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"A must-read for any parent of boys."—**DR. MEHMET OZ**, Professor and Vice Chairman,
New York Presbyterian Hospital, Columbia University

boys adrift

THE FIVE FACTORS DRIVING THE GROWING EPIDEMIC OF
UNMOTIVATED BOYS AND UNDERACHIEVING YOUNG MEN

video games • teaching methods
prescription drugs • environmental toxins
devaluation of masculinity

WITH A NEW AFTERWORD FROM THE AUTHOR

Leonard Sax, M.D., Ph.D.

Author of *Why Gender Matters*

THE THIRD FACTOR

Medications for ADHD

From the age of two,

- TIMMY was fascinated by trucks.
- He would bang his toy trucks together, then pick them up and race around the house going *vroom-vroom*.
- When he was three,
- TIMMY and the family's yellow LABRADOR, MISS DEMEANOR, got into the bad habit of chasing the UPS truck down the street, after the UPS driver had been friendly to them one day.
- Aside from the fact that three-year-olds shouldn't be running down the middle of a street, even in our suburban cul-de-sac nestled safely off the main roads,
- the real problem with that habit was that
- once TIMMY was outdoors he was gone.
 - He would start running after the truck and just keep going.
 - He'd forget to come home,
 - and wander, fearlessly and aimlessly, through other people's backyards and driveways, with MISS DEMEANOR trotting faithfully behind.

After one frightening evening driving around the development looking for TIMMY and the dog,

- CAROL (TIMMY's mother) considered having an invisible fence installed and putting the collar around MISS DEMEANOR's neck
 - —and maybe a collar around TIMMY's neck, too.

Aside from chasing after delivery trucks, Timmy was the darling of our neighborhood.

- His energy and enthusiasm for life were contagious.

Then came kindergarten.

TIMMY's teacher, MRS. ENGELHARDT, spoke with CAROL after the third week.

"TIMMY seems hyperactive," MRS. ENGELHARDT said.

"Isn't that pretty normal for a five-year-old boy?"

CAROL said.

"Not really. I know you may think so,"

MRS. ENGELHARDT said,

before CAROL could interrupt.

"But as a teacher, I see a whole range of children.

I've seen hundreds of children in the eleven years since I started teaching, and

I just thought you should know that TIMMY may be having some difficulties staying focused."

"You mean ADD?"

CAROL said.

"Well, I'm not a doctor,"

MRS. ENGELHARDT said.

"I don't make diagnoses.

I just want you to be aware that TIMMY is having trouble staying in his seat.

He just can't sit still very long before he starts wiggling.

I tell him to sit still, and he does, and then five minutes later he's wriggling in his chair again and giggling.

It's very distracting to the other children."

搞半天是老師嫌他妨礙其它小孩
其它小孩不知道嫌不嫌他

“I’ll talk to him,”
CAROL promised.

CAROL talked to TIMMY, told him that he needed to sit still and be quiet,
● but TIMMY seemed not to hear.

By late October,

- both MRS. ENGELHARDT
- and the school counselor

were encouraging CAROL to have TIMMY seen by the doctor.

哇賽，
兩個月以後，
雙面夾攻，逼媽媽帶小孩去看醫生

So CAROL made an appointment with the pediatrician.

- On the day of the visit, the doctor’s office was crowded with crying children who looked sick.
- There wasn’t any space left in the “well-baby” corner of the office.
- CAROL tried to shield her son from the germs she could almost see wafting through the air.
所以醫院的空氣太差，不流通
- After a half-hour wait, TIMMY’s name was called.

DR. FELDMAN looked over the note from the school.

“I see that the school is concerned about TIMMY,
they think he may have ADHD,”
she said.

“What do you think, CAROL?”

“I don’t see anything really wrong with TIMMY,”
CAROL said.

“I mean, MRS. ENGELHARDT is concerned because TIMMY won’t sit still.

*ADHD

= Attention Deficit Hyperactivity Disorder.

- The older term, no longer “correct,” is ADD,
- Attention Deficit Disorder.

However, many parents still use the term ADD,

- and I use the two terms interchangeably here.

真有趣，加入一個 *hyperactive* 進去
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But since when does kindergarten mean
sitting still in a chair all day long?
我上的幼稚園也是乖乖坐著不許亂動啊！

I thought kindergarten was supposed to be about
singing songs, playing games, that sort of thing.”

“You’re about thirty years out of date,”

DR. FELDMAN said,

but not in a mean way.

“That’s what kindergarten used to be about.

Today’s kindergarten is pretty much what first grade was thirty years ago.

Kindergarten nowadays is mostly about sitting in a chair with paper and pencil and learning to read and write.”

“But if my son isn’t ready to do that,
does that mean my son has a problem?

Maybe the school has a problem,”

CAROL protested.

“Maybe the problem is with the school expecting a five-year-old boy to sit still in a chair all day long.
You know his school has all-day kindergarten.”

“That’s a fair point,”

DR. FELDMAN said.

