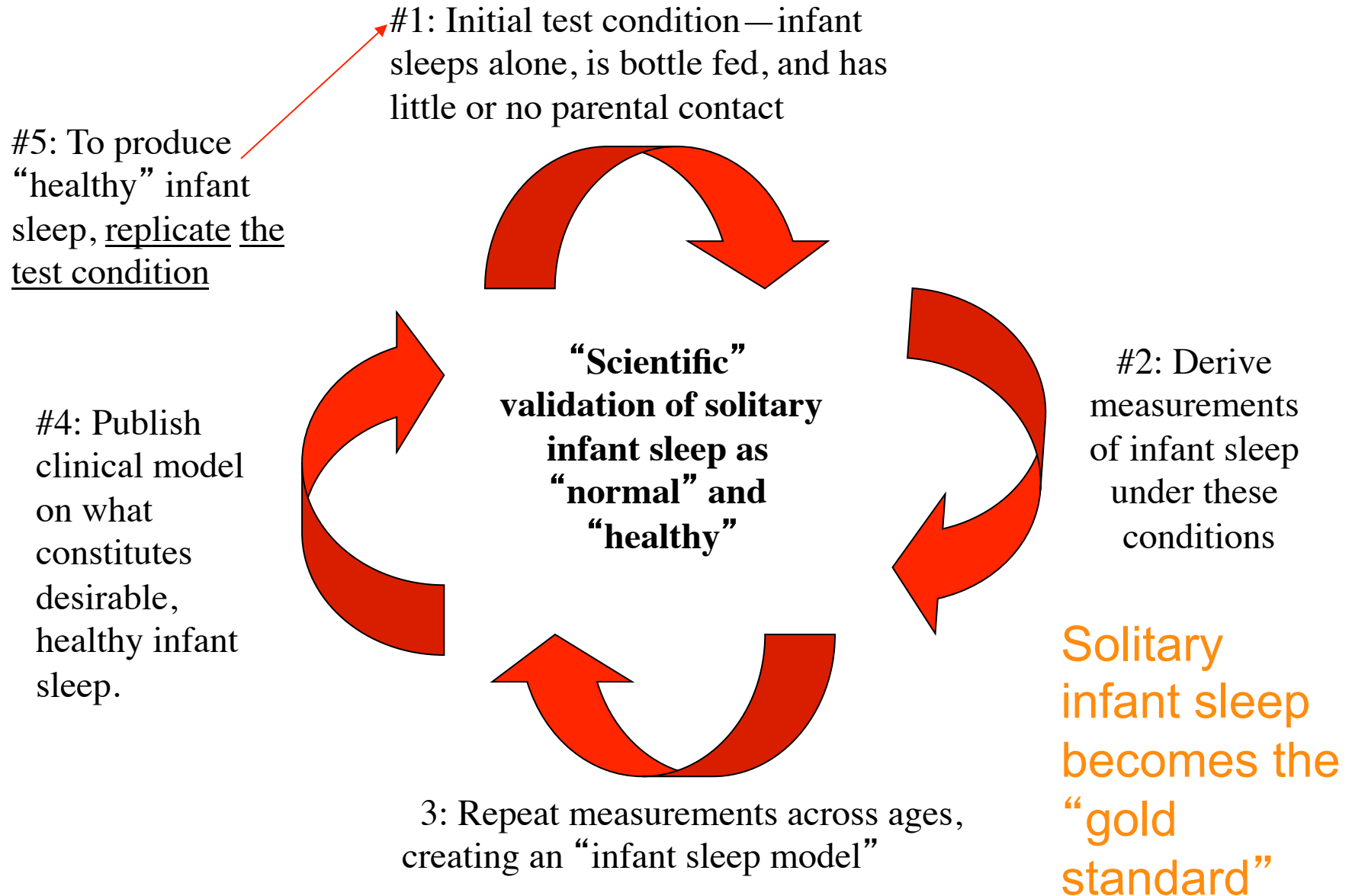


the “articulated” mother-infant unit is the appropriate micro-environment within which the infants and mothers biology and behavior is *mutually regulated*



HERE
MOTHER
AND BABY
FACE EACH
OTHER
(FEO), AS IS
TYPICAL

Culture Producing Science Producing Culture: How A Folk Myth Achieved Scientific Validation



What explains this way of thinking ?

*A little cultural history..,
out of what historical context
did present ways of thinking
emerge*

*Western Values favoring: individualism
autonomy, specialness of conjugal pair,
notion of romantic love, sexual privacy,
adoption of bottle feeding and others...*

John Watson...*believed no child could get “too little affection”*

“Never hug and kiss them.....Never let them sit in your lap. If you must, kiss them once on the forehead when they say goodnight. Shake hands with them in the morning. Give them a pat on the head if they have made and extremely good job of a difficult task”

(Watson, 1928, quoted by Hardyment, 1983, p. 175).

Watson's Model ?



The dis-embodied infant?

future “caretaking”
environments for
our infants?

***The cultural undermining of western maternal
knowledge and confidence***

**Benjamin Spock writing to mothers in: Baby Care
says...**

**“You know more than you think you do....
don’ t be afraid to trust your common sense.
Bringing up baby won’ t be a complicated job if you
take it easy, trust your own instincts, *and follow
the directions your doctor gives you!*”**

cited by tina thenevin,1993, mothering and fathering

With Respect To Infant Sleep Western Parents Remain ...

the most exhausted
the least satisfied
the most obsessed
the most “well read”
the most opinionated
the most judgmental

“Culture can be accused of not being biological enough” Barash (1987)

Interesting thought....passage of an infant through the birth canal is a biologically universal event,

but the surrounding cultural micro-environment and what we do with babies next....is not governed by any biologically universal rules

