

Addiction and the female brain

by

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and the end of all our exploring

will be to arrive where we started

and know the place for the first time TSE

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Biological+Psychological+Social+Spiritual
Vulnerability Liability Context Bankruptcy

plus

experience/relationships

equals

woman

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Women's brains

the obvious

- Women's brains are part of women's bodies
- Women's bodies are supported by a complex web interconnected relationships
- Women's relationships fall within a social and historical context
- The complexity of the female brain's neural net and it's virtually infinite relational and cultural tapestry defies definition
- **Our task this week is inherently reductionistic**

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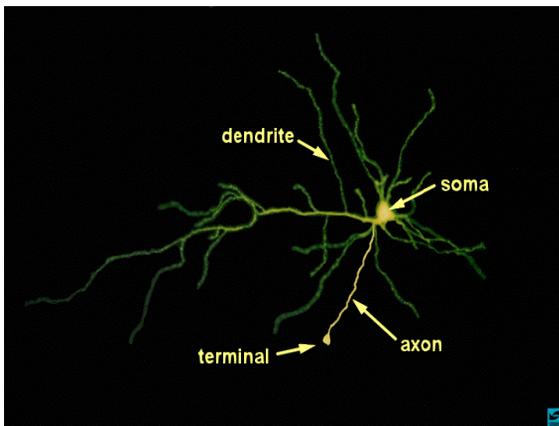
Biological+Psychological+Social+Spiritual
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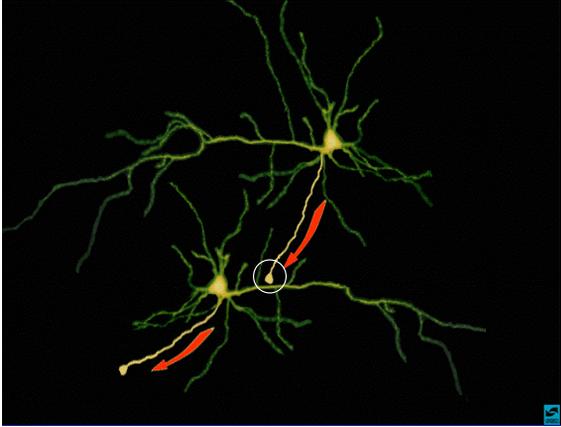
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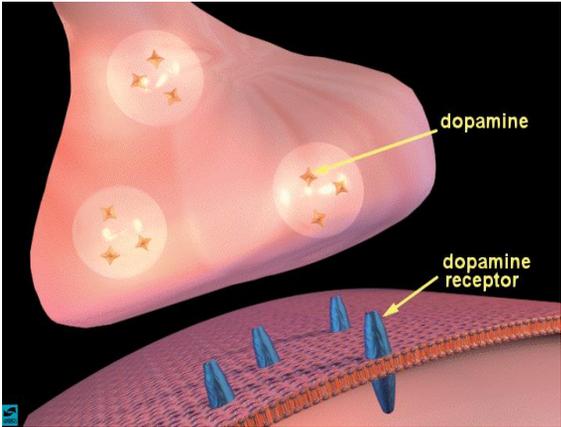
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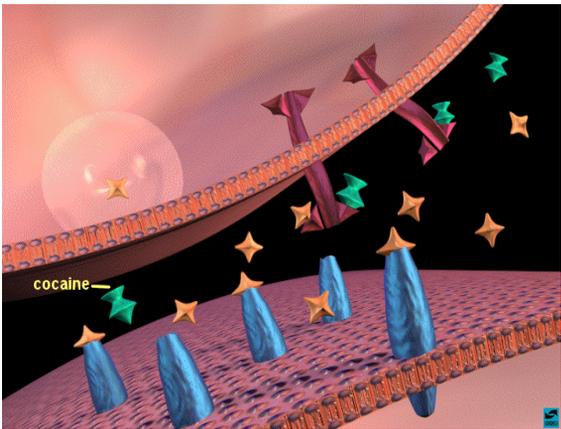
Addiction

