



# Cellulite Reduction

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Literature Education Series On Dietary Supplements

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Cellulite is more common in women than in men. The reason for this is that a layer of connective tissue is more irregular and discontinuous in women than in men.<sup>1</sup> The dimpled, “cottage cheese” appearance of cellulite is simply fat tissue which is pressing through connective tissue. This might be compared to wearing a button-up-the-front shirt which is too small for you, and seeing your tummy press through the shirt openings where the fabric is straining against the buttons. Nonetheless, as “unsightly” as cellulite is, it is actually no different than any other type of body fat.

This is good news for cellulite sufferers since they can apply many of the same effective strategies for losing cellulite, as they would use for losing body fat in other areas. This includes the use of natural agents such oligopeptides and chitosan which reduce dietary fat absorption, as well as thermogenic agents which help promote “fat burning.” In addition, a new dietary supplement strategy is currently being promoted in our industry which purports to enhance cellulite reduction. This strategy was originated by Dr. Gianfranco Merrizi.

## **Dr. Merrizi**

It was 1992 when Dr. Gianfranco Merrizi, a 7th generation pharmacist, was first asked about a

treatment for the appearance of cellulite by a group of former Miss Italy contestants. From that point on he worked with other researchers, and one year later developed a cellulite reduction formula. Next, he subjected the formula to extensive testing, including an eight week trial carried out by the Pavia University Hospital's Dermatological Clinic, in association with University of Pavia Milan. The results of Dr Merrizi's study were that the cellulite reduction formula was safe and effective.<sup>2</sup>

## **Circulation improvement: a cellulite reduction strategy**

Of course the next logical question is, “What were the natural agents used in the cellulite reduction formula?” The answer is fish oils, Evening Primrose or Borage oils, grape seed extract, Soya Lecithin, Ginkgo biloba, Fucus vesiculosus extract, Sweet Red Clover extract, and iron oxide. What these natural substances have in common is that they help improve sluggish circulation. The value of this is that healthy circulation will more effectively accommodate the transfer of stored fat from cellulite, to muscle tissue where it can then be burned as an energy fuel.<sup>3</sup> This is the primary part of the cellulite reduction strategy employed in the aforementioned cellulite reduction formula (Diet and exercise are also important—more on this later.). Following is a description of the ingredients.

### Fish oils & Evening Primrose/Borage oils

Fish oils (from salmon and other fatty fish) are high in the Omega-3 fatty acids. Omega-3 fatty acids can make blood platelets less adhesive, thereby improving circulation, reducing plaque build-up on the artery walls and, subsequently, a decrease in serum cholesterol.<sup>4</sup> Evening

Primrose and Borage oils both provide gamma linolenic acid (GLA). Research indicates that GLA is also effective at making platelets less sticky. Grape seed extract promotes circulation by improving blood vessel integrity through their naturally occurring antioxidants called proanthocyanidins (OPC). As antioxidants, OPC are 50 times more effective than vitamin E and 20 times stronger than vitamin C.<sup>6</sup> They scavenge free radicals and inhibit elastase and collagenase, enzymes which degrade human connective tissue. OPC help to improve and normalize capillary activity, strengthening capillary walls. They restore flexibility to arterial walls by binding to collagen fibers, realigning them in the process to a more youthful, undamaged structure.

#### Soya Lecithin & Ginkgo biloba

Soya lecithin has long been known to improve circulation and lower total plasma cholesterol, but not the “good” HDL cholesterol.<sup>7</sup> Research overwhelmingly indicates that Ginkgo biloba significantly improves both cerebral and peripheral circulation.<sup>8 9 10</sup>

#### Fucus vesiculosus & Sweet Red Clover Extracts

*Fucus vesiculosus* is an algae which contains a phytochemical called fucoidan. Research indicates that the fucoidan in *Fucus vesiculosus* combines potent anticoagulant (prevents blood clotting) and fibrinolytic (blood clot dissolving) properties.<sup>11</sup> Sweet Red Clover Extract has a history of use as a blood purifier and diuretic (reducing excess fluids in body tissues).<sup>12</sup>

#### Iron oxide

Iron oxide is simply a supplemental source of iron. Iron, of course, is necessary for the formation of hemoglobin in red blood cells. Consequently, it is necessary for circulation and oxygen transport.

#### **Fat absorption reducers: a second cellulite reduction strategy**

Although improving circulation has been an effective cellulite reduction strategy, there are complementary strategies which can also be employed to maximize results. One such strategy involves the use of natural agents to reduce fat absorption. These agents are chitosan and oligopeptides.

#### Chitosan

Chitosan is a shellfish fiber that acts like a tiny

adhesive.<sup>5</sup>

#### Grape Seed Extract

Chitosan binds dietary fat, preventing its digestion and absorption and allowing it to pass naturally through the body. Chitosan works because it has a positive ionic charge while fat has a negative ionic charge, and so they are attracted to one another. Specifically, 250 mg of chitosan will prevent the absorption of 3 grams dietary fat. Research indicates that chitosan is effective at promoting weight loss.<sup>13</sup>

#### Oligopeptides

Oligopeptides are a type of small protein, or limited chain of amino acids. These type of oligopeptides are probably the most effective substances that exist for combating the ability of dietary fat to ultimately become body fat. This was clearly demonstrated in several clinical studies conducted at the Second Department of Medical Biochemistry, School of Medicine, Ehime University. In one study, the ability of oligopeptides to reduce fat absorption was examined. Test and control subjects were fed a high fat diet. Test subjects, however, were also fed bioactive peptides. Blood samples taken from test subjects indicated that they had absorbed significantly less fat than the control subjects. As a matter of fact, the increase in triglycerides (the form of fat found in the blood) was 35% less in the test group after the first two hours of ingesting the meal than in the control group. Although the exact mechanism of oligopeptides' ability to suppress fat absorption is not known, the researchers suggest that it may be the result of inhibiting the formation of pancreatic lipase, an enzyme that breaks down fat in the intestines so that it can be absorbed.<sup>14</sup>

#### **Thermogenesis & diuresis: a third cellulite reduction strategy**

This third strategy offers an additional level of support for cellulite reduction. It includes the herbs Yerba Mate and Dandelion.