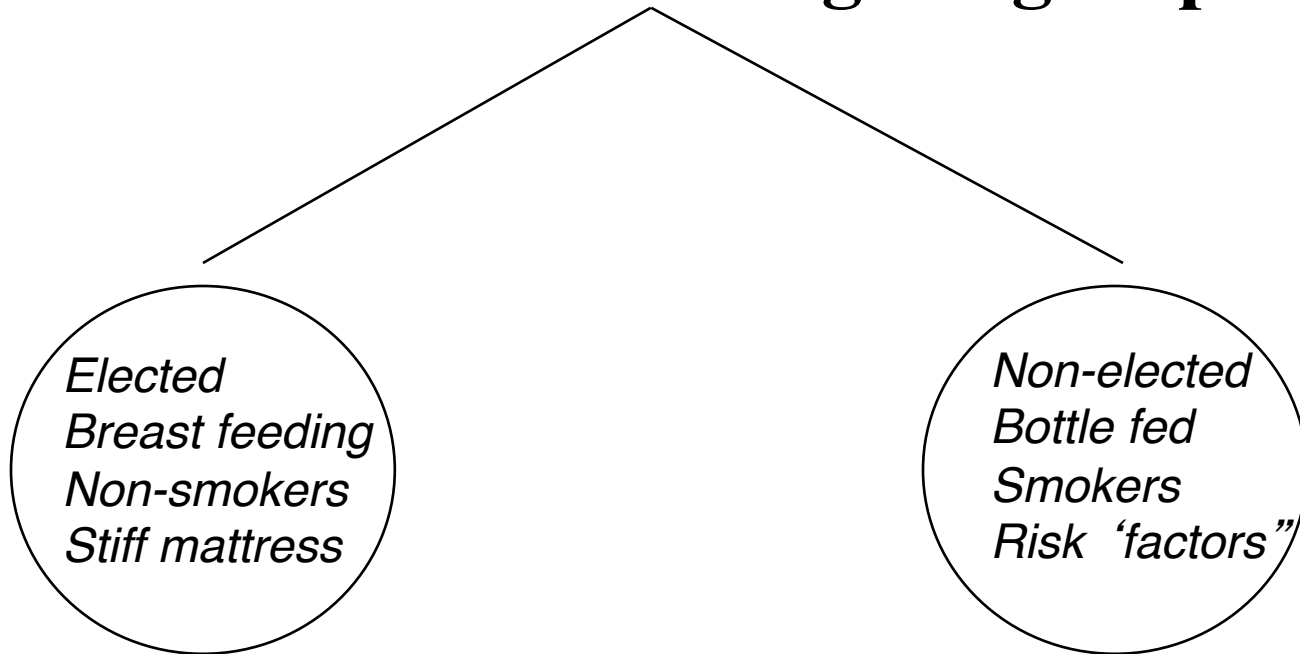
So what exactly is our present scientific
and political predicament as regards
“sleeping with baby”...?

is the mother's (or father's)
sleeping body a lethal
weapon against which infants
and parents need protection..?

SUDI/SIDS :

benefits-risks continuum

Two distinct bedsharing subgroups



 *Less Risk (protective?)*

More Risk 

Double standard of “cause” “diagnosis” and “remedy” of crib vs. co-sleeping deaths must be challenged

- Infant dies sleeping prone in crib
 - Cause: sleeping prone...
 - Diagnosis: SIDS
 - Remedy: turn infants supine, educate and inform
- *A tragic problem to be solved*
- Infant dies sleeping prone in bed with parents
 - Cause: bedsharing
 - Diagnosis: Asphyxiation by overlay
 - Remedy: eliminate all bedsharing, retract safety information on safer bedsharing, condemn the practice;
- *A deadly practice to eliminate*

Unsafe Bedsharing Occurs Under A Variety of Social and Structural Conditions

Fluffy Beds, Infant Alone



Overcrowded



*Evolutionary Perspectives on
the Breastfeeding and Infant
Sleep: A little (anthropological)
corrective ...*

*perhaps as not as an end point leading
directly to answers, solutions or
recommendations but to a more
comprehensive beginning point for
explanation and discussion ?*

“Does a day in the life of a 400,000 year old Pleistocene family having anything to do with what happens in 2010, in the middle of the night between western, urban mothers and infants?”

**Environment of
Evolutionary
Adaptedness??**

*Does such ancient
biology really
matter?*

YES!

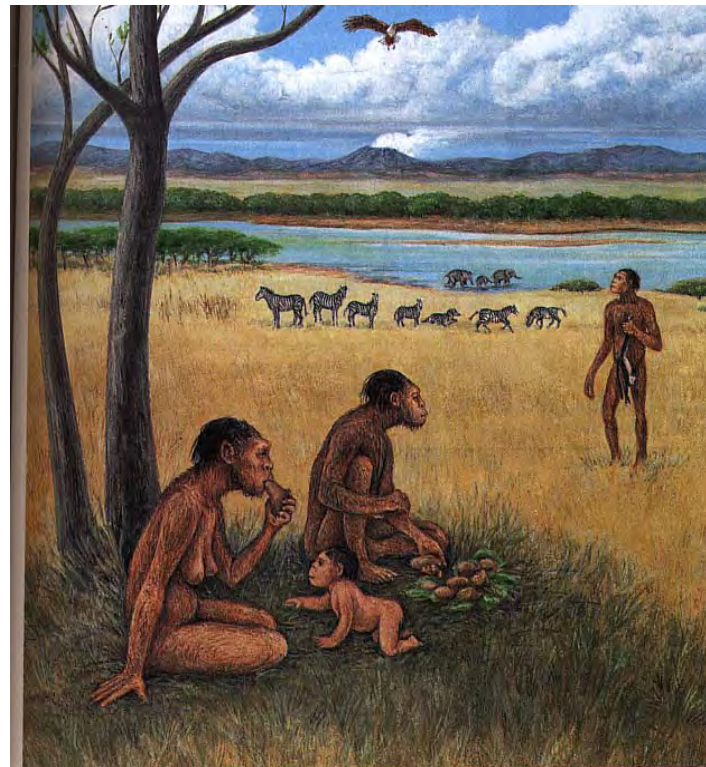


Figure 10-15 • Reconstructed environment at Laetoli, to show the more open spectrum of early australopithecine habitats. Environments at other early australopithecine sites may have been significantly more wooded or even forested.

Shortened
birth intervals
explained by:

Cooperative
breeding
(Hrdy 2008) ?

Direct male
care (Gettler
in press) ?

