RIGHT HEMISPHERE:

* The prefrontal regions in both hemispheres provide a temporal organization of emotions and behavior. Frontal lobe dysfunction almost always leads to the loss of insight into self and others.
* Damage to the right hemisphere results in disinhibition and an inability to modulate negative affect. This is accompanied by egocentrism and limited empathy. On the other hand, the left hemisphere modulates positive affect.
* There is a greater concentration of dopamine receptors in the left hemisphere...noradrenergic receptors in the right. Noradrenaline modulates flight or fight response and sympathetic nervous system.
1. Emotional Dysregulation – excessive worry, sadness, fearfulness, and overly intense emotional reactions.
2. Avoidance Behaviors – avoid people, places, or activities.
4. Peer Relationships – few or no connections with others, peer bullying, or victimizing relationships.
5. Impulsive Behaviors – overactive with poor emotional self-regulation skills.
**Defining Psychopathy**

Psychopathy - two core components include emotional dysfunction and antisocial behavior.

* The defining behavioral feature is instrumental aggression, which is more goal directed and used to achieve a desired goal. Reactive aggression is more impulsive aggression.

* Reinforcement processing – individuals with psychopathy do not process reward and punishment well due to reduced autonomic activity (Blair et al., 2006).

* What can teachers do to curb reactive aggression?

**MANAGING EXPLOSIVE BEHAVIORS**

3DR Method

- **Diffuse the Situation** (dorsolateral pfc-working memory)
  - humor
  - distraction

- **De-escalate the Emotion** (amygdala- emotional intensity)
  - provide a means to save face
  - balance of power

- **Disengage the Emotion** (orbitofrontal cortex- interprets emotion)
  - self calming strategies
  - breathing and meditation

- **Re-engage a new Behavior** (dpfc)
  - behavior management plan
  - cognitive behavior therapy

**Reflection and Learning** (anterior cingulate)

- empathy and insight
- tolerance and emotional flexibility

**Classroom Strategies for Emotional Dysregulation**

a) Preferential seating in class away from distractions.
b) An opportunity to take tests and quizzes away from distractions or in another classroom.
c) Use of a sensory devices or other items to manipulate while working.
d) Utilizing a behavioral incentive system for timely and independent work completion.
e) Use of a crisis pass when needed….designate where student will go.
f) Having a “school coach” or mentor check in with the student daily.
g) Giving a “Two Minute Warning” prior to transitioning from one activity to another.
Classroom Strategies for Emotional Dysregulation

- h) Using a Behavior Intervention Program (BIP) with home rewards.
- i) Modifying or “chunking” longer assignments into more manageable steps.
- j) Creating a “quiet zone” area in the class with headphones and sensory devices.
- k) Using a nonverbal cueing system when distressed.
- l) Minimizing school support personnel giving consequences....this greatly reduces teacher’s ability to exercise authority.
- m) Reinforcing with privileges, and not food or toys.
- n) Avoiding long-term reinforcements and keeping in the moment.
- o) Using tablets or ipads to track behavior in real time....mirrors to reinforce emotions.

Neurofeedback

- Neurofeedback is a learning paradigm that helps develop control over brain functions regulated autonomously.
- Can be used to treat arousal disturbances. In mania, the brain is hyper-aroused, particularly in the right hemisphere, whereas in depression the brain is under-aroused, particularly in the left hemisphere. In anxiety, back of the brain is over-aroused and in ADHD, frontal lobes often under-aroused.
- Television, alcohol, and marijuana all slows down the brain by increasing alpha waves....often in back of head.
- The thalamus is the generator of rhythmic electrical activity in the brain. Signals are sent via 4 primary frequencies in feedback loops from thalamus to cortex and back. These frequencies are measured in cycles per second (hertz):
An EEG reads the electrical activity of approximately 100,000 neurons. Goal is to change the amplitude of each wave.

The power of a wave is expressed as amplitudes, which represent a microvolt (μv), or millionth of a volt. The frequency is expressed in hertz (Hz).

Operant conditioning is the learning paradigm used to restore a dysregulated brain toward a more optimal arousal pattern. Typical response is seen within 15-20 sessions.

Delta Waves 1 – 4 hz … deep sleep
Theta Waves 4 – 8 hz … drowsy, dreamlike, hypnagogic state
Alpha Waves 8 to 12 hz … calm, relaxed focus
Low Beta(SMR) 12 – 15 hz … calm and alert
Beta Waves 15 to 18 hz … active, alert
High Beta 19 hz and above … hyper alert to panic and fear

Neurofeedback provides an excellent way to treat the underlying causes of emotional dysregulation from an inside-to-outside fashion.

