

Lipodystrophy

What is lipodystrophy?

Lipodystrophy, also called fat redistribution, is a disturbance in the way your body produces, uses, and stores fat. There are two different kinds of lipodystrophy. In *fat wasting*, also known as *lipoatrophy*, fat is lost from particular areas of the body, especially the arms, legs, face, and buttocks. The second kind of lipodystrophy is *fat accumulation*, also known as *hyperadiposity*. In fat accumulation, fat builds up in particular parts of the body, especially the belly, breasts, and back of the neck.

What does lipodystrophy look like?

Places where fat may accumulate:

- back of the neck and upper shoulders (often described as "buffalo hump")
- abdomen (also called "protease paunch" or "Crixivan potbelly")
- breasts (in both men and women)
- lipomas (fatty growths in different parts of the body)

Places where fat may be lost:

- face (sunken cheeks, temples, and eyes)
- arms and legs (veins may become more visible; this is called "roping")
- buttocks

Are there any other disorders that occur along with lipodystrophy?

If you have lipodystrophy, you may also have other **metabolic** disorders. These disorders include *hyperlipidemia* (see [Hyperlipidemia Fact Sheet](#)), *hyperglycemia* (see [Hyperglycemia Fact Sheet](#)) or, rarely, *lactic acidosis* (see [Lactic Acidosis Fact Sheet](#)). Lipodystrophy in combination with hyperlipidemia and insulin resistance is called *lipodystrophy syndrome*.

Terms Used in This Fact Sheet:

Baseline: an initial measurement made before starting therapy and used as a reference point.

Metabolic: referring to the buildup or breakdown of the body's molecular building blocks. These building blocks provide the material and energy that your body needs to function.

Magnetic resonance imaging (MRI): a way to take pictures of the inside of the body. MRI uses magnetic fields and radio waves instead of x-rays. MRIs are particularly useful for taking pictures of the body's soft tissues and organs.

Non-nucleoside reverse transcriptase inhibitor (NNRTI): class of anti-HIV medication. NNRTIs work by blocking reverse transcriptase, a protein that HIV needs to make copies of itself. The NNRTIs approved by the FDA are Rescriptor, Sustiva, and Viramune.

Nucleoside reverse transcriptase inhibitor (NRTI): class of anti-HIV medication. NRTIs are faulty versions of the building blocks (nucleosides) used by reverse transcriptase, a protein that HIV needs to make copies of itself. The NRTIs approved by the FDA are Combivir, Emtriva, Epivir, Epzicom, Hivid, Retrovir, Trizivir, Truvada, Videx, Viread, Zerit, and Ziagen.

Protease inhibitor (PI): class of anti-HIV medication. PIs work by blocking protease, a protein that HIV needs to make copies of itself. The PIs approved by the FDA are Agenerase, Crixivan, Fortovase, Invirase, Kaletra, Lexiva, Norvir, Reyataz, and Viracept.

What causes lipodystrophy?

Early studies suggested that lipodystrophy was associated with the use of **protease inhibitors (PIs)**, a class of commonly prescribed anti-HIV drugs. However, other studies have shown that lipodystrophy also occurs in people who have never taken PIs. Evidence now suggests that lipodystrophy is linked to the concurrent use of **nucleoside reverse transcriptase inhibitors (NRTIs)** and PIs.

Lipodystrophy (continued)

Other risk factors for lipodystrophy include:

- age—older people are at higher risk for lipodystrophy
- race—whites are at higher risk for lipodystrophy
- sex—males are more likely to experience fat loss in their arms and legs, while females tend to have an increase in abdominal and breast fat
- length and severity of HIV infection—the longer you have been infected and the more severe your infection, the higher your risk for lipodystrophy
- a **baseline** body mass index (BMI) in the obese range or significant weight changes are risk factors for lipodystrophy
- baseline immune system health and immune system recovery after starting anti-HIV medications are also risk factors

Which anti-HIV drugs are most likely to cause lipodystrophy?

Zerit (stavudine, d4T) is one NRTI that has been specifically shown to cause fat loss. PIs may increase the risk of fat accumulation. The longer you take NRTIs and PIs, the greater your chance of developing lipodystrophy.

How will my doctor and I know if I have lipodystrophy?

A diagnosis of lipodystrophy is usually made by examining your body for fat changes. Your doctor may measure the circumference of your arms, thighs, waist, hips, and neck before you start medication and then periodically throughout your treatment. Abdominal **magnetic resonance imaging (MRI)** or CT scans can assess abdominal fat; however, there are currently no specific recommendations for routine assessment and monitoring of lipodystrophy.

How is lipodystrophy treated?

There are currently no clearly effective treatments for lipodystrophy. However, if you have lipodystrophy, you may benefit from:

- Changes in your anti-HIV medications—People with lipodystrophy may benefit from changes to their HIV treatment regimens. If you are taking Zerit, switching to Ziagen (abacavir, ABC) may help reduce lipodystrophy. PIs may be replaced with **non-nucleoside reverse transcriptase inhibitors (NNRTIs)**, which are not associated with lipodystrophy. However, the results of switching drugs are uncertain; you and your doctor may decide that changing medications is not right for you. Be sure to talk with your doctor before stopping or switching any medications.
- Diet and exercise—Changes to your diet and exercise regimen may help build muscle and reduce fat accumulation.
- Medications—If you have insulin resistance and are hyperglycemic (see [Hyperglycemia Fact Sheet](#)), the drug Glucophage (metformin) may help decrease abdominal fat.
- Injections, implants, and surgery—If you have fat wasting, you may benefit from injections of human growth hormone (hGH) to boost muscle size in your arms and legs. Injections of fat or synthetic fat substitutes like Sculptra can fill out sunken cheeks, as can cosmetic cheek implants. However, most of these treatments, along with surgery to remove fat accumulation, are still being studied and do not yet have FDA approval for the treatment of HIV-related lipodystrophy. Sculptra is the only treatment that is currently approved; it received FDA approval in August 2004.

For more information:

Contact your doctor or an *AIDSinfo* Health Information Specialist at 1-800-448-0440 or <http://aidsinfo.nih.gov>.