Serious Risk for Harm
Methylphenidate makes some people feel more awake and alert. If you have been drinking alcohol, taking methylphenidate might fool you into feeling alert enough to drive, or do other activities requiring alertness. This would be false. You may still be impaired, and it would be unsafe to drive.

Think First
Alcohol may increase the levels of methylphenidate in your blood to unsafe levels, potentially causing more unwanted effects such as jittery or irritable feelings, trembling hands, or trouble sleeping.

Think First
If you are depressed, blue, or moody, alcohol is a 'downer' and will make you feel worse.

Mechanism
b) The mechanism for altered pharmacokinetics of methylphenidate appears to be related to the decreased esterase metabolism of methylphenidate from ethanol or ethylphenidate (the transesterification product of ethanol and methylphenidate).

c) Alcohol is a sedative drug but also has stimulant-like effects. the stimulant-like effects of ethanol are mediated by catecholamines, such as dopamine. Methylphenidate is a dopamine and norepinephrine agonist and reuptake inhibitor. Since stimulant-like effects of both alcohol and methylphenidate are mediated through catecholamine systems, stimulant-like subjective, cognitive, and performance responses of the two drugs should be positively correlated.

Significance
a) Alcohol use is not recommended in individuals taking methylphenidate due to potential exacerbation of methylphenidate CNS effects.

b) Patients who experience pronounced stimulant-like effects from alcohol also report greater stimulant effects from related stimulant medication dextroamphetamine. This correlation does not apply with performance measures, such as the DSST (digit symbol substitution test), or vigilance task performance or heart rate, suggesting that these other effects are mediated by a different mechanism.

Tobacco
(smokes, butts, cigs, cigars, darts, stageis, cancer sticks, chew, dip)

Interaction
a) 33 smokers with and without ADHD were given moderate doses of methylphenidate (10-40 mg). Methylphenidate did not seem to have an effect on smoking-reinforced responding.

b) In an open-label study of 154 participants, use of extended-release methylphenidate was associated with low rates of smoking in those with ADHD.

c) In a prospective observational study, individuals with ADHD who received methylphenidate increased their tobacco consumption compared to when they were not taking methylphenidate.

Mechanism
a) Evidence suggests that individuals with ADHD smoke more than their non-ADHD counterparts, possibly because the effects of nicotine on cognition are similar to the effects of stimulants such as methylphenidate. Therefore, individuals who take stimulants may be less likely to smoke cigarettes, as this may "replace" the desire for the effects of smoking.

Significance
a-c) Overall, the effects of methylphenidate of tobacco consumption are conflicting. More studies are needed to draw a conclusion regarding the effects of methylphenidate on smoking.
Caffeine
(coffee, java, joe, soda, pop, tea, energy drinks (Red Bull®, Monster®, Rock Star®, Amp®, NOS®, Full Throttle®, 5-hour Energy Drink®, Beaver Buzz®), chocolate, cocoa)

Interaction
As a sympathomimetic, methylphenidate has the potential to enhance the adverse or toxic effects of other sympathomimetics, such as caffeine.

Significance
Patients should be monitored for increased sympathomimetic effects such as increased blood pressure or heart rate if these drugs are used concomitantly. Patients should also be counselled to avoid excessive caffeine intake.

Think First
Lots of caffeine could make the side effects of methylphenidate worse. This includes jittery or irritable feelings, trembling hands, or trouble sleeping.

Cannabis/ Hash
(marijuana, mary jane, BC bud, blunt, chronic, J, jay, joint, hemp, pot, grass, herb, 420, dope, THC, weed, reefer, ganja, gangster, skunk, hydro, hash oil, weed oil, hash brownies, grease, boom, honey oil, K2, spice, poppers)

Interaction
Use of cannabis has the potential to increase the tachycardic effect of methylphenidate.

Significance
The clinical significance of this interaction is unclear.

Think First
Using cannabis while taking methylphenidate could make your heart beat too fast.

