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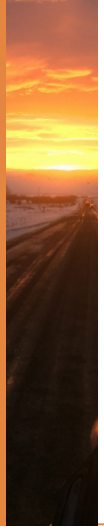

Mat Walter

FAMILY AND HUMAN DEVELOPMENT

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Prescription Stimulants: Understanding the Risks and What can be Done to Help

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The first step to preventing the misuse of prescription medications is understanding which prescriptions have a high incidence of being misused, which include prescription stimulants. In this MontGuide we will learn about the medical and nonmedical use of prescription stimulants.

MISUSING PRESCRIPTION MEDICATIONS POSES a multitude of risks. Did you know that nationally five of the top 10 reasons teenagers misuse prescription medications have to do with easy access? In fact, 62% of youth between the ages of 12 to 17 report misuse because of easy access to parents' medicine cabinets, while 57% say they got medications from a friend or relative.

How are these statistics impacting Montana youth? According to the 2021 Montana Youth Risk Behavior Survey, 12% of students took prescription pain medicine (such as codeine, Vicodin®/hydrocodone, OxyContin®, and Percocet®) without a doctor's prescription or differently than how a doctor told them to use it during their life; 22.3% of high school students and 22.8 % of American Indian students on or near a reservation report being offered, sold, or given an illegal drug on school property during the past 12 months. The statistic was similar for Urban American Indian students as well (23.1%).

What are prescription stimulants?

Prescription stimulants are medications used to treat diagnosed medical conditions like attention-deficit hyperactivity disorder (ADHD) and narcolepsy. Prescription stimulants belong to a larger class of drugs, stimulants. Stimulants include both legal and illegal substances. Stimulants may temporarily increase alertness, attention, and energy. Stimulants affect the central nervous system by increasing the activity of a group of hormones called catecholamines. Catecholamines (including dopamine and norepinephrine) not only transmit messages to the body, but they also increase heart rate, blood pressure, breathing rate, muscle strength and mental alertness.

Examples of prescription stimulants include:

- dextroamphetamine (Dexedrine®)
- dextroamphetamine/amphetamine combination product (Adderall®)
- methylphenidate (Ritalin®, Concerta®)

There are also diet aids such as Preludin®, Fastin®, or Meridia® to treat obesity in the short-term for obese patients who have not been able to lose weight on other therapies.

What are illicit stimulants?

Illicit stimulants include cocaine, methamphetamine, cathinone (a stimulant found naturally in the khat plant) and often known as "bath salts."

How do stimulants work in the body?

Prescription stimulants work by regulating the activity of two brain chemicals, **dopamine** and **norepinephrine**. These chemicals are called neurotransmitters and they carry messages from one nerve cell to the next nerve, muscle, or gland.

Dopamine: Dopamine plays important roles in thinking and planning, motor control, motivation, arousal, reinforcement, and reward – allowing one to feel pleasure, satisfaction, and motivation.

Norepinephrine: Norepinephrine affects blood vessels, blood pressure and heart rate, blood sugar, and breathing. It also helps a person wake up in the morning, improves attention, memory, and helps with focus throughout the day.

How do prescription stimulants help someone diagnosed with ADHD?

Our brain contains billions of neurons that send messages back and forth, forming pathways. Individuals with ADHD suffer from abnormally low activity of dopamine and norepinephrine in the brain's pathways that regulate attention, learning and

concentration. Prescription stimulants boost levels of these neurotransmitters, thereby permitting improved cognitive function. Of note, current evidence does NOT indicate that individuals without ADHD will experience this benefit.

How do prescription stimulants help someone diagnosed with narcolepsy?

When someone has **narcolepsy**, they experience low levels of hypocretin (also called orexins), a neurotransmitter that controls the sleep/wakefulness cycle, as well as appetite. Prescription stimulants increase norepinephrine, which affects the regulation of sleep and wake states, increasing alertness, arousal, and attention.

What are the short-term effects of prescription stimulant use?

Stimulants can decrease mental and physical fatigue, keep a person awake, and diminish appetite. These effects are intensified when large doses of stimulants are taken. Other short-term effects include: a feeling of euphoria along with an increase in blood pressure, heart rate, breathing, hyperactivity, and a decrease in blood flow.

Can prescription stimulant use lead to substance use disorder?

No, not when taken as directed by a health care professional. Despite concern surrounding prescription stimulants leading to later substance misuse among children and teens diagnosed with ADHD and treated with prescription stimulants, current studies suggest that treatment with ADHD medications does NOT increase the risk of substance use disorders. Rather, there is new evidence that proper treatment of ADHD with prescription stimulants reduces an individual's risk of substance abuse. In contrast, individuals who overtake prescription stimulants (or use them without medical oversight) have higher rates of substance use disorders, including stimulant use disorder.

Did you know when prescription stimulants are not used as directed by a doctor, this is called misuse?