“There’s some evidence that many five-year-old boys are less ready and less able to sit for long periods of time than most five-year-old girls are.”

DR. FELDMAN’s beeper went off.

She glanced at it.

“That’s the NICU,”

she said.

“I’m going to have to interrupt our visit, I’m afraid.

But here are the options, briefly.

- Option number one:
 - No medication,
 - no change in the basic plan at school.
 - Instead, you just work harder with TIMMY.

Try to get him to behave the way the teachers want him to behave.”

“What’s option two?”
CAROL asked.

- “Option two would be to
 - pull TIMMY out of kindergarten now,
 - put him back in pre-K,
 - and try again next year,”

DR. FELDMAN said.

“You’re saying I should hold him back.”

“It’s not such a bad idea, really,”

DR. FELDMAN said.

“As you yourself said a minute ago,

there’s something crazy about

schools expecting five-year old boys to sit still at a desk

for six hours a day.

- Some boys can do it.
- Many girls can do it.
- But for many boys
 - —for the boys who aren’t ready to sit still in a chair all day long—
 - their first experience of school is one long frustrating bore.

And once they get off to a bad start, things can snowball in the wrong direction.

- One year can make a big difference.
- Often a boy will be more willing and able to sit still in class when he’s six than when he was five.
- That one year can make all the difference in the world.”

CAROL paused.

倒抽一口涼氣

Then she said,

“But how would I explain to my friends,
and my parents,
that my son flunked out of kindergarten?
They’d think he’s retarded.

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呵呵

媽媽不能忍耐

一想到外婆，鄰居，朋友指指點點，

說自己小孩智障

媽媽就要發瘋了

And I know TIMMY is bright.”

CAROL saw DR. FELDMAN look again at the message on her beeper.

“No, I can’t do that.

I won’t hold my son back.

What’s option number three?”

“The third option is medication.

- ADDERALL,
- RITALIN,
- METADATE,
- CONCERTA.

I usually start with a low dose of Concerta with these boys.

If that works, great.

If not, we adjust the dose.”

“But stimulants like Concerta and Adderall and the others
—aren’t they harmful?”

“All medications have the potential for harm,”

DR. FELDMAN said,

真是冷啊！

standing up, suddenly impatient.

“A child can die from swallowing twenty tablets of Tylenol.

I’ve seen it happen.”

She looked again at her pager.

“I’m sorry, CAROL, but I have to answer this page.

Think about what we discussed.

Call my office if you decide you want to start the medication
for your son.”

CAROL agonized over her decision for a week.

- She talked to friends.
- She searched the Internet.
- Finally she called and asked for the prescription DR. FELDMAN had suggested.
- TIMMY's initial response to the medication reassured CAROL that she had made the right decision.
- TIMMY's behavior in school improved instantly, the very first day he took the medication.

"You did the right thing,"

TIMMY's teacher told her.

"Now we can see how smart TIMMY really is.

He really is a very bright boy."

CAROL beamed.

DR. FELDMAN recommended that TIMMY take the medication every day including weekends and holidays.

- But CAROL decided not to make him take it over Christmas vacation.
- The first two days he was off the medication, she was alarmed by his behavior.
- The old impulsivity and energy were back, but with an unfamiliar edge.
- He didn't come inside when she called for him.
- When she went to bring him indoors, he suddenly threw his plastic hockey stick at her
 - —directly at her, as if he wanted to hurt her.
- He had never done anything like that before.

The next day, and every day thereafter for the next two years,

- she made sure he took his medication.
- DR. FELDMAN increased the dose the following fall, in October of first grade, when the teachers again said that TIMMY wasn't paying attention.

好恐怖

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The following spring, CAROL heard about a study showing that boys who took medications like Concerta were likely to be shorter as adults than boys who didn't take those medications

—three to four inches shorter, if they began the medication at age five as TIMMY had and stayed on it for ten years.¹

- CAROL is short, just 5'1" tall, and TIMMY's father is on the short side, at 5'8".
- TIMMY was already showing a love for basketball, and CAROL didn't want to be responsible for TIMMY ending up 5'7" tall when he might have been 5'11".
- So, when school let out that June, she stopped giving TIMMY the medication.
- As she expected, TIMMY showed "rebound."
- He was more impulsive than ever.
 - But she also noticed something she had never seen before:
 - TIMMY had become lazy.
 - It wasn't just that he didn't want to do his chores.
 - He didn't want to do much of anything.
 - He used to be enthusiastic about any project she or TIMMY's grandparents would propose.
 - He'd go fishing with his grandfather, or pick weeds in the garden with his grandmother, and he would enjoy it.
 - Nothing was boring to him.
- Now everything was boring, except for video games.

CAROL came to me for a second opinion that August.

"I just don't know what to do,"

she said.

"If I don't start him back on the medication,

- I'm dreading what school will be like,
- the phone calls from the teachers, all that.

But I'm really bothered by what I'm seeing in TIMMY this summer.

