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# Drug Interactions

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*Together, we can change the course of the HIV epidemic...one woman at a time.*

**#onewomanatatime**

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[www.thewellproject.org](http://www.thewellproject.org)



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# Drug Interactions

- Some drugs, herbs, supplements, foods, beverages can change amount of HIV drugs in the bloodstream
- When one drug affects the level of another it is called an **interaction**
  - Some drug interactions do not cause problems
  - Some interactions can be harmful





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# Drug Interactions

- In order for a drug to work properly:
  - Must take the correct **dose** at the correct time so the right amount of drug enters the bloodstream
- Before an HIV drug is approved:
  - Researchers study different doses, choose one that is safe and effective
  - Dose has to be high enough to stop HIV from making copies, but not so high that it causes a lot of side effects
- Individuals should discuss drug interactions with providers when choosing new HIV drug combination, adding/removing any drug from regimen



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# The Body Metabolizes Drugs

- This process involves the liver and kidneys:
  - Liver makes chemicals called **enzymes** to break down drug
  - Kidneys filter drug out of bloodstream and into urine
  - Drug is removed from the body in urine or feces (“poop”)
- Sometimes, one drug affects the way another drug is metabolized
  - Speeds up or slows down action of liver enzymes
  - Can cause big changes in blood levels of other drugs that are broken down by the same enzyme



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# Drugs That Slow Down Metabolism

- Causes other drugs to be metabolized and removed from the system more slowly, which:
  - Increases amount of other drugs in body
  - Increases how long other drugs stay in bloodstream
- Individuals taking drugs that slow down liver enzymes should talk to their providers about adjusting doses of other medications



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# Drugs That Slow Down Metabolism

- ***Can be useful in HIV treatment, for example:***
  - Norvir (ritonavir), a PI, makes liver enzymes work more slowly
  - “Boosts” levels of other PIs like Reyataz (atazanavir); amount of Reyataz in the blood is higher than it would be without Norvir
  - Lowers chance of developing resistance
- **However ...**
  - Norvir can cause other types of drugs to have higher levels in the blood
  - Increased blood levels of drugs can cause overdoses or increase side effects



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# Drugs That Speed Up Metabolism

- Causes other drugs to be metabolized and removed from the system more quickly, which:
  - Decreases amount of other drugs in the body
  - May cause other drugs to be less effective
- Some drugs used to treat HIV-related conditions speed up liver enzymes
  - Can be serious if it causes the HIV drugs to be metabolized too quickly



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# Drugs That Speed Up Metabolism

- If HIV drug levels drop too low:
  - HIV can make more copies of itself
  - Viral load can go up
  - Resistance can develop
  - HIV drugs can stop working
- For example, NNRTIs like Viramune (nevirapine) and Sustiva (efavirenz), speed up enzymes
  - May remove other drugs from the system more quickly
- Individuals taking drugs that speed up liver enzymes should talk to their providers about adjusting doses of other medications





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# Other Types of Drug Interactions

- If drugs cause similar side effects, combining them may ***increase the amount or seriousness*** of those side effects
  - E.g., Combining Zerit (stavudine) with Videx (didanosine) may increase risk of **lactic acidosis** (high levels of lactic acid in the blood), especially in pregnant women
- Some drugs work against each other and should not be taken together

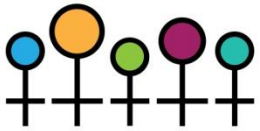


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# Substances That May Interact with HIV Drugs

Prescription, OTC, complementary, and recreational drugs *may have major interactions* with HIV drugs:

- **Birth control pills** with ethinyl estradiol (form of estrogen) can interact with HIV meds, making birth control pills less effective, increasing chance of pregnancy
- **Complementary therapies**
  - Most vitamins and herbs have not been studied with HIV drugs
  - St. John's Wort (herbal anti-depressant) and garlic supplements should not be taken with any PIs or NNRTIs



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# Substances That May Interact with HIV Drugs

- **Recreational or street drugs and alcohol**
  - Reports of overdoses caused by taking **recreational drugs** and HIV drugs
  - Interactions between boosting agents (Norvir, Tybost) and methamphetamine (crystal meth, speed), MDMA (ecstasy), methedrone (meow mewo), or ketamine (vitamin K) are particularly dangerous
  - Combining alcohol and older HIV drugs (e.g., Videx) can be dangerous, but social drinking is considered safe
- **Methadone and buprenorphine**
  - Can interact with many HIV drugs



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# Other Drugs That May Interact with HIV Drugs

## Classes of drugs that are more likely to interact with HIV drugs

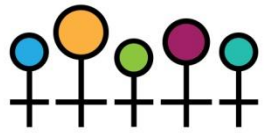
*(not a complete list):*

- Antianxiety drugs (benzodiazapenes, or benzos)
- Antifungal drugs
- Antibiotics
- Antacids
- Antihistamines (allergy meds)
- Opioid-based pain killers (narcotics)
- Drugs to treat:
  - Convulsions or seizer disorder
  - High cholesterol
  - Depression
  - Problems with heart rhythm
  - Erectile dysfunction
  - Tuberculosis
  - Hepatitis C
- Drugs that:
  - Thin the blood
  - Increase bowel activity



Any pills that you take ***go through your stomach***

- What and when a person eats affects how much of a drug gets into the system
  - Most drugs are absorbed faster on an empty stomach, which can be a good thing, but can cause more side effects
- Some drugs need to be taken with food so they break down more slowly, or to reduce their side effects
  - Others should be taken with fatty foods
- Important to follow food instructions carefully



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# Taking Care of Yourself

- There are many possible drug interactions with HIV drugs
  - Important for health care provider and patient to review medications together, including OTC, prescription, street drugs, complementary therapies
  - Even if only used occasionally
- Providers may need to adjust doses or change drugs based on possible interactions



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# Taking Care of Yourself

To get the best results, *it is a good idea to:*

- Keep a list of all your drugs
- Give copy of drug list to all providers
- Discuss all medical conditions with provider
- Each time you are prescribed a new medication, check with provider to see if it's safe to combine with other therapies
- Have all prescriptions filled at one pharmacy
- Review information that comes with each medication ("package insert")
- Learn about all possible side effects of your drugs
- Learn how, when, with what to take your drugs
- Do not stop/change drugs without talking to provider
- Report any side effects to provider



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## Learn More!

- To learn more, please read the full fact sheet on this topic:
  - [Drug Interactions](#)
- For more fact sheets and to connect to our community of women living with HIV, visit:
  - [www.thewellproject.org](http://www.thewellproject.org)
  - [www.facebook.com/thewellproject](https://www.facebook.com/thewellproject)
  - [www.twitter.com/thewellproject](https://www.twitter.com/thewellproject)