



### **Commonly Used Ingredients in Mesotherapy Include:**

#### **Phosphatidylcholine (PC) and Deoxycholate (DC)**

PC is an antioxidant derived from soy lecithin whereas DC is an enzyme that occurs naturally in bile and is used as an emulsifying agent. While PC is used subcutaneously in mesotherapy, it has been used intravenously in the treatment of fat embolism, atheromatous plaques and fatty liver disease for the reduction of cholesterol and triglycerides.

In mesotherapy, PC is injected subcutaneously for its “fat dissolving” properties. DC is often provided in conjunction with PC to allow for fat to be more water soluble and render it easily removed via urine and stool.

#### **Hyaluronidase**

Hyaluronidase is a naturally occurring enzyme that increases tissue permeability and thereby facilitates the distribution of other ingredients used in mesotherapy. It also aids in the breakdown of cellulite formed from bands of connective tissue. As these tissue contain high amounts of hyaluronic acid, hyaluronidase breaks down hyaluronic acid, thereby promoting in a smoother and firmer appearance of skin.

Hyaluronidase also increases the absorption and dispersion of PC to better dissipate fat cells between layers of connective tissue bands. While allergy to hyaluronidase may occur, a skin test prior to treatment can reveal the potential for this to occur; regardless, only small amounts are used in mesotherapy if deemed appropriate.

#### **L-carnitine**

Studies show that l-carnitine promotes the delivery of long chain fatty acids into the mitochondria, the powerhouse of the cell. This process ultimately promotes energy production and utilization. As such, l-carnitine functions to remove fat from storage.

#### **Aminophylline**

Aminophylline is a mixture of theophylline and ethylenediamine. It has a similar effect of caffeine and is commonly used as a medication for asthma. In mesotherapy however, it is used to promote the breakdown of fat in the cell while also promoting vasodilation for increased oxygenation and regeneration to tissues. As this ingredient has a very narrow therapeutic index, it is commonly used in mesotherapy at doses not exceeding 20mg/ml; adverse reactions have been noted at doses of 250mg and these include nausea, vomiting and diarrhea.

**What to expect from mesotherapy:**

While results vary amongst individuals, it is common to see 5-18 cm reduction in treatment areas. It is also important to remember that results are more apparent with compliance to nutritional modifications and exercise.

While no serious side effects are seen, some patients may experience mild discomfort, swelling, redness and itching at the site of injection – these typically last for only a few days.

Other observations include the development of nodules in treatment areas which occurs as a result of too high a dose of PC and DC in that area; these occur however from the development of collagen as a by-product of wound repair; these temporary nodules are typically broken down by the body's own healing ability and dissolve within one to three weeks.

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