Debilitation must be measured against a person’s **natural potential** (e.g. intellectual, emotional) and the **effort** required to maintain a level of function. Must take into account a person’s ability to compensate for ADD.

Intelligence + Effort = Expected Achievement/ Performance
**DSM-IV-TR Diagnostic Criteria Symptoms for ADHD**


- **Inattention**
  - Is careless
  - Has difficulty sustaining attention in activity
  - Does not listen
  - Does not follow through with tasks
  - Is disorganized
  - Avoids/dislikes tasks requiring sustained mental effort
  - Loses important items
  - Is easily distracted
  - Is forgetful in daily activities

- **Hyperactivity**
  - Squirms and fidgets
  - Cannot stay seated
  - Runs/climbs excessively
  - Cannot play/work quietly
  - Is on the go/driven by a motor
  - Talks excessively

- **Impulsivity**
  - Blurts out answers
  - Cannot wait turn
  - Intrudes/interrupts others

- Must have 6 or more symptoms for at least 6 months to a degree that is maladaptive and inconsistent with developmental level.

- Persistent symptoms (not “episodic”)

- Onset of symptoms before age 7 (childhood onset)

- Impairment in 2 or more settings (eg, school, work, home) (global not circumscribed)

- Evidence of clinically significant impairment in social, academic, or occupational functioning

- Symptoms not better explained by other disorders
Clinical Presentation: College Students

- Undiagnosed or inadequately treated child often produces a young adult that is less functional than their capacity
- Often diagnosed formally for the first time in this era of life
- Structure of high school and living at home are gone replaced by self-regulated environment which offers many novel, competing distractions to academics
- Poor time management and organization now much more problematic due to significantly increased workload
  - Academics driven by a sense of emotional urgency
  - Crams for exams
- Comorbidities may complicate
  - Reactive depression and/or anxiety

Modification of the Core Three Syndromes in Adults

Hyperactivity is most severe in toddlers and diminishes in severity or modifies with time to excessive talkativeness, inner-restlessness
Impulsivity endures in and is a significant problem some but not others.
Attention problems persist and may even appear to worsen due to increased demands/expectations. Are perceived as ‘incompetence’ by the patient and others.
# Newer Medication Formulations

<table>
<thead>
<tr>
<th>Medication</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adderall XR™</td>
<td>Extended-release formulation of mixed amphetamines that mimics BID dosing (12 hours)</td>
</tr>
<tr>
<td>Focalin XR™</td>
<td>A refined form of Ritalin®, isolating only the effective isomer plus an extended release formulation</td>
</tr>
<tr>
<td>Ritalin® LA:</td>
<td>Once-daily formulation of Ritalin® that mimics BID dosing and duration and designed to last the school day (8-9 hours)</td>
</tr>
<tr>
<td>Metadate® CD:</td>
<td>Methylphenidate formulation designed to mimic BID duration (8-9 hours)</td>
</tr>
<tr>
<td>Concerta®</td>
<td>Methylphenidate formulated to mimic TID duration (12 hours)</td>
</tr>
<tr>
<td>Atomoxetine (Strattera)</td>
<td>Non-Stimulant, longer lag to full onset of activity</td>
</tr>
</tbody>
</table>
Neural Circuitry Regulating Arousal and Attention

The Locus Coeruleus (LC) communicates with the frontal and parietal cortex to regulate arousal and attention. The associated neural pathways use the neurotransmitters Dopamine (DA) and Norepinephrine (NE, also known as Noradrenaline).

Suspected Neurochemical Pathophysiology of ADHD

Strattera™: Site of Action

Data on file, Eli Lilly and Company.