Secrets of the Teenage Brain, a book by Sheryl Feinstein, reveals new facts and research findings that make our previous assumptions about teenage learning and behavior obsolete. Neurological and biological changes are rampant during adolescence, causing adults to throw up their hands at the unpredictable reactions of teens. This book explores the causes of these changes and the effects, allowing the reader to see young people in a new light. Feinstein also lists many strategies teachers can use with adolescent students.

Chapter one of the book Secrets of the Teenage Brain discusses the teen brain under construction. Teen brains are adding gray matter and pruning old synapses at an alarming rate. Neurons are “igniting and springing into action” allowing the brain’s cells to network with one another. Short-term memory improves as the hippocampus creates new dendrites and synapses. The corpus callosum increases in size, joining the right hemisphere sense of self and the left hemisphere sense of others. Older teens are better able to understand themselves in relation to others (Platek et al., 2004; Kircher et al., 2001).

Dr. Jay Giedd used MRIs to study many adolescent brains and noted an overproduction of gray matter, which gives teens the opportunity to excel in many areas (Giedd et al., 1999a). This is a very good reason to involve teens in lots of new, healthy experiences. Otherwise, they may become involved with less healthy activities that will affect their brains for the rest of their lives (Vedantam, 2001). The neural connections a teen makes endure over a lifetime, and unused connections are pruned and lost forever. If they aren’t reading, doing science or solving problems, the synapses for those activities will be pruned, thereby affecting lifetime learning (Thompson et al., 2000).

Hormones come into the picture at the same time the brain is in mass chaos, causing the young person’s thoughts to turn to a complex mating dance where the opposite sex consumes much of their “thought time.”

The last part of the brain to develop and mature fully is the frontal lobes, the area responsible for abstract thinking, language, and decision-making.
(Fuster, 2002). By the early 20s a young person’s frontal lobes have matured and are myelinated (covered with a kind of insulation “white matter” that allows the fast flow of information), making it possible to identify symbols, develop a sense of humor, hypothesize, analyze, logically reason, and realize the consequences of actions. Before the frontal lobes gain control, the amygdala, seat of emotions, is in control. Teens often are driven by emotion rather than by logical thought (Baird et al., 1999).

The frontal lobes are also in charge of language. Teens often answer with slang or inarticulate expressions such as, “Whatever,” or “I don’t know.” Young adolescents have a harder time coming up with specific words and expressing themselves rationally and logically (Sowell et al., 1999). There is a shift in language function as brains mature.

Summary from Feinstein’s chapter 1:

- The brain, not hormones, is to blame for the inexplicable behavior of teens.
- Short-term memory increases by about thirty percent during adolescence.
- The activities teens invest their time and energy in influence what activities they will invest in as adults.
- Teens are ruled far more by their emotions than by logic.

The remainder of this book’s chapters deal with teen cognition and learning, the social brain, communication and the unfinished brain, self-concept under attack, the risk-taking brain, and reaching and teaching today’s adolescents—tomorrow! The reader will be enlightened and come away with strategies to create a more productive classroom—academically and emotionally for adolescent students.

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