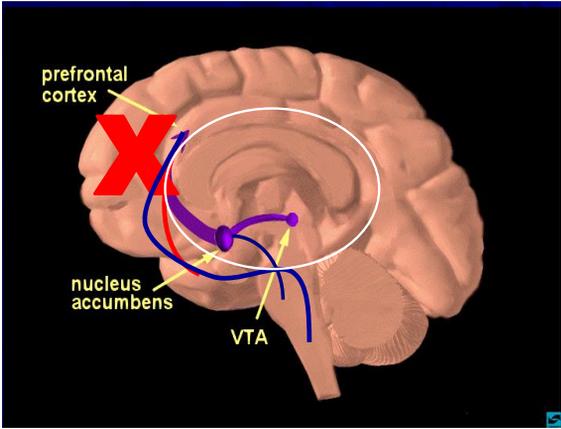
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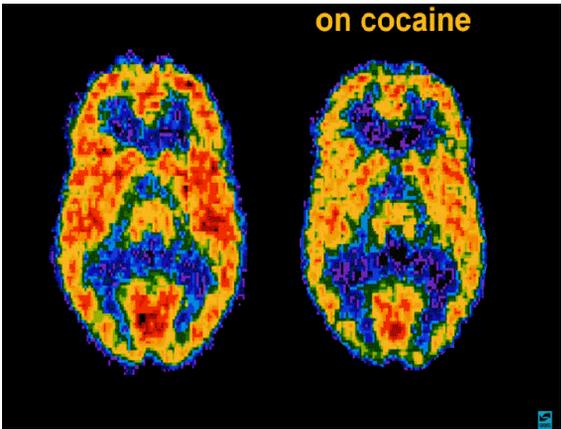


