

# The Human Brain

Our brain, the command center, weighs about 3 pounds or 1.4 kg. This mass of tissue is made up of more than 100 billion nerves that communicate with trillions of connections called synapses. Junctions between neurons, or synapses enable electrical and chemical messages to be transmitted from one neuron to the next. Neurons that fire together wire together. The neurons that fire together accomplish the task become more wired together. Learning is when neurons in our brain come together to form thousands of synaptic connections, and those connections then assemble into complex neurological networks. Our brain, thus, is mostly a product of the past. It is an accumulation of what we have learned and experienced in our life. Experience enhances the brain circuitry. We perceive reality based on pattern recognition. Our brain is linked to our daily experience. Our knowledge is shaped and molded in bits and pieces by many aspects of our life.

## The developing brain

The brain is an organ that is highly interrelated in a very coordinated fashion. It performs multiple functions right at birth of a child. Every second, over 1 million new neural connections are formed in an infant's brain. As the child grows, this rapid proliferation and connections are reduced. This process is called pruning. The brain circuits become more focused and more efficient. Beside these natural processes, genes and life experience shape the developing brain. The young brain is highly flexible and plastic. It is able to accommodate a wide range of interaction, experience and environment. As the brain matures, it is less able to adapt to new challenges. At this stage, the child needs reliable and appropriate responses from caretakers around him / her. If the child does not receive the "expected" response, (i.e. comforted when needed, smile and get a smile back), the neural connections are reduced. This can lead to learning and behavior issues.

Emotional well-being is thus the major foundation for cognitive abilities. It is critical to learning, memory, thought formation and cognitive activities. Cognitive activities are the conscious mental natural process in human perception, thinking and learning. These are prerequisites for a child to be successful in school and later in life.

The sections that follow, we will examine:

- Human intelligence
- Gardner's 8 intelligences
- Emotional intelligence
- Heart-brain coherence
- Brain enhancing activities and exercise

