Case Study – Cryo Body Sculpting

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OBJECTIVE:

If you consume more energy (calories) than you expend, you will gain weight. Excess calories are stored throughout your body as fat. Your body stores this fat within specialized fat cells (adipose tissue) — either by enlarging fat cells, which are always present in the body, or by creating more of them. Obesity is an important public health issue, characterized by the dissemination of diseases such as hypertension, diabetes mellitus type II, cardiovascular risk diseases such as atherosclerosis, dyslipidemia, and acute and chronic inflammatory processes, among others, besides favouring great physical and aesthetic dissatisfaction. Fat removal and body reshaping are increasingly popular cosmetic procedures. Currently, liposuction is the most common and effective procedure for body contouring. Given the invasive nature of liposuction and its inherent risks, there has been continuous research for the development of non-invasive methods. The development of a non-invasive method that operates in the reduction of the fat layer called “cryo-lipolysis” has been employed for the selective destruction of fat cells. This non-surgical approach uses controlled cooling to decrease subcutaneous fat without damaging surrounding tissues.
This study is to find if using gaseous cryotherapy treatments using KaasenLife by TruCryo can achieve inch loss around the candidate's stomach area.

Kaasen Life device:

The KaasenLife device delivers a controlled spray burst of CO2 to the surface of the skin to cool the area down rapidly. The device has many safety features that monitor the skin temperature and proximity to make sure the spray is applied at the correct distance and the temperature drop is constantly monitored. The device comes with a variety of different nozzles, each with a different aperture which varies the speed at which the CO2 spray comes out and hits the surface of the skin.

The trained therapist makes sure the optimum distance and constant movement of the spray is maintained to prevent surface tissue damage.

The skin surface temperature of the area being treated is recommended to be around $4^{O}C$ and below. An A5 size area of the body generally takes between 30 to 90seconds to get down these temperatures.

SCIENTIFIC BASIS:

Cryolipolysis is a completely different modality from techniques like that of Coolsulpting which uses controlled cooling plates to treat the area. The principle behind this technology exploits the premise that adipocytes are more susceptible to cooling than other skin cells.

This study is carried out using KaasenLIfe, to see if the treatment protocol triggers controlled fat cell death due to its ability to spray CO_2 at -78°C, under 50 bar pressure, cooling the targeted treatment area down to 4°C and below rapidly.

Cryo-apoptosis is a term used for a treatment using cold temperatures to destroy fat cells by freezing them within the temperature range of +4 to +8°C.

CANDIDATES:

18 candidates consented to be part of the study, all of which were unhappy with the fat around their waist. All clients stated that they had not changed their diet, increased their normal exercise, or changed their lifestyle routines during the trial.

The safety and comfort of each client were closely monitored throughout their treatment.

No other medication or modality equipment was used as part of the trial.

18 patients attended weekly appointments and completed a course of ten treatments, once per week over 10 weeks.

Consultation made sure candidates did not have eating disorders, body dysmorphia, health, any other mental illness or physical contra-indications

METHOD:

The trained user of the device rapidly cools the skin temperature and maintains the temperature, to around 0∘C throughout the application of the CO2 spray. This is achieved through their technique of moving the device around the area when using KaasenLife device and the nozzle selected. In all cases the Black nozzle was chosen because of its high pressure and larger aperture to allow more gas to pass through it The temperature can be monitored on screen by the incorporated sensors within the device and also a light is shone onto the treatment area which changes from white to blue to indicate that the user is in the optimum temperature range. The device also has a proximity sensor and can monitor the distance of the spray and make sure there is no risk of burning the skin. Each Client was photographed and measured around the waist at the start of the course of treatments. The treatment involved spraying the front of the stomach and the flanks until a temperature of $4^{o}C$ was achieved. Each week the treatment would be carried out using the same method and the candidate was again measured and photographed.

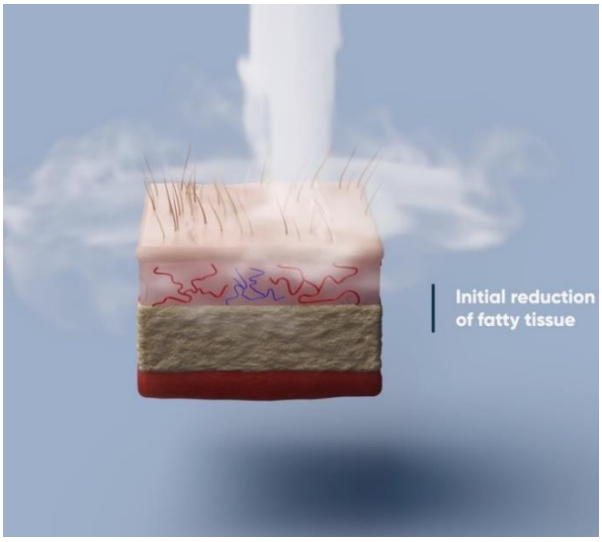


Illustration of Co2 spray being applied to the surface of the skin

RESULTS. Between April, May, and June 2022 results were as below:

After 10 treatments carried out over 10 weeks, we observed a significant reduction in waist measurements with the candidates.

