

# CarboxyTherapy: Unwrinkling the truth behind the new quick fix beauty remedy

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The phrase 'ageing gracefully' is slowly being removed from our repertoire of compliments and being replaced by quips and bitter comments suggesting the use of Botox and dermal fillers. Indeed the baby boom generation is now rapidly turning to various forms of sub-cutaneous treatment in order to preserve their youth and attempt to break the spell of ageing.

A relatively painless procedure...

Carboxytherapy is the cutaneous and sub-cutaneous administration of carbon dioxide (CO<sub>2</sub>) and represents a rapidly growing area of non-invasive cosmetic enhancement.

It is being hailed as the new wonder-therapy taking "four or five minutes (and is) not painful at all", according to Sabine Zenker, a consultant cosmetic dermatologist from Germany who specialises in the area of cosmeceuticals and has recently been signed on as the face of medical intervention and consultancy for L'Oréal Paris. The treatment is also known as 'Brazilian Miracle Gas' due to its widespread use and high demand for it in Brazil.

Its supporters claim it rapidly dissolves stretch marks whilst tightening and plumping the skin. No wonder there are so many shapely and rejuvenated figures residing on the beaches of Rio. So, is this really a new miracle enhancement therapy, or simply a quack offering in the world of cosmetic medicine?



**"It takes four or five minutes (and is) not painful at all"** Dr Sabine Zenker

The treatment is administered by a clinician who injects the carbon dioxide gas below the skin, the CO<sub>2</sub> is able to cause rapid dilation of blood vessels, which in turn sees an immediate blushing of the surrounding area.

Researching the various websites and interviews conducted with allied healthcare professionals routinely administering this treatment, they all seem to regurgitate the same spiel when it comes to the science behind carboxytherapy, waxing lyrical about how vascular dilation gives 'nutrients' to the surrounding cells and how carbon dioxide is able to 'destroy' cellulite. Miraculous.

I hope that even the non scientifically trained minds reading this article will be at least a tiny bit apprehensive about pumping ones face full of carbon dioxide. The same carbon dioxide we exhale due to its toxic nature within the body. You may also realise that carbon dioxide is a leading contributor to global warming, a significant greenhouse gas. So, is it still a good idea to willingly inject this into furrowed foreheads? Botox, which although doesn't work in the same way (it paralyses the facial muscles) is also incredibly toxic. It is produced from

Botulinum toxin, the most potent toxin known to man, having an LD<sub>50</sub> of 1 ng/kg when introduced intravenously, a single drop of which, administered in the correct way could wipe out almost all of the human population alive today. This is indeed a scary prospect especially as Botulinum toxin has been recognised as a potential biological weapons threat to humankind. However, in the correct preparations it works wonders to the faces of middle aged men and women desperately trying to reverse time.

Carbon dioxide has been proven to remove fat from tissue, with original experiments conducted in the 80's which utilised carbon dioxide to remove cholesterol from milk samples. In these experiments, carbon dioxide is behaving as a supercritical fluid (acting a fluid at room temperature).

The carbon dioxide is removing cholesterol (which are low volatility product), occurring through dissolution as carbon dioxide has an enhanced solvent power as a liquid. The cosmetic effect of carboxytherapy sees a reduction in fatty deposition and stretch marks caused due to rapid weight gain and loss and may be behaving in a similar fashion to the carbon dioxide in the milk experiments, with the gas injected forming a supercritical fluid at the cellular level. The precise mechanisms are still to be elucidated, however stories from patients paint a bright picture.

Tales of rapid removal of stretch marks following pregnancies and a reduction in subcutaneous fat have all been reported and are spreading around the news like wildfire. However wrinkles and fat do not just magically disappear, patients will have bruising for up to 48 hours post procedure and will have to abstain from any exercise. This does seem a small price to pay for the benefits being seen by patients.

Perhaps it will be some time before carboxytherapy rivals Botox in the cosmeceutical industry, but it does appear that the short term effects are indeed desirable, contributing to the 'reversal of time' effect which men and women now desire more than ever. However it is the long term effects of injecting a toxic gas into the skin which may be less pleasant. I suppose, ironically, that only time will tell.

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