Breastfeeding
and mother-
infant co-
sleeping

The *Prehistoric*
Constancy of
Infant Biology..
(a little biology)

*Does Infant
Biology
Matter?*



*Apparently
so..*

*Recalling human evolution (biology) as a
fundamental beginning point....does it matter?*

1. Bipedalism required neonatal neurological immaturity, with delayed development making human infants extero-gestates;
2. Human breast milk composition requires frequent breastfeeding and a specific system *of delivery facilitating mother-infant sensory exchanges promoting neurological stability and growth;*
3. Documented ancient, underlying neuro-biological bases of parental motivations to respond to infant behavioral signals, cues, responses, needs;
4. Documented physiologically-based responses by infants to parental contact..physiological regulation (*that's why co-sleeping makes babies, ahh happy i.e. it sin their bes biological best interest and why they will never get the AAP memo...*)

Primate Immaturity At Birth and Slow, Prolonged Childhoods Necessitates Proximity, Contact, Cosleeping



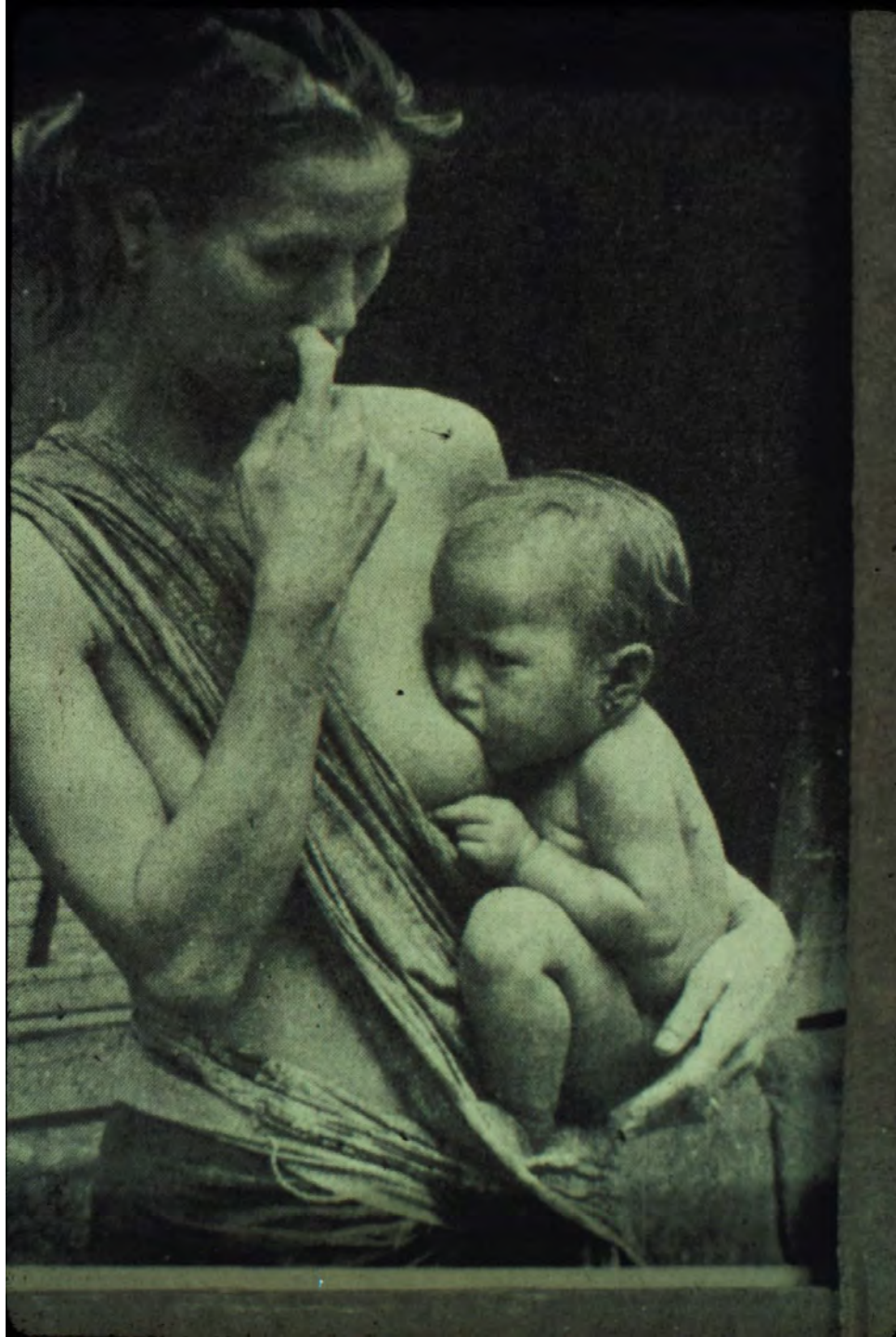
Biology of Mother's Milk Predicts Mothering Behavior

- **Feed and Leave Species**
 - **(Ungulates)**
 - High fat
 - High protein
 - Low carbohydrate
- High calorie = long feeding interval;
- **Contact, Co-sleeping, And Carry Species**
 - **(Primates—Humans)**
 - Low fat
 - Low protein
 - High carbohydrate
- Low calorie = short feeding interval;

(to avoid predators nested infants do not defecate or cry in mother's absence)

(carried infants cry in mothers absence and defecate spontaneously)

Consider the
physical
intimacy of
the maternal-
infant
relationship



...socially and
medically
obscured by
western
culture



Navaho woman at Bosque Redondo, with baby in cradleboard on her back. *Laboratory of Anthropology, Inc., Santa Fe, N. M.*

