Submission No 1164

INQUIRY INTO BIRTH TRAUMA

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To the Select Committee on Birth Trauma 15/08/2023

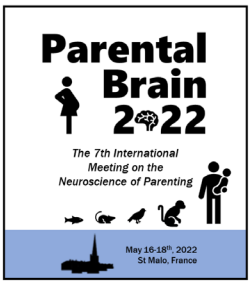
Section 1 - About the Individual Contributor

My name is Dr. Oscar Serrallach.
I work as a GP in .
My qualifications include MBChB , FRACGP & FACNEM .

I am the author of The Postnatal Depletion Cure, published in 2018, which has sold over 30,000 copies worldwide & 10,000 copies in Australia. It has been published into seven different languages. I speak locally and internationally on the topic of post-natal depletion and neuroinflammatory disorders of the maternal brain.

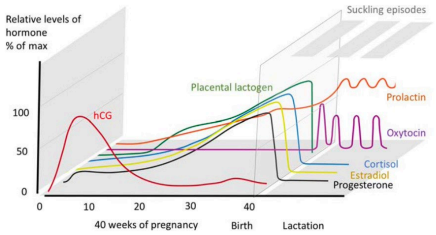
Due to my clinical experience and my understanding of maternal functional neurology, I believe that I'm in a unique situation to be able to provide a perspective and information to this parliamentary inquiry that is worth consideration.

To understand better this topic of neurobiology and the maternal brain, one has to appreciate that there is a hormonal orchestration of events that occurs during pregnancy that climaxes at birth and then continues in the postpartum. The research in this field is still in its infancy but it has been growing rapidly in the last 10 years. For example, last year at the Parental Brain Conference held in France, there were 150 neuroscientists from around the world talking about their research in the maternal (and paternal) brain. I was fortunate to be both the only medical physician at the conference and the only residing Australian present at the conference. I talk more about my general clinical experience as it relates to women in the years after giving birth at the end of Section 4.

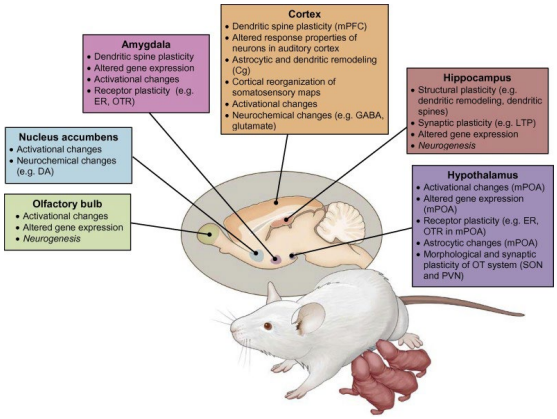


Section 2 - Maternal Neuroinflammatory disorder overview

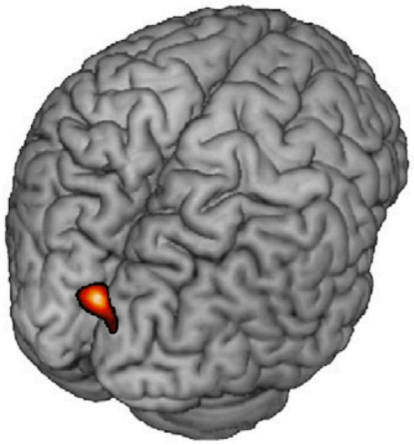
What the latest research is showing is a "programmed" cascade of neuro hormonal events that happens during the pregnancy and around the time of birth. In summary, the placenta (its primary job could be considered as a hormone factory) produces a vast amount of 200+ different hormones which adapt both the woman's body and her brain in preparation for motherhood. Researchers call this neuronal hormonal signal an "endocrine tsunami" and there has been some research looking at this neuro sculpting and its effects on the mother.



For example, the average mother's brain shrinks 5 to 8% during pregnancy but it is a "remodelling", with synaptic pruning growth of new neurons and remodellin occurring at a rate and amount far exceeding what happens in the adolescent brain, (the only other life stage that comes close as a comparison). This shrinkage returns to the previous volume at around 6 months post-partum. Many deep brain structures are modulated during pregnancy, and research shows that a mother's sense of taste and smell, her emotional quotient, her IQ, her social reasoning, facial recognition and even her visual acuity, get modifications or improvements ranging in size from minor to major.



In research from 2022, Professor Hoekzema from Holland showed the part of the brain that gets the most significant "upgrade" out of all of these is the Default Mode Network, which can be considered a "neuro self-representation of self".

