CHAPTER 5

What people need to know about the drug treatment of children

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In the United States, non-medical therapists—especially psychologists and counsellors—play a pivotal role in decisions about the appropriateness of prescribing stimulant medication to children. Advocates of stimulant medication frequently try to 'educate' school mental health professionals to make them more enthusiastic about diagnosing Attention Deficit/Hyperactivity Disorder (ADHD) and encouraging medication.

In North America, a giant social experiment is being carried out. A large proportion of school age children are being given psychoactive medications to control their behaviour. One recent study of several school districts disclosed that 7 per cent of children were being given stimulant drugs by the school itself each day and another found that 10% of children were receiving stimulants at home and school (Marshall, 2000). Yet another study has shown a three-fold increase in the drugging of preschool toddlers with stimulants (Zito *et al.* 2000). No official statistics on prescription drug use are kept in the United States, but probably at least 5–6 million of 50 million school age children are taking stimulant drugs, while another million at least are taking other drugs as well.

In addition to stimulants children are commonly given multiple psychiatric drugs. Often the stimulant drug is the gateway drug to others. After being put on methylphenidate (Ritalin) or amphetamine (Adderall, Dexedrine), the child develops adverse drug reactions that are mistaken for a worsening of the child's 'mental disorder'. If the child becomes depressed, as commonly occurs on stimulants, an antidepressant is added. If the child becomes manic or psychotic, a mood stabilizer or an antipsychotic drug is added. Often these drugs have not been approved for children by the U.S. Food and Drug Administration. Sometimes they haven't even been approved for psychiatric purposes at all[1].

Drug advocates in North America have become fond of observing, 'Your child's depression has emerged under drug treatment' or 'The medication brought out your child's underlying bipolar disorder.' In fact, the drugs

Footnote [1] overleaf

themselves are causing severe disorders in millions of children in the United States.

Meanwhile, as the children's market becomes saturated in North America, drug company marketing and drug advocates are turning their attention to Europe and Australia. As a result, England and Australia in particular are noticing a rise of the use of drugs in treating children.

Often this escalation of drugs takes place in the complete absence of any psychosocial interventions, such as family counselling and therapy, or an improved educational programme. Often the parents and the teachers mistakenly believe that the child suffers from a 'biochemical imbalance' or 'crossed wires in the head', so that psychosocial interventions are viewed as irrelevant or ineffective compared to medication.

Most recommendations for stimulant drugs in the United States originate from schools. School psychologists and counsellors are in particular need of a more thorough understanding of the mechanism of action of stimulants, as well as their many adverse effects. Until recently, most of the information has been generated by individuals with strong vested interests in what may be called the ADHD/stimulant lobby.

Drawing largely on double-blind placebo-controlled clinical trials and on animal laboratory research, I will focus on the emotional and behavioural effects of dextroamphetamine (e.g., Dexedrine, Adderall), methamphetamine (Desoxyn, Gradumet), and methylphenidate (Ritalin). Emphasis will be placed on two relatively ignored areas: the mechanism of action that enforces specific behaviours, and adverse drug effects on the central nervous system, mental life, and behaviour of the child. An overview of all adverse reactions will also be provided.

The mechanism of action: effects on animals

Stimulant drugs lend themselves readily to suppressing behaviours that are unwanted in the classroom or family situations, and for enforcing obsessive-compulsive behaviours that adults desire in the classroom or the family. Animals, like children, have spontaneous tendencies to move about, to explore, to innovate, to play, to exercise, and to socialize. Dozens of studies have shown that stimulant drugs suppress all of these spontaneous tendencies, sometimes completly inhibiting them (reviewed in Breggin, 1998; 1999b,c). In effect, the animals lose their 'vitality' or 'spirit'. They become more docile and manageable.

Animals, like children, resist boring, routine, rôte, or meaningless tasks. As documented in dozens of laboratory studies, stimulant drugs enforce these behaviours in animals, producing what is called *stereotypy* or *perseveration* in animal research. In human research it is called obsessive-compulsive or over-focused behaviour. For example, instead of struggling to escape a cage, the animal will sit relatively still, carrying on rôte, useless

[1] In November 1998 I was invited by the National Institutes of Health (NIH) to be the scientific expert on 'Risks and Mechanism of Action of Stimulant Drugs' at the 'Consensus Development Conference on ADHD and its Treatment.' This led to the publication of extensive reviews on the mechanism of action and adverse reactions of stimulant drugs (Breggin, 1999a, b, c). These sources can provide the reader with more detailed information and additional citations to the literature.

behaviours, such as compulsive grooming, chewing on its paws, or staring into the corner. If the drugged animal does move about, it will pace a constricted area in a purposeless manner.