DURATION OF HUMAN SUBSISTENCE PATTERNS

Genus Homo
2,000,000 yrs

Homo Sapiens
200,000 yrs

HUNTING AND GATHERING

AGRICULTURE 10,000 yrs

INDUSTRY 200 yrs



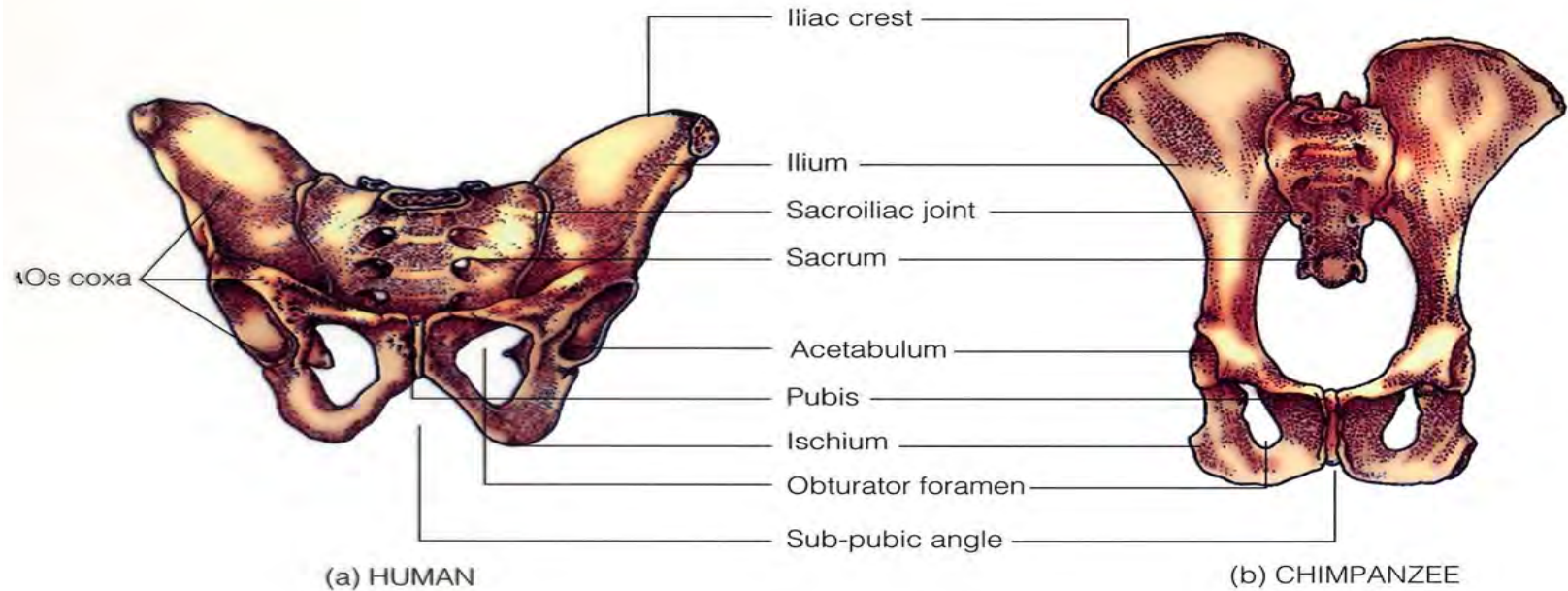
Is the Following Statement True? How Do We Know?

“ ...There would be little if any difficulty exchanging a Cro-Magnon and a modern infant, but great incongruity in making the same switch amongst adults of both cultures.”

David Barash: *The Tortoise and The Hare* (1987)

Pelvic Girdles

****Shift to terrestriality and bipedality had enormous effects on direction of human morphological and behavioral evolution**



Acetate 37 (Figure A-6)

© 1997 Wadsworth Publishing Company

- **Rotation of ilium (hip bones) forward and shortening of ischium from upright posture creates a bowl-shaped pelvic concavity....**
- **That is, fetal head size is getting larger at same time that pelvic outlet is getting smaller...creating an “obstetrical dilemma”..and the solution is?**

Enter...*MORE* human *biology*...

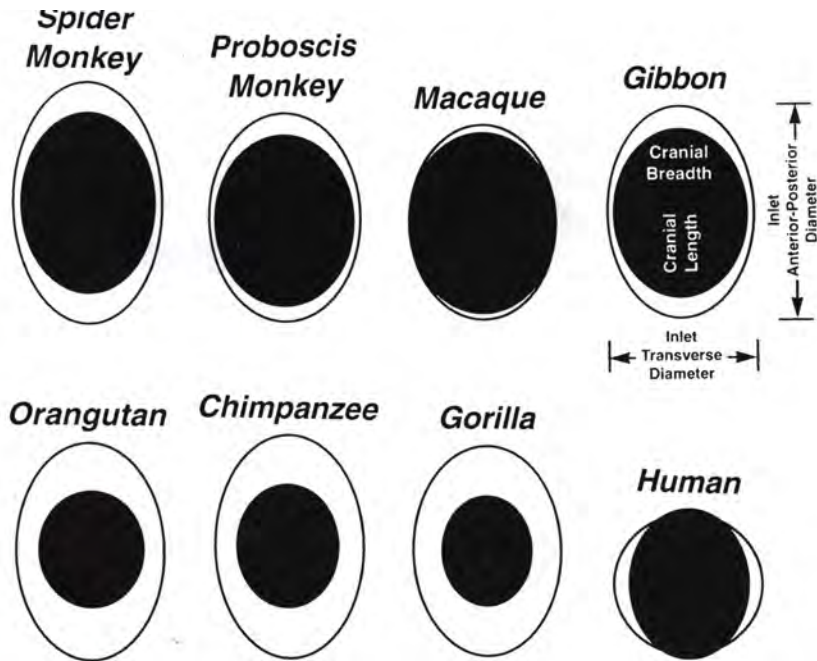


Figure 8.1. Relationship of maternal pelvis (dark outlines) and fetal head (solid dark ovals) (after Schultz, 1949).

- The human “obstetrical dilemma”;
- Human Fetal Head Size Exceeds Outlet Dimensions *With Emergence of Bipedalism*

At birth the human infant is the least neurologically mature primate of all, and the most reliant on physiological regulation by the caregiver for the longest period of time.

Percentage of Adult Brain Size:

Chimpanzee Infant Human Infant

<u>At Birth</u>	45	25	
3 months	50	35	
6	60	45	
9	65	50	
1 year	70	60	
2	75	70	
4	85	80	
8-9	100	95	*(100% at 14-17 years)