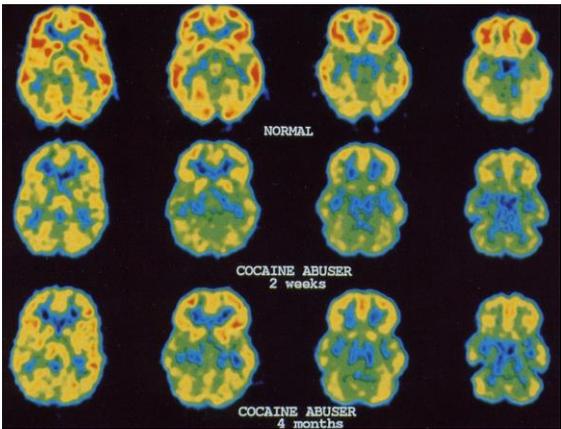


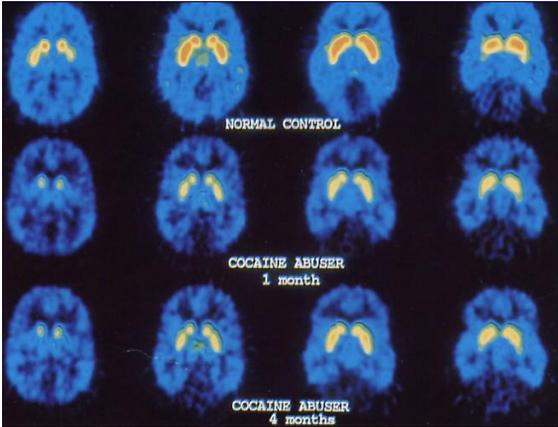








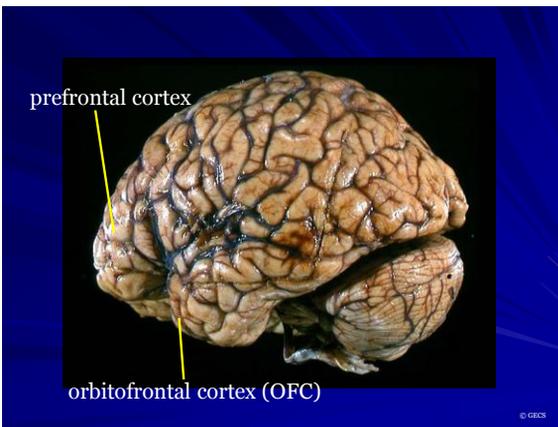




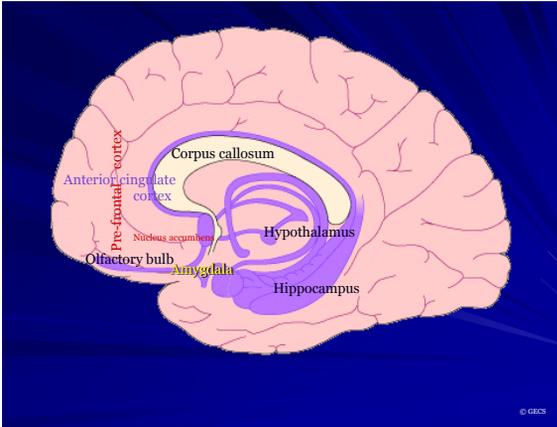
Other Suggestions

- Disease makes good people make mistakes
– they still are good people but need to be held accountable
- Willpower will not work over time
- The limbic system is not reasonable
- Addiction is not a choice
- Addiction makes almost any psychiatric disorder more difficult and more dangerous

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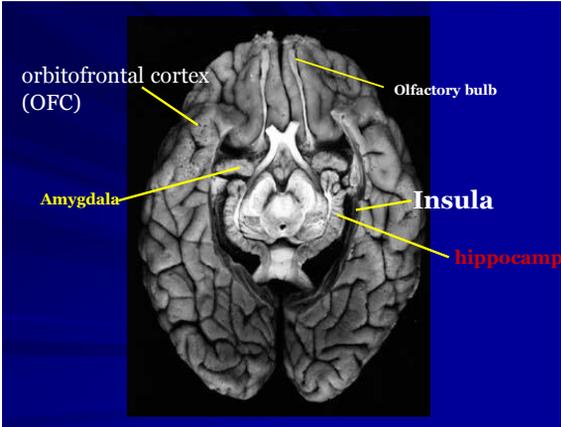


Women's brains general principles

- Structurally the differences between the male and female brain are real but they are subtle and important.
- Areas where there are differences matter and need to be addressed clinically.
- Differences expressed through relationships
- Neurohormonal differences are extremely important

Women's brain geography

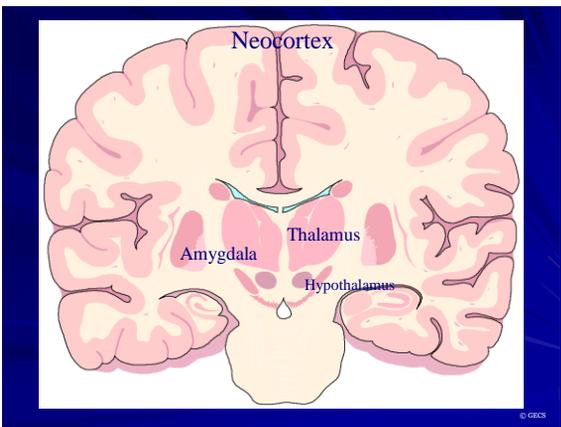
- Amygdala – smaller
- Linguistic center in the right and left Neocortex
- Amygdala, hippocampus, and hypothalamus affected by estrogen and progesterone (Sapolsky)
- Olfactory bulb – greater sensitivity
- Insula and anterior cingulate cortex (larger and more reactive)



Women's brain geography

- Hippocampus may be relatively larger and form stronger synaptic connections – clearer memories pleasant and unpleasant
- Amygdala hypothalamic circuit less reactive (once activated the irritation turns to fury)
- There is greater hemispheric balance particularly in the area of language.
- The corpus callosum is enriched in women
- Based on the above it is possible to infer that women have greater relational capacity.

