SeduSkin Lipax

LIPAX – Targeted Lipolytic (Fat-Dissolver) Booster

Composition and Mechanism: LIPAX is distinct from the other SeduSkin products in that it is not a traditional skin quality booster but a **targeted injectable for fat reduction**. Its active components are **phosphatidylcholine (PPC)** and **deoxycholic acid (DCA)**, both of which have been long used in injection lipolysis (fat-dissolving injections). Phosphatidylcholine is a phospholipid (a major component of cell membranes, especially in liver cells and egg yolk, often derived from soy in medical preparations), and deoxycholic acid is a bile acid (a detergent produced by the body to emulsify fats in digestion). In LIPAX, the combination is formulated to **lyse adipocytes (fat cells)** in localized fat deposits.

The mechanism involves a two-step process: Deoxycholic acid acts as a **detergent**, disrupting the phospholipid bilayer of fat cell membranes on contact[xl]. This causes the adipocytes to rupture (cell lysis), releasing their stored triglyceride contents. Phosphatidylcholine, in theory, helps to emulsify the fat (breaking large fat droplets into smaller micelles) so that the body's enzymes can more easily metabolize and remove it. Historically, PPC was thought to be the primary fat-dissolving agent, but it's now understood that **deoxycholic acid is the key cytolytic agent**, as evidenced by the development and FDA approval of pure deoxycholic acid injections (e.g. Kybella®) for submental fat[xli]. In fact, deoxycholic acid was initially used as a solvent for PPC, but later proven to be the main bioactive component causing fat reduction[xlii].

That said, phosphatidylcholine may have a supportive role: research suggests that PPC could induce a mild inflammatory response (via TNF-α release) and subsequent apoptotic pathways in fat cells, complementing DCA's immediate necrotic action[xliii]. There might be a **synergistic effect** between PPC and DCA, where DCA quickly destroys many fat cells and PPC ensures a more thorough breakdown and gradual elimination of fat, as well as possibly aiding in remodeling the area with some fibrosis that can tighten skin post-fat loss[xliv]. LIPAX leverages this by including both: an "attack" phase (DCA) and a "processing" phase (PPC). After injection, the treated area will undergo an inflammatory response – macrophages will be recruited to clean up cellular debris and liberated fat, which is then carried through the lymphatics and metabolized by the liver. Over several weeks, this results in a reduction of the fat layer thickness in that area. Additionally, the body's healing response often lays down some collagen in the area (fibrosis) which can lead to a tightening effect, beneficial in preventing saggy skin after the fat is gone[xlv].

Clinical Indications: LIPAX is indicated for **localized adipose**

deposits that are resistant to diet and exercise, in patients who desire non-surgical reduction of these fat pockets. It serves as a non-invasive alternative to liposuction for small areas. Key indications include:

- **Submental fat ("double chin")** – This is a classic indication, as deoxycholic acid is FDA-approved specifically for submental fullness[xlvi]. LIPAX can be injected in a grid pattern under the chin to dissolve the fat and improve the cervical-mental angle. Typically, 2-4 sessions are done at monthly intervals. Patients achieve a sharper jawline without surgery.
- **Jawline/Jowl heaviness** – Small fat accumulations along the jaw (pre-jowl sulcus fat or a mild jowl) can be treated to enhance jawline definition, especially in patients who are not overweight but have a genetic predisposition to fullness in the lower face[xlvii]. By reducing buccal or submandibular fat, the lower face appears more sculpted.
- **Buccal fat pad reduction (off-label)** – Some individuals have round faces due to buccal fat. While surgical removal is an option, injections of LIPAX in the cheek fat pads can gradually reduce cheek heaviness[xlviii]. This must be done carefully to avoid excessive fat loss or asymmetry.
- **Perioral fat / marionette area** – In certain cases of a heavy lower face, a small amount of fat dissolver can be used at the corners of the mouth or under the chin to reduce fullness that might contribute to marionette lines or lower-face sag. It's not a direct treatment for wrinkles but by removing underlying fat, the weight is less, and the skin can retract.
- **Axillary "bra bulge" or armpit rolls** – That little pocket of fat in front of the underarm (by the bra strap) is a common complaint, even in otherwise slim individuals. LIPAX can be injected to slim that area[xlix].
- **Upper back or "buffalo hump"** – small collections of fat on the upper back (though if it is a true dorsocervical hump related to metabolic issues, careful evaluation is needed). Off-label, some have used PPC/DC for contouring small upper back bulges.
- **Knee fat or inner thigh pockets** – for example a small deposit of fat on the inner side of the knees which can bother some patients in skirts. Injection can shrink these over a few sessions[l].
- **Pseudo-gynecomastia in men** – This refers to fat accumulation in the male chest (not true glandular gynecomastia). Off-label, fat-dissolver injections under a physician's supervision can be used to reduce a male chest fat pad without surgery[li]. This

is an advanced use case and must be done cautiously.

- **Abdominal lipodystrophy (small areas)** – While large abdominal fat is not suitable (and injection of large volumes of PPC/DC can be risky), very **localized tummy fat** (for example a small pouch below the navel in a relatively fit person) could be addressed. It's crucial that the area is well defined and pinchable, and that the patient's BMI is not too high (under ~30 is ideal)[lii]. Otherwise, results may be minimal or uneven.