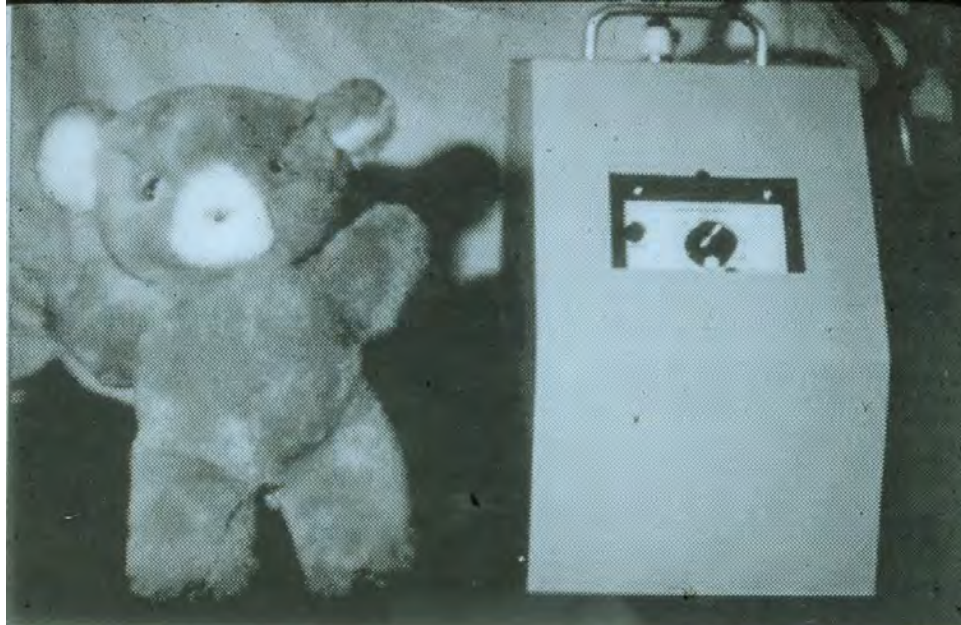
Massaged Babies

- gained weight 47% faster (per day),
- were more alert,
- left hospital 6 days earlier than non-treated babies (Field et al 1987) ..
- touch stimulates the vagus nerve (to stimulate the gastro-intestinal tract making digestion more efficient;
- facilitates endorphin release reducing stress..
Stress cortisol levels

Breathing mechanical Teddy Bear!

(reduces infant apneas
by 60%)

(Evelyn Thoman 1985)



Benefits of Contact (Skin-to-Skin) Newborns

- axillary and skin temperatures significantly higher
- blood glucose levels higher; oxygen saturation increased
- less frequent crying, shorter average duration
- preserve glycogen stores
- nursing established earlier, more firmly
- accelerated weight gain
- Sources: Barr 1993, Field et al. 1988, Christensson et al. 1993, Acolet et al 1989

“For species such as primates, the mother IS the environment.”

Sarah Blaffer Hrdy, Mother Nature (1999)



Nothing an infant can or cannot do makes sense, except in light of mother's body

*inspired by
cross-species, cross-cultural,
developmental, historical and evolutionary
studies.... a little experiment....
A little research...*



**Mother-Baby
Behavioral Sleep
Laboratory**
At the University of Notre Dame



What Science Tells Us ...



**Mother-Baby
Behavioral Sleep
Laboratory**
At the University of Notre Dame



Sleep Laboratory Lounge



Observing and Physiologically Recording Babies And Mothers Sleeping and Breastfeeding (Together and Apart)

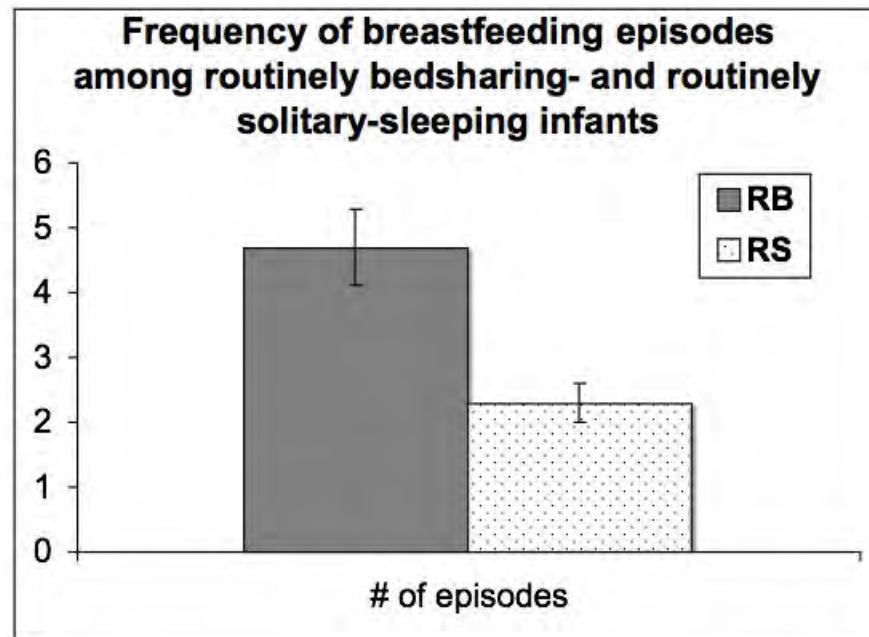


Photo :Max Aguilero-Hellwig
Discover Magazine 1992

- Lighter sleep (less stage3-4, more stage1-2)
- More Diverse Sleep (greater number of stage changes)
- Longer Sleep In Minutes
- Breastfeeding Doubles or Triples
- Increased Interactions, Vocalizations, Movements
- Physiological Unpredictability For Both
- Sleep Positions and Mutual Orientations Change
- More transient and epochal mutual arousals or partner -induced arousals
- Increased Sleep-Wake Stage Synchrony
- Less crying, More Maternal Interventions
- More Heart Rate and Breathing Variability
- Sub-normal body Temperatures in Solitary Sleeping Infants
- Shift in average duration, frequency, and distribution of obstructive and central apneas per stage of sleep