- He's been off the medication for two months and he's not getting any better.
- The LAZINESS
 - —that's something totally new for him.
- The lack of motivation.

Do you think TIMMY would have been like that now if he hadn't ever taken the medication?"

"It's hard to say for sure what might have happened,"

I said.

“I stopped his medication because I was worried it might stunt his growth,”

CAROL said.

“Now I’m finding out all these other problems.

But what other options do I have?”



The syndrome we call ADHD has probably always been with us.

- Despite some claims to the contrary,
- ADHD was not invented thirty or forty years ago by drug companies eager to sell more medications.²

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BOYS ADRIET

In fact, it’s easy to find accounts of boys written one hundred or more years ago who would meet all the modern criteria for ADHD.

- Some of those accounts are in medical journals.
- Some are in short stories and novels.

Take TOM SAWYER, for example.

- If you’ve never actually read MARK TWAIN’s novel *The Adventures of Tom Sawyer*,
- you may want to read it now
 - —if only to get some perspective on how the normative view of American boys has changed in the past 150 years.
- The official guidebook containing all criteria for all psychiatric diagnoses is the American Psychiatric Association’s *Diagnostic and Statistical Manual of Mental Disorders*, 4th Edition
 - —usually abbreviated *DSM-IV*.

Some of the official *DSM-IV* criteria for ADHD include:

- “Often fails to give close attention to details or makes careless mistakes in schoolwork . . .”
- “Often has difficulty sustaining attention in tasks . . .”
- “Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort, such as schoolwork or homework . . .”³

TOM SAWYER fulfills these criteria with EXUBERANCE.

- He has no interest in school or schoolwork.
 - Any indoor task that requires sustained attention is a task that TOM will not do well, if he does it at all.
 - And despite attending Sunday school regularly, he appears not to have absorbed any of the information imparted to him there.
 - He does at one point decide that he wants to win a prize Bible so as to impress BECKY THATCHER.
 - Children in his town are awarded special tickets when they memorize verses from the Bible.
 - TOM trades knickknacks with his buddies to garner the necessary number of tickets needed to win a prize Bible
 - —corresponding to memorizing two thousand verses.
 - He turns in the tickets and is awarded the Bible.
 - At the award ceremony, BECKY THATCHER’s father is about to bestow the award Bible on TOM, when he asks TOM to mention the names of just two of the twelve disciples of JESUS.
 - TOM is at a complete loss.
 - He finally blurts out, “DAVID and GOLIATH!”
 - Many thoughtful people have pointed out that TOM SAWYER and boys like him would be diagnosed as having ADHD if they were to show up in a twenty-first-century American school.
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- These people have suggested, with good reason, that perhaps the pathology lies not in the boy but in the school.

In *Why Gender Matters*,

- I told the story of a boy who needed to be on multiple medications for ADHD when he was in school;
 - but when he was assisting a professional hunter in Zimbabwe,
 - he didn’t need the medications at all,
 - even when he had to sit motionless in the bush for long periods of time.
- 哇塞！
- (Update: in the years since I wrote *Why Gender Matters*,
 - that boy has gone on to college and
 - has published his poems and short stories in his college’s journals
 - —without taking any medication for ADHD.)

The fact remains that if TOM SAWYER is going to graduate from a twenty-first-century high school and go on to college,

- he is going to have to be able to sit still and pay attention in class.
- To help him do that, his parents may ask their doctor for help.
- And the doctor is likely to prescribe a medication such as
 - Adderall,
 - Ritalin,
 - Concerta,
 - METADATE,
 - DEXEDRINE,
 - FOCALIN, or
 - DAYTRANA.

Stimulant medications such as

- Ritalin and
- Dexedrine

have been on the market for over fifty years.

Newer versions such as

- Adderall,
- Concerta,
- Focalin, and
- Metadate

have been available only since the 1990s.

In the past two decades, there has been an explosion in the use of these “academic steroids” for the treatment of

- ADD,
- depression, and even
- overweight.

Boys in 2007 are thirty times more likely to be taking these medications compared with boys in 1987.⁴

“Why Not Give It a Try?”

How come boys today are so much more likely to be taking these medications compared with twenty years ago?

- Several factors account for the greater willingness of doctors to medicate young minds today, and the greater willingness of parents to accept and even to seek out such medication.⁵
- One factor is
 - our cultural shift away from individual responsibility toward third-party explanations.

Thirty years ago,

- if a boy cursed his parents and spit at his teacher, the neighbors might say that the boy was a disobedient brat who needed a good spanking.

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BOYS ADRIFT

Today,

- the same behavior from a similar boy might well prompt a trip to the pediatrician or the child psychiatrist.
- And the doctor is likely to “diagnose” the boy with
 - Conduct Disorder (DSM-IV 312.82) or
 - Oppositional-Defiant Disorder (DSM-IV 313.81).
- The main criterion for both these “disorders” is
 - DISOBEDIENT and
 - DISRESPECTFUL behavior that persists despite parental efforts.⁶

Is there really much of a difference between

- a neighbor saying
 - “That boy is a disobedient brat,” and
- a doctor saying
 - “That boy has oppositional defiant disorder”?