Case 1

Participant	1
Age	47
Gender	Female
Height (cm)	170.18
Calculated BMI	21
Skin Type	1
Skin Texture	1
Smoker	No
Medical Conditions	No
Medication	No
Major surgery in last 3 months	No
Medical Information	N/A
Job sedentary	N/A

	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
Date	18/10/2022	01/11/2022	11/11/2022	16/11/2022	23/11/2022	30/11/2022	07/12/2022	14/12/2022	20/12/2022	N/A
Weight (kg)	61.90	62.60	63.00	63.00	62.40	62.70	63.40	62.20	64.00	N/A
Waist measurement (cm)	88.90	88.90	88.90	88.90	87.63	87.63	86.36	86.36	86.36	N/A
Controlled diet	N/A	Yes	Yes	Yes	Yes	Yes	Yes	No	No	N/A
Weekly alcohol consumption	0	0	0	7	0	6	14	21	21	N/A
Daily water consumption (l)	2	2	2	2	2	2	2	2	2	N/A
Weekly exercise over 30mins	3	3	2	3	1	2	3	0	0	N/A

	BASELINE	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
WEIGHT VARIANCE	61.90	0.00	0.70	1.10	1.10	0.50	0.80	1.50	0.30	2.10	N/A
WAIST VARIANCE	88.90	0.00	0.00	0.00	0.00	-1.27	-1.27	-2.54	-2.54	-2.54	N/A

Weight difference (kg)	2.10
Waist measurement difference (cm)	-2.54

Case 2

Participant	2
Age	57
Gender	F
Height (cm)	168.5
Calculated BMI	25.9
Skin Type	4
Skin Texture	1 + 6
Smoker	No
Medical Conditions	No
Medication	No
Major surgery in last 3 months	No
Medical Information	N/A
Job sedentary	Yes

	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
Date	04/07/2022	12/07/2022	19/07/2022	26/07/2022	02/08/2022	09/08/2022	16/08/2022	30/08/2022	10/09/2022	13/09/2022
Weight (kg)	73.7	73.3	73.4	72.9	72.8	73	72.4	72.2	71.6	71.6
Waist measurement (cm)	105.41	104.14	104.14	104.14	102.87	101.6	101.6	101.6	101.6	101.6
Controlled diet	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Weekly alcohol consumption	3	0	0	4	0	4	0	2	0	1
Daily water consumption (l)	2	2	2	2	3	1	2.5	2.5	2	3
Weekly exercise over 30mins	4	4	3	3	4	2	3	3	3	4

	BASELINE	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
WEIGHT VARIANCE	73.7	0	-0.4	-0.3	-0.8	-0.9	-0.7	-1.3	-1.5	-2.1	-2.1
WAIST VARIANCE	105.41	0	-1.27	-1.27	-1.27	-2.54	-3.81	-3.81	-3.81	-3.81	-3.81

Weight difference (kg)	-2.1
Waist measurement difference (cm)	-3.81

Case 3

Participant	3
Age	47
Gender	F
Height (cm)	167
Calculated BMI	27.6
Skin Type	3
Skin Texture	1 + 2
Smoker	No
Medical Conditions	Asthma
Medication	No
Major surgery in last 3 months	No
Medical Information	No
Job sedentary	No

	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
Date	15/06/2022	22/06/2022	29/06/2022	06/07/2022	13/07/2022	27/07/2022	03/07/2022	10/08/2022	17/08/2022	27/08/2022
Weight (kg)	77.1	78	77.4	77.3	76.4	77.6	78.8	78	79	78
Waist measurement (cm)	116.84	115.57	116.84	116.84	116.84	116.84	116.84	116.84	114.3	114.3
Controlled diet	Yes	Yes	Yes	Yes	No	No	Yes	No	No	No
Weekly alcohol consumption	2.5	9	0	0	6	14	24	7	7	14
Daily water consumption (l)	2	3	3	2	3	1	2	3	3	2
Weekly exercise over 30mins	2	0	2	0	2	0	5	4	3	0

	BASELINE	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
WEIGHT VARIANCE	77.1	0	0.9	0.3	0.2	-0.7	0.5	1.7	0.9	1.9	0.9
WAIST VARIANCE	116.84	0	-1.27	0	0	0	0	0	0	-2.54	-2.54

Weight difference (kg)	0.9
Waist measurement difference (cm)	-2.54

Case 4

Participant	4
Age	57
Gender	F
Height (cm)	168
Calculated BMI	26.5
Skin Type	2
Skin Texture	1 + 2 + 6
Smoker	No
Medical Conditions	No
Medication	No
Major surgery in last 3 months	No
Medical Information	N/A
Job sedentary	No

