



ALIVE!

SKINNY FAT: THE DANGEROUS OXYMORON

PRETTY UGLY, DEAFENINGLY quiet, make haste slowly, and vegetarian meatballs are great examples of oxymorons that make you smile when you think about what the words by themselves mean in contrast to what is conveyed by the phrase. There is one oxymoron however that is pretty serious in nature and that is skinny fat.

Skinny fat describes fat tissue, found in individuals whose BMI would not sound off any alarms or raise red flags in a doctor's office. On the scale the numbers look decent. But when diagnoses of type-2 diabetes, cardiovascular disease, or fatty liver are given to skinny people the first question is usually, "Why? How'd that happen to me?" Our society tends to emphasize metabolic syndrome, pre-diabetes, type-2 diabetes, and fatty liver with being overweight or obese. Graphs show that as weight increases so do these conditions. Correspondingly, as weight is lost there is a decreased prevalence of cardiovascular disease, metabolic syndrome, and diabetes. Interestingly enough though, not all excess weight is the same. Those who are pear shaped and gain their weight in the hips and thighs do not have near the risk as apple shaped individuals, who gain their weight around the middle. In addition to that, not all abdominal fat packs the same punch.

Liposuction is a procedure in which a tube is inserted into the abdomen, for example, and fat is literally suctioned out. This results in weight loss and smaller size. Contrary to what one may assume, research has found that removing as much as 20 pounds of fat with liposuction did not significantly alter insulin sensitivity, did not lower levels of inflammation, and did not significantly alter other risk factors for heart disease. The more dangerous fat is a deeper problem.

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Tucked within the abdominal cavity can be stores of fat, packed around internal organs. This is VAT fat. VAT stands for Visceral Adipose Tissue. VAT is a key player in the development of metabolic syndrome and atherosclerosis. It increases inflammation and insulin resistance. Abdominal fat is both the adipose tissue found just under the skin's surface and VAT combined. Knowing exactly how much VAT one has can be determined using advanced imaging. Unfortunately, this is not currently available at a reasonable cost. A simple, more common tool for assessing dangerous fat is the tape measure. Measurement 1 is waist circumference. When waist circumference is equal to or greater than 40 inches in men it is a risk factor. In women it is 35 inches. Measurement 2 is measuring hip circumference and dividing that into waist

circumference. This is the waist/hip ratio. This can further help identify if someone is carrying around more of the unhealthier kind of fat. In males <0.90 and in females <0.80 is considered to be low risk. Moderate risk is 0.90-1.0 in males and 0.81-0.85 in women and high risk is over that benchmark. An individual with a 1.0 ratio has a two-fold greater risk of all-cause mortality than an individual with a 0.8 ratio, as well as increased risk of cardiovascular disease and/or type-2 diabetes.

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VAT can vary greatly among men who weigh exactly the same. Genetics do play a part in determining where fat is stored. Some ethnicities tend more to skinny fat than others which is why some authorities have established different waist to hip ratios based on ethnicity. Blacks tend to store more subcutaneous fat and less VAT whereas Asians are the opposite. They can have very little in the way of the more observable excess fat while still carrying around too much VAT.

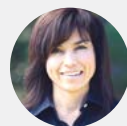
I used to think of fat as brainless blobs of stored leftovers that were just waiting for a time of famine to be used up. This is not the case. In reality fat is metabolically active tissue that produces a wide array of substances. When fat tissue becomes enlarged it attracts the immune system. It's as if the immune cells know that something isn't right. As a result the immune cells and fat cells produce pro-inflammatory substances that end up driving disease and insulin resistance.

Some people are just more prone to store any excess nutrition as subcutaneous fat, blubber, love handles. You've got the picture. An emerging view explains what many have thought all along—that while some are more prone to store excess as adipose tissue, others aren't. These individuals are thought to have limited adipose tissue storage capacity. Their fat cells just don't enlarge as big as others. They seem to be able to get away with birthday parties, office donuts, and soda pop when it comes to their weight. Being in the

“normal” bracket for weight to height however does not always equal healthy. While they may not be able to pinch as many inches, their excess intake is stored as VAT. Some foods and drinks, like soda pop, drive VAT development. In turn, VAT can secrete fatty acids that can be stored deeper still; in muscle cells, in liver cells, in kidney cells, even in the pancreas and heart. This is ectopic lipid. Ectopic means in an abnormal place and that is exactly the case, excess storage in cells we would not think of as harboring fat.

Ectopic lipid in muscle cells promotes insulin resistance and leads to type-2 diabetes. In the liver it is synonymous with fatty liver or non-alcoholic fatty liver disease (NAFLD) and is often manifest in overproduction of VLDL (very low-density lipoprotein) cholesterol and low HDL levels promoting atherosclerosis. Ectopic lipid in the kidney is considered to be a contributor to hypertension. In the beta cells of the pancreas, ectopic lipid may be a contributing factor in their reduced function. Beta cells are responsible for pumping out insulin when needed. In obese persons, ectopic lipid has been found to accumulate in and around the heart creating increased risk for cardiovascular disease, insulin resistance, and type-2 diabetes.

Scripture presents us with an interesting combination of words, a kind of oxymoron where the words by themselves do not mean what is contained in the phrase. “Fear God” (Revelation 14:7). When you understand from the Bible that “God is love” and that “there is no fear in love,” that “perfect love casts out fear,” we might wonder the purpose of these paired words. Rather than a description of emotion, it depicts a depth of relationship that with humility acknowledges Him as the ultimate power, truth, and reality. 🔥



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