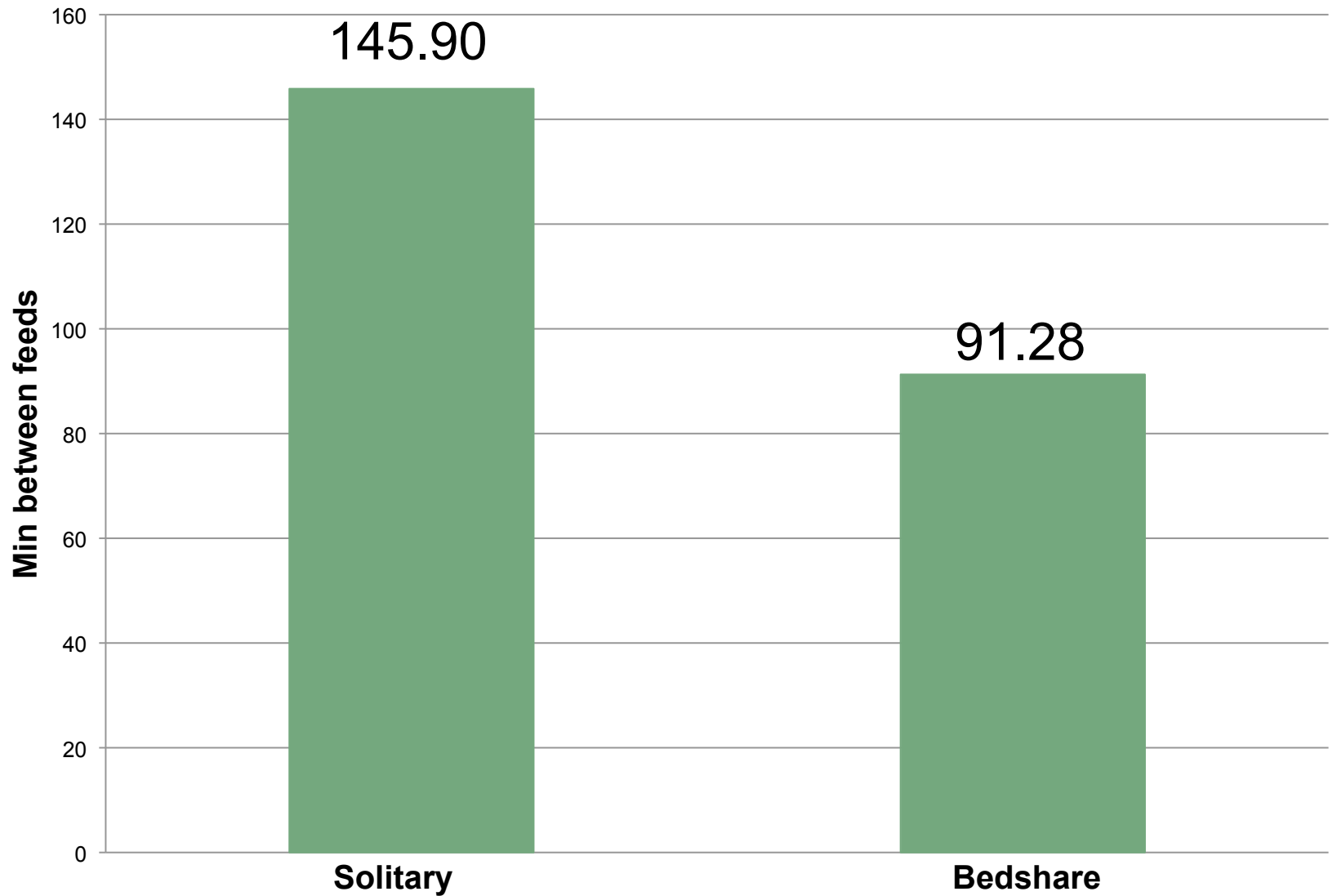
All studies confirm that bedsharing increases breast feeding frequency and duration (below..McKenna et al 1997, see also Ball 2003, Baddock 2006, Young 1999)

Breastfeeding Behavior in Mother-Infant Dyads

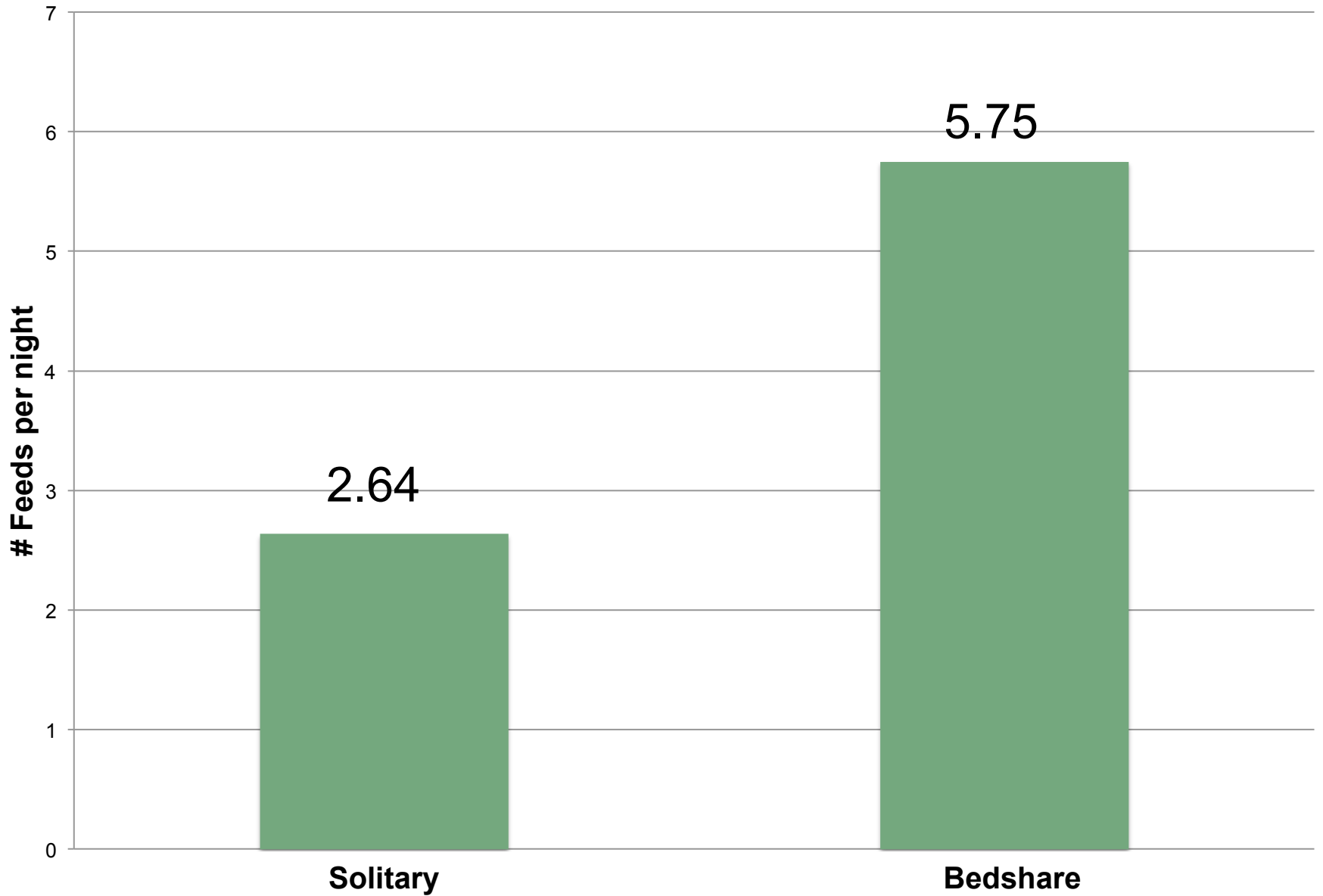


From: McKenna et al. Pediatrics 1997
“Bedsharing Promotes Breastfeeding”

