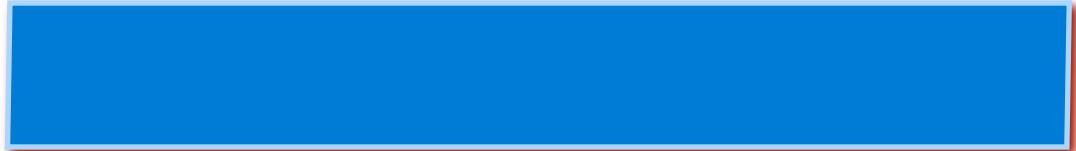
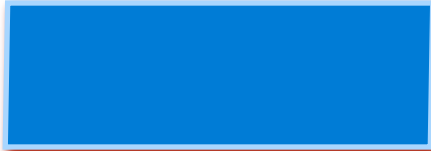
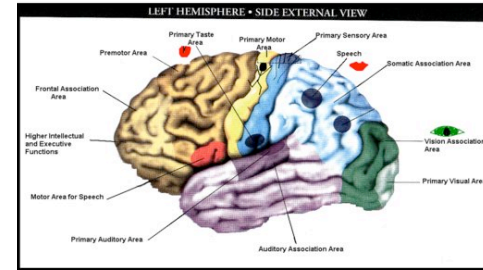


Newborn

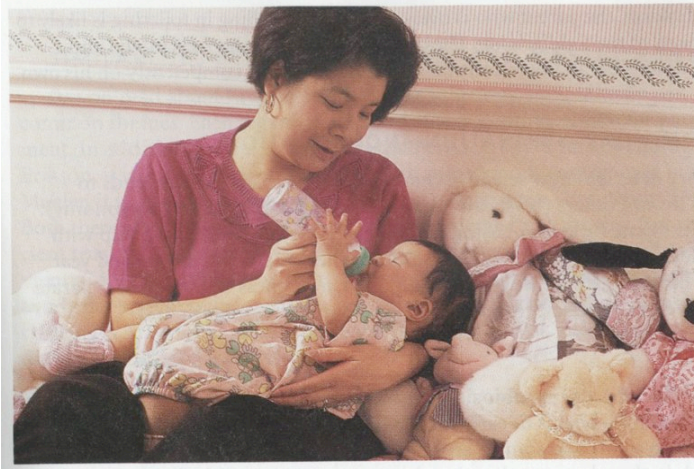
3-month-old

2-year-old

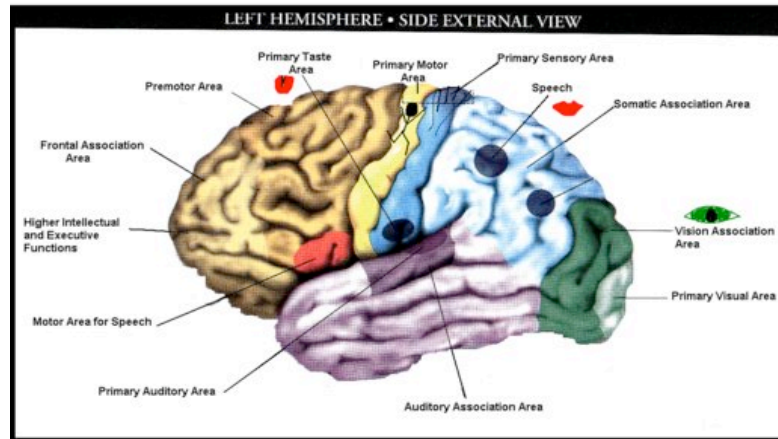


Drina Madden
neurodevelopmental
Specialist
708-403-9000

- **Early brain development determines behavior**
- **Nature and nurture combine to maximize development**



■ The Working Brain



■ Making it Work



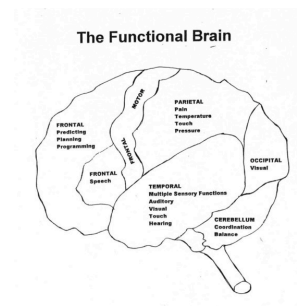
1. Development hinges on the interplay between nature and nurture

- **The brain is affected by environmental conditions**
 - **Nourishment**
 - **Care**
 - **Surroundings**
 - **Stimulation received**