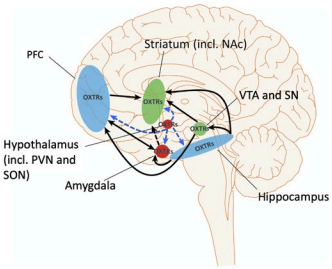


To put it another way, this network represents "who it is that you think you are, when you're not thinking about who it is that you think you are". This has very significant implications in terms of the "normal challenges" of the transformation into motherhood and even more significant implications when the challenges are outside this zone such as with birth trauma.

There are also many brain changes to the gray matter that can occur with the "carer role" i.e. by the pure act of caring for another. That is to say that the non-placental parent also sees changes in the gray matter, depending on the extent of their caring for their partner during the pregnancy and in the postpartum.

All of these maternal brain changes lead to a vulnerable time that occurs as the baby is born and for the months following. This is largely due to the fact that this hormonal factory - the placenta - is also delivered at the time of birth, and the mother goes into a profound low neuro-hormonal state. The key hormones that fill this hormonal gap whilst the mother's neuro-hormonal system is trying to reestablish itself are oxytocin and prolactin.

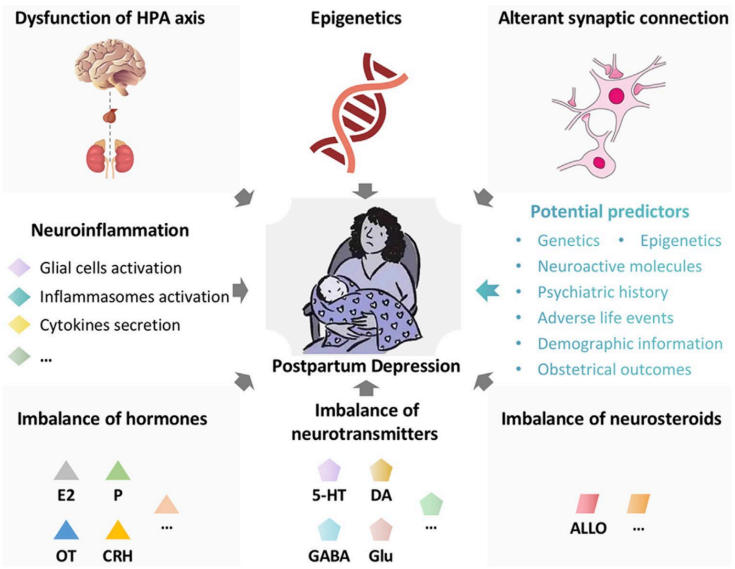
During pregnancy, the oxytocinergic system (the part of the brain dealing with oxytocin within the mother's brain is hugely modified especially between the Paraventricular nucleus and the Hypothalamus with an array of receptors and neurons that are "installed". This installation is a uniquely maternal event.



The maternal brain therefore becomes reliant on oxytocin and prolactin in the postpartum for proper function. Anything that affects the production of oxytocin and prolactin can very much affect the reestablishment of a normal healthy neuro-hormonal system in the mother. It is now known that all the mood disorders that have been studied in the postpartum - Perinatal Mood & Affective Disorders (PMAD's - this includes postpartum depression, postpartum anxiety and postpartum obsessive compulsive disorder) are neuro inflammatory in nature and result from a continuing imbalance in neuro-steroids (or brain hormones such as prolactin and oxytocin plus many others).

Birth trauma may impact on whether neurosteroids such as oxytocin and prolactin are being produced in sufficient amounts to enable neuro-stability.

Postpartum Depression is a complex multifactorial disorder. What is clear in terms of risk factors is that poor obstetrical outcomes are a strong risk factor for postpartum depression.



Section 4 Birth Trauma (General Aspects)

Birth trauma, especially when it relates to unplanned caesarian delivery, has a very high correlation with not only postpartum depression but also PTSD. It is quite likely that birth trauma negatively impacts the re-establishment of these neurosteroids and the HPA neuro hormonal axis, leaving the mother's brain in a vulnerable and unstable state, thereby leading to neuro inflammation and opening the possibility of further injury such as PTSD.

Whilst the research internationally and in Australia is lacking, one can only imagine that the financial effects of birth trauma both short and long term on society are very high.

