Kangaroology: The First 1000 Minutes

By Mary Esther Malloy after a lecture by Dr. Nils Bergman at New York University in February, 2016 (she apologizes to Dr. Bergman if she’s mottled his words. She was writing as fast as she could - mindfulbirthny.com)

Neuroscience on the screen.

A packed room of maternity care professionals.

Our brains trying to understand our brains.
Once upon a time not so very long ago, Dr. Nils Bergman launched a mother-baby skin to skin revolution.

I get it, I think. But I am about to be radicalized.

Dr. Nils Bergman speaks:

*Skin to skin unlocks the neuroscience.*

*Think of the layered, interconnecting jungle where everything functions in relation to everything else. The brain is a jungle, not a computer.*

*There are more synapses at birth than stars in the universe.*

He tells us

*It matters how we are born...Early experiences fire and wire the brain...Pathways are connected...Networks make lights go on...Development is ordered...Foundations are laid upon which higher circuits can be built...Critical periods come and go in which aspects of our genetic inheritance are activated.*

What is activated depends on the baby’s environment.

The environment tells our DNA:

- The world is safe
  - Oxytocin flows through the circuitry.

OR

The environment tells our DNA:

- The world is not safe.
  - Be on guard: Vigilance is needed. Wire the brain accordingly.
  - Cortisol courses through circuits.

So, asks Dr. Bergman, what is the environment a baby expects at birth?

He reminds us that our species’ DNA has logged some two million years as hunter gatherers, a mere ten thousand years as agriculturists, and only one hundred years or so of high industry. A blip.

He answers his own question:

*A baby -- this receiver of millions upon millions of years of evolution -- expects its mother’s body.*
Dr. Bergman says

A baby is born.
It is taken to the incubator.
We see behavior. It looks chaotic.
Hmmmmm, we think. This baby needs a bath.
(He gets a laugh).

But, he says, if we see a baby with his mother. We see a relaxation phase and a crawling phase and a familiarization phase and suckling phase. Now we understand:

Babies have a place-dependent competence.

Yes, Dr. Bergman says, in the nursery the baby IS helpless. But when you leave the baby where nature intended, a baby is totally competent.

**ZERO SEPARATION, he says.**

I register myself registering shock. Zero, as in zero? Zero separation?

Dr. Bergman plows on.
When a baby is on her mother’s body, he says,

Everything makes sense,
There is regulation.

There is deep sleep: REM from the oldest, most primitive part of the brain. One hour sleep cycles forming memory. It looks like nothing is happening when an infant sleeps on its mother, but the brain is at its busiest.

Do babies need dark for sleep? he asks.

No. They need smell.

Mother’s smell makes sleep cycling. The smell of mother comes from the montgomery glands on her areola. It is the scent of amniotic fluid. The smell has a profound effect on the amygdala. Skin to skin improves the integrity of sleep and we have improved brain maturation.

Only mother’s smell tells my brain: I am ok. I can sleep deeply.

He takes us through a whirl of studies that show the regulating effect of skin on skin care. Much of the information is familiar to me, but some of it is new:

A baby skin to skin with her mother burns no calories for heat. The mother’s chest is a shield. It is a warmer. Nature’s protector. **If mother’s milk is in the baby’s stomach, the heart rate is made stable.** The baby only can handle 20 ml of milk at a time. The baby must feed every hour. One hour sleep cycle. One hour feed cycle. They match up perfectly. **With skin to skin, oxytocin is coursing through the circuitry: laying the foundation for sociality.

The mother controls every element of infant physiology.

A baby on its mother,
We have regulation now.
The baby is thriving.
It is where nature intended. It is the environment the baby expected.

Dr. Bergman says,
**Skin to skin must start at birth**

**Skin to skin must be continuous**

(Continuous, yes, but how continuous? I think.

I don’t believe I’m alone in the audience wondering…)

Here’s where I am radicalized.

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**III.**

A *baby in an incubator, a bassinet, or a crib*…

A *baby alone*…

*Now this is unexpected. The baby did not anticipate this.*

Dr. Bergman tells us of how he and his colleagues recently measured deep sleep and heart rate variability (as an indicator of central anxious autonomic arousal) in two-day-old newborns. My ears perk up. I’ve just discussed this study in an article I wrote on how we treat vulnerable babies at birth:

“When neuroscientists want to create stress in order to study its damaging effects on the developing newborn brain, researchers separate young mammals from their mothers. If we think humans are exempt from the impact of this disruption, we are wrong. Looking at the effects of mother-baby separation, researchers compared heart rate variability in two-day-old babies as they slept skin-to-skin with their mothers and when they slept alone in a crib. During the time the babies were separated from their mothers, the babies’ autonomic activity averaged 176 percent higher and quiet sleep 86 percent lower than when they slept skin to skin with their mothers (Morgan, Horn & Bergman, 2011). Dr. John Krystal, Chairman of the Department of Psychiatry at Yale, commented on the study’s findings, ‘This study highlights the profound impact of maternal separation on the infant. We knew that this was stressful, but the current study suggests that this is a major physiologic stressor for the infant.’” (Malloy 2015)

