

## Lipodystrophy and Body Changes

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## What Is Lipodystrophy?

Lipodystrophy means abnormal fat changes. It describes a number of changes in body fat that are experienced by some people living with HIV. Lipodystrophy can also include changes in fat and sugar levels in the blood. Although there is no official definition of lipodystrophy in HIV, the term is generally broken down into two categories:

- Body shape changes – Includes fat loss (lipoatrophy) and fat gain (lipohypertrophy) or movement of fat from one area to another of the body (redistribution)
- Metabolic complications – Includes increases in fats and sugars in the blood

People living with HIV can experience both body shape changes and metabolic complications. This is sometimes called lipodystrophy syndrome.

## Body Shape Changes

Changes in the shape of your body can be caused by fat loss, fat build up, or fat redistribution.

Fat loss may happen in the:

- Arms and legs (fat loss may cause veins to appear larger)
- Buttocks
- Face (sunken cheeks)

Fat build up may happen in the:

- Stomach
- Breasts
- Back of the neck ("buffalo hump")
- Front of the neck ("turkey neck")
- Round lumps of fat may appear under the skin (lipomas)

Some studies show that lipodystrophy affects men and women differently. Women are more likely to see fat gain in their breasts and stomachs while men are more likely to see fat loss in their legs, arms, buttocks, or faces. However, many men and women have both symptoms. It is not clear why there might be differences based on sex. It may have something to do with hormones or with how men and women burn fat differently.

Lipodystrophy can dramatically change your appearance. These changes can leave some people with a poor self-image and low self-esteem. Some people may want to stop taking their HIV drugs. Others may put off starting HIV treatment because they are afraid of experiencing lipodystrophy symptoms. If you are feeling this way, it is important to talk to your health care provider so that you take the necessary steps to improve your health. It is also important to know that many newer HIV drugs are less likely to cause lipodystrophy. If you are taking HIV drugs that do cause lipodystrophy, you and your provider can consider switching to HIV drugs that may reduce these symptoms.

## Metabolic Complications

Changes in fat (lipids) and sugar (glucose) in your blood are called metabolic complications and include:

- Increased lipids in your blood such as cholesterol and triglycerides ([hyperlipidemia](#))
- Increased blood sugar or glucose levels (hyperglycemia)
- Insulin resistance or [diabetes](#)
- Increased [lactic acid](#) in your blood

Metabolic changes cannot be seen with the naked eye; they can only be confirmed through blood tests. Without treatment, they can cause serious long-term health problems.

- Increased levels of cholesterol and triglycerides can put you at a higher risk of developing [heart disease](#), or having a heart attack or stroke

- Increased blood sugar and insulin levels greatly increase the chance of developing diabetes, a disease that can cause vision and kidney problems and may be life threatening
- Increased lactic acid can lead to a rare but dangerous condition called lactic acidosis. Symptoms include nausea, vomiting, or stomach pain; feeling very weak and tired; and shortness of breath.

It is important that you and your health care provider make sure you get regular [lab tests](#) to check for metabolic complications. Call your health care provider right away if you are experiencing symptoms of lactic acidosis.

## What Causes Lipodystrophy?

Scientists have many theories about what causes lipodystrophy and research in this area is ongoing. However, the exact causes of lipodystrophy are still unknown. Different symptoms may have different causes. It is important to know that newer HIV drugs are far less likely to cause lipodystrophy. The different types of lipodystrophy listed below are mostly linked to older HIV drugs that are rarely used today.

- **Fat loss:** Research shows that certain HIV drugs from the [nucleoside reverse transcriptase inhibitor \(NRTI\)](#) class are the main cause of fat loss. These drugs are Retrovir (zidovudine, AZT or ZDV) and Zerit (stavudine, d4T).
- **Fat gain:** It is less clear what causes fat gain. Taking [protease inhibitors \(PIs\)](#), another class of HIV drugs, may increase the risk of fat accumulation. Another theory is that insulin resistance and increased lipid levels play a role in fat gain. Insulin resistance occurs when your body does not respond to normal amounts of insulin and produces more insulin to try to get your body to respond. The higher levels of insulin may increase the build-up of fat.
- **Increased lipids:** Some of the PIs are believed to increase fat levels in the blood, especially older PIs, such as Crixivan (indinavir) and Kaletra (lopinavir plus ritonavir)
- **Increased blood sugar levels, insulin resistance, and diabetes:** Both PIs and NRTIs have been linked to insulin resistance and diabetes
- **Lactic acidosis:** Some of the NRTIs are associated with lactic acidosis, especially Zerit and Videx (didanosine, ddl)

Not everyone taking HIV drugs develops body shape changes or problems with fat or sugar levels in the blood. The following appear to be risk factors for lipodystrophy:

- Starting HIV treatment with lower [CD4 cell counts](#) and/or higher [viral loads](#)
- Starting HIV treatment at an older age
- Being on an HIV drug regimen that contains certain PIs and NRTIs (the longer the time on the regimen, the higher the risk)
- Being white
- [Smoking](#)

## Can Lipodystrophy Be Treated?

At this time, there is no simple treatment for lipodystrophy. However, there are a number of approaches that are used to treat some of the symptoms.