Mean Intervals In Minutes Between Breastfeeds for Solitary and Bedsharing Mother-Baby Pairs On First Night



Mean Frequency of Breastfeeds Between Solitary Sleepers and Routine Bedsharers On First Night



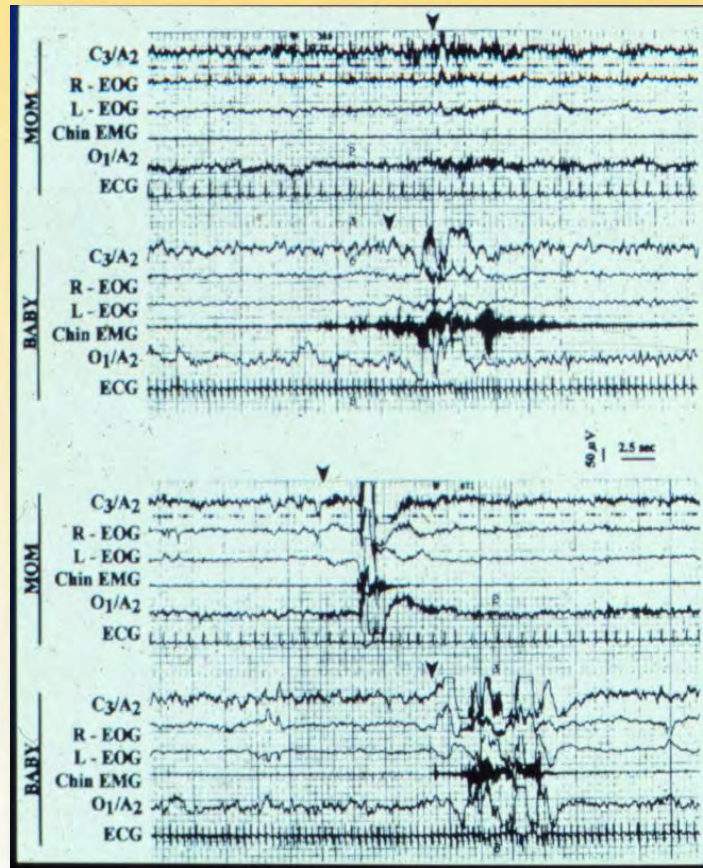
Breastfeeding increased protection against SIDS!!

“Infants who are formula fed are twice as likely to die of SIDS than breastfed infants.”

Case control study of 333 cases of SIDS matched against 998 age -matched controls in Germany, from 1998-2001

Vennemann MM, Bajanowski T, Jorch G, Mitchell EA. *Does Breastfeeding reduce the Risk of Sudden Infant Death Syndrome?* *Pediatrics* Vol.123, March 2009, pp e406-410

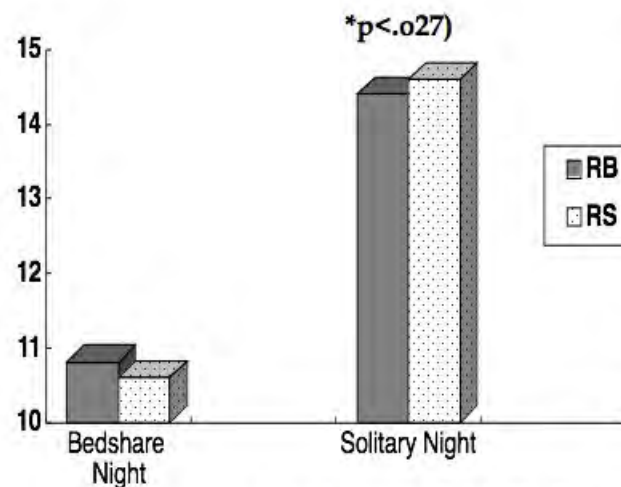
EEG Defined Mother and Infant Arousals



- Infant-induced maternal arousal.
- Maternal-induced infant arousal.

Co-sleeping *in the form of* Bedsharing: Increased protection for arousal deficient infants?

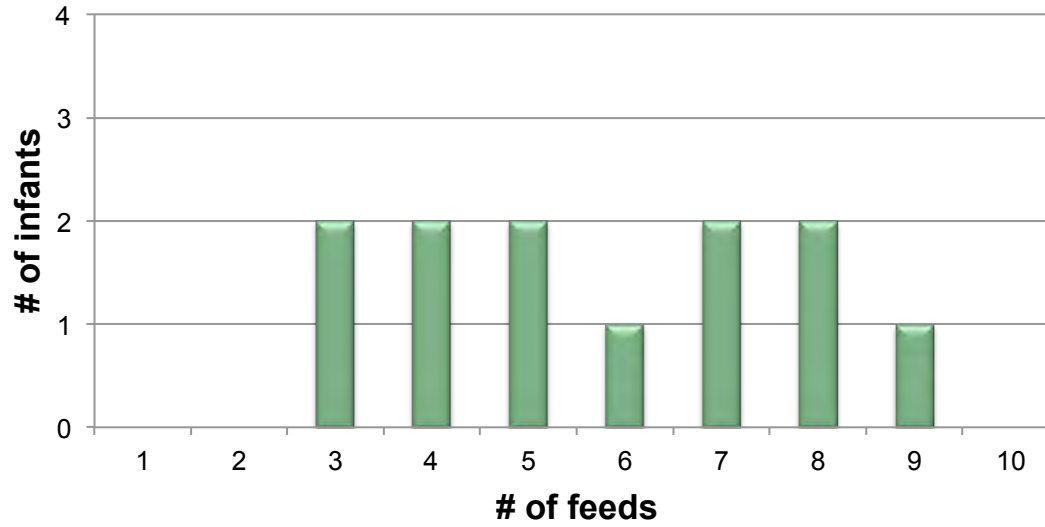
Mean Duration of Stage 3-4 Sleep:
Why Important ?



