

[IMAGE]

The Skinny on Ectopic Fat

By Christopher Oswald, DC, CNS

Obesity and cardiometabolic syndrome are reaching monumental levels throughout the United States. As of 2010, 66 percent of adults are overweight or obese.¹ For many years, medicine has focused on the traditional cardiometabolic risk factors: age, blood pressure, lipid profile, gender, hyperglycemia and smoking. But as the body of research has grown, so too has our understanding of some important emerging cardiometabolic risk markers. While all of these emerging factors are important, an important focus area should be abdominal obesity or *ectopic fat*, as its presence can affect all of the other factors.

Fat Distribution Trumps BMI

The most common presentation for someone with increased ectopic fat is an "android" or apple-shaped fat distribution pattern – primarily in the abdomen, chest and shoulders. This is not *always* the case, however, and patients with similar BMIs may exhibit vast differences in ectopic fat levels.

A study published in *Diabetologia* in 2007 showed subjects with approximately the same BMI demonstrated significantly different levels of cardiovascular risk, primarily associated with increased levels of liver and visceral fat.⁴ Also in 2007, a study in *Circulation* showed cardiac steatosis increased in subjects with impaired glucose tolerance and type 2 diabetes in parallel with liver fat.⁵ When examining the literature, it becomes quite clear that the development of cardiometabolic syndrome relies not on the absolute amount of adipose tissue, but the location of it, which is highly correlated to ectopic or visceral origin.

ectopic fat - Copyright â Stock Photo / Register Mark Additionally it is important to understand that visceral fat is not only present in the overweight. Some may have heard the term, "skinny fat," but a more apt description would be, "underlean and overfat." This patient would be an excellent candidate to evaluate further for the presence of increased ectopic fat and the harmful cardiovascular effects.

Are You at Risk?

Some of the factors associated with increased ectopic fat levels include:

- *Lifestyle*: Stress, sleep, activity levels and smoking status.
- *Dietary contributors*: Positive calorie balance, standard Western diet, high-fructose intake and night eating.
- *Demographics*: Age, ethnicity, gender and genetics all contribute to the risk of developing visceral fat.

Physical and laboratory evaluations provide additional important details:

- *Body composition*: BMI is a good start, but has limitations. Bioimpedance analysis (BIA) uses electrical measurements to provide measurements of lean tissue, fat tissue and fluid distribution.
- *Biochemical assessments*: Salivary cortisol, C-reactive protein, ESR, hemoglobin A1c, fasting glucose and insulin, fructosamine (glucose levels over the past 2-3 weeks) and C-peptide (marker of insulin production and beta cell function).

Practical Solutions

When it comes to applying solutions, many options exist, but it is critically important to apply them in a sustainable manner. One must consider dietary changes, exercise, lifestyle changes, and nutraceutical options. Talk to your doctor about these potential options:

Diet: This must be the foundation and performed properly. Eating every few hours may not be best, as current data suggests this practice can alter the first phase of insulin secretion.⁶ Instead, eat three balanced meals, with breakfast being the largest source of calories.

One extremely important consideration when it comes to diet is to understand and identify whether any food tolerances exist and eliminate them in an organized manner.

Exercise: It is important to perform exercises that promote the preferential use of fat as fuel, so long slogs on the treadmill or stair-stepper are out. High-intensity interval training (HIIT) has tremendous benefits for fat burning, and in only eight weeks, you can see significant improvements in glucose, insulin, cholesterol and triglycerides.⁷

It is also important to perform resistance training with heavy weights; if you can do more than 12-15 reps, you are likely wasting your time unless the effort is sport-specific. Aim for 8-12 repetitions, and make sure to struggle or fail on the last one. This style of lifting won't bulk up females, but it will increase muscle mass, thus increasing one's basal metabolic rate.

In addition, always perform moderate movement after meals and get one of those activity trackers. Aim for 10,000 steps each and every day.

Lifestyle: Healthy sleep cycles are of the utmost importance, as poor patterns have been associated with both weight gain and metabolic syndrome.⁸ The effect is so powerful that a 2013 study demonstrated over the course of five days, subjects who slept only five hours a night versus nine hours ended up gaining 1.8 pounds.⁹

In addition to healthy sleep, it is important to manage stress effectively. Chronic increases in cortisol production have many consequences, but one is a significant impact on blood sugar and insulin sensitivity.

Nutraceuticals: Many dietary supplements are on the market and many are marketed for weight management. Actually, the goal of these recommendations is not weight loss, but it may be a side effect of effectively supporting healthy metabolic processes.

- *Berberine:* This helps to support healthy AMPK activation, thus helping to support healthy insulin and blood sugar. Appropriate doses are up to 500 mg, three times a day.
- *Adaptogenic Herbs:* This collection of herbs has excellent utility in supporting the HPA axis and its healthy response to stressors. Herbs such as ashwagandha, eleuthero, rhodiola, and maca are great options. While not an herb, phosphatidylserine is also an excellent option to help maintain appropriate cortisol levels.
- *MCT Oil:* Evidence supports MCT oil's utility in helping to suppress the accumulation of body fat in men and women.¹⁰
- *Melatonin:* This bears thermogenic properties, supports healthy sleep, is associated with fat loss and helps to maintain a proper circadian cycle.¹¹
- *Curcumin:* This Indian herb activates AMPK, suppresses the expression of PPAR γ , and supports healthy insulin response and healthy glucose and lipid profiles.¹² Dosage: 600 mg of a water-dispersible format is a great option.
- *Fish Oil:* This powerful fat helps to support healthy signaling mechanisms associated with metabolic syndrome. Research demonstrates support of healthy insulin signaling through support of the GLUT4 receptor,¹³ and a decrease in risk of incidence in both type 1 and 2 diabetes.¹⁴

Summing Up

Obesity is a major contributor to illness and disease, and many measures must be taken to prevent the onset and support those with correcting their problems. However, it is important to understand that ectopic fat can be present even if you are not clinically obese or even overweight. Additionally, the presence of obesity doesn't mean ectopic fat is a forgone conclusion.

Anyone with the potential of having increased levels of ectopic fat must be identified and receive an appropriate treatment plan, initiated rapidly to ensure a higher chance of positive outcomes. Talk to your doctor about ectopic fat and if you're at risk, discuss the conservative options outlined above.

Editor's Note: This article has been modified for a consumer audience. If you'd like to read the longer, more technical version of this article, written for doctors and featuring the complete reference list, [click here](#).

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