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Women's lifecycle

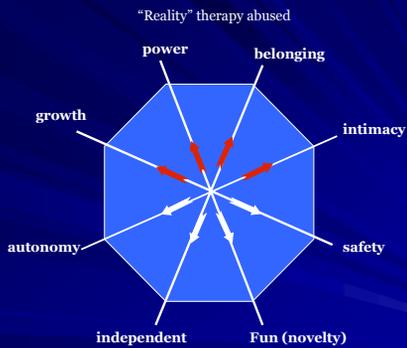
- Fetal
- Childhood
- Puberty
- Adolescence
- Maturing single woman
- Pregnancy and the Mommy brain
 - Breast-feeding
 - Child-rearing
- Perimenopause
- Menopause
- Post-menopause*

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Women's brains

- Girls are far more attuned to the emotional environment in which she lives.
- Women have greater availability to emotional awareness. (Pinker, 1999)
- Her early capacity for empathy “absorbs her mother’s world into her own.” (Brazendine, 2006)
- Because relationships define her world connections must be defended
- For roughly the first 10 years of life a girl’s brain is honing its resonance to the emotional world she inhabits

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Women's adolescent brains

- Given that a developing female brain seeks to resolve relational conflict – adolescence is a headfirst dive into relational warfare.
- Combine this with the flux of estrogen and progesterone and you have a new definition of hell.
- As they move into adolescence the “energy” in the NA drops – decrease in dopamine response (White, 2009).
- Kids need more external stimulation to activate the NA which leads to risk taking.

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Women's brains

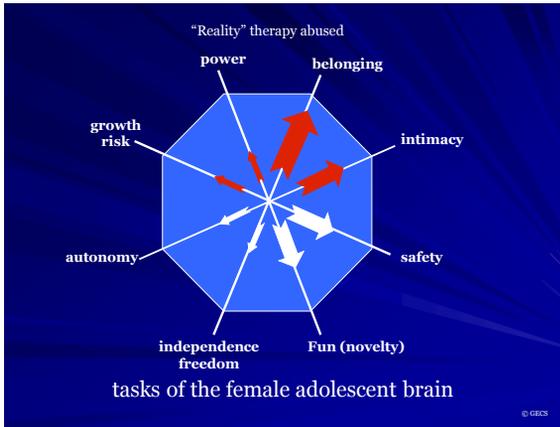
- Social and verbal connections are hardwired into the female brain.
- Sharing secrets and talking about relationships bathes the brain in a dopamine and creates an oxytocin rush.
- Connection soothes– rejection equals death
- A woman intimate relationship equals her aliveness (mirror neurons) - **Empathy**

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Women's brains

- Sympathetic nervous system responds, affiliate and negotiate or “tend and befriend”
- One reason girls find it unbearable when they feel they're being “left out.”
- Here in lies the power of feminine bullies.
- Relational viciousness can be more brutal than physical assault.

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- ## Adolescent treatment issues
- Defend against the bully
 - Detoxify trauma
 - Help to build healthy relationships
 - Address sexuality
 - Create safety
 - Address family issues
 - Develop a recovering community
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- ## Relational tapestry of treatment
- Women are born into a world defined by relationships.
 - Her dominant role in life is to create, expand, protect and nurture the relationships in her world.
 - Her entry into addiction stems from a fundamental breach of relational attachment and formation.
 - Her drug addiction is her attempt to heal this profound breach.
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Relational tapestry of treatment

- Content is important, particularly in early recovery. However, process interventions should not be overlooked.
- Before a woman can love herself she must be loved unconditionally by another.
- Issues of relational connection; mother to child, daughter to father, sister to sister, wife to life partner, friend to friend, must be supported.
- Don't forget family.