#### Yerba Mate

The herb Yerba Mate contains a group of natural substances called methylxanthines. Various studies have clearly indicated that methylxanthines are effective as thermogenic (fat-burning) agents by themselves or in combination with other thermogenic agents.<sup>15 16</sup> In addition, studies have also indicated that methylxanthines have effective appetite

suppressant properties.<sup>18 19</sup>

### Dandelion

To prepare the body for a diet program, and to promote weight loss while cleansing, there is a value in assisting the detoxification process with diuretic herbs which will promote the excretion of toxins through the kidneys. Dandelion is an effective diuretic herb for this purpose. Furthermore, the problem of bloating and fluid retention can be discouraging because even when you've actually lost some fat weight, your clothes may still fit tight on you, and when you step on the scale you may not see a significant difference. Dandelion may be particularly valuable for promoting the loss of excess fluid in your tissues, which provides a psychological advantage for individuals who retain fluid while dieting.

### **Diet: a fourth cellulite reduction strategy**

Although the aforementioned cellulite reduction strategies can certainly be effective, It cannot be emphasized enough that dietary principles must also be incorporated into any program for successful long-term fat loss, including cellulite. A primary dietary principle is the reduction of dietary fat. Another is increasing fiber-rich foods.

### Reducing dietary fat

The daily diet is made up of protein, fat and carbohydrates. Excess fat and too many of the wrong kinds of fat not only causes weight gain, but can be a contributing factor in certain cancers and cardiovascular diseases.

There are two very good reasons to reduce the consumption of dietary fat when trying to lose weight. The first reason is that fat has more than twice as many calories per gram as do carbohydrates and proteins (9 cal./g. fat, 4 cal./g. carbohydrate or protein). That means that more weight can be gained eating fat than when eating the same amount of carbohydrates and proteins.

The second reason to reduce the consumption of fat is that individuals who are overweight produce more of the enzyme lipoprotein lipase (LPL). LPL is highly effective at taking fat from dietary sources and storing it in human fat cells. This being the case, it is important that overweight individuals who are trying to lose weight avoid ingesting too many of their calories from fat. Otherwise, LPL might store those fat

calories as body fat.

### Increasing fiber-rich foods

Fiber naturally fills you up, thereby reducing your appetite. It also slows down the absorption of dietary sugar, which may help stabilize your blood sugar levels, thereby reducing appetite and fat storage. Furthermore, fiber-rich foods such as fruit, vegetables and whole-grains are generally a good source of nutrients, and may help to reduce the risk of certain types of cancer and cardiovascular diseases.

### Dietary balance

Ideally, fat consumption should be less than 20% of the total calories (for the purposes of losing weight) with approximately 50% to 70% coming from complex carbohydrates (particular those rich in fiber), and 10% to 30% from protein. By replacing 9 calorie foods (fats) with 4 calorie foods (complex carbohydrates and protein), the body has less of a tendency to turn that food into stored fat. One reason is that the body must utilize more energy (calories) to convert complex carbohydrates and proteins into stored fat, whereas dietary fat is easy for the body to turn into stored fat. This will enable the "dieter" to eat and feel full while actually reducing body fat.

### **Exercise: the final cellulite reduction strategy**

As with dietary modification, any successful weight loss and cellulite reduction program should include an exercise regimen. In choosing an exercise regimen there are two factors to consider. First, the exercise should be of an endurance/aerobic nature. Examples include jogging, brisk walking, bicycling, etc. Aerobic exercise which lasts for at least 30 minutes causes body fat to be burned as a source of energy after the blood sugar supply has been exhausted. Anaerobic exercise (e.g., weight lifting), on the other hand, is effective at muscle building but tends to use blood sugar and glycogen stores as a source of energy rather than body fat.

Secondly, it is important that the form of exercise chosen should appeal to the individual performing the exercise. This will help encourage people to make the time to exercise. For example, if Joan hates to jog, but loves to take walks in nature, she should not make jogging her regular form of exercise. She will always find excuses not to do it. Instead, she should choose nature walks since she will

probably try to find the time since this exercise that is enjoyable to her.

Besides burning body fat, an additional benefit of exercise is that it shifts the body's metabolism toward storing calories as muscle glycogen rather than as body fat. It does this by causing the body to produce less LPL. This type of metabolic shift is of vital importance in preventing recently lost weight from being regained. This helps to assure more permanent weight loss.

### Conclusion

If all of these strategies are combined, there is the greatest possible opportunity to promote the reduction of cellulite. How long will it take? According to research from the Bowman Gray School of Medicine, cellulite reduction therapy will not yield results in less than two months.<sup>20</sup> Even so, getting results in as little as two months is significant considering that accumulation of cellulite takes place over a period of years.

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