

Lipodystrophy Treatments Part III: Treatments for Metabolic Changes ^[1]

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Fat in the Body

Fat is needed for the body to function. It plays an important role in keeping the skin and hair healthy, protecting body organs, and maintaining body temperature. Fat is also stored to use for energy.

There are different types of fat found in the body. Visceral fat is located deep in the belly under the muscle. Subcutaneous fat is the layer of fat just under the skin. Lipids are fats or fat-like substances in the blood, such as cholesterol and triglycerides.

Lipodystrophy means abnormal fat changes. It is used to describe a number of potentially unhealthy changes including:

- **Body shape changes**
 - Lipohypertrophy: Fat gain in the breasts; back of the neck (buffalo hump); visceral fat gain in the belly; round lumps that appear under the skin (lipomas)
 - Lipoatrophy: Loss of subcutaneous fat in the arms, legs, butt, or face (sunken cheeks)
- **Blood fat and sugar changes (metabolic problems)**
 - Increased fats (lipids) in the blood
 - Increased sugar (glucose) in the blood

People living with HIV (HIV+) who have lipodystrophy can have both body shape changes and metabolic problems. Some treatments can help with certain lipodystrophy changes, but no existing treatment gets rid of all of them.

This article looks at treatments for metabolic complications. For treatments of fat gain or fat loss, see our fact sheets on [Lipodystrophy Treatments Part I: Treatments for Fat Gain](#) ^[2] and [Lipodystrophy Treatments Part II: Treatments for Fat Loss](#) ^[3].

Metabolic Problems

Many people living with HIV experience increases in blood fats (lipids) and blood sugar (glucose). There are many possible causes for these metabolic changes, including HIV itself and HIV drugs. Although you cannot see these changes, they can cause serious long-term health problems.

- **High lipid levels:** High levels of blood fats such as cholesterol and triglycerides can increase your chances of having heart problems.
- **High blood sugar levels:** When you eat, your body changes the food into glucose, a form of sugar. Glucose is carried through the bloodstream to provide energy to all of your cells. In order for glucose to get into your cells, you need insulin. Insulin is a hormone

made by the pancreas. If your body has a problem making or using insulin, the sugar in your blood cannot get into your cells. As a result, glucose stays in the blood and the cells do not get enough. Some protease inhibitors [4] (PIs) can make it difficult for insulin to get glucose into the cells. This is called insulin resistance. It can lead to pre-diabetes and diabetes. Pre-diabetes and diabetes are serious health conditions. For more information, see our fact sheet on Diabetes [5].

Treatments

Switching HIV Treatment

There are some HIV drugs that have less of an impact on cholesterol and triglycerides. If you have high blood sugar or lipid levels, your health care provider may recommend changing your HIV drugs. Some studies have shown that switching to a combination that does not include a PI can help bring these levels under control. Switching is not the best choice for everyone and it is important that you speak to your health care provider before stopping or switching any HIV drugs.

Nutrition and Physical Activity

Some people are able to control their blood sugar levels and lower their lipid levels by staying at a healthy weight, changing their diet, and increasing their level of physical activity [6].

While very few studies have looked at the effect of nutrition [7] on lipodystrophy, some small studies have shown benefits. For example, lowering the amount of fats and carbohydrates you eat may help reduce triglyceride levels. More fiber in the diet may help control insulin resistance.

See a registered dietitian [8] or nutritionist [9] to help you make good choices and plan your meals. Many AIDS service organizations have registered dietitians on staff who will see you free of charge.

The health benefits of exercise [6] and physical activity are well known. There are also a couple of small studies in people living with HIV showing that higher levels of physical activity lowered lipid levels. There are two types of exercise: cardiovascular (aerobic) and resistance (strength or weight training). Both can help improve the way your body processes cholesterol and blood sugar.

Cardiovascular exercise is any physical activity that raises your heart rate. Examples include walking at a fast pace, jogging, roller blading, dancing, and climbing stairs. At a gym you can also use treadmills, elliptical machines, and stair climbers.

Resistance training consists of using weights to improve muscle strength and growth. Examples include push-ups, squats, and the use of free weights and machines at the gym.