I think there is.

- If another parent whom you trust and respect suggests that your son is a disobedient brat who needs stricter discipline, you just might consider adopting a tougher parenting style.
- If a doctor says that your son has a psychiatric diagnosis, the next step might reasonably be to ask whether a medication would be appropriate.
- You can see how the assignment of responsibility differs in these two cases.
- If your son is a disobedient brat,
 - then your son and you (his parents) have to take responsibility.
 - You have to own up to the problem.
 - You will probably have to make some changes.
- But if your son has a psychiatric diagnosis,
 - that means he has a chemical imbalance in his brain.
 - He—and you—are no more to blame for that imbalance than if your son were diagnosed with childhood leukemia, right?

Psychiatrist [Jennifer Harris](#) recently pointed out that today,

- “many clinicians find it easier to
 - tell parents their child
 - has a brain-based disorder
- than to
- suggest parenting changes.”⁷

Another factor

- has to do with the inappropriate acceleration of the early elementary curriculum.
- We’ve already discussed in [CHAPTER 2](#) how the first-grade curriculum of thirty years ago has become the kindergarten curriculum of today.
- If five-year-old JUSTIN fidgets and taps his pencil and sometimes stands up in class for no reason, he may be referred to my office.
- Mom brings along a piece of paper from the teacher explaining the school’s concerns.
 - “They think that JUSTIN may have ADHD.”
- Result:
 - there’s been an explosion in the prescribing of medication for very young children, particularly preschoolers and kindergartners.⁸

According to an international comparison published in 2006, children in the United States are now at least three times more likely to be taking psychiatric medications compared with children in any European country.⁹

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And

it often doesn’t stop with just one medication.

- One-third of American children who are taking psychotropic medications today are actually
 - taking two or three or four medications,
 - not just one.¹⁰
- It’s increasingly common to find a young boy who is on
 - Adderall for his ADHD,
 - clonidine to control his outbursts, and
 - Prozac to stabilize his moods.
- Four years ago,
- I obtained funding from the [AMERICAN ACADEMY OF FAMILY PHYSICIANS](#) to survey doctors in the [WASHINGTON, DC](#), area* about ADHD.
- We asked many questions, but the most important one was:
 - “Who first suggests the diagnosis of ADHD?”
 - Is it the doctor?
 - Some other professional?
 - Mom?
 - Dad?
 - A teacher?
 - A neighbor?
 - A relative?

The doctors told us that in the majority of cases, the diagnosis is first suggested by a teacher.¹¹

Don't get me wrong.

- There's nothing wrong with teachers referring students with a concern about the student's ability to pay attention.
- On several occasions, I've visited schools at the request of parents to observe their son in the classroom after a teacher has made such a referral.
- I've found that the teacher is always right.
- JUSTIN isn't paying attention.
- He's looking up at the ceiling or staring out the window or tapping his pencil.
- In every case I investigated, the teacher's observation was correct.
- If the teacher says JUSTIN isn't paying attention, he's not paying attention.

But why isn't JUSTIN paying attention?

- Does he truly have ADHD?
- Or is there some other reason?
- It's the doctor's job to determine whether JUSTIN's problem is due to ADHD or to some other cause.
- Unfortunately, most pediatricians and family physicians simply do not have the training to perform a sophisticated neurodevelopmental assessment of a five- or six- or seven-year old boy to determine whether that boy's difficulties are due to ADHD or to some other problem.
- To their credit, just about every pediatrician and family physician who responded to our survey recognized that fact.

*Our survey included doctors in the
DISTRICT OF COLUMBIA, SUBURBAN MARYLAND
(PRINCE GEORGES COUNTY AND MONTGOMERY COUNTY),
AND NORTHERN VIRGINIA.

So what do the doctors do when asked to evaluate such a boy?

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- We found that in a few cases, the doctor refers the child to a developmental psychologist who is qualified to perform such an assessment.
- That doesn't happen very often, for several reasons.
 - One is that many health plans don't cover such assessments, or if they do they provide only reduced or partial coverage.
 - The out-of-pocket costs for such an assessment usually begin around seven hundred dollars but can run much higher.
 - Another reason is that many doctors believe in an empirical trial of medication, a time-honored tradition in American medicine.
 - It's a very simple idea.
 - If you think Justin might have ADHD, try giving him a medication for ADHD.
 - If that helps, great.
 - If not, then maybe it would be appropriate to go ahead and spend the seven hundred dollars on the formal assessment.
 - Or maybe just try a stronger dose.
 - These medications will, indeed, improve the attention span and academic performance of many of the boys for whom they are prescribed.
- And for many middle-class and affluent parents today, that's all they need to know.

那就是爸媽偷懶，
一味相信「磚家」的下場
那就是愚民的人生，
只能傻傻的聽人擺佈，
自己無能研究問題
- If their boy is struggling in school,
 - and the teacher suggests that these medications might help, and
 - the doctor agrees
 - —and the parents know three or four other boys in the same class who are already taking these same medications, apparently with good results—
- why not give it a try?