Neurofeedback differs from medication in that the child learns to self-regulate their own brain functioning. With respect to medication, there is no learning involved.

Neurofeedback allows the brain to re-set itself in an optimal emotional state, thereby opening the door for other therapies and behavioral interventions to be successful.

Should neurofeedback be used in schools?????

Research for using neurofeedback on a range of disorders ranging from anxiety disorders, emotional regulation, ADHD, autistic symptoms, mood disorders, depression, TBI, migraines, and tics is extremely promising, though admittedly incomplete (Lubar, 1995; Sterman, 2000; Demos, 2005; Swingle, 2007; Budzynski, et al., 2009).

International Society for Neurofeedback & Research (ISNR) at www.isnr.org is an excellent source of information as well as the Journal of Neurotherapy for research in this field.
Generalized Anxiety Disorders

Generalized Anxiety Disorder (GAD) may have elevated amygdala activity at the core of the disorder, especially when attention is constrained to our own internal emotional states (McClure et al., 2007).

The anterior cingulate cortex primarily functions as the brain’s gear shifter, and allows children to shift between cognition and emotion in order to adopt a more adaptive response to emotionally significant events (Allman et al., 2001). Children may be too fixated monitoring their own internal states.

Social Anxiety Disorders: Two Fears

The amygdala is the primary brain region for fear processing and also functions to generate a behavioral response to fear (Goossens et al., 2007). It is the principal brain region activated during the initial flash of fear, which is primarily reflexive (bottom-up).

The second fear functions to keep the first fear alive and occurs at a more cerebral, than reflexive level, through automatic negative thoughts (ANTS). Higher level brain regions such as the orbitofrontal cortex and anterior cingulate cortex, both of which have rich interconnections with the amygdala, comprise the second fear circuit (Goossens et al., 2007). (top-down).

Medication management of anxiety disorders should begin with SSRIs to address the first fear system. Cognitive behavior therapy can assist children in reducing automatic negative thoughts by addressing the second fear system (Mancini et al., 2005).

Cognitive Behavioral Therapy Techniques

Cognitive Rehearsal – the child recalls a problematic situation and discussion ensues regarding the best way to handle the situation. Validity Testing – the child attempts to defend a faulty interpretation of a situation. The goal of therapy is to render these interpretations invalid.

Writing in Journal – maintain a journal rating the intensity of a situation as well as maladaptive thoughts that accompanied the situation. Eventually, the child should begin to accumulate a repertoire of positive thoughts to replace the maladaptive ones.

Modeling – role play and demonstrate specific relaxation techniques in various anxiety- producing situations. Breathing Techniques – focus on breathing from the diaphragm, not the chest, and exhaling on longer slower breaths. Strive for 6-8 breaths per minute. Practice breathing techniques when visualizing an anxiety provoking situation.

Homework – assign a task for the child involving a specific situation likely to induce anxiety, and a more adaptive cognitive thought.
Cognitive Behavior Therapy (CBT) is the treatment of choice for youth with social anxiety disorder. The most effective type of CBT involves:

1. **Psychoeducation** - provide information about the disorder to student and parents.

2. **Exposure Therapy** - systematic confrontation of fearful situation.

3. **Skill Building Tasks** - relaxing training coupled with cognitive restructuring techniques and assertiveness building.

4. **Homework Assignments** - refine skills each day so eventually a specific technique is habituated.

**side note:** Use CBT for mild impairment for 4 months. If 50% reduction in symptoms is not observed, SSRI meds recommended.

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**Depression (Stahl, 2008)**

* Depression is twice as likely in women, three times higher in families with positive history, and highest for unmarried males and married females.
* Not terribly common for younger children, though more common in adolescence (5%), thus implicating the role of the prefrontal cortex.
* 35-50% of depressed patients make a suicide attempt.
* 15% of severely depressed patients commit suicide (300,000 attempts per year with 30,000 suicides per year).
* Two out of three patients respond to medication.
* Prozac (SSRI) is only FDA approved antidepressant for children over age 8.
* 4% of children on Prozac have suicide ideation, twice that of a placebo……..WHY??

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**Preschool vs. Adolescent Depression**

Depression exists along a continuum:

- Adjustment Disorder
- Dysthymic Disorder
- Major Depression

**Preschool Depression (Luby, 2009):**

1) Anhedonia
2) Excessive guilt and compliance
3) Fatigue
4) Diminished cognitive abilities

* More a manifestation of temperament
Adolescent Depression (Rao & Chen, 2009):

- Often triggered by environmental stressors such as loss of one’s status in a social group, stressful home environment, or personal disappointment.
- 36% of chronically depressed persons experience significant abuse during childhood.