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Relational tapestry of treatment

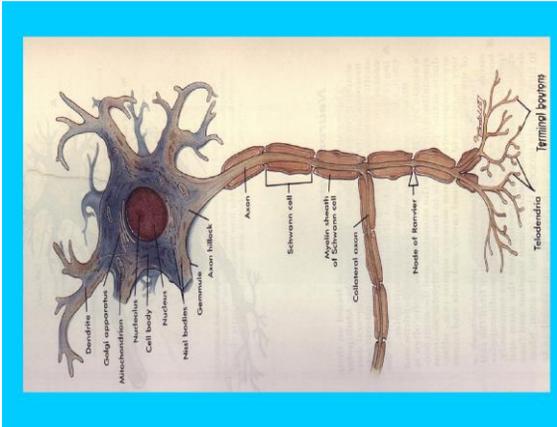
- The therapeutic relationship is of primary importance.
- “Play” and fun in addition to spontaneity and sexuality need to be addressed in treatment.
- Group interventions need to be safe and bring the patients into the “here and now” – use a modified interpersonal group process.

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Relational tapestry of treatment

- Emphasis needs to be placed on strengths and competence not just on the problems.
- We need to re-introduce the word “love” into our clinical practice.
- Need is shame based, particularly in relationships and personal aspirations.
- Wanting is more motivating than needing.
- Love is more relational and more powerful than shame.

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Women's brains

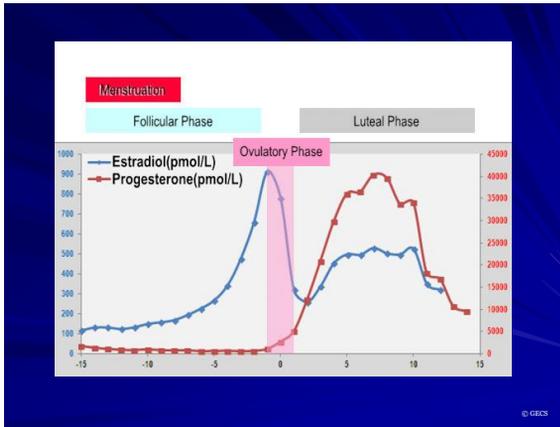
- There are four times in a woman's lifecycle when her axon hillock (the gatekeeper) becomes more sensitive (Sapolsky)
- Puberty
- Premenstrual
- Postpartum
- Peri-menopause
- ("During menopause a woman loses her eggs but finds her balls," C. Northrop)

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Women's brains Estrogen

- 25% growth in connections in the hippocampus during the first two weeks the estrogen phase (Sapolsky)
- Progesterone begins to reverse these connections, more irritable, more reactive
- Fourth week in the cycle estrogen and progesterone bottom out (hormonal withdrawal)

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Women's brains Estrogen

- High levels of estrogen and progesterone create a brain that is stress resilient with more than enough serotonergic activity.
- The opposite is true when estrogen and progesterone levels drop dramatically toward the end of the cycle - premenstrual dysphoric disorder is an extreme expression of this process.

Women's brains PDD

- She lives with a greater sense of urgency.
- Her entire system is vigilant and alert.
- She sees things and attends to issues that at other times she might be able to overlook.
- She is more sympathetically sensitive.
- She is more prone to depression.
- Her brain may be looking for ways to calm itself down.
- Affective modulation is more difficult.

Women's brains

Falling In Love ...