■ **Nature**

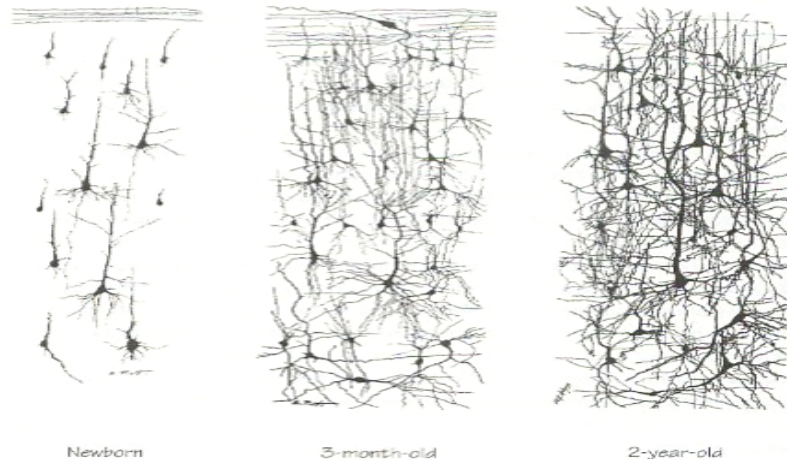
- The “wiring” of the brain is activated as the child
 - Reacts to stimuli
 - Takes in information
 - Processes it
 - Stores it





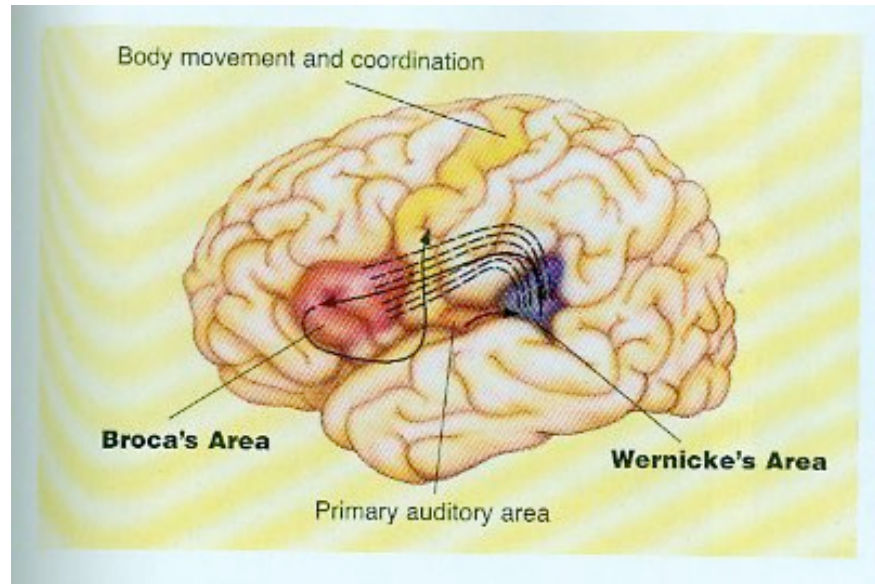
- **Nature**

- During the first 3 years of life the majority of connections are made – 2X as many as necessary



■ *Nature*

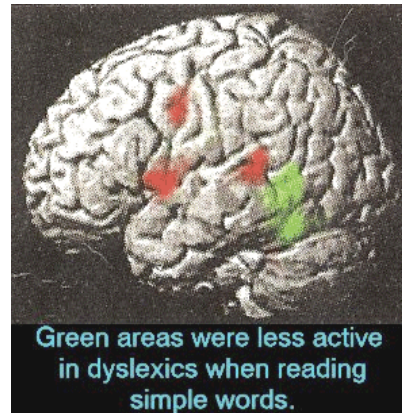
- **Cells that go astray often die before harm is done**