In summary, in animals, stimulant drugs (1) suppress spontaneous and social behaviours, rendering them more submissive and manageable, and (2) enforce perseveration or obsessive-compulsive over-focusing.

The mechanism of action: emotional and behavioral effects on children

The effects of stimulants on children are identical to those in animals. This is not surprising since the basic biochemical or neurological impact is the same. Similarly, the effects on children are the same regardless of the child's mental state or diagnosis.

Drawing on double-blind studies (Breggin, 1999b,c), Table 1 lists the adverse drug reactions (ADRs) of stimulant drugs that lend themselves to being easily mistaken for improvement in the child. The chart is divided into three categories of stimulant ADRs: (1) obsessive-compulsive ADRs, such as over-focusing, cognitive perseveration, inflexibility of thinking, and stereotypical activities; (2) social withdrawal ADRs, such as social withdrawal and isolation, reduced social interactions and responsiveness, and reduced play; and (3) behaviourally suppressive ADRs, such as compliance, reduced curiosity, reduced spontaneity, and behaviours that are subdued, depressed, apathetic, lethargic, and bland. Some studies have shown that most children become sad and unhappy, lethargic, and disinterested in others while taking stimulant drugs.

Stimulants commonly cause obsessive-compulsive behaviours, including over-focusing, that are similar to stereotypy in animals. In one study involving a single small dose of methylphenidate on the day of the experiment, over-focusing in 42% of children was disclosed. Another found that 25% of children on methylphenidate developed obsessive-compulsive ADRs. A thorough study of the subject found that 51% of children taking methylphenidate and dextroamphetamine developed obsessive-compulsive ADRs. Some children exhausted themselves raking leaves or playing the same game over and over again. The authors of these and related studies note that these behaviours are sometimes considered improvements in the classroom.

More extreme emotional and behavioural effects

Swanson *et al.* (1992) reviewed 'cognitive toxicity' produced by methylphenidate. They summarized the more extreme effects on children:

> *In some disruptive children, drug-induced compliant behavior may be accompanied by isolated, withdrawn, and overfocused behavior. Some medicated children may seem 'zombie-like' and high doses which make ADHD children more 'somber', 'quiet' and 'still' may produce social isolation by increasing 'time spent alone' and decreasing 'time spent in positive interaction' on the playground.* (Swanson *et al.*, 1992, p.15)

Arnold and Jensen (1995) also comment on the 'zombie' effect caused by stimulants:

> *The amphetamine look, a pinched, somber expression, is harmless in*

itself but worrisome to parents, who can be reassured. If it becomes too serious, a different stimulant may be more tolerable. The behavioral equivalent, the 'zombie' constriction of affect and spontaneity, may respond to a reduction of dosage, but sometimes necessitates a change of drug. (p.2307)

The 'zombie' effect is mentioned by a number of other investigators. It is a more extreme manifestation of the supposedly 'therapeutic' effect that makes a child more compliant, docile, and easier to manage. When a child seems more compliant in class or seems to attend more readily to boring, rôte activities, the child is experiencing an adverse drug reaction. The seeming 'improvement' is an expression of a continuum of drug toxicity with the zombie effect at one extreme. The toxicity is considered 'therapeutic' unless it becomes so extreme that the child seems bizarre or disabled.

Excitatory adverse effects

As already described in detail, routine stimulant doses given to children or adults commonly cause ADRs that seem paradoxical, such as depression, lethargy, and apathy (see Tables 1 and 2).

Stimulants also cause more classic signs of over-stimulation or excitation, such as anxiety, agitation, aggression, and insomnia, as well as manic psychoses and seizures. Often the stimulant ADRs occur in combination with the more suppressive effects, as in a mixture of agitation and depression. Frequently stimulants cause tachycardia and cardiac arrhythmias, and can even weaken heart muscle. The U.S. Food and Drug Administration has received many reports of methylphenidate-induced heart attack.

The overall list of stimulant ADRs is much too extensive for inclusion in this paper. Table 2 draws on several independent sources to present an overview (Breggin, 1999a: c). Many doctors seem unaware of the varied nature of stimulant ADRs. Often they mistake these drug reactions for the surfacing of new psychiatric disorders in the child and mistakenly increase the dose or add further medications, instead of stopping the stimulants.