*We made a startling discovery,* Dr. Bergman says. *When babies sleep separate from their mothers* heart rate variability *triples*

*deep sleep is significantly reduced; there is no sleep cycling.*

He says it again and I write in CAPS
THERE IS NO SLEEP CYCLING

Furthermore, he says, the absence of the mother, even for a short period, doubles cortisol. In preterm NICU babies, cortisol is ten times higher for babies in incubators than for babies skin on skin.

The babies’ eyes are closed, hoping mother comes back.

Dr. Nils Bergman says, The baby’s nervous system comes with a 300 million year old competence – the competence of a reptile. If threatened, immobilize!

If I am afraid, I switch off eating and rest. It is all about defense. A baby alone is practicing this competence.

And yet

Our care still views the infant as a solitary individual who sleeps most of the time alone in a crib.

(I’d read Bergman’s study, written about it, talked about it. But I was absorbing the shock of a new way of understanding babies. They may look asleep in the cot next to their mothers, but they are in a state of anxious autonomic arousal. There is no deep sleep cycling. Bergman is challenging us to comprehend what is normal for nature – and for our natures -- regardless of what is normal for our culture.)

Bergman continues.

IV.

Stress is not all bad.

We need some stress that we can recover from in the presence of stable relationships. This is positive stress.

What we want to avoid for babies, he says, is a prolonged stress in the absence of the buffering protection of an adult. This is toxic stress. It damages the architecture of the brain.

Words flash on the screen:
Toxic stress leads to stress management systems that respond at relatively lower stress thresholds, thereby increasing the risk of stress-related physical and mental illness.

Bergman says we don't want cortisol to grow the prefrontal cortex. We need to be able to switch off stress. When it is prolonged, we lose the springiness of the system. Eventually it breaks down. Diabetes at 40 years may have started with stress at 40 days.

Babies need the buffering protection of adult support.

The screen flashes again and Dr. Bergman shows us an Africa savannah. We see a baby, a mother, a hyena. He uses his pointer.

Scenario One: If the mother is closer than the danger - in this case, a hyena- the baby will cry. Mother hears the baby and picks it up. Protest leads to safety (phew).

Scenario Two: If the danger –hyena- is closer than the mother, the baby freezes. Immobilization leads to safety (one hopes).

Scenario Three: If the danger –hyena- gets the baby, the baby dissociates (ugh, grim).

(I scribble notes and think to myself. Yes. A plant can't get up and run. It wages chemical warfare against predators. A baby can't get up and run. If its protector, its parent, doesn't respond to the cry, the baby goes ancient brain: protest is followed by freeze, and if necessary, dissociation.)

The baby’s eyes are closed, hoping mother comes back.

The absence of mother's smell is the scariest thing to an infant.

The screen flashes:

Maternal infant separation has no scientific foundation...

Years ago in Zimbabwe Dr. Nils Bergman saw something. Keeping preterm infants on their mothers, skin on skin, while every other aspect of care remained the same, survival rates for very low weight babies surged from 10% to 50%. 
He later conducted a randomized controlled trial with term infants and found that babies in skin on skin contact with their mothers for the first six hours after birth were 100% stabilized. For babies in incubators, less than 50% had stabilized within six hours.

Separation is life threatening.
It is the wrong place for the baby.
Incubators destabilize.
Bring needed medical care to mother and baby.

Kangaroo Mother Care was launched.

Skin to skin must start at birth
Skin to skin must be continuous

Again, we see the hunter gatherer family on the African savannah. With emphasis, Dr. Bergman says,

This mother will not leave her baby under the tree for twenty minutes.
(We think hyena and get his meaning.)

V.

Sure, Dr. Nils Bergman says, breastfeeding is a good way to eat, but 90 percent of what is happening is brain development. Breastfeeding primarily means brain wiring.

For mothers too.
Birth is a time of great neural plasticity for women
and men.

During pregnancy, maternal hormones make new branches on neurons to be stimulated at birth. The first feedings are wiring the mother’s brain for motherhood:

emotional fitness, boredom tolerance,
stress tolerance,
ferocity in defense of young.

The baby is altering the mother’s mind. The whole brain changes and becomes more resilient.
Dr. Bergman says, The mother has to make a profound investment and her biology changes. It takes hours to accomplish. It is initiated with the first one-thousand minutes. We have a window here, he says. For the first one-thousand minutes, mother and baby are skin on skin. Two days wiring before she makes mature milk.

**The first one-thousand minutes...**

During this time (and going forward): small frequent feeds according to the sleep cycle. One hour sleep cycles; one hour feed cycles.

