

Cellulite: Everything You Want to Know and More

Introduction

Cellulite is a skin alteration often described as an ‘orange peel,’ ‘mattress,’ or ‘dimpling’ appearance on the thighs, buttocks and sometimes lower abdomen of otherwise healthy women. Although some men may get it, 90-98% of cellulite cases occur in women. The name originated from the French medical literature over 150 years ago. The original name, cellulite, implies that it is a disease. But years of study now disprove this theory. As a matter of fact, some of the scientific literature refers to this changed skin condition as ‘so-called cellulite.’ This article will present a comprehensive review of cellulite, answer several pressing questions, discuss purported treatments, and provide some realistic ways of minimizing its visibility.

What is Cellulite?

To better understand what cellulite is, let’s begin this explanation with a review of skin anatomy (See below). The outermost layer of skin is referred to as your epidermis. Immediately under this is the dermis, which is richly filled with hair follicles, sweat glands, blood vessels, nerve receptors and connective tissue. The next layer of tissue is the first of three layers of subcutaneous (which means beneath the skin) fat. This is where our discussion will keenly focus in describing cellulite. This uppermost layer of subcutaneous fat has been described as “standing fat-cell chambers” separated by connective tissue. From these fat-cell chambers, small projections of fat cells protrude into the dermis. This unevenness and irregularity of the subcutaneous fat gives skin the ‘bumpy’ appearance we call cellulite.

The reason cellulite is rarely seen in men (obese and non-obese) is because the epidermis, dermis and uppermost part of the subcutaneous tissue is different in males. Men have thicker epidermis and dermis tissue layers in the thighs and buttocks. More distinctively dissimilar, the first layer of fat, which is slightly thinner in men, is assembled into polygonal units separated by crisscrossing connective tissue (See below).

The differences in subcutaneous fat cell structure in men and women occur during the third trimester of fetus development and are manifested at birth. Variations in hormones between genders largely explain this skin structure deviation. It has been shown that men who are born deficient in male hormones will often have a subcutaneous fat appearance similar to females.

What are The Two Types of Cellulite?

Research has identified two types of cellulite. The first type of cellulite is from any ‘pinch’ or ‘compression’ of tissue in the thighs or buttocks. An example of this is when you see the ‘mattress’ look in your thighs when crossing your legs while seated. This is very gender-typical to almost all women of various ages, and is suggested to be the compression of the fat-cell chambers underlying the skin. The second type of cellulite is the ‘mattress’ or ‘orange peel’ appearance that a woman may have in her natural stance or when lying down, which is referred to as cellulite.

What is the Connective Tissue in the Dermis?

The connective tissue in the dermis provides the framework, insulation and stability of

the dermis layer below the epidermis. It offers a necessary insulation and stability between the various organelles, permitting their proficient function, without inhibition to adjacent structures. It's composed primarily of collagen, an inelastic tissue with great tensile strength, ground substance, and elastic tissue, which gives the skin its ability to extend and return to normal constituency.

Do You Have to be Over-Fat to Have Cellulite?

Since cellulite is largely due to a structural conformation below the skin, it is often common in very slender women. However, individuals who are over-fat will frequently have a more pronounced cellulite development, while those with less fat and more muscular definition tend to have less visible cellulite.

Why Does Cellulite Tend to Get Worse as You Age?

In women, the dermis reaches its maximal thickness at 30 years of age. Secondly, the dermis area, which is bound together by the connective tissue starts to get looser, due to the aging process of the collagen and elastic fibers. This allows for more adipose cells to protrude into the dermis area, accentuating the sight of cellulite. In addition, an increased deposition of subcutaneous body fat may often reflect a lifestyle of less exercise and changes in dietary consumption.

Why is Cellulite More Prevalent in the Thighs and Buttocks?

It is well established that women generally have a higher percentage of body fat than men. For instance, a healthy range of body fat for women is 20-25%, and a healthy range of body fat for men is 10-15% (Robergs and Roberts, 1997). The thighs and buttocks of women tend to store more of this body fat. This type of fat deposition is characteristically termed gynoid, or pear shape. Body fat is stored largely due to the actions of an enzyme known as lipoprotein lipase (LPL). LPL is located on the blood vessel walls throughout the body. It functions like a 'regulatory' enzyme, which controls the distribution of fat in various depots in the body (Pollock & Wilmore, 1990). It has been shown that women have a higher LPL concentration and activity in the hip and thigh region (Pollock & Wilmore, 1990).

Why Don't You See Cellulite in Young Females (Healthy and Over-Fat)?

Young females will clearly have the 'pinch' or 'compression' cellulite, as this is due to a structural mechanism. However, the cellulite seen while standing or lying down is often not apparent in young females. Although there is very little scientific research in this area, it is hypothesized that hormonal changes during puberty contribute to this phenomenon.

What are Some Common Myths and Misconceptions About Cellulite?