Gross and irreversible brain dysfunction

In addition to the many serious central nervous system ADRs that are apparent in the child's behaviour, stimulants also cause gross brain dysfunction. Methylphenidate (Ritalin), for example, in routine doses causes a 23%–30% drop in blood flow to the brain in volunteers. All stimulants directly disrupt at least three neurotransmitter systems (dopamine, norepinephrine, and serotonin). There is strong evidence that stimulant-induced biochemical changes in the brain can become irreversible. In regard to amphetamine and methamphetamine, research demonstrates that clinical doses can lead to loss of receptors and cause cell death (for example, Melega *et al.* 1997a, b). A study by Nasrallah and others (Nasrallah *et al.* 1986) demonstrated that adults develop atrophy of the brain after being treated with stimulants as children.

Through a combination of anorexia and disruption of growth hormone, stimulants also inhibit growth, including the growth of the brain. Bathing a child's growing brain in toxic chemicals must ultimately impair its development.

Stimulants are highly addictive. The U.S. Drug Enforcement Administration and the International Narcotics Control Board place methylphenidate, amphetamine, and methamphetamine into Schedule II along with cocaine and morphine as the most addictive drugs used in medicine. Recent studies indicate that children who are treated with Ritalin will have a higher rate of stimulant addiction (including cocaine) as young adults (Lambert and Hartsough, 1998). The DEA and the International Narcotics Control Board have both issued warnings about the danger of widespread stimulant prescription in North America. The United States uses 90% of the world's methylphenidate.

Typical of addictive drugs, stimulants often cause withdrawal or rebound. Rebound commonly occurs after only one or two doses in normal children, and it can last many hours and even days. During rebound, the child's original ADHD-like symptoms may become worse than before the drug was ever taken. Even when children do not become addicted to stimulants, they often give them away or sell them to friends who abuse them. Stimulants commonly cause tics and other abnormal movements, and sometimes these become irreversible. Often the tics occur along with obsessive-compulsive symptoms. Too often, drug-induced ADRs lead mistakenly to the prescription of other psychiatric drugs rather than to the termination of the stimulant.

ADHD and the rationalization of stimulant effectiveness

The concept of ADHD was developed to rationalize a pre-existing motivation within medicine and psychology to use stimulant drugs to control the behaviour of children. From the beginning, the focus was on classroom settings in which one-to-one attention was unavailable. ADHD as a diagnosis evolved as a list of various behaviours that make classroom control more difficult and that require attention from teachers or other adults. Almost any behaviour that tries a teacher's ability or patience, or drains a teacher's energy and attention, has been put into the diagnosis. The official criteria for ADHD in the *Diagnostic and Statistical Manual of Mental Disorders, IV* (American Psychiatric Association, 1994) are thus behaviours that interfere with an orderly, quiet, controlled classroom. The first criterion under *hyperactivity* is 'often fidgets with hands or feet or squirms in seat' and the second is 'often leaves seat in classroom or in other situations in which remaining seating is expected'. The first criterion under *impulsivity* is 'often blurts out answers before questions have been completed' and the second is 'often has difficulty awaiting turn'. Under *inattention* the first criterion is 'often fails to give close attention to details or makes careless mistakes in schoolwork, work, and other activities'.

None of the ADHD criteria are relevant to how the child feels. Mental and emotional states, such as anxiety or depression, are not included.

All of the behaviours in the ADHD diagnosis are commonly displayed by children in groups where they feel frustrated, anxious, bored, or abandoned. Individually, each of the behaviours represents normal developmental stages. Of course, the behaviours can become exaggerated. A child can become extremely hyperactive, impulsive, or inattentive. These behaviours, even when extreme, do not constitute a syndrome — a consistent pattern of symptoms related to a specific cause. Instead, they reflect a normal child's response to varying kinds of severe stressors.

Talking Back to Ritalin (Breggin, 1998) catalogues dozens of 'causes' for ADHD-like behaviour. Most commonly, the behaviours are displayed by a normal child faced with boredom, frustration, fear, or some other kind of stress. The child may be suffering from physical or emotional abuse, lacking in parental discipline, or witnessing conflict in the home. Sometimes the child is too far behind in class, sometimes too far ahead of class. Invariably, the child is in need of special attention that is not being provided. More rarely, the child may be suffering from a genuine physical disorder, such as a head injury or thyroid disorder, that requires special medical attention rather than stimulant medication.

