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Drug Interactions

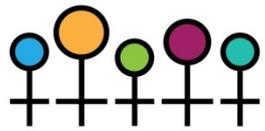
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Together, we can change the course of the HIV epidemic...one woman at a time.

#onewomanatatime

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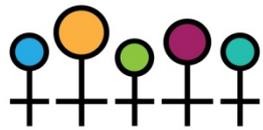


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Drug Interactions

- 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

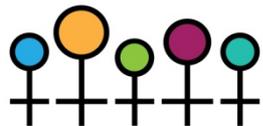
- For a drug to work properly:
 - Must take the correct **dose** at the correct time so the right amount of drug enters the bloodstream
- Before an HIV drug is approved:
 - Researchers study different doses, choose one that is safe and effective
 - Dose has to be high enough to stop HIV from making copies, 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

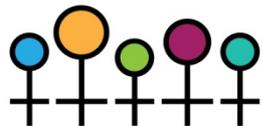
- This process involves the liver and kidneys:
 - Liver makes chemicals called **enzymes** to break down drug
 - Kidneys filter drug out of bloodstream and into urine
 - Drug is removed from the body in urine or feces (“poop”)
- Sometimes, one drug affects the way another drug is metabolized
 - Speeds 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

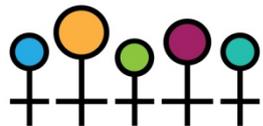
- Causes other drugs to be metabolized and removed from the system more slowly, which:
 - Increases amount of other drugs in body
 - Increases how long other drugs stay in bloodstream
- Individuals taking drugs that slow down liver enzymes should talk to their providers about adjusting doses of other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



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Drugs That Slow Down Metabolism

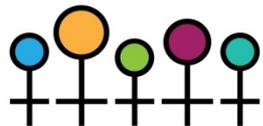
- ***Can be useful in HIV treatment, for example:***
 - Norvir (ritonavir), a PI, makes liver enzymes work more slowly
 - “Boosts” levels of other PIs like Reyataz (atazanavir); amount of Reyataz in the blood is higher than it would be without Norvir
 - Lowers chance of developing resistance
- **However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

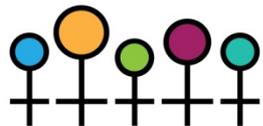
- If HIV drug levels drop too low:
 - HIV can make more copies of itself
 - Viral load can go up
 - Resistance can develop
 - HIV drugs can stop working
- For example, NNRTIs like Viramune (nevirapine) and Sustiva (efavirenz) speed up enzymes
 - May remove other drugs from the system more quickly
- Individuals 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

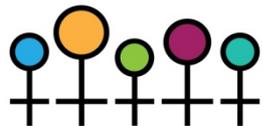


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Substances That May Interact with HIV Drugs

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
 - Calcium or iron should not be taken with INSTIs



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Substances That May Interact with HIV Drugs

- **Recreational or street drugs and alcohol**
 - Reports of overdoses from taking **recreational** and HIV drugs
 - Interactions between boosting agents and methamphetamine, MDMA, mephedrone or ketamine 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
 - Inform both opioid treatment and HIV providers about all drugs and supplements you are taking



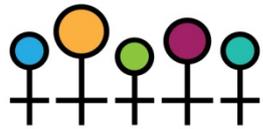
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Other Drugs That May Interact with HIV Drugs

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

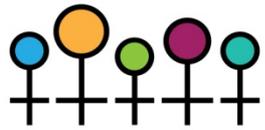
(not a complete list):

- Antianxiety drugs (benzodiazepines, or benzos)
- Antifungal drugs
- Antibiotics
- Antacids or prescription heartburn medicines
- Antihistamines and nasal sprays (allergy medications)
- Opioid-based pain killers (narcotics)
- Drugs to treat:
 - Convulsions or seizure disorder
 - High cholesterol
 - Depression
 - Problems with heart rhythm
 - Erectile dysfunction
 - Tuberculosis
 - Hepatitis C
- Drugs that:
 - Increase bowel activity
 - Thin the blood



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

- What you eat can affect how much of your drugs get into your 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
- If you have trouble getting the right food, ask for help



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Taking Care of Yourself

- There are many possible 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

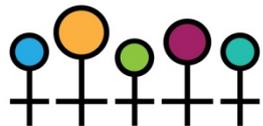


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Taking Care of Yourself

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 the same pharmacy
- Read 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
- Tell provider about any side effects



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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
 - www.facebook.com/thewellproject
 - www.twitter.com/thewellproject