### Fat loss

- **Switching or avoiding Zerit and Retrovir:** People who have not developed fat loss should avoid taking the NRTIs Zerit or Retrovir to prevent this condition. Zerit is a much older HIV drug that is rarely used today. However, you and your health care provider may decide that changing drugs is not right for you. Be sure to talk with your health care provider before stopping or

switching any drugs.

- **Injections, implants, and plastic surgery:** Some people have procedures done to restore fullness in the face. However, many of these treatments have not been approved by the US Food and Drug Administration (FDA) for HIV-related lipodystrophy. If you are considering plastic surgery, research the options carefully. It is important to consult with a plastic surgeon or dermatologist experienced in treating HIV-related lipodystrophy.
- For more information, see our fact sheet on [Lipodystrophy Treatments and Fat Loss](#)

## Fat gain

- **Human growth hormone (HGH):** HGH may reduce excess fat build-up in the stomach; however, it can also cause fat loss in the arms, legs, or face. The FDA approved the use of a synthetic growth hormone releasing factor called Egrifta (tesamorelin) for HIV-related lipodystrophy in 2010.
- **Liposuction:** Liposuction is a plastic surgery procedure that can remove fat from the back of the neck and around the breasts, but not usually from the belly. It tends to be a temporary solution and the removed fat often returns.
- **Leptin:** In February 2014, the FDA approved the use of Myalept (metreleptin, the drug form of the hormone leptin) for lipodystrophy. High levels of leptin suppress appetite and cause more fat to be used up. The drug has not been shown to work specifically for HIV-related lipodystrophy.
- For more information, see our fact sheet on [Lipodystrophy Treatments and Fat Gain](#)

## Increased lipids

- **Switching HIV drugs:** Switching to other HIV drugs may lower cholesterol and triglycerides. Speak to your health care provider about this option before stopping any drugs.
- **Lipid-lowering medications:** There are drugs, often called statins, that reduce lipid levels. Some lipid-lowering medications [interact](#) with HIV drugs, so it is important for your health care provider to review all your medications before prescribing anything.
- For more information, see our fact sheet on [Lipodystrophy Treatments and Metabolic Changes](#)

## Increased glucose levels, insulin resistance, and diabetes

- **Switching HIV drugs:** Switching to other HIV drugs may reduce blood sugar levels. Speak to your health care provider about this option before stopping any medications.
- **Medications:** There are a variety of drugs that can be used to treat these conditions; talk to your health care provider about which ones might be right for you.
- For more information, see our fact sheet on [Lipodystrophy Treatments and Metabolic Changes](#)

## All symptoms of lipodystrophy

- **Diet and physical activity:** Increasing [physical activity](#) and improving your [diet](#) may help with all of the symptoms of lipodystrophy. Physical activity can help reduce fat, build muscle, and reduce elevated lipid and glucose levels.

Reducing the amount of saturated fats you eat may help reduce cholesterol levels. Reducing the amount of fats and carbohydrates you eat may help reduce triglyceride levels. Increased fiber in the diet can help control insulin resistance and may help decrease stomach fat from lipodystrophy.

While there is no definite proof that these methods will improve lipodystrophy, there is no downside to eating right and staying physically active. It is a good idea to speak with a nutritionist or dietician about the steps you can take to improve your diet and level of physical activity.

## Caring for Yourself

If you are experiencing lipodystrophy, it is especially important to take care of your body. It is important that you keep all of your appointments with your health care provider, get regular [lab tests](#), and tell your provider about any changes in the way you feel or in your body shape. Recording body measurements and weight on a regular basis, whether or not you are taking HIV drugs, may give you valuable information down the road.

Some of these body shape changes and metabolic problems have been linked to heart disease and strokes in people living with HIV, so make sure you are checked regularly. Other factors, such as high blood pressure, may also contribute to the risk of heart attacks and strokes and need to be treated. You can also support your body, and especially your heart, with a healthy [diet](#), [regular physical activity](#), and [stopping smoking](#).

Even though the physical changes of lipodystrophy can cause [emotional distress](#), no researcher has suggested that people with lipodystrophy should stop taking their HIV drugs. **The benefits of taking HIV drugs to preserve your health far outweigh the risk of lipodystrophy.** If you are concerned about your appearance, talk to your health care provider about treatment options. There are many things that you can do to stay healthy and feel good about your body.

## Additional Resources

Select the links below for additional material related to lipodystrophy.

- [HIV and Lipodystrophy \(HIVinfo\)](#)
- [Changes to Your Face and Body \(Lipodystrophy, Wasting and Weight Gain\) \(POZ\)](#)
- [Lipodystrophy Today: An HIV Doc on Causes, Treatment Options and Long-Term Surv...](#)
- [Facing Facts: Dealing with Lipodystrophy \(POZ\)](#)
- [Body Weight and Body Shape Changes \(CATIE\)](#)
- [The Benefit of Treatment Has Outweighed the Clinical Impact of Lipodystrophy, C...](#)
- [Body Shape Changes \(Lipodystrophy\) \(International Association of Providers of A...](#)



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