However, whatever the case, no good comes from applying the fraudulent diagnosis ADHD. Each child needs to be evaluated individually in the context of the family, school, and community, and each child needs improved relationships with parents, teachers, and other adults.

ADHD as conflict

ADHD-like behaviours in a child almost always indicate a *conflict* between the child and adults in the child's life, especially adult expectations for submissive, conforming, or compliant behaviour. When we diagnose the child, we simply blame the weakest member of the conflict.

Instead of leading to diagnosis of the child, ADHD-like behaviours in children should focus attention on the need for changes in the behaviour of the adults in the conflict. The seemingly exaggerated hyperactivity, impulsivity, or lack of attentiveness in the child can and should become a signal for the adults to find, identify, and respond to the child's genuine needs for rational discipline, unconditional love, play, exercise, and engaging education.

An effective teacher or parent in reality does what I am suggesting. He or she uses signs of hyperactivity, impulsivity and inattention in a youngster to indicate the need for greater, more focused adult attention on the child's needs.

Stimulant drugs, as we have seen, flatten the child's behavioural signal system. The child literally becomes *neurologically unable* to express feelings of boredom, frustration, distress, or discomfort. The child becomes too neurologically impaired to display hyperactivity, impulsivity, or inattention. Adults can then feel justified in teaching the class or managing the group without attending to the child's individual and often varied needs.

Evidence for ineffectiveness

Reviews by stimulant drug advocates routinely demonstrate that stimulants have no positive long-term effects whatsoever on any aspect of a child's behaviour. In the short-term (a few weeks or months) they can suppress behaviour, but they do not improve academic performance or learning. Based on the most extensive review in the literature, Swanson (1993, p.44) concluded:

- *Long-term beneficial effects have not been verified by research.*
- *Short-term effects of stimulants should not be considered a permanent solution to chronic ADHD symptoms.*
- *Stimulant medication may improve learning in some cases but impair learning in others.*
- *In practice, prescribed doses of stimulants may be too high for optimal effects on learning [to be achieved] and the length of action of most stimulants is viewed as too short to affect academic achievement.*

Swanson (1993, p.46) also summarized: 'No large effects on skills or higher order processes': teachers and parents should not expect significantly improved reading or athletic skills, positive social skills, or learning of new concepts. Defining short-term as 7–18 weeks, Swanson declared: 'No improvement in long-term adjustment': teachers and parents should not expect long-term improvement in academic achievement or reduced antisocial behaviour.

Similarly, Popper and Steingard (1994) state: 'Stimulants do not produce lasting improvements in aggressivity, conduct disorder, criminality, education achievement, job functioning, marital relationships, or long-term adjustment' (p.745).

Richters *et al.* (1995), from the National Institute of Mental Health (NIMH), conclude: 'the long-term efficacy of stimulant medication has not been demonstrated for *any* domain of child functioning.' They conclude that there is no evidence for even short-term positive effects on academic performance.

More recently, the National Institute of Mental Health (NIMH) conducted a giant six-centre fourteen month study in North America that purported to show that stimulant drugs are superior to other methods of treatment (MTA, 1999). The research failed to meet the two most basic scientific criteria for clinical trials; it lacked both a double-blind and placebo controls. It was essentially a giant impressionistic study conducted by highly biased investigators. Yet a careful analysis of the data still disclosed that stimulants offer no advantage to children in any aspect of their behaviour or the psychosocial development (Breggin, 2000b).

Conclusion

Stimulant drugs have two basic effects on animals and children regardless of their mental status. First, stimulants reduce all spontaneous and social behaviour. This makes the child more docile, submissive, and manageable. Drug advocates call this compliance. Second, stimulants enforce perseverative, obsessive-compulsive, or over-focused behaviour. This makes it easier to force the child to do rôte, boring activities. These twin *toxic* effects are readily misinterpreted as improved behaviour in highly structured or controlled environments where children are given insufficient or inappropriate attention, and where their genuine needs are being ignored. As a result of toxicity, stimulants suppress a child's behaviour in a global fashion that has nothing to do with any diagnosis or disorder.

Stimulant drugs also produce a wide variety of other adverse effects. By causing anorexia and by disrupting growth hormone, they suppress the growth of the body, including brain size and development. They cause severe biochemical imbalances in the developing brain that can become permanent. They often worsen ADHD-like symptoms and can cause psychoses.

