

The Learning Brain

by Vicki Griffin

The human brain is marvelous, mysterious, and surprisingly malleable, or plastic. That means it has an amazing capability of being altered by outside influences, and a profound capacity for adaptive change. Although greater in childhood, the brain retains this "plastic" potential throughout life which is central to our ability to learn, to grow, and to change.

Geneticist Fred Gage has remarked: "A milestone is marked in our understanding of the brain with the recent acceptance, contrary to early dogma, that the adult nervous system can generate new neurons."¹

Genes contribute to personality traits but do not entirely determine them or dictate who we are. John Ratey, a neuropsychiatrist from Harvard University, explains it this way: "The point to remember is that genes can be active or inactive and that everything we do affects the activity of our genes. ... Genes do not make a man gay, or violent, or fat, or a leader. Genes merely make proteins. ... We humans are not prisoners of our genes or our environment. We have free will. Genes are overruled every time an angry man restrains his temper, a fat man diets, and an alcoholic refuses to take a drink. ... It may be harder for people with certain genes or surroundings, but 'harder' is a long way from predetermination."²

People make dramatic mid-life career changes, master new skills, adopt healthy lifestyles after years of abuse, make positive changes in the way they relate to people after years of dysfunctional relationships, and learn to enjoy new activities, hobbies, foods, and friends. All this human dynamism involves change—genetic, neuronal, and hormonal. New associations and new memories mean new proteins are being synthesized in the brain, changing its very structure.

Paul wrote, "If anyone is in Christ, he is a new creation; old things have passed away; behold, all things have become new."³ Science is showing that being new in Christ means more than we have understood. As we cooperate with Christ, relying on His

power, making new decisions, thinking new thoughts, and trying new and better behaviors, the imprint of those changes are left embossed on our material selves!

1. Gage F. Neurogenesis in the adult brain. *The Journal of Neuroscience* 2002;22 (3) 612–13.
2. Ratey J. *User's Guide to the Brain*. (New York, NY: Vintage Books, 2002), p. 34.
3. 2 Corinthians 5:17 (RSV)

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