Numerous myths and misconceptions about cellulite have been popularized in print, media and the internet. Some of the most well known will now be clarified. First and foremost, cellulite is not a disease. As explained above, it is due to fat-cell chamber structure below the skin dermis. Secondly, although the skin is richly vascular with blood vessels, cellulite is not caused by damaged blood vessels. In addition, cellulite is not due to a weakening of capillaries or a decreased circulation in the subcutaneous area. Some sources have suggested that cellulite is a lymphatic disease or abnormal hormone condition, yet there is no scientific support for this contention. However, limitations to fluid movement and drainage may contribute to the appearance of cellulite. Also, hypotheses that cellulite is a result of the body's lack of lipolytic responsiveness, which means ability to breakdown fat to be used as fuel, has not been supported by science.

Is Cellulite Hereditary?

Since the subcutaneous fat tissue structure is gender-typical to females, the question should actually be is fat deposition hereditary. Although the exact percentage is not fully clarified in the research, there is a meaningful hereditary component to fat deposition.

Do Women in All Countries Have Cellulite?

It appears that cellulite is observable in women of all races. Studies involving women from China, South Africa, Egypt, Brazil, United States, Canada, Mexico, Afghanistan, Russia, Japan, Thailand and Indonesia all report cellulite in women.

Why does Cellulite Affect Some People More than Others?

There is much variation in anatomy and skin anatomy from person to person. Women have unequal amounts of subcutaneous fat, as well as variable thickness and denseness of the dermis and epidermis skin layers.

Why do women who lose a lot of weight still have cellulite?

The underlying fat-cell chambers do not change with a loss of weight. For optimal skin adaptation to weight loss, it is advisable for weight loss to be progressive and not extreme (such as repeatedly seen with fad diets). Also, skin elasticity is best up to the age of 35 to 40 years. Collagen and elastic fibers can retract best to lesser volumes (from fat loss) before this chronological age.

Will Liposuction Surgery help Reduce Cellulite?

Quite the contrary! Liposuction is not very successful in treating cellulite and may actually worsen the dimpled skin appearance.

Do Topical Creams With Aminophylline Help Reduce Cellulite?

Aminophylline, caffeine and theophylline are members of a group of biochemicals known as methylxanthines present in many cellulite creams. These biological agents can enhance the body's ability to breakdown stored fat, a process called lipolysis. However, when applied topically to the skin, an initial challenge of any cream is that it must be able to penetrate the skin and dermis and reach the target fat tissue before being absorbed by the tissue. Yet, to be effective, these thigh creams would have to have a sufficient concentration (in the subcutaneous fat layer) for an ample length of time, which partially explains their lack of consequential cellulite removal. However, studies have shown a small reduction in thigh girth when using these creams, yet not a substantial change in cellulite.

What about Creams with Retinoids?

The retinoid-based creams have been shown to increase the denseness of the epidermis to facial skin when applied for years. At this time, no large-scale studies have been published on topical retinoids for cellulite removal.

Do any of the Herbal Treatments Work?

The basis of most of the herbal treatments is to enhance the microcirculation in the dermis area. It is interesting to note that research has shown a slight decrease in thigh girth with herbal treatments but a return to normal when the application ceased.

Does Massage Help Minimize Cellulite?

Massage and body manipulation techniques are employed to enhance the removal of fluid in the dermis area. These techniques do not remove the cellulite, but may have a temporary effect in reducing the amount of 'dimpling' appearance.

What about Skin Kneading Methods Such as Endermologie?

Endermologie (LPG, Fort Lauderdale, Fl) is a skin kneading technique developed about 10 years ago in France. This type of device has two rollers attached to an electrically powered device. Users wear nylon stockings to decrease the amount of friction. Treatments range from 35 to 45 minutes of rolling the skin of the hips, thighs, legs, buttocks and stomach. The little published research with this device does not show any legitimate efficacy in the treatment of cellulite.

So, What Are Some Realistic Recommendations?

Several studies note that female athletes, who generally have a lower percent body fat regularly have less cellulite. So, a caloric-restricted diet plan to help reduce some of the underlying body fat should be implemented. Aerobic exercise at least 3 to 5 times a week for at least 20 to 60 minutes will help create a satisfactory caloric deficit. Choose a mode of exercise that you enjoy such as walking, jogging, aerobic dance, elliptical training, rowing, cycling, swimming or stair stepping. If available, alternate modes of aerobic exercise to regularly give your body some variety. Perhaps most essential to your exercise agenda is your resistance exercise program. The subcutaneous fat rests on top of muscle, and if the muscle is weak and flaccid, this can contribute to the 'bumpy' effect of cellulite. Although there isn't one best system of sets and repetitions to firm all of your leg muscles, regularly include the following exercises in your resistance training program.

Squats and leg press for the buttocks and thigh muscles.

All types of lunges for the thighs and buttocks.

Hip adduction exercises for the inner thighs.

Hip abduction exercises for the outer thighs.

Leg curls for the back of the thighs.

Summary

From this review it is clear that the cause of cellulite is much more sophisticated than just saying it is extra fat underneath the skin. It is noteworthy to appreciate the fact that cellulite is a unique and distinctive layer of subcutaneous body fat that is common to females. Although numerous topical treatments and involuntary manipulative techniques may seem enticing, no research supports their long-term effectiveness. However, several studies have noted how female athletes, who typically have less body fat, seem to have much less cellulite. So, incorporating a caloric restrictive diet with aerobic exercise and resistance training has the most promising and realistic results.