In May 2006, I had the privilege of speaking at the

- “LEARNING AND THE BRAIN” conference
- cosponsored by HARVARD UNIVERSITY.
- I wish I could say that my presentation was the most interesting, but it wasn’t.
- Not by a long shot.
- The most interesting presentation by far, I thought, was given by
- MIT professor JOHN GABRIELI.
- Dr. GABRIELI’s team somehow obtained permission to give powerful ADHD medications to normal children.
太強了吧！
史上最厲害說客
叫的動爸媽配合
- These researchers also obtained permission to withhold ADHD medication from boys (and a few girls) who undeniably did have ADHD.
- Then Dr. GABRIELI’s team tested both groups, on and off medication, to see how well both groups could learn with and without the medication.
- There was an audible gasp in the audience when Dr. Gabrieli showed us the crucial slide:
 - medication for ADHD improved the performance of normal kids by the same degree that it improved the performance of kids with ADHD.¹²
- That’s a tremendously important finding.

Many times I’ve been asked to provide a second opinion of a boy who’s already been diagnosed with ADHD.

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- The parents come to me for a variety of reasons.
 - Sometimes the in-laws have told them that their son doesn’t need, or shouldn’t take, medication.
 - Sometimes the parents have seen something scary on TV about these drugs.
- So I evaluate their son, let’s call him JAKE.
- Several hours later, after doing the evaluation, I have sometimes said,
 - “Mrs. So-and-so, Mr. So-and-so, I’m just not convinced that JAKE really has ADHD.”
- One of the parents answers,
 - “But the other doctor prescribed Adderall, and it’s made such a difference.
 - JAKE is doing so much better since he’s been on the medication.
 - He’s much less fidgety in class.
 - The teacher says he’s much better behaved and more focused.
 - And his grades are up.”
- In other words, these parents
 - —and JAKE’s doctor as well, in this case—
- are using the response to medication to confirm the diagnosis.
- “If medication for ADHD helps JAKE to learn better, doesn’t that mean that JAKE probably has ADHD?”

As many of us have long suspected, and as Dr. GABRIEL's study confirms, the answer to that question is no.

- These medications
 - —Ritalin,
 - Concerta,
 - Metadate,
 - Dexedrine,
 - Adderall,
 - and other stimulants—are likely to improve the performance of a normal child just as much as a child who truly has ADHD.
- Just because these medications improve a child's performance in class, does not mean that the child has ADHD.
 - “But where's the harm?”
one parent asked me.
 - “If the medication helps my son to do better in class,
and it doesn't seem to be hurting him in any way,
why not give it to him?”
- And now we come to the crux of the problem.
- Where's the harm, in deed?
 - Many boys do look and feel more or less OK while they're taking these medications.
- What these parents don't know
 - —and what the doctor also may not know—
- is that **even relatively short-term use of these drugs,**
 - **for just a year or perhaps less,**
 - **can lead to changes in personality.**
- The boy who used to be
 - agreeable,
 - outgoing,
 - and adventurous
- becomes
 - lazy
 - and irritable.

^{go}
BOYS ADRIET

The Nucleus Accumbens

Professor WILLIAM CARLEZON and his colleagues at HARVARD MEDICAL SCHOOL recently reported that **giving stimulant medications**
—such as those used to treat boys with ADHD—
to juvenile laboratory animals results in those animals displaying a loss of drive when they grow up.¹³

- These animals look normal,
 - but they're lazy.
- They don't want to work hard for anything,
 - not even to escape a bad situation.
- The HARVARD INVESTIGATORS suggested that the stimulant medications might cause a similar phenomenon in children.
- Children who take these medications may look fine while they're taking them.
 - They may look fine after they stop taking them.
- But as adults
 - —**when they're no longer taking the medication—**
- they won't have much drive.
 - **They won't have much get-up-and-go.**

對大人的影響呢?

The stimulant medications appear to exert their harmful effects by damaging an area in the developing brain called the **NUCLEUS ACCUMBENS**.

- Independent groups of researchers at
 - the University of Michigan,
 - the Medical University of South Carolina,
 - the University of Pittsburgh,
 - Brown University, as well as in
 - Sweden,
 - Italy, and
 - the Netherlands,all have found that **exposing young laboratory animals to these medications**
— even at low doses for short periods—
can **cause permanent damage to the**
NUCLEUS ACCUMBENS,¹⁴
the part of the brain that is responsible for translating motivation into action.

If a boy's nucleus accumbens is damaged,

- he may still feel hungry,
- or sexually aroused.

He just won't feel motivated to do anything about it.

What about girls?

- Would girls be affected the same way?
- It's hard to say.
- Professor [CARLEZON](#) has studied only male animals.
- There's substantial evidence that the **neurological substrate of ADHD in girls and women may differ significantly from the substrate of ADHD in boys and men.**¹⁵
- So we can't assume that what's true for males holds true for females, or vice versa.
- More research on sex differences in the consequences of treatment for ADHD, and on the long-term consequences of these medications generally, is urgently needed.