Cocaine/ Crack
(coke, snow, flake, nose candy, blow, lady white, stardust, rock, crystal, bazooka, moon rock, tar)

Interaction
a) In a placebo-controlled study of cocaine users given 60 or 90 mg of methylphenidate, no significant changes were observed in the pharmacokinetics or the physiological effects of cocaine (20 or 40 mg IV). However, a decrease in some of the positive subjective effects was observed.
b) A second study also observed a reduction in positive and reinforcing effects of cocaine when methylphenidate was co-administered.
c) In a 40 year old male with ADHD who sought out help for addiction (cocaine, gambling, and compulsive sexual behaviour), extended-release methylphenidate managed his addictive behaviours, and after 1 year, he was addiction-free.
d) A 43 year old male was diagnosed with ADHD after years of a cocaine addiction, with some bouts of cocaine-induced psychosis. He was given methylphenidate after 2 months of cocaine abstinence. He used cocaine concomitantly with methylphenidate, and experienced a psychotic episode.

Mechanism
a,b) The mechanism of this interaction is unclear.
c) Methylphenidate is a CNS stimulant which blocks the dopamine transporter in the brain. The positive reinforcement and reward centers of the brain (which would be dysfunctional in ADHD) are the regions most affected by methylphenidate. This effect by methylphenidate is likely the mechanism for methylphenidate helping with addiction management.
d) Methylphenidate and cocaine are both dopamine agonists, each which alone may cause psychotic episodes. Therefore, the combination of methylphenidate and cocaine may lead to an additive risk of psychosis.

Significance
a) Based on the limited data available, stimulant medications should be used with caution in patients taking cocaine. The authors of the first study above suggested that 60 or 90 mg doses of methylphenidate may be safely used in patients who use cocaine. The authors of the second study concluded that sustained release formulations (40 and 60 mg) appeared safe to use in cocaine abusers.
b) While concomitant use of methylphenidate did increase the cardiovascular effects of cocaine, the increase was not clinically significant in this study.
c) Methylphenidate may be helpful in managing addiction in individuals with ADHD.
d) Individuals who use cocaine while taking methylphenidate may be at higher risk of psychosis and should be monitored. More studies are required to draw a conclusion.

Serious Risk for Harm
Cocaine and methylphenidate have some things in common, like the way they can affect your heart and blood pressure if you have too much. Taken together, we think the risk is greater. You could get a dangerously fast heart beat, or too high blood pressure. There is a risk of you getting heart damage, seizures, or even a stroke.
### Opioids

(codine, Tylenol #3®, codeine, meperidine, Demerol®, DIXM, dextromethorphan, robo, skittles, morphine, morph, monkey, methadone, bupe, sub, or dolly, oxycodone, OxyContin®, hillbilly heroin, OxyNeo®, OC, oxy, racy, perc, fentanyl, Sublimaze®, Duragesic®, china white, hydrocodone, Hydromorphone, suboxone®, buprenorphine, vike, heroin, H, horse, junk, smack, brown sugar, black tar, down, china white, purple drank, W18, carfentanil, elephant tranquilizer, loperaimide, lope, lean)

#### Interaction

Concurrent administration of methylphenidate and opioids may allow for a lower opioid dose to be used in patients on long-term opioid treatment.

#### Significance

**Unknown Dangers**

Sometimes doctors prescribe methylphenidate for patients taking opioids, but this is done carefully, with close monitoring.

### Amphetamines/ Stimulants

(upper, ecstasy, E, X, Molly, mesc, XTC, love drug, MDMA, MDE, Eve, MDMA, adam, disco biscuit, bennies, black beauties, Deedrined®️, Adderall®, delxies, Ritalin®, speed, crystal, ice, glass, crank, tweak, cat, qat, khat, bath salts, ivy, wave, Vanilla Sky, Cloud 9)

#### Interaction

- a) In a study of 32 patients with advanced cancer and chronic pain, methylphenidate administration (10 mg with breakfast and 5 mg with lunch) augmented the analgesic effect of opioids (morphine, hydromorphone, levorphanol, oxycodone) and decreased opioid-induced drowsiness.

- b) 56 individuals with methamphetamine-dependence received methylphenidate. Patients who were given methylphenidate had less amphetamine-positive urine tests and less cravings for methamphetamine. There were no significant differences in adverse drug reactions between methamphetamine-dependent individuals who received methylphenidate or placebo.