Essentially, LIPAX is not for weight loss or general obesity – it is for *spot reduction*. The best results are seen in patients who are near ideal weight but have a stubborn bulge, or those who want to fine-tune their contours (like under the chin or around the jaw). It is an **adjunct to aesthetic sculpting**, often used in combination with other treatments: for instance, a patient might get LIPAX for the double chin and fillers for the chin or jawline to fully recontour the lower face.

Ideal Patient Profile: The ideal LIPAX patient is aged **25 to 55** with a **BMI < 30** (normal or slightly overweight) and has good skin quality in the area of concern. They should have realistic expectations (injections can reduce fat by a certain percentage, but not as dramatically as liposuction for large volumes). Typically, these patients are already engaging in a healthy lifestyle; they just have genetically predisposed fat pockets. For example, a 35-year-old woman, height-weight proportionate, with a slight double chin due to genetics – she would be an excellent candidate. Another example: a 45-year-old man with a small belly pooch or love handles who refuses surgery might use this as a non-surgical approach (though multiple sessions might be needed). It's also popular among patients who are undergoing **comprehensive cosmetic makeovers** – e.g., someone getting facial rejuvenation might use LIPAX for the submental area while also treating skin and volume with other products.

It is crucial that patients have **relatively firm skin** or at least some elasticity, because after the fat is gone the skin must retract. Younger patients or those with good collagen will have better retraction. Older patients may still do it but one might combine it with a skin tightening procedure or RF microneedling to encourage tightening. Unlike other SeduSkin products, **LIPAX is not injected into the dermis for skin quality at all** – it is injected into subcutaneous fat. Therefore, it is handled more like a minor procedure than a skin treatment: proper injection technique, spacing, and volume per area is key to avoid uneven fat removal.

Scientific Rationale and Evidence: The use of phosphatidylcholine and deoxycholate for injection lipolysis has been studied for decades, though only deoxycholic acid alone has achieved regulatory approval (for submental fat). Scientifically, when deoxycholic acid is injected

into fat, it **selectively lyses adipocytes** because those cells have fragile membranes rich in triglycerides that are susceptible to detergent action[liii]. Other cells in the area (like skin cells) are generally not as affected because the injection is in the fat layer and the concentration that diffuses to skin is low, though some local tissue irritation is inevitable. Multiple clinical trials of Kybella (deoxycholic acid) demonstrated significant reduction in submental fullness compared to placebo, with high patient satisfaction in chin profile improvement[liv]. The main side effects were swelling, pain, numbness, and rare transient nerve injury in the jaw (from injection technique issues). The science shows that after a series of injections, there is a measurable decrease in fat layer thickness on ultrasound and visible contour changes. Histologically, there's inflammation acutely, then by about 28 days, a reduction in fat cell counts and some fibrous septa contraction (hence skin tightening).

For the PPC + DCA combo, although not FDA-approved, several studies have indicated it works similarly. For instance, one study found that PC/DC injections can effectively reduce abdominal fat thickness by inducing adipocyte necrosis, with no adverse changes in blood lipid profiles[lv]. Another detailed review (Frontiers in Endocrinology 2022) suggests a model where **DCA causes immediate cell death (necrosis) and inflammation, while PPC might cause more delayed apoptosis and enhance the lipolysis process, as well as potentially protect against too much fibrosis by modulating the inflammatory response[lvi]. There is also evidence of synergistic effects: combined PC/DC might kill more fat cells together than either alone in certain settings[lvii].

Because PPC/DC injections have been used widely in Europe and South America before the advent of Kybella, there is a lot of empirical evidence of their effectiveness. The consensus is that they **do work for small fat reductions** and are safe when properly formulated and injected, but proper patient selection is critical. They are not magic bullets for obesity. The FDA and some boards have cautioned against off-label “fat dissolving injections” due to variability in formulations[lviii], but LGSF producing LIPAX in a GMP facility with a standardized formula addresses a lot of those concerns by ensuring consistent purity and concentration (unlike unregulated “mesotherapy cocktails” mixed by some spas).

Clinical Example: *A 29-year-old woman is bothered by a small double chin that persists despite being at a healthy weight. She undergoes two sessions of LIPAX injections in the submental region, spaced one month apart. Each session involves a grid of ~0.2 mL injections per point under her chin. After the first session, she experiences swelling and tenderness for about 3-4 days and a bit of numbness, which resolves. By week 4, there is a mild reduction in fullness. After the second session and subsequent healing, the improvement is much more*

noticeable: her jawline is more defined and the convexity under her chin is significantly reduced. She appears to have a sharper profile. On palpation, the area that used to feel like a fat pad now feels firmer and thinner. This outcome corresponds to what is expected from deoxycholic acid injections – the **adipocyte lysis** and removal have reduced the fat volume[lix]. The patient is pleased and did not have to undergo liposuction. To maintain results, she is advised to keep her weight stable. This case demonstrates LIPAX's role as a **sculpting agent**: it didn't change her skin texture or quality, but it redefined the contour by eliminating unwanted fat.

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