One particularly disturbing recent study
—conducted jointly by researchers at

- Tufts,
- UCLA, and
- Brown University—

documented a **nearly linear correlation between the nucleus accumbens and individual motivation.**

The smaller the nucleus accumbens, the more likely that person was to be apathetic, lacking in drive.

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- These investigators emphasized that **apathy was quite independent of depression.**¹⁶
- A young man can be completely unmotivated
 - —and still be perfectly happy and content.
- Drug companies spend tens of millions of dollars every year promoting medications such as
 - Adderall,
 - Ritalin,
 - Concerta, and
 - Metadate.
- But **nobody is buying ads to warn parents and doctors about the possible risks.**
 - To be sure, those risks are not proven.
- We don't know for sure yet whether the damage these medications cause in the brains of laboratory animals also occurs in children who take the same medications.
 - Maybe it does.
 - Maybe it doesn't.
- Would you like to volunteer your son for the trial?

Video Games Actually Do Fry Your Brain

Prescription medications are not the only problem.

- New research suggests that **video games may also affect the brain in ways that compromise motivation.**
- **The nucleus accumbens operates in balance with another area of the brain, the**
 - **DORSOLATERAL PREFRONTAL CORTEX (DLPFC).**
 - The **NUCLEUS ACCUMBENS** is responsible for **channeling drive and motivation**, and **gives the drive a rewarding character.**
 - The DLPFC provides a target and a context for the drive.

Both these areas of the brain need to be working properly in order for a person to be motivated, and working toward a real-world goal.

- A recent brain imaging study of boys between the ages of **seven and fourteen years** found that **playing video games puts this system seriously out of kilter.**
- It seems to **shut off blood flow to the DLPFC.**
- In other words, **playing these games engorges the nucleus accumbens with blood, while diverting blood away from the balancing area of the brain.**
- The net result is that playing video games gives boys the reward associated with achieving a great objective, but
 - without any connection to the real world,
 - without any sense of a need to contextualize the story.¹⁷
- In other words, **video games may affect the brain in children in much the same way that medications like Ritalin and Adderall and Concerta do.**
- Curiously, this point is not disputed even by the most **ardent** advocates of video games.

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In *Everything Bad Is Good for You*,
STEVEN JOHNSON

noted that research on video games suggests that these games stimulate “a part of the brain called the nucleus accumbens” in much the same way that crack cocaine affects the same area.¹⁸

- As we saw in THE LAST CHAPTER, video games probably don’t make any one smarter.
- More important, video games have the power to displace and distort the motivation of boys and young men, so that they no longer have the same interest in real-world success and real-world achievement

“An Antiquated Relic of the Victorian Era”

We have considered an array of evidence that the stimulant medications that are most often prescribed for ADHD may adversely affect children.

- And as we have seen, some studies suggest that these adverse effects may be lasting:
 - studies in laboratory animals in particular have shown that taking these medications during youth or adolescence may negatively affect learning and motivation in adulthood.

But I’ve had first-hand experience with boys who have proven that these adverse effects can be overcome.

I first met JARED when I did his prekindergarten physical.

- He was five years old:
 - bright,
 - outgoing, and
 - friendly.
- Kindergarten, first grade, and second grade all went fairly well.
- Problems began in third grade, when JARED was eight years old.
- He started complaining about school.
 - “It’s stupid.”
- The teachers were beginning to tell the parents that JARED wasn’t paying attention in class.
- He had tested in the gifted range, especially in creative writing and art, but
 - the problems actually seemed to have started after he was put into these gifted and talented classes, despite the very small class sizes.
 - And his grades were starting to suffer.
- JARED’s mother, DEBORAH STOLZEUS, had researched the situation thoroughly.
- When she brought JARED to see me, she had already diagnosed the problem:

JARED had ADHD,

“predominantly inattentive type”

(she was using the professional jargon quite appropriately).

“The reason he doesn’t like school is because he can’t pay attention, because of his ADHD, so he doesn’t do well,”

she explained to me.

“JARED is a perfectionist.

He hates to do something if he can’t do it perfectly.”

JARED’s mother didn’t really even want me to do my own evaluation;

she just wanted me to prescribe medication.

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“I’m concerned that if we don’t take action now, while he’s still young, the situation could snowball,”

she told me.

“He’ll decide he hates school, and he’ll start to fall behind. We definitely need to do something.”

This encounter took place in the fall of 1996,

- when I had less confidence in my own judgment and diagnostic skills than I have now.
- And DEBORAH was quite determined.
- I suspect that any doctor might have had difficulty persuading her to change course.
1962 生, 1980, 19 歲生物系畢業, mit, 25 歲得 md-phd,
46 歲看到小孩,
哇! 已經混了 21 年, 拼不過一個媽媽
- I insisted on a brief (thirty-minute) evaluation.
呵呵, BECKY PERELLI 可以瞄我一眼,
交談不到三分鐘, 就可以下診斷書,
我需要去知會工會報告他的超能力
- At the end of that evaluation, I still wasn't persuaded that JARED really had ADHD, of any variety.