The statistics in Australia for postpartum depression show

• 1 in 4 new or expectant mothers experience PMAD (2022)

• about 50% go untreated ($1 billion/year in 2012 to the Australia Economy)

• Of the treated 50%, the cost to the Australian economy is $433 Million per year (2012)

• PMAD's are the No 1 complication associated with childbirth and the No 2 cause of maternal mortality

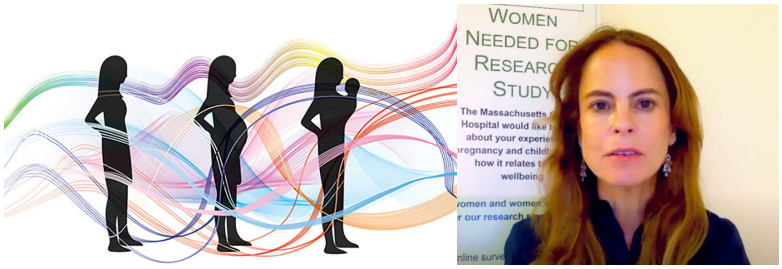
(PANDA , RAND, Beyond Blue ,postpartumprogress.com, NPS ,ABS)

Antenatal care providers and birthing providers need to be made aware of this neuro vulnerability both to help support families in their decision making and to support them fully during the process of childbirth. It is also

crucial that the birthing team is aware of these short and longer-term complications of obstetric interventions and of obstetric violence. This would thus help support identification of high risk mothers, risk management processes, harm minimization, birth trauma avoidance and a debriefing process and PTSD assessment process.

Identifying those at risk would thus provide correct avenues of care in the weeks and months after birth. I recommend the parliamentary committee (if not already familiar) to acquaint themselves with Dr. Sharon Dekel's work and Dekels laboratories.

Dr Dekel is a Neuroscience investigator and is considered one of the world's leading authorities on the effects of birth trauma on both the mother and the maternal brain.



In my clinical work I focus on only seeing mothers in the first 7 years in the postpartum. This focus on postpartum care includes investigating and managing their physical, mental and social health. Part of our intake process is to gather clinical information. We discuss each pregnancy, the birth experience, whether the mother thinks she may have experienced birth trauma and what their postpartum experience has been like physically, socially, psychologically and spiritually.

The current birth trauma rate in Australia is considered to be one in three. From my clinical experience, I wouldn't be surprised if this rate was in fact higher with much birth trauma not being reported or not identified until some time after the birth especially when we're talking about psychological trauma.

Unfortunately, the one thing that many of these birth-traumatised women have in common is that nearly no one from the birthing system (whether that be the hospital or community-based facilities) has followed them up in the months after childbirth. Often I am the first health professional they have talked to about their birth trauma experience and this can be years afterwards. The range of emotions expressed to me on a regular basis when mothers share their stories range from rejected despair and deep disappointment to apathy and ambivalence. They have often been left to self-assess their situation as well as seek appropriate health support without informed guidance.

I've had the good fortune to help many hundreds of mothers in their postpartum recovery, looking at their birth trauma and supporting them in having a healthier nuerobiological experience with any future pregnancies that they may then seek to have. I have found this process of acknowledgment, support and trauma therapy to be very healing, enabling mothers to have a different and positive experience with subsequent births. It is my opinion that these positive subsequent pregnancies and birth experiences have the potential to further heal

the residual effects of their birth trauma and other post-natal neuroinflammatory issues through a type of yet-to-be-researched "neuro-correction".

What I believe we need is a system that is able to identify those exposed to potential birth trauma, not only through questionnaires and interviews but also with physical and laboratory-based testing.

These trauma assessments would need to monitor both the progression and the healing of trauma. There are a number of potential candidates for these neuro assessments that I would be happy to share/talk to the enquiry about but I thought were beyond the scope of this submission.

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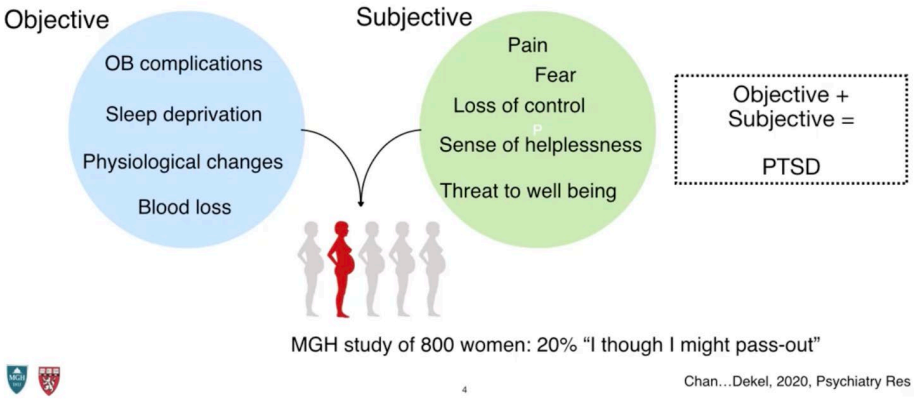
Section 5 Birth Trauma (Specific Aspects)

What is emerging in the scientific literature is a unique neurobiological fingerprint of birth trauma and the ensuing PTSD that can happen.
There are three specific risk factors that are birth-related for childbirth-related PTSD (CB-PTSD).
1. Sleep deprivation,
2. Use of medications for birth induction,
3. Obstetric complications, especially emergency or unplanned cesarean.