- Only form of socially accepted psychosis
- A limbic system out of control
- Obvious flaws are overlooked
- Limbic resonance clouds clarity
- Reality is distorted "your judgment is toast"
- Libidinal energy is dramatically increased
- It is not an emotion but a drive
- Hijacks the primary motivational system

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Women's brains

Falling In Love

- Certain nuclei in the amygdala activate and others turn off supplcity
- The anterior cingulate cortex loses energy
- Significant increases in dopamine, estrogen, oxytocin, and testosterone – a lethal mix
- Romantic partners "crave" the ecstatic feeling of being together (not dissimilar to addiction)
- Physical separation is painful
- Physical closeness is perceived as a need

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Women's brains

Being in Love

- Some neurophysiologist's believe that the "attachment network" is a separate system from those activated by falling in love (Howard)
- More "parasympathetic" – peaceful, calming, and connecting.
- The development of long-term commitment and bond maintenance
- Oxytocin and estrogen remain high
- "Cuddling" continues to release oxytocin

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Women's brains "The Mommy Brain" #introduction

- Disclaimer – I have never given birth nor been pregnant
- The modern woman is often caught between profession and motherhood
- If motherhood wins out her brain is forever changed
- Just being around babies can create a "baby lust"
- Smell is often a trigger for "baby lust"

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Women's brains "The Mommy Brain" #introduction

- Once pregnant the woman's progesterone levels start to climb.
- High levels of progesterone and estrogen help to offset the natural stresses of pregnancy.
- By the end of pregnancy or cortisol levels are as high as if she were participating in a triathlon.
- The child is born and oxytocin takes over.

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Women's brains "The Mommy Brain" #introduction

- Because of her higher levels of connection her fear declines, her focus sharpens and she is prepared to defend her child.
- Shortly after birth and the initiation of breast-feeding mother's brain scan would look very similar to the brain scan of a woman under the spell of romantic love.
- She is no longer the same.
- If she continues to nurse, the spikes in oxytocin are as reinforcing cocaine.

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Women's brains "The Mommy Brain"

- Mothers will experience withdrawal if separated from their child
- From an "epigenetic" point of view mothers "inherit their maternal style from their primary caregivers."
- Fortunately other loving "substitute caregivers" matter
- If a mother or her child did not receive adequate maternal care they are excessively responsive to stress

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Women's brains "The Mommy Brain"

- In an unpredictable environment mothers become fearful and timid and babies become depressed
- It is no small wonder that fathers often experience jealousy and a loss of their relational position.
- Geared to her child's needs the mothers emotional sensitivity increases.
- Her limbic system is even more responsive and intuitive

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Women's brains "The Mommy Brain"

- Empathy deepens
- The limbic connection (resonance) between the mother and child strengthens.
- The amygdala, hippocampus and hypothalamus become the early defense warning and response mechanisms.
- The "mommy brain" is on guard.

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Women's brains

"The Mommy Brain" and failed attachment

- The importance of grandmothers and other surrogate caregivers (Fisher)
- Despite the best intentions our children often do not receive good enough parenting
- The mother and her child are not valued by our culture
- The mother/child system and the entire culture plays an enormous price
- The cost - **failed attachment**

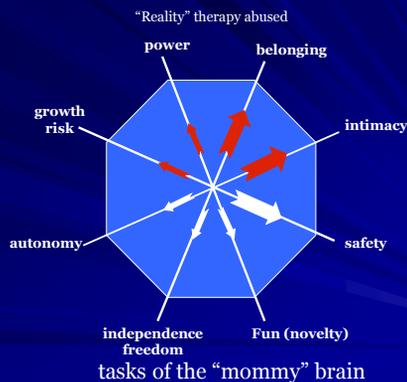
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Women's brains

"The Mommy Brain" and failed attachment

- The mother feels inadequate
- Her baby feels insecure and in search of the love object
- The love hungry brain must be fed
- Anxiety and depression are but a few of the symptoms
- In the absence of the maternal bond the child is on a lifelong quest to fill the void
- Sadly, drugs and alcohol will do

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Mother/child and treatment

- Define the treatment unit as the mother/child relationship
- Rebuild the broken bonds between mother and child
- Addiction, an attachment disorder
- Shame
- Family
- Develop a recovering community