Yes, he acknowledges, support is needed. A “kangaroula™” is called for.

(He gets a laugh)

He explains. **The doula protects the oxytocin before the birth, the kangaroula™ protects the oxytocin after the birth.**

**The father?**

Around two to three hours in, Bergman says, put the infant on the father.

These fathers are profoundly and permanently altered.

It is normal to our species for fathers to be closely involved. They are being wired for parenthood too. **The dad needs one hour of skin to skin in the first day. For connection and protection.**

**VI.**

Dr. Bergman’s Rx for skin to skin care:

The more the better in the first hours, days, weeks, months and years. But, to start, he recommends the first six hours skin to skin to stabilize the newborn; the first one thousand minutes to wire the mother for resilience; and the second or third hour skin to skin with the father to profoundly and permanently alter him for fatherhood.

Dr. Nils Bergman says

*The more expected the beginning, the more resilient the person.*

*What is expected produces health.*
What is unexpected produces disease – it comes with a cost to the quality of development. Not only for our bodies, but for our societies.

Dr. Nils Bergman says

*It matters how we are born.*

...There is more, but this is what I get down in my notebook.

Dr. Bergman is applauded. I pack up and think to myself how little my fellow industrial-era maternity care professionals and I know about our people's first two million years. But, no matter, our bodies remember. These ancient people have gifted us with brains evolved for neurologically complex sociality. Dr. Bergman is saying that early experiences matter. They open, or leave unopened, the fullness of this gift.

**ZERO SEPARATION**

I get it. I have been radicalized.

**Post script:** Within hours of Dr. Bergman’s talk I am at a fast-moving labor as a doula in a New York City hospital. We encounter a bump in the road: high blood pressure. Diagnosis: preeclampsia. Medicine: magnesium sulfate. Eventually labor disappears. Finally, a cesarean and maternal fever by the time the baby is born. The mother, father, and baby have five minutes together in the operating room before the baby goes to the NICU for observation.
The mother is still on magnesium, her blood pressure is elevated, and it is days before she sees her baby again.

Day one in the NICU the baby is ok.
Day two, not so good.

Day three, really not so good.

Dr. Bergman’s words ring in my ears:

*Incubators destabilize*

*Skin to skin must start at birth*

*Skin to skin must be continuous*

*We bring needed medical care to mother and baby*
The family struggles and I wish we were in the alternate reality of Dr. Bergman’s Cape Town hospital.

On day five the baby improves. Finally, the family heads home and I do my best to support the mother and baby and father to find each other again, skin on skin, for hour upon hour upon hour upon hour.

I am certain rich repair is underway.

Post post script: In his talk, Dr. Bergman discusses how sleep cycles make memories. My own sleep cycles following his talk were interrupted by an all-nighter (at this birth) and I feared I wouldn’t recall much of the day with Dr. Bergman. After I caught up on sleep, I sat with my notes and remembered Dr. Bergman’s particular cadence: he delivers each sentence with a kind of weight and poetry and, once we got through the morning’s neuroscience, an endearing sense of humor. Inspired to share what I had found so inspiring, I decided to write a piece off my notes. Doing so, I have gone citation free. For more information about Dr. Nils Bergman, Kangaroo Mother Care, Kangaroulas™, and the research supporting this approach, please visit www.ninobirth.org (for everyone) and www.skintoskincontact.com (for health care professionals).

Dr. Nils Bergman calls himself a public health physician and currently promotes and researches skin-to-skin contact on a full-time basis. He is an honorary research associate and honorary senior lecturer at the University of Cape Town, South Africa. Dr. Bergman was born in Sweden and raised
in Zimbabwe, where he also later worked as a mission doctor. He received his medical degree at the University of Cape Town and later a Masters in Public Health at the University of the Western Cape. His last posting was senior superintendent of Mowbray Maternity Hospital in Cape Town, overseeing 18,000 births per year. He enjoys sharing the wildlife of Africa with his wife, Jill, and their three children. Nils can be reached at nils@kangarooothercare.com

Mary Esther Malloy holds a MA in anthropology. She is a doula, Bradley educator, and mother of three children who writes frequently about birth. Please visit themindfulcesarean.com for her newest project: The Mindful Cesarean! You will find additional articles and recordings by Mary Esther at mindfulbirthny.com. Mary Esther is proud to announce that she recently certified with Jill Bergman (Nils’ wife) to offer KangaroulaSM Care. “Kangarooology: The First 1000 Minutes” is posted on her blog, thebirthpause.com. She can be reached at info@mindfulbirthny.com

(from left to right, Mary Esther Malloy, Dr. Nils Bergman, Annette Perel, Bonu deCaires)

Mary Esther Malloy, MA
Mindfulbirthny.com
Thebirthpause.com
Themindfulcesarean.com