- c) 16 individuals were given methylphenidate in combination with MDMA. There were no significant changes in psychotropic effects when the two drugs were combined, but the adverse hemodynamic response (increased blood pressure and heart rate) and other adverse events were higher with the combination.

#### Mechanism

a) there is direct overlap of the mechanism of action between methylphenidate and amphetamines or other stimulants, since all increase CNS dopamine and norepinephrine activity.

b) The mechanism for this may be due to that methylphenidate antagonizes the effects of methamphetamine in vitro, or that methylphenidate acts as a “replacement” to methamphetamine.

c) The mechanism is likely pharmacodynamic in nature.

#### Significance

a,c) Patients should be monitored for increased sympathomimetic effects such as increased blood pressure or heart rate if these drugs are used concomitantly. Patients should also be counselled on avoidance of amphetamine use while taking methylphenidate.

b) Methylphenidate may be useful in managing methamphetamine-dependence.

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### Phencyclidine/ Ketamine

(PCP, angel dust, Peace Pill, rocket fuel, love boat, embalming fluid, elephant tranquilizer, hing, illy, wet, wet stick, dipper, toe tag, cadillac, snorts, or surfer, Special K, vitamin K, CVR, cat tranquilizer, cat valium, jet, kit kat, Ketalar®️)

#### Interaction

**KETAMINE:**

- a) A 6-year-old boy taking methylphenidate 5 mg twice daily for ADHD was given midazolam 20 mg orally for a procedure requiring sedation. After 20 minutes, he was only mildly sedated and would not lie still. He was given an additional 10 mg oral dose of midazolam mixed with ketamine 60 mg orally but remained alert and uncooperative. Sedation was then successfully achieved with intravenous glycopyrrolate and midazolam over 5 minutes. His recovery was uneventful, but he experienced nausea, vomiting and lethargy after discharge.

- b) In an attempt to speed recovery, methylphenidate (20 mg IV) was given to 30 patients after a short urologic procedure requiring sedation with ketamine. No improvement in recovery scores were seen and patients experienced a higher incidence of vomiting, excessive talking and limb movement.

#### Mechanism

**KETAMINE:**

a) It was thought that the methylphenidate antagonized the sedative effects of midazolam and ketamine. It was also hypothesized that methylphenidate delayed both the absorption and elimination of the drugs.

#### Significance

**KETAMINE:**

a) The significance of this interaction is unclear due to the limited data available.

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Unknown Dangers

Unknown dangers.

LSD/ Hallucinogens

(acid, blotter, cartoon acid, hit, purple haze, trip, white lightning, raggedy ann, sunshine, window-pane, microdot, boomers, buttons, mesc, peyote, salvia, morning glory seeds, flying saucers, licorice drops, pearly gates, magic mushrooms, shrooms)

Interaction

No information currently available.

Unknown Dangers

Unknown dangers.

Benzodiazepines

(benzos, downers, tranquilizers, tranks, Ativan®, Halcion®, Klonopin®, Rivotril®, Restoril®, Serax®, Valium®, Xanax®, Rohypnol® / (roofies, rope, the forget or date rape pill))

Interaction

No information currently available.

Unknown Dangers

Unknown dangers.

Benzodiazepines may reduce the stimulant effects of methylphenidate.

Mechanism

a) It was thought that the methylphenidate antagonized the sedative effects of midazolam and ketamine. It was also hypothesized that methylphenidate delayed both the absorption and elimination of the drugs.

Significance

a) Benzodiazepines should be avoided when the stimulatory effects of methylphenidate are required.

Serious Risk for Harm

Methylphenidate makes some people feel more awake and alert. If you have been using benzodiazepines, taking methylphenidate might fool you into feeling alert enough to drive, or do other activities requiring alertness. This would be false. You may still be impaired, and it would be unsafe to drive.

Think First

Benzodiazepines may reduce the stimulant effects of methylphenidate.

Think First

Doctors sometimes prescribe benzodiazepines to patients taking methylphenidate to help treat some illnesses, but this is done very carefully.

Benzodiazepines are 'downers'. If you are depressed, blue, or moody, benzodiazepines can make this worse.

References


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