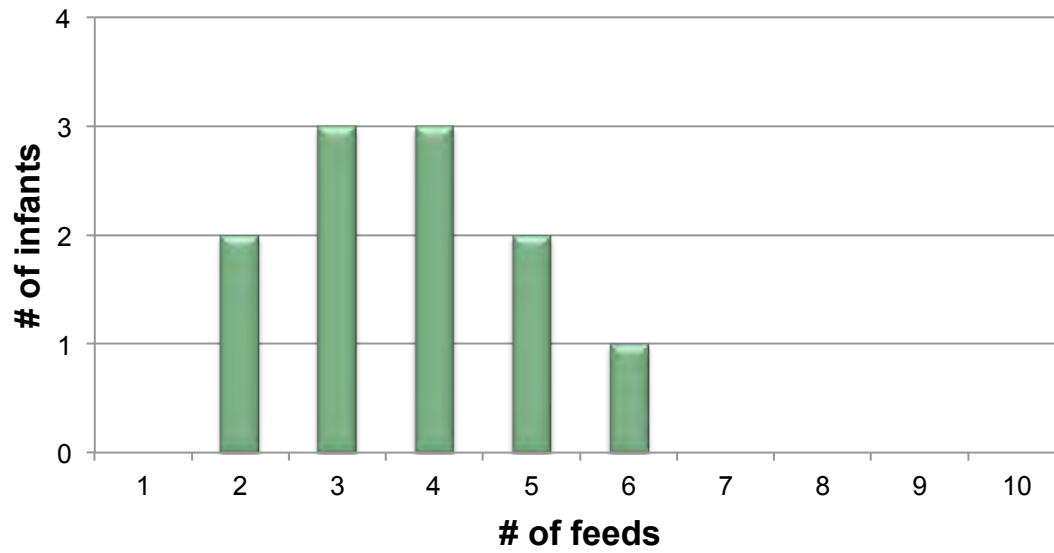
Mosko et al 1997 *Sleep*

- Schechtman et al. report that, at 3-4 months of age, siblings of SIDS victims display increased integrated delta amplitude, in early morning hours compared with controls;
- Siblings of SIDS and ALTE infants: deficient arousal responses to hypoxia or hypercapnia;
- SIDS victims: more difficulty awakening from sleep, fewer movements;

RB First BN



RS First SN



“Breast Feeding and the Risk of Post-neonatal Death In the United States”

- Studied 1204 infants who died between 28 days and 1 year from causes other than congenital anomaly/tumor.and (7740 children who lived at 1 year) (controls);
- Calculated odds specific odd ratios for ever/never breast feeding amongst all children ...race-birth weight specific analysis--and duration-response effects;
- Longer breast feeding associated with lower risk: odds ratio range from:
 - .59 95% CI 0.38-0.94 for injuries to 0.84% (95%CI:.67-1.05) for **sudden infant death syndrome (SIDS); (Amin Chen and Walter J.Rogan)**
 - “Breast feeding has the potential to save or delay ~720 post=neonatal deaths in the United States each year
 - Pediatrics (2004) 113: E435-439...url:<http://www.pediatrics.org/cgi/content/full/113/e435>

My appreciation and thanks to:

*the many families that made my research possible and my esteemed colleagues Drs. Sarah Mosko, Peter Fleming, Peter Blair, Helen Ball, Agustín Fuentes and my students Lane Volpe, Kristin Klingaman, Lee Gettler *from whom I continue to learn so much.**

EFFECTS OF BEDSHARING ON INFANT SLEEP

Bedsharing Night vs. Solitary Night

Total Wakefulness During Sleep		↓14%	0.008
Sleep Stage %'s (of TST)			
% Stage 3-4		↓4%	<0.001
% Stage 1-2		↑3%	0.036
% Stage REM		--	--
Mean Stage Durations			
Stage 3-4		↓16%	0.027
Stage 1-2		↑16%	0.005
Stage REM		↑26%	0.001
Waking	--		--
Arousal Frequency (/hr)			
Stage 3-4			
EWs		↑38%	0.014
TAs		--*	--
Stage 1-2			
EWs		--	--
TAs		--	--
Stage REM			
EWs		↑35%	p<0.001
TAs		--	--

Table reflects results of 2x2 repeated measures ANOVA (laboratory sleeping condition x routine sleeping condition). Entries show significant (p<0.05) effects of laboratory condition (BN vs SN). (Mosko et al 1996)

EFFECTS OF BEDSHARING ON MATERNAL SLEEP

Bedsharing Night vs Solitary Night p value

Total Sleep Time (TST)	--	--
Total Wakefulness During Sleep	--	--
Sleep Stage %'s (of TST)		
% Stage 3-4	↓4%	0.001
% Stage 1-2	↓4%	0.014
% Stage REM	--	--
Mean Stage Durations		
Stage 3-4	↓25%	0.002
Stage 1-2	↓30%	<0.001
Stage REM	--	--
Waking	↓62%	<0.001
Arousal Frequency (/hr)		
Stage 3-4		
EWs	↑67%	<0.001
TAs	--	--
Stage 1-2		
EWs	↑37%	<0.001
TAs	↑28%	<0.001
Stage REM		
EWs	--	--
TAs	--	--

Table reflects results of 2x2 repeated measures ANOVA (laboratory sleeping condition x routine sleeping condition).

(*see Mosko, Richard, McKenna 1997 *Sleep* 20 (2) 142-150)

Choice of child care “practice” has physiological consequences for infant development

Choice of Routine Sleeping Arrangement

Cosleeping (?)

Solitary Sleeping (?)

choice affects:

breastfeeding duration, frequency, infant sleep position, arousal patterns, sleep architecture, maternal inspections, thermal and CO₂ environment, infant crying, heart rate and breathing, emotional (interactional) expectations from parent, sensitivity to presence of “other”

Stepping Back: Finally, do evolutionary narratives and/or evolutionary rhetoric/narratives promote or hinder maternal agency?

Perhaps...it's two edged sword?

Goal: Validate maternal choices, place decision making in home where it belongs, provide access to unbiased information, search for appropriate scientific explanations, *but without providing ammunition for essentialist arguments concerning a woman's "place"*