



# BODY SHAPE CHANGES (LIPODYSTROPHY)

## WHAT IS LIPODYSTROPHY?

Lipodystrophy, or “lipo” for short, is a collection of body shape changes in people taking antiretroviral medications (ARVs). “Lipo” refers to fat, and “dystrophy” means bad growth. These changes include fat loss, fat deposits, and metabolic changes.

**Fat loss** occurs in the arms, legs, or face (sunken cheeks). This may be the most common feature of lipo.

**Fat deposits** can show up in the stomach, the back of the neck (a “buffalo hump”), the breasts (in both men and women), or other areas.

**Metabolic changes** can include increases in blood fats or lactic acid. Some people get “insulin resistance.”

- **Blood fats** include cholesterol, and triglycerides.
- **Lactic acid** is produced when glucose (sugar) is used by the cells. Damage to the mitochondria (see Fact Sheet 556) or the liver can increase the amount of lactic acid. Too much lactic acid can cause health problems.
- Normally, insulin moves sugar (glucose) into the cells to produce energy. With **insulin resistance**, less glucose gets into the cells. More stays in the blood.

Fact Sheet 123 has information on lab tests for glucose, cholesterol and triglycerides.

There is no clear definition of lipo. As a result, health care providers report that between 5% and 75% of patients taking ARVs have some signs of lipo. These changes were first called “Crix belly,” because they were noticed in people taking the protease inhibitor Crixivan (indinavir). However, lipo can develop in people taking many different types of antiretroviral therapy (ART).

## IS LIPO DANGEROUS?

Although it is not life threatening, lipo is a serious problem.

- Body shape changes can be very upsetting. Some patients even stop taking their medications.
- Fear of body shape changes keeps some people from starting ART.
- Insulin resistance can lead to diabetes and weight gain, and can increase the risk of heart disease.
- High blood fats can increase the risk of heart disease.

- Enlarged breasts in women can be painful.
- Lactic acidosis, although rare, can be fatal. See Fact Sheet 556 for more information.
- Fat deposits behind the neck (buffalo humps) can get big enough to cause headaches and problems with breathing and sleeping.

**No researcher has suggested that people with lipo should stop taking ART.**

## WHAT CAUSES LIPO?

We do not know what causes lipo. There are different causes for fat loss and fat gain.

### Fat Loss

Zidovudine (Retrovir, AZT) and stavudine (Zerit, d4T) are linked to fat loss. Efavirenz (Sustiva) may also contribute.

### Fat Gain

One theory is that protease inhibitors interfere with the body's processing of fat. However, some patients who have never taken protease inhibitors have lipo. Another theory is that insulin resistance plays a role in lipo. People with insulin resistance tend to gain weight in the abdomen.

Lipo may also be similar to “Syndrome X” which can occur in people who have recovered from serious illnesses like childhood leukemia or breast cancer. For people with HIV, this may be caused by the recovery of the immune system after effective ART.

A large study found that the following factors increase the risk of developing lipodystrophy:

- Age over 40 years
- Having AIDS for over 3 years
- Lowest CD4 count was below 100
- White race

## CAN LIPO BE TREATED?

*If you have serious fat loss and are taking stavudine (d4T), retrovir (AZT) or efavirenz (Sustiva,) talk to your doctor about changing medications. However, it can take a long time to reverse changes in body shape. Implants or injections are the only way to deal with sunken cheeks. These procedures have some risks, and can be quite expensive.*

Poly-L-lactic acid (Sculptra) is a FDA-approved medication used to treat lipodystrophy in people living with HIV. It is injected into the areas where there is fat loss. Its effects take a while to be seen, but can last for as long as 6 months.

Tesamorelin (Egrifta), made by Theratechnologies, is a growth hormone inducer that reduces visceral fat in people with lipodystrophy. It was approved by the FDA in 2010. The medication is a subcutaneous injection, once daily.

Fat gain, in some cases, can be cut out surgically or removed by liposuction. Increased exercise and changes in diet can help. For example, more fiber in the diet may control insulin resistance and help decrease abdominal fat.

High cholesterol or glucose should be treated the same way as for people without HIV. Some health care providers use medications to lower cholesterol and triglycerides, or to improve insulin sensitivity. More attention is being paid to assessing and reducing the risk of heart disease in patients with HIV.

## THE BOTTOM LINE

Lipodystrophy is a collection of changes in metabolism and body shape in people taking ARVs. The best thing to do to avoid developing lipodystrophy is to get tested, start ART before one's CD4 count is low, and to avoid treatments that contain AZT or d4T. Without knowing what causes lipo, we don't yet know how to treat it. **Stopping ART to address lipo is generally not recommended.**

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