3 Environmental Factors (Klein et al., 2009):

1) Maternal indifference
2) Paternal over-control
3) Maternal abuse

Interpersonal Therapy (IPT) short term supportive therapy targeting interpersonal relations empirically valid for adults and adolescents.

Cognitive reappraisal- empirically valid for children (Zalsman et al., 2006).

5 Therapeutic Treatments for Depression

1) Cognitive behavioral therapy aimed at replacing ANT’s (automatic negative thoughts) with more adaptable cognitions.
2) Play therapy techniques teaching young children how to identify their feelings and better ascribe verbal labels to them, as well as monitoring feelings with homework assignments.
3) Utilizing neurofeedback techniques aimed at diminishing the amplitude of theta (slow) waves in the cortex...particularly the left hemisphere.
4) Psychopharmacological approaches (SSRI’s).
5) Increasing the number of interpersonal connections in a child’s life.

Why School Mental Health?

- Children spend 15,000 hours in school from kindergarten through high school.
- Children are most successful academically, personally, and socially when they have supportive relationships with caring adults (Doll & Lyon, 1998; Pianta, 1999).
- School mental health services should focus upon maximizing wellness by promoting positive interpersonal interactions.
- Building “resiliency” through satisfying relationships and feelings of connectedness is the key to overcoming obstacles and achieving psychological wellness.
1) Foster and promote respectful relationships between adults and children in the building. School success linked to supportive relationships with adults.

2) Foster and promote respectful peer relationships by learning activities that require student teamwork (Cooperative learning activities).

3) Develop conflict resolution and peer mediation. Most childhood disagreements are between friends.

4) Have children set their own learning goals and expectations and encourage them to set the bar high.

5) Explicitly teaching social skill behaviors for “at risk” children. The skill should be taught in context, and immediate feedback is needed from adults in those situations.


* The house bill called for a grant to establish a National Technical Assistance and Training Center for Social and Emotional Learning to schools and community based organizations to promote social-emotional learning.

* Based upon the following:
  a) Children learn best when they are engaged.
  b) Social and emotional skills carry over to success in life.
  c) These skills can be explicitly taught by regular education teachers.
  d) Academic outcomes from social-emotional learning will improve due to greater commitment to school.
  e) Social-emotional learning reduces behavioral problems and increases school attendance.

Social Emotional Programs

I. Positive Behavior Supports: School-wide programs that identify a set of positive and prohibited behaviors and institute systematic procedures for monitoring and reinforcing/discouraging these behaviors.

II. Anger Management: Classroom and school-wide programs that help students examine the range of emotions that are part of one's character and behavior, and offer strategies that will help them understand and manage their anger.

* This bill never became law. The bill was proposed in a previous session of Congress. Sessions of Congress last two years, and at the end of each session all proposed bills and resolutions that haven't passed are cleared from the books.

* How can we consistently integrate the fabric of social emotional learning within the context of our current curriculum??
ADDITIONAL MEASURES/PRODUCTS

Behavior Module of AIMSweb:
* BSS & BIS Performance/Screening Guides can be completed by teachers online in AIMSweb.
* BASC-II Intervention and SSIS Intervention Guide included with AIMSweb.

Social Skills Improvement System:
a) Performance Screening Guide – teacher screening tool to determine which students are at risk for social skills problems.
b) SSIS Classwide Intervention Program – a curriculum for teaching social skills. Includes a techer guide and student lesson booklet and video clips.
c) SSIS Rating Scales – scoring software links results with interventions.
d) SSIS Intervention Guide – a handbook with scripts for delivering 20 targeted social skills interventions.

Reynolds Bully Victimization Scales for Schools – also includes a school violence anxiety scale to assess student concerns (grades 3-12)

Resiliency Scales for Children and Adolescents – yields a Personal Vulnerability Index and 10 subscales (ages 9-18)

Strong Kids Curriculum – a series of 20 lessons, each 45 minutes, that helps students to develop empathy, resolve conflict, and improve social skills (Kenneth Merrell).
1) Emotional dysfunction is not necessarily rooted in immorality but rather in neurobiology. Nevertheless, we are all to be held accountable by the choices we make.

2) Caution against over-relying on behavior rating scales. They are an opinion from observers not schooled in assessing mental health.

3) Not all behavior has a rational function (teleology). Antecedent ➔ Behavior ➔ Consequence should be: Antecedent ➔ Executive Functioning ➔ Behavior ➔ Reinforcement ➔ Brain Wave Homeostasis.

4) Medication in combination with cognitive behavioral therapy and environmental supports key to success. Neurofeedback may be the wave of the future.