KEY FACTS ABOUT YOUR BRAIN

• Shaped by evolution, especially of emotional and relational capacities; for example, the bigger the primate social group, the bigger the brain

• 3 pounds, 1.1 trillion cells, including 100 billion “gray matter” neurons

• Always “on” – 2% of the body’s weight uses about 25% of its oxygen

• Average neuron has about 5000 connections (synapses), 500 trillion in all

• Synapses fire 1 to 100 times a second; quadrillions of synapses activate each minute

• Brain regions linked by neural pulses synchronized within a few milliseconds

• Highly interconnected network full of circular loops: awareness of awareness . . .

• Number of possible brain states: 1 followed by a million zeros

• The most complex object known in the universe

YOUR MIND CHANGES YOUR BRAIN

• Both temporarily, in electrochemical waves lasting mere milliseconds, and permanently, as existing synapses get strengthened and new ones get made

• As circuits get used, they strengthen their connections; “neurons that fire together, wire together.” Your experience matters, leaving an enduring trace behind.

• London taxi drivers have thicker regions that create visual-spatial memories.

• Mindfulness and concentration meditations activate different parts of the brain.

YOUR BRAIN CHANGES YOUR MIND

• Brain activity generates mental activity (mostly forever outside awareness).

• Trauma shrinks the hippocampus, which becomes less able to create new memories.

• More active left frontal lobes foster positive emotions.

YOU CAN USE YOUR MIND TO CHANGE YOUR BRAIN TO CHANGE YOUR MIND FOR THE BETTER. IN JUST ONE EXAMPLE, MINDFULNESS PRACTICES:

• Trigger patterns of neural pulsing that produce relaxed alertness

• Activate positive emotion circuits, building resilience and resistance to depression

• Increase serotonin, a neurotransmitter that supports mood, sleep, and digestion

• Thicken the anterior cingulate, strengthening attention and self-observation

• Thicken the insula, strengthening internal sensing and empathy for others

• Stimulate the parasympathetic nervous system (PNS) for relaxed well-being

• Strengthen the immune system, improve cardiovascular health, dampen chronic pain