Non-medical use of a prescription stimulant occurs when someone uses the medication prescribed for either ADHD or narcolepsy in a way the doctor did not prescribe. This may include 1) use without a prescription of one's own; 2) use in greater amounts, more often, or longer durations than directed; and 3) use in any other way not directed by a doctor.

What are the signs someone is misusing prescriptions?

- Taking higher doses than prescribed
- Excessive mood swings or hostility
- Increase or decrease in sleep
- Poor decision-making
- Appearing to be high, unusually energetic, or sedated
- Requesting early refills or continually "losing" prescriptions
- Seeking prescriptions from more than one doctor (doctor shopping)
- Stealing, forging, or selling prescriptions

How does prescription stimulant misuse affect the body?

Short-term: In high doses, prescription stimulants can lead to a dangerously high body temperature, an irregular heartbeat, heart problems, and seizures.

Long-term: Heart attack and other adverse cardiovascular effects, psychosis, high blood pressure, heart disease and irregular heartbeat, weight loss, anxiety and depression. Long-term use of stimulants, even as prescribed by a doctor, can cause a person to develop a **tolerance**, which means that he or she needs higher and/or more frequent doses of the drug to get the desired effect.

Increasing the dose without consulting a doctor is considered non-medical use and could lead to stimulant use disorder.

Did you know prescription drug diversion is a type of misuse?

Drug diversion is the illegal distribution of prescription drugs or their use for purposes not intended by the prescriber.

Types of drug diversion include selling or sharing prescription drugs; doctor shopping; illegal internet pharmacies; drug theft; prescription pad theft and forgery; and illicit prescribing. Diverted medications significantly contribute to the non-medical or misuse of prescription medications. Youth and young adults often obtain prescription stimulants through diversion.

Why do teens misuse prescription stimulants?

Teens report misusing prescription medications for many non-medical reasons:

- To feel good or get high
- To relax or relieve tension
- To reduce appetite
- To increase alertness
- To experiment with the mental effects of the substance
- To be accepted by peers or to be social
- To try to improve concentration or to stay awake
- To try and improve academic or work performance
- Easy access

What is stimulant withdrawal?

Stimulant withdrawal is the group of symptoms that occur upon the abrupt discontinuation or decrease in the intake of medicine. Stimulant withdrawal symptoms include intense cravings for stimulants, sleep difficulties, loss of cognitive function, extreme mood swings, chills, body aches, tremors and shakiness, fatigue, exhaustion, difficulty concentrating, depression and anxiety.

What is an overdose?

An overdose occurs when a person uses enough of a drug to cause a life-threatening reaction or death. The signs of a stimulant overdose include restlessness, tremors, overactive reflexes, rapid breathing, confusion and aggression, hallucinations and panic states, abnormally increased fever, muscle pain and weakness, irregular heartbeat, and seizures.

Prevention Efforts: 'We Are All in This Together'

Risk and protective factors

Many factors influence a person's chance of developing a mental and/or substance use disorder. Risk and protective factors can have influence throughout a person's entire lifespan. Risk factors are characteristics at the biological, psychological, family, community, or cultural level that precede and are associated with a higher likelihood of negative outcomes. Protective factors are characteristics associated with a lower likelihood of negative outcomes or that reduce a risk factor's impact. Protective factors may be seen as positive countering events.

Most adults who meet the criteria for having a substance use disorder started using substances during their teen and young adult years (CDC, 2022). With this in mind, it is important to be aware of the risk and protective factors that can significantly influence substance use.

Risk factors for youth substance use can include family history of substance use, favorable parental attitudes toward the behavior, poor parental monitoring, parental substance use, family rejection of sexual orientation or gender identity, association with delinquent or substance using peers, lack of school connectedness, low academic achievement, childhood sexual abuse, and mental health issues. (CDC, 2022)

Now, more than ever, research has improved our understanding of factors that help protect youth from a variety of risky behaviors, including substance use. Protective factors for youth substance use can include parent or family engagement, family support, parental disapproval of substance use, parental monitoring, and school connectedness. (CDC, 2022)

Proper storage and disposal of household medications

Safe use, storage, and proper disposal are the first steps to minimize and prevent prescription stimulant misuse and diversion.

Safe use involves taking medication as prescribed, never taking more than instructed, and never taking somebody else's medication. Never give, sell, or trade prescriptions to someone else. Never combine medications with alcohol or other drugs, as this can increase the risk for death.

Safely store household medications by hiding and locking them away where family, friends, or guests cannot find them. Always keep medications in their original packages/containers so it is clear who the medication is prescribed to and how it should be used.