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Women's brains

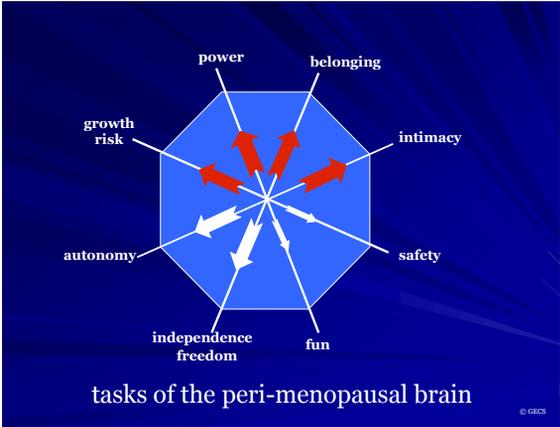
- Alcohol dependent women have higher heart rate in response to the initial consumption of alcohol
- Women exhibit a greater sense of well-being following the use of cocaine (McCance-Katz, 2005)
- Women's brains are more responsive to nicotine in the cortical and subcortical prefrontal systems (Fallon, 2005)
- Nicotine remains the number one drug of abuse when it (Kandel, 1998)

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Women's brains

- Women are 55% more likely to abuse a prescription drugs particularly narcotic anti-anxiety medications
- Between the ages of 12 to 17 female risk for non-medical abuses of prescription medications, particularly in its analgesics, increases even more than me above. (NSDUH 2001)

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Women's brains
Perimenopause Wikipedia

- Perimenopause can last as long as 10 years
- For some women these symptoms are annoying for others they are debilitating
- Anxiety, depression, night sweats, hot flashes, panic attacks, insomnia, memory challenges, irritability, hypervigilance, “perimenopause is like adolescence—without any of the fun.”

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Treatment for women in perimenopause

- Help to stabilize perimenopause symptoms
- Address shame
- Emphasis on mindfulness and exercise
- Develop the recovering community
- Move towards greater self-definition
- Focus on competencies
- Address grief, loss and mourning

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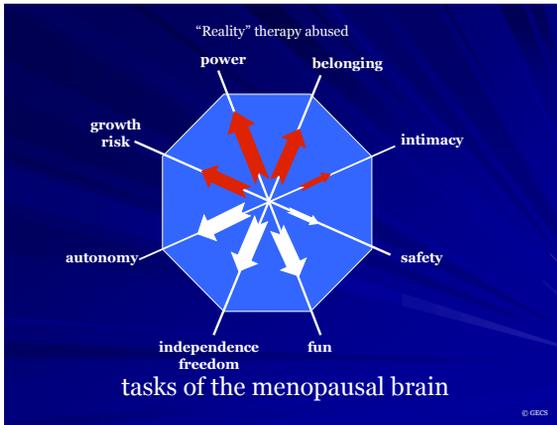
Women's brains

- Estrogen stimulates the immune response
- Chronic alcohol exposure causes an initial increase in estrogen levels followed by a marked decrease (Wu, et al. 2002)
- Female immune suppression over time is greater because of the decrease in estrogen and the increase in glucocorticoids.

■ **Stress!**

■ **Trauma!!** Changes everything

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Women's brains

Menopause

- Empowerment, change, and the unknown
- 65% of divorces after the age of 50 are initiated by women
- The female brain is not ready to retire
- The emotional fuel of estrogen wanes
- The mature female brain is still relatively unknown territory
- Respect the power of grandmothers
- Respect the power of possibility

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Treatment issues for women in menopause

- Address shame
- Address grief, loss and mourning
- Emphasis on mindfulness and exercise
- Develop the recovering community
- Move towards greater self-definition
- Focus on competencies and feminine power
- Address issues of legacy and meaning

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Women's brains

Clinical implications?

Clinical challenges?

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“What we call the beginning is often the end.

And to make an end is to make a beginning.

The end is where we start from.”

T. S. Elliot

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Recommended reading and partial bibliography

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