But DEBORAH said,

“Why don't we just try a low dose of medication and see whether it helps?”

(This was ten years before Dr. GABRIELI did his study, remember.)

So I agreed to prescribe **Ritalin**,
5 mg twice daily.
● It had no effect
—no beneficial effect, at least.

JARED and DEBORAH returned three weeks later.

“He needs a stronger dose,”

DEBORAH said authoritatively.

“I'm sorry,”

I said.

“I'm just not persuaded that increasing JARED's medication is
the right course of action.

I tell you what.

How about if you take Jared to see Dr. So-and-so”

—and I named a renowned expert on ADHD.

“He's a consultant to the NIH.

He's written a book on the subject.

Let's see what he has to say.”

Mrs. STOLZFUS took her son to be evaluated by the famous expert.

He agreed with her;

JARED needed a stronger dose of medication.

When that didn't help,

the doctor switched JARED from **Ritalin** to **Adderall**.

When JARED became even more moody and withdrawn,

he diagnosed a **COMORBID** condition

—depression—

and added **Prozac**.

When JARED began having angry outbursts at school,

the doctor added **clonidine**.

JARED was now nine years old,

- he still hated school,
- but now he was on three medications.

At that point the family switched health insurance to a plan
we didn't accept, and
I lost touch with them.

Four years passed.

Dad got a promotion and the family switched back to a
plan that was in our network.

One day I noticed that the name *Jared Stolzhus* was on the schedule
for a routine school physical.

- I looked in the nurse's note under the listing of medications and saw “None.”
- Interesting.

- I walked into the room.

- I barely recognized JARED.

- **He was a totally different kid:**

- not merely older,
- but **TRANSFORMED**.

- He was now muscular and tan.

- But **the biggest difference was that he was smiling**

- **—a big smile like I hadn't seen on his face since he was in kindergarten.**

跳級生就是跳級生,
計憶力超強

“Hello, JARED,”
I said,
“nice to see you again.
So tell me:

what’s your favorite thing to do in your spare time?”

This is a good break-the-ice question
for girls and boys in this age group,
I have found.

“My favorite thing to do in my spare time,”
JARED repeated, thinking the question over.

“Hmm.
Well right now, I think my favorite thing to do is to read about
ancient MINOA,”
he said.

“How’s that?”
I asked.

“Well maybe ancient CRETE.
Or MYCENAE.”

He launched into a fascinating lecture about the ancient island
of THERA, in the AEGEAN SEA.

This island was destroyed by a massive volcanic explosion
around 1500 BC,

he explained.

“But the people living there must have known the volcano
was about to erupt,”

he told me,

“because when you excavate the REMNANTS of the island
—which is now called SANTORINI,
but it’s really just the CALDERA of the volcano
that used to be THERA—
when you excavate the CALDERA, you find sheep bones
and cattle bones but no human bones.”

I was just glad I knew what a “caldera” was.
呵呵

JARED continued with his lecture.
He taught me

how that cataclysmic event may have served as the source of
the myth of ATLANTIS, recorded by PLATO roughly a
thousand years after the event, about an advanced
civilization crumbling into the sea as the result of a natural
disaster.

I was fascinated.

JARED gave me the title of a book
on the subject to read so that I could learn more.¹⁹

I went out to talk with DEBORAH.
“I’m amazed,”
I told her.
“I’m so glad to see
—what a tremendous change!
Tell me what happened,”
I asked,

but before she could answer,

I tried to answer my own question.
“I bet I know what happened.
I bet you stopped the medications.
I was so uneasy about such a young boy
taking all those medications.”

Mom shook her head.
“We tried stopping the medication,
but he got worse.
More withdrawn, more grumpy.

The doctor you sent us to was worried JARED might be suicidal
and talked about hospitalizing him.

So we went back on the medications,
even though they really didn’t seem to be helping much.”

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“So what’s the secret?”
I asked.
“What turned everything around?”

Deborah said,
“We transferred him from Byron* to the Heights.”

Now it was my turn to shake my head.
“But Byron is an outstanding school,”

I said.
“And so is the Heights.
They’re both excellent schools.
How could transferring JARED from one excellent school to another
excellent school make such a huge difference?”

Mrs. Stolfus matter-of-factly responded,
“The HEIGHTS is all boys. Byron is coed.”

“What possible difference could that make?”

I asked

—and before she could reply,

I said,

“Mrs. STOLFUS, I don’t mean to be disrespectful,
but we’re in the twenty-first century now.

As near as I can see,

single-sex education is an antiquated relic of the Victorian era.

We live in a coed world.

School should prepare kids for the real world, which is a coed world,
so school should be coed.

That just seems pretty straightforward to me.”