Safely and promptly dispose of medications if they are no longer needed. Methods of safe disposal include **prescription drug drop-boxes**. To find a nearby drop-box in Montana, visit dphhs.mt.gov/BHDD/SubstanceAbuse/dropboxlocations. **Drug deactivation pouches** are extremely useful for those who cannot get to a drug drop-box. These pouches neutralize medications when mixed with water and are also recommended for people who utilize a household septic system. PLEASE NOTE: If these options are not available, medicines can be mixed with an undesirable substance such as coffee grounds or kitty litter in a sealed plastic bag and disposed of in household trash. Flushing medications is only recommended when ALL other disposal options are not possible. Remember, if a septic system is being utilized, many prescription medications should not be flushed. Check the FDA (Food and Drug Administration) flush list to see if a medication can be flushed: www.fda.gov/drugs/disposal-unused-medicines-what-you-should-know/drug-disposal-fdas-flush-list-certain-medicines#FlushList

Dispelling Myths

MYTH	TRUTH
Prescription medications are safer to abuse than other illicit substances.	When misused or taken without a doctor's prescription, these drugs can be just as harmful as illegal street drugs. Mixing different prescription drugs together or with alcohol or other substances can be deadly.
Using and sharing prescription medications is legal.	Using these drugs without a doctor's prescription or abusing someone else's prescriptions—or your own—is always harmful and illegal.
Misusing prescription drugs is fine "every once in a while."	Prescription drugs may affect brain function. For a person who needs medication for a legitimate medical condition, this effect may improve a deficit or imbalance. For someone without a medical condition, the changes caused by chronic abuse of any prescription medication can be damaging, lead to a substance use disorder, or become life-threatening.

Glossary of Terms

Attention Deficit and Hyperactivity Disorder (ADHD) is defined by the Centers for Disease Control as a neurodevelopmental disorder. ADHD is commonly diagnosed in childhood and often lasts into adulthood. Children with ADHD may have trouble paying attention, controlling impulsive behaviors (may act without thinking about what the result will be), or be overly active.

Narcolepsy is defined by the Centers for Disease Control as a sleep disorder that causes excessive daytime sleepiness (including episodes of irresistible sleepiness) combined with sudden muscle weakness.

Tolerance is defined by the National Institutes of Health National Library of Medicine as the diminished response to alcohol or other drugs over the course of repeated or prolonged exposure.

Physical dependence is defined by the National Institutes of Health National Cancer Institute as a condition in which a person takes a drug over time, and unpleasant physical symptoms occur if the drug is suddenly stopped or taken in smaller doses.

Drug overdose can be defined as taking too much of a certain substance (prescription, over the counter, or illegal) either by accident or intentionally, which can cause serious medical complications, including death. The severity of the overdose can depend on what drug, how much, and a person's physical and medical history.

Doctor shopping is defined as seeing several medical providers for a single illness to obtain more prescription medications for the purpose of either non-medical/misuse or to divert medications illegally.

Prescription drug drop-boxes. Some facilities and businesses are registered with the U.S. DEA (Drug Enforcement Administration) to collect unused or expired medicines. These sites safely and securely gather and dispose of unused or expired medicines, including those that contain controlled substances (e.g., prescription opioids). Authorized collection sites in the community may include retail, hospital, or clinic pharmacies; and/or law enforcement facilities. Collection sites may offer on-site medicine drop-off boxes, mail-back programs, or other in-home disposal methods to assist with safely disposing of unused or expired medicines.

Drug deactivation pouches are an easy-to-use drug disposal method that has been proven to safely destroy unused, unwanted, and expired medications with the simple addition of tap water, making them unavailable for misuse and safe for disposal in the normal trash.

What can you do now?

Preventing accidental overdoses, misuse, and diversion of prescription stimulants (and all medications) is everyone's responsibility. The first step is education and awareness. Read more about the facts, risks, and signs of prescription stimulant misuse, ask questions when visiting a healthcare provider and share information with family members, friends, and people in the community. Safely store medications and participate in community drug-disposal efforts.

Help save lives from overdose/Good Samaritan Act

There are laws and policies in place to encourage people to call for emergency assistance (such as 9-1-1) when they experience or witness a drug overdose. These laws and policies protect individuals from arrest and/or prosecution for drug-related crimes (e.g., drug possession, and drug paraphernalia possession) and other related crimes.

Additional resources

NATIONAL RESOURCES FOR ADULTS AND TEENS

- www.samhsa.gov/meth
- www.samhsa.gov/resource/ebp/treatment-stimulant-use-disorders
- www.samhsa.gov/homelessness-programs-resources/hpr-resources/rise-prescription-drug-misuse-abuse-impacting-teens

STATE RESOURCES FOR ADULTS AND TEENS

- dphhs.mt.gov/BHDD/SubstanceAbuse/index
- dphhs.mt.gov/suicideprevention/988
- opi.mt.gov/Families-Students/Family-Student-Support/Alcohol-Drug-Prevention
- parentingmontana.org/prevent-substance-use-at-every-age/

NATIVE AMERICAN RESOURCES

- pttcnetwork.org/centers/mountain-plains-pttc/american-indian-substance-misuseabuse-prevention-resources
- www.rmtlc.org/tribal-opioid-response-tor/
- www.ihs.gov/asap/

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