- ***Nature***

- **Those in the wrong place at the wrong time may cause neurological disorder**



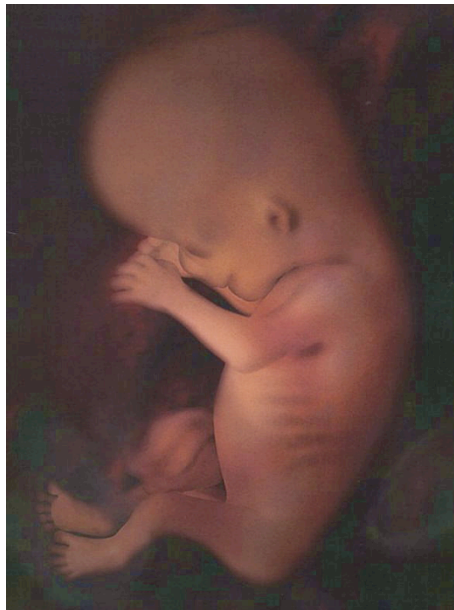
- **Infantile epilepsy**
- **Schizophrenia**


Autism
Dyslexia



- ***Nature***

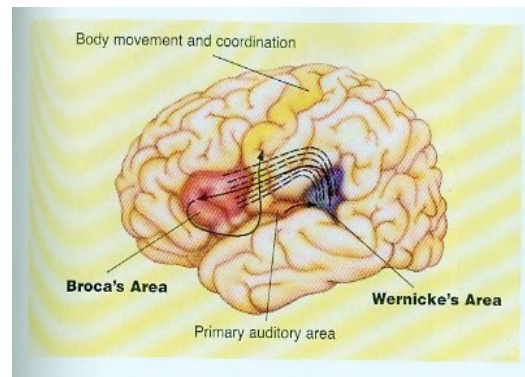
- **High quality prenatal care can minimize these conditions**





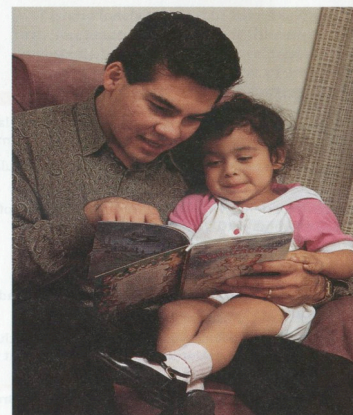
- ***Nature + Nurture***

- **Connections made through repeated experiences become permanent**



- **Unused connections are eliminated**

- ***Nurture***
 - 1. How people develop**
 - 2. Their ability to learn**
 - 3. Their capacity to regulate their own emotions.**





- ***Nurture***

- **Control of emotions based on early experiences and attachments**

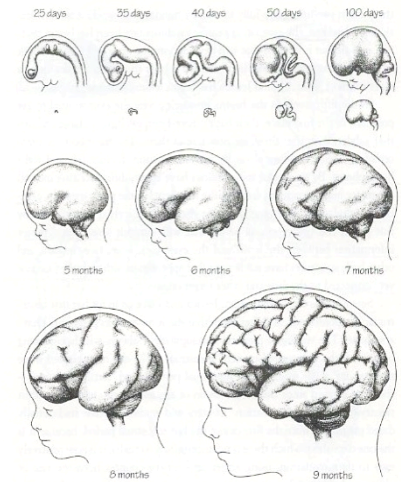


- ***Nurture***
 - **Strong, secure attachment**
 - **nurturing caregiver**
 - **protects**
 - **helps with the ordinary stresses of life**



2. Brain development follows a regular course

- **The brain development of infants and toddlers proceeds at a staggering pace.**
- **By the age of three a child's brain has 1,000 trillion neurons**