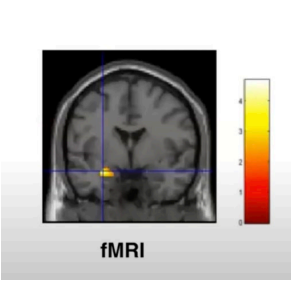


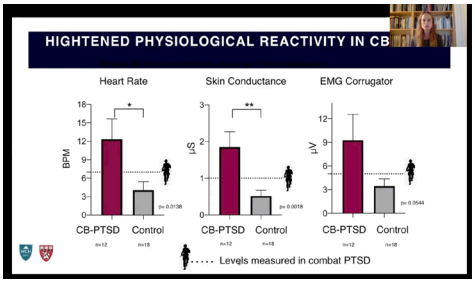
Epidemiologists in the United States put birth trauma at a rate of about 29% similar to Australian statistics with 6% (one in five mothers with birth trauma) developing PTSD.

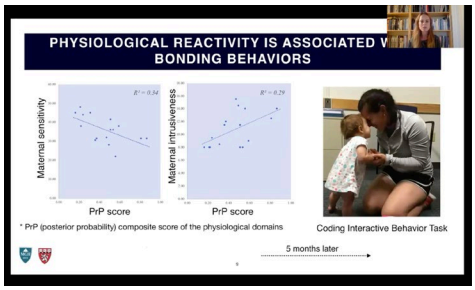
Dekels' research group identifies 17% of mothers (greater than half of those who experienced birth trauma) show subclinical PTSD.)

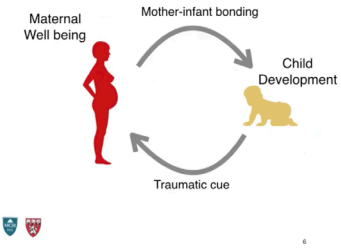
It is interesting to note that apart from the two neurological " injuries" that occur with postpartum depression being
1.Neuro inflammation, and
2. HPA Axis dysfunction
there is a unique *third* factor with childbirth-related PTSD that occurs, which is
3. Dysregulation in the Autonomic Nervous System.

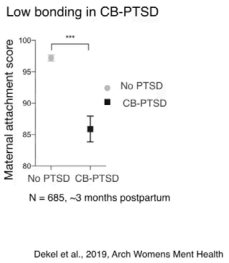
The research has shown that when they're measuring nervous system reactivity of mothers, their dysregulation is similar to that of war veterans. They have also noted on MRI evaluation that there is volume reduction and activity reduction in the amygdala, hippocampus and prefrontal cortex, which is typically found in most other types of PTSD. However the research group has identified a unique neurological finding of hyper responsive left amygdala activity, especially when the mother with CB-PTSD is exposed to traumatic cues. The reason and meaning of this is as of yet unknown. But I think this highlights a unique neurobiological injury that mothers with childbirth-related PTSD experience.











The sequelae of CB-PTSD are significant and include for the mother
-Less likely to engage in skin-to-skin contact
-Less likely to exclusive breastfeeding
-Impaired maternal bonding with their baby
-Relationship stress / break down
-Parenting stress
-Loss of self-identity
-Longer lasting mental health problems

The baby in these cases can become both a trigger and a re-enforcer of the trauma.

When you look at the longer-term sequelae of impaired maternal bonding, the detrimental effects on neurodevelopment on the child and the resulting deviation from social and health trajectories, it is hard not to see a correlation between increasing rates of social impairments and learning difficulties (to name only 2 areas of impact) to the outcomes of birth trauma. Whilst it is hard to pair the statistics it is obvious that they are related and possibly highly correlated and that the long term cost to the Australian Government is immeasurably high.

For example, in Australia, the economic cost of cognitive loss to the workforce due to not Breastfeeding is $6 billion AUD with CB-PTSD being one could imagine a significant proportion of this.

Thank you very much for the opportunity to contribute to this inquiry

Yours Sincerely

Dr Oscar Serrallach

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