大錯特錯

男小孩，同年齡階段智力發展落後

女小孩上學被迫當褓姆，去忍耐幼稚的男小孩

可是將來長大進社會，可以與成熟男人共事

所以所謂練習和男人相處，其實是虐待

會讓女小孩對男性有不佳印象

我小學3456年級

李大偉坐我正後方，一直踢我的椅子

可是他付錢上老師的補習班，我沒有

所以我只能忍氣吞聲

上樓梯的時候，

他又一直翻我的裙子

DEBORAH responded:

“You need to visit the HEIGHTS, DR. SAX.

- JARED was miserable at the old school.
- The people at Byron had determined, quite correctly, that JARED is gifted in art and in creative writing.
- So they put him in special advanced classes in art and creative writing
- —where he was the only boy, or sometimes just one of two boys.
- Most of the other kids in the class were always girls.
- So the other boys teased him.

“You like art, you must be a fag,”

they said.

可見美國社會觀念是多麼落後

性別歧視深入人心

所以coed的意思是，不可以大邊小邊切
人數少的一派永遠被當異類欺負

JARED asked to drop out of the art class.

- He came to feel that school was a waste of time.
- His talents just led to him being made fun of.
- But he couldn’t pretend to like the things that the other boys like, that boys are “supposed” to like at a coed school.
- So he was just miserable.
- At the HEIGHTS, he’s just blossomed.
- Obviously all the kids in the art class at the HEIGHTS are boys.
- Same with the creative writing class.
- And it’s just amazing how rapidly his interests have expanded and matured in the years he’s been at the HEIGHTS.
- Not just academically.
- His favorite teacher, the history teacher, is also the LACROSSE coach.
- So JARED decided to try LACROSSE, and you know what?
- He’s pretty good!”

*The name I have given the coed school, “Byron,”
is fictitious;

呵呵，不願意講真名

“THE HEIGHTS” in POTOMAC, MARYLAND, is the true name of
the school to which this boy transferred,
www.heights.edu.

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BOYS ADRIAT

This was an epiphany of sorts for me.

呵呵，這時候他51歲了

I had attended only coed schools.

*I had always thought of single-sex education as an out-of-date relic
of a bygone era.*

Maybe I would have to reconsider.

I wanted to share this true story with you for two reasons.

- Most important, in the context of THIS CHAPTER,
- I think it's important to stress that despite all the scary news about
 - Adderall and
 - Ritalin and
 - Concerta and
 - Metadate,
- the fact that
- **a boy has taken these medications does not mean that he is doomed.**

免驚，孩子生機很強，韌性夠
被摧殘，還是有希望的

- In the six years since Mrs. STOLZFUS told me about **the benefits of a boys' school** for her son,
- I've seen many other similar cases:
 - boys who were put on medications
 - when they attended a coed school,
 - who were able to stop those medications
 - after switching to a boys' school,
 - and who blossomed into well-rounded students and athletes
 - after making the transition.
 - Those cases have led me to believe that, in many cases,
 - **boys are being put on these medications to fit the boy to the school.**

I've come to believe that we should not medicate boys so they fit the school;

- **we should change the school to fit the boy.**

說來說去就是教育要整改嘛！

- Which leads me to the second reason I think this story is important.
- In this true story, the school provided JARED's salvation.
- The school made all the difference.
 - The parents were as dedicated and concerned and involved as any parents can be, all along, but
 - until they transferred JARED to a school that was a better match for him,
 - JARED was heading in the wrong direction.
- I'm not saying that the HEIGHTS is a "better" school than BYRON.
 - I know other families who much prefer BYRON to the HEIGHTS.
 - They feel that the HEIGHTS is
 - too regimented, or
 - too strict, or that it has
 - too strong a religious affiliation.
 - Recall the point I made in CHAPTER 2:
 - there's no such thing as the "best" school without specifying the particular child who will be attending there.
 - **The best school for JARED may be a bad choice for his brother JASON.**
 - **You have to know your child** and
 - **then find the school that is the best match for your child.**



One of the central questions we are trying to answer in this book is why we are seeing so many boys today who just don't seem motivated.

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What has changed in just the past twenty to thirty years that might account for this emerging phenomenon?

So far, we've identified three factors:

- 1. Changes in educational format and curricula over the past twenty to thirty years, in particular:
 - • The acceleration of the early elementary curriculum
 - • The shift from *Kenntnis* to *Wissenschaft*
 - • The abolition of competitive formats
- 2. The advent of ultra-high-tech video games
- 3. The overprescribing of stimulant medications
 - In the brain, both video games (factor #2) and medications (factor #3) may adversely affect the delicate balance between the nucleus accumbens and the DLPFC,²⁰
 - resulting in boys who look normal,
 - who feel normal,
 - but who just don't see the point of working hard to achieve some objective in the real world.

When I first wrote about this topic for publication, I hadn't identified the three factors listed above.

- My first article on this topic²¹ followed a completely different line of inquiry and evidence,
- tracking down the fourth factor:
 - ENDOCRINE DISRUPTORS.