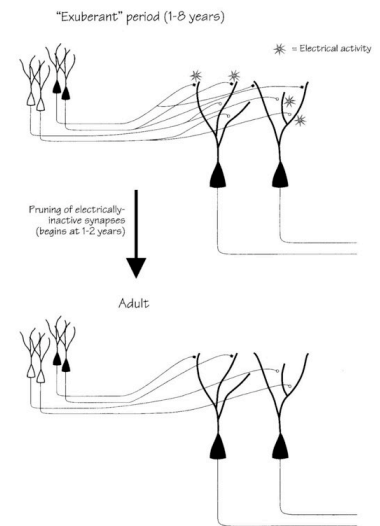
- ***Brain Development***

- **This number holds steady through the first ten years of life**



- **By late adolescence, half of all the synapses have been discarded**

- **Brain development**
 - **Becomes a process of pruning**

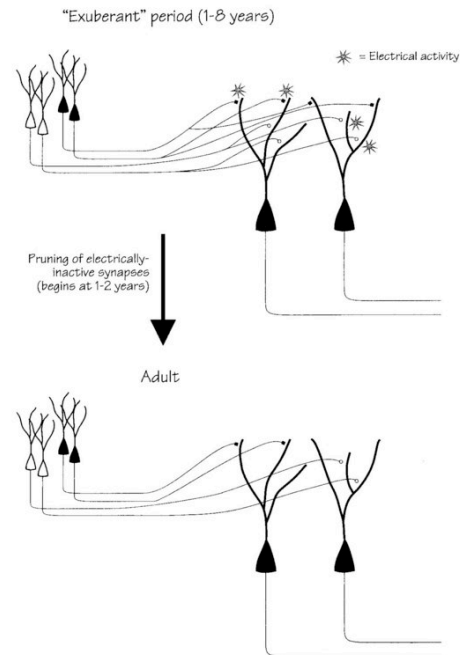


- **Extra neurons are eliminated**



■ **Brain development**

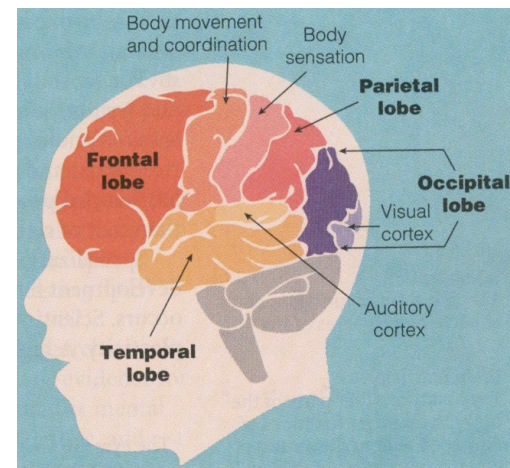
- **Repeated connections are less likely to be pruned**





- ***Brain development***

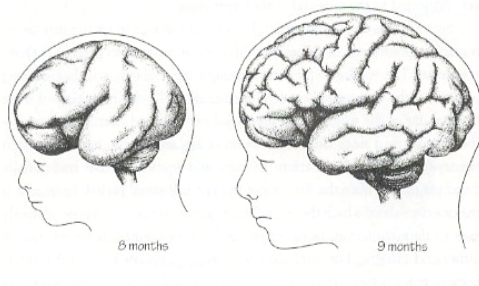
- **Young children's brains are especially ready for learning**





■ ***Brain development***

- **By 1 - Infant's brain looks like brain of an adult.**



- **By 2 - Brains are as active as adults**
- **By 3 - Brains are 2 ½ times more active than adult brain
Stay that way for the first 10 years of life**



3. It is very easy for the human brain to change but timing is crucial

- **Timely, intensive care can change the brain**
 - **0-6 are most important**
 - **The first 10 years – critical periods**



4. Negative experiences

Absence of growth-filled experiences

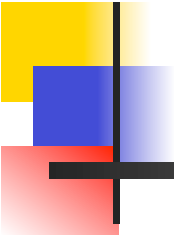


Have serious and long-lasting effects.



Negative experiences

- **Depressed mother of 6-18 month old infant slows brain activity in the infant**
- **Early exposure to drugs or trauma can have long-lasting, harmful effects**
- **Poverty can increase these risks**



5. Prevention and early treatment is wise:

- **Intensive**
- **Well-designed**
- **As young as possible**



1. Do no harm

- **Strong bonds with their infants within the first few months of life**



Emily Marie Blakemore born 12/29/01

- **Quality child care and early education must be assured**

MAKING IT WORK

2. *When a child needs help, intervene quickly and intensively*

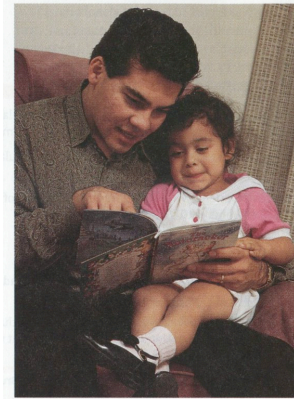


- **Consistent and responsive care cushions the child**

MAKING IT WORK

3. Promote the healthy development and learning of each child

- **Early help is best**



- **More difficult and takes longer to help older children**