The ADHD diagnosis is tailored to justify the use of stimulants for the behavioural control of children, especially in groups where they receive insufficient or inconsistent attention from adults. When children do become hyperactive, inattentive, and impulsive in an extreme fashion, it should be taken as a sign that they need more rational and caring attention from adults.

By suppressing emotional and behavioural signals of distress and conflict, stimulants allow adults to ignore the needs of children in favour of creating a controlled environment. Meanwhile, stimulants do not improve academic

performance and provide no long-term improvement in *any* aspect of a child's behaviour or life.

The massive drugging of children in North America does not indicate that increasing numbers of children have mental disorders. Instead, it reflects on social conditions within the United States and Canada. Above all else, it indicates a willingness to subdue children as a substitute for identifying and meeting their genuine needs for improved family and school life.

In May, 2000, however, some of America's most powerful attorneys began a series of fraud and class action suits against the manufacturer of Ritalin, Novartis. The suits charge Novartis with conspiring to fraudulently over-promote the ADHD diagnosis and Ritalin treatment. The American Psychiatric Association and CHADD, a parents' group that has drug company support, are named as co-conspirators. The suits are being taken seriously because they are being brought by attorneys with great resources, determination, and experience—the same attorneys who successfully took on the tobacco industry in the United States. They are planning a decisive legal assault on the drugging of America's children. I helped to formulate these law suits which were inspired by *Talking Back to Ritalin* (Breggin, 1998) (These developing legal events are described on www.breggin.com)

It is not certain what impact these class action and fraud suits will have on countries other than the United States. On the one hand, such a vast array of legal power is likely to make drug companies and doctors more cautious about their claims for ADHD and Ritalin. On the other hand, the American suits may drive the drug companies to expand their markets in Europe and elsewhere outside North America. The National Institute for Clinical Excellence (NICE) has for example, recently given its approval to the use of Ritalin in Britain.

Professionals must be prepared to stand up and be counted in opposition to the drugging of children for behavioural control. Psychologists, counsellors, and therapists should strongly discourage the use of stimulant drugs for treating 'ADHD' and other emotional or behavioural problems that surface in the classroom or in the home. Instead, more effort should be made to identify and to address the genuine individual needs of the children in our families and schools.

Table 1: Stimulant Adverse Drug Reactions (ADRs) Potentially Misidentified as 'Therapeutic' or 'Beneficial' for Children Diagnosed with ADHD

Obsessive Compulsive ADRs	Social Withdrawal ADRs	Behaviourally Suppressive ADRs
Stereotypical activities Obsessive-compulsive behaviour Perseverative behaviour Cognitive perseveration Inflexibility of thinking Over-focusing or excessive focusing	Social withdrawal and isolation General dampening of social behaviour Reduced social interactions, talking or sociability Decreased responsiveness to parents and other children Increased solitary play Diminished play	Compliance, especially in structured environments Reduced curiosity Sombre Subdued Apathetic; lethargic: tired, withdrawn, listless, depressed, dopey, dazed, subdued and inactive Bland, emotionally flat Depressed, sad, easy or frequent crying Little or no initiative or spontaneity Diminished curiosity, surprise or pleasure Humourless, not smiling Drowsiness Social inhibition with passive and submissive

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Table 2: Summary of Adverse Drug Reactions (ADRs) Caused by Methylphenidate and Amphetamines

Cardio-Vascular	Central Nervous System	Gastro-intestinal	Endocrine or Metabolic	Other	With-drawal and Rebound
Palpitations Tachycardia Hypertension Arrhythmia Chest pain Cardiac arrest	Psychosis with hallucinations Depression and mania Hostility and aggression Withdrawal, decreased social interest, apathy Excessive brain stimulation with convulsions Insomnia Agitation, anxiety Impaired cognition Dyskinesias, tics, Tourette's Nervous habits (e.g., picking at skin, pulling hair) Compulsions Zombie-like behaviour	Anorexia Nausea Vomiting Stomach ache, cramps Dry mouth Constipation Abnormal Liver function tests Bad taste Diarrhoea	Pituitary dysfunction, including growth hormone and prolactin disruption Weight loss Growth suppression Disturbed sexual function	Blurred vision Headache Dizziness Hyper-sensitivity reaction with rash, con-junctivitis or hives	Insomnia Evening crash Depression Overactivity and irritability Rebound worsening of ADHD-like symptoms

Modified from Breggin (1999a), reprinted by permission of Springer Publishing Co.

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