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## Our body Fat- good and the bad.

Transcript: Keeping your body fat percentage in a healthy range, assists your natural innate immunity to fight against external invaders like SARSCoV2 and others.

Obesity is a worldwide disease and has tripled since 1975.

In 2016, more than 1.9 billion adults, 18 years and older, were overweight. Of these over 650 million were obese.

Most of the world's population live in countries where overweight and obesity kills more people than underweight.

39 million children under the age of 5 were overweight or obese in 2020.

Over 340 million children and adolescents aged 5-19 were overweight or obese in 2016.

Obesity is a disease, can be preventable.

Our bodies as we grow old gets infiltrated with fat cells- we call adipocytes, changes our youthful body shape, and harms our body health. You are born with a certain number of fat cells. These keep multiplying till you attain puberty, and then after, keep expanding according to the amount of fatty food and carbs you consume.

Overweight and obesity are defined as abnormal or excessive fat accumulation that may impair health, caused by over-eating carbs, fatty foods, and lack of exercise.

It is observed that there is rise in childhood obesity, is particularly concerning as adults who were obese during childhood develop type 11 diabetes

People who have an obesity problem, compared to those with a healthy weight, are at increased risk for many chronic illnesses and health situations such as high blood pressure, high LDL cholesterol, low HDL cholesterol, high levels of triglycerides, heart disease and so on.

Such fat distribution of fatty tissues is around the buttocks and upper body, in such areas as the abdomen, chest, shoulder, nape, under the skin and deeper organs.

In men the shape of the tummy in obesity due to visceral fat is apple shaped central obesity, more common in men than women.

Individuals with an upper body fat pattern, reflecting an excess of intra-abdominal or visceral fat, have greatly risk of diabetes, hypertension, hyper-triglyceridemia, ischemic heart disease, some cancers and death from all causes.

There is a good side also of these fat cells- its participation in our in-built immune system, so important today to defend against COVID variants of concern.

Some research says that if our innate immune system, which includes our fat tissues, is strong that would be the better system to fight invaders, much more powerful than the vaccines that creates transient neutralizing antibodies.

Fat deposits on the hips and thighs store free fatty acids, and they do not harm your body. Hip and thigh fat also secrete hormones with beneficial effects on the body. This means the large butt in ladies can be an advantage in health terms.

Body fat distribution relies heavily on hormones. Women have more fat in the lower parts of their body while men tend to have it in the upper part, brought on by gender's level of hormones.

These fat deposits are found under the skin referred to as subcutaneous fat.

There are three kinds of fat in our body. Subcutaneous fat under your skin, the fat that is sucked out through liposuction to contour your shape. This basically store energy. It pumps out hormones like leptin, which signals the brain that you are full after a meal and don't have to eat more. It also makes adiponectin, an anti-inflammatory hormone that plays a role in maintaining healthy blood sugar levels.

Visceral fat sits deep inside the abdominal cavity, surrounding and enclosing the vital organs like the liver, intestines, kidneys to stabilize them in case of such injuries, and keeping them warm, too.

Then there is the brown fat a special type that helps the body burn extra calories to stay warm. Babies have a lot of it, but adults have small amounts mostly around the shoulder and chest area.

Now let's talk about the visceral fat we all carry deep in the abdominal cavity. It is stored round the vital organs as mentioned earlier, and this fat can make it way to the liver. From there it's turned into cholesterol which travels into the blood stream and increase the blood cholesterol which is a factor in plaque formations in the arteries, including the coronaries to give heart attacks.

Visceral fat also releases inflammatory chemicals and contribute to insulin resistance.

Researchers suspect that visceral fat makes more of certain proteins that inflame your body's tissues and organs and narrow your blood vessels. This can lead to high blood pressure.

Excess visceral fat can increase risks of heart disease, high blood pressure, diabetes, stroke, Alzheimer's, and certain cancers, including breast and colon cancer.

Through expensive imaging one could find out how much visceral fat is there, but the easiest way to assess is by, measuring around your waist over your belly button. In women, 35 inches or more is a sign of visceral fat. In men, it's 40 inches

Now let's talk about skinny people who are also at risk of having the same chronic diseases as the obese people. The definition 'Skinny fat' is used to refer to people having relatively high percentage of body fat and low amounts of muscle mass. They are also at risk for developing diabetes, high blood pressure and heart disease. Skinny fat people and obese people have the same problem. Skinny profile refers to people having thin muscles, tone and strength and relatively high fat percentage. They may have a large amount of visceral fat without much muscle definition.

They are referred to as people “thin outside and fat inside”

So, it is a misconception that small or thin bodies are an indicator of good health.

Hanging in front of the abdomen inside like an apron is the omentum impregnated with deposits of fat also help regulate immune responses. The term omentum is derived from the Latin word for apron or cover.

Omentum is nicknamed the ‘Policeman ‘ of the abdominal cavity. In situations where the bowel is leaking its contents, omentum goes and seals the leak. It also adheres to ulcers of the gall bladder, stomach and intestines, or a ruptured appendix.

Visceral adipose tissue (VAT) also has a good side: it is critical component of the body’s immune system.

Visceral fat is the home to many cells of both innate and adaptive immune systems. These cells influence adipocytes or fat cell biology and metabolism, and in turn, adipocytes regulate the functions of the immune cells and provide energy for their activities. The fat cells produce antimicrobial peptides, proinflammatory cytokines, and adipokines that together act to combat infection, modify the functions of immune cells, and maintain metabolic homeostasis.

But unfortunately, obesity seems to disrupt both the endocrine and immune functions of visceral adipose tissue, thereby promoting inflammation and tissue damage that may lead to diabetes or inflammatory bowel disease.

Fat helps give your body energy, protects your organs, supports cell growth, keeps cholesterol and blood pressure under control, and helps your body absorb vital nutrients.

There are the good dietary fats and the bad dietary fats. You need adequate amount of good dietary fats to maintain good overall health, especially as you age.

"Your body needs a regular intake of fat," says Vasanti Malik, a research scientist with the Department of Nutrition at Harvard's T.H. Chan School of Public Health. "Fat helps give your body energy, protects your organs, supports cell growth, keeps cholesterol and blood pressure under control, and helps your body absorb vital nutrients. When you focus too much on cutting out all fat, you can actually deprive your body of what it needs most."

Good dietary fats are vthe monounsaturated and polyunsaturated.

Monounsaturated fats are found in avocados and peanut butter; nuts like almonds, hazelnuts, cashews, and pecans; and seeds, such as pumpkin, sesame, and sunflower seeds. It is also in plant oils, such as olive, peanut, safflower, sesame, and canola oils.

Polyunsaturated fats include omega-3 fatty acids and omega-6 fatty acids. Polyunsaturated fats are found in plant-based oils like soybean, corn, and safflower oils, and they're abundant in walnuts, flaxseeds, sunflower seeds, and fish like salmon, mackerel, herring, tuna, and trout.

In conclusion, you need a strong inbuilt immune system presently and in the future to fight against the SARSCoV2 virus and its variants.

Vaccines do help to boost your immune system, but the innate immune system is the key to fight against invaders and be in good health.

Staying healthy is the primary requirement for survival. COVID-19 and its variants are teaching us that lesson.

Hope this video talk was useful.

Stay at home, stay safe, until we build up a good immune system.