For health benefits, the US Department of Health and Human Services (DHHS) suggests that adults do the following:

- at least 30 minutes of moderate intensity aerobic activity five times per week (moderate intensity describes activity during which you can talk but not sing)

- muscle-strengthening activities at least two days a week at moderate to high levels of intensity. These activities should work all the major muscle groups, including the arms, legs, chest, back, and abdomen.

It is a good idea to check with your health care provider if you are going to start an exercise program to make sure you get off to a good start and do not hurt yourself. For more information, see our fact sheet on [Physical Activity, Exercise, and HIV](#) [6].

Lipid-lowering drugs

If the triglyceride or "bad" cholesterol levels (LDL) do not go down with diet and physical activity, or if they are very high to start with, your health care provider may prescribe cholesterol-lowering drugs. Some of these medications interact with HIV drugs, so it is important that your health care provider review all your medications before prescribing anything.

Early studies show that statins, a type of cholesterol-lowering drug, can reduce the build-up of plaque in the arteries of people living with HIV. Plaque build-up can lead to heart attack. Based on these promising early studies, the US National Institutes of Health (NIH) is now conducting large-scale trials to examine the ability of statins to reduce heart disease in people living with HIV.

A large [clinical trial](#) [10] called [REPRIEVE](#) [11] (Randomized Trial to Prevent Vascular Events in HIV) is currently underway to examine the ability of a statin drug called pitavastatin to reduce inflammation and heart disease among people living with HIV. It is being conducted through the AIDS Clinical Trials network and funded by the US National Institutes of Health (NIH).

Diabetes drugs

Sometimes, even with a healthy diet and regular exercise, blood sugar cannot be controlled without the help of medications and/or insulin. There are a number of medications available that lower blood sugar levels. Because the medications work in different ways, they may be used together. Some of the diabetes medications may interact with HIV drugs. To reduce the chance of [drug interactions](#) [12], it is important that your health care provider be aware of all the medications you take.

Supplements

There are some supplements that may also help with metabolic changes.

- Omega 3 Oils: Oil derived from cold-water fish (e.g., mackerel, tuna, salmon, herring, sardines) has been shown to decrease triglycerides at a dose of 2,000 mg ? 3,000 mg a day. It is better to find sources that are free of heavy metals.

Again, speak to your health care provider about all the medications you are taking, including over-the-counter drugs, prescription medications, street drugs, herbs, and [supplements](#) [13], even if you only use them occasionally.

Taking Care of Yourself

Some body shape changes and metabolic problems have been linked with heart disease and

strokes in people living with HIV. To lower your risk of heart disease and/or stroke:

- Get checked and, if needed, treated for high blood pressure
- Have regular [lab tests](#) [14] to check your [lipid](#) [15] and glucose levels
- Eat a healthy [diet](#) [7]; see a dietician or nutritionist if you need help with this
- Get regular [exercise](#) [6]
- Stay at a healthy weight
- [Stop smoking](#) [16] or cut down on how much you smoke
- For more information, see our fact sheet on [Caring for Your Heart](#) [17]

If you are experiencing lipodystrophy, it is especially important to take care of yourself by keeping all of your medical appointments, getting regular lab tests, and telling your health care provider about any changes in the way you feel or in your body shape. It is also important not to make any changes to your medication regimen without your health care provider's guidance.

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Additional Resources

Select the links below for additional material related to lipodystrophy treatment.

[HIV/AIDS & Lipodystrophy & Other Metabolic Complications \(The Body\)](#) [37]

[Metabolic Changes While on ART \(AIDSmap\)](#) [38]

[Changes to Your Face and Body \(Lipodystrophy & Wasting\) \(POZ\)](#) [39]

[Facing Facts: Dealing with Lipodystrophy \(POZ\)](#) [40]

[HIV and Cardiovascular Disease \(CATIE\)](#) [41]

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[Exercise Guidelines Published for People with HIV Over 50 \(POZ\)](#) [43]

[Outsmarting HIV with Healthy Eating \(The Body; Positively Aware\)](#) [44]

[Lipodystrophy Today: An HIV Doc on Causes, Treatment Options and Long-Term Survival \(The Body\)](#)

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HIV and Your Heart (POZ) [46]

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