	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
Date	06/08/2022	10/08/2022	16/08/2022	25/08/2022	31/08/2022	08/09/2022	21/09/2022	28/09/2022	05/10/2022	18/10/2022
Weight (kg)	75	74.5	74.7	74.4	75.4	74.1	75.2	74.8	74.7	75.4
Waist measurement (cm)	106.68	106.68	106.68	106.68	105.41	105.41	104.14	N/A	104.14	104.14
Controlled diet	No	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes
Weekly alcohol consumption	0	0	14	4	0	0	0	0	0	0
Daily water consumption (l)	2	2	2	2	2.5	3	2	2	3	2
Weekly exercise over 30mins	0	0	0	0	3	0	0	0	0	2

	BASELINE	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
WEIGHT VARIANCE	75	0	-0.5	-0.3	-0.6	0.4	-0.9	0.2	-0.2	-0.3	0.4
WAIST VARIANCE	106.68	0	0	0	0	-1.27	-1.27	-2.54	0	-2.54	-2.54

Weight difference (kg)	0.4
Waist measurement difference (cm)	-2.54

Case 5

Participant	5
Age	52
Gender	F
Height (cm)	160
Calculated BMI	25
Skin Type	3
Skin Texture	2 + 5
Smoker	No
Medical Conditions	No
Medication	No
Major surgery in last 3 months	No
Medical Information	N/A
Job sedentary	Yes

	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
Date	09/08/2022	16/08/2022	20/08/2022	07/09/2022	13/09/2022	21/9/212	26/09/2022	30/09/2022	15/10/2022	22/10/2022
Weight (kg)	64.00	64.50	64.70	64.70	64.60	65.00	64.90	65.80	64.40	64.4
Waist measurement (cm)	96.52	96.52	96.52	93.98	93.98	93.98	93.98	92.71	93.22	91.44
Controlled diet	No	No	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Weekly alcohol consumption	7	7	3	0	4	0	0	7	0	14
Daily water consumption (l)	2	2	3	2	3	2	2	2	2.5	2
Weekly exercise over 30mins	2	2	3	2	3	2	1	2	4	2

	BASELINE	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
WEIGHT VARIANCE	64	0	0.5	0.7	0.7	0.6	1	0.9	1.8	0.40	0.4
WAIST VARIANCE	96.52	0	0	0	-2.54	-2.54	-2.54	-2.54	0	-3.30	-5.08

Weight difference (kg)	0.40
Waist measurement difference (cm)	-5.08

Case 6

Participant	5
Age	52
Gender	F
Height (cm)	160
Calculated BMI	25
Skin Type	3
Skin Texture	2 + 5
Smoker	No
Medical Conditions	No
Medication	No
Major surgery in last 3 months	No
Medical Information	N/A
Job sedentary	Yes

	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
Date	09/08/2022	16/08/2022	20/08/2022	07/09/2022	13/09/2022	21/9/212	26/09/2022	30/09/2022	15/10/2022	22/10/2022
Weight (kg)	64.00	64.50	64.70	64.70	64.60	65.00	64.90	65.80	64.40	64.4
Waist measurement (cm)	96.52	96.52	96.52	93.98	93.98	93.98	93.98	92.71	93.22	91.44
Controlled diet	No	No	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Weekly alcohol consumption	7	7	3	0	4	0	0	7	0	14
Daily water consumption (l)	2	2	3	2	3	2	2	2	2.5	2
Weekly exercise over 30mins	2	2	3	2	3	2	1	2	4	2

	BASELINE	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
WEIGHT VARIANCE	64	0	0.5	0.7	0.7	0.6	1	0.9	1.8	0.40	0.4
WAIST VARIANCE	96.52	0	0	0	-2.54	-2.54	-2.54	-2.54	0	-3.30	-5.08

Weight difference (kg)	0.40
Waist measurement difference (cm)	-5.08

Case 7

Participant	7
Age	58
Gender	F
Height (cm)	170
Calculated BMI	26.7
Skin Type	N/A
Skin Texture	1 + 5
Smoker	No
Medical Conditions	No
Medication	No
Major surgery in last 3 months	No
Medical Information	N/A
Job sedentary	No

	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10	Treatment 11
Date	10/08/2022	17/08/2022	20/08/2022	25/08/2022	13/09/2022	20/09/2022	27/09/2022	01/10/2022	11/10/2022	19/10/2022	01/11/2022
Weight (kg)	84.40	84.40	84.90	83.30	84.70	85.20	85.20	85.90	85.60	86.2	85.10
Waist measurement (cm)	111.76	110.49	109.22	107.95	111.76	110.49	109.22	109.22	109.22	107.95	106.68
Controlled diet	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
Weekly alcohol consumption	14	0	2	0	14	14	14	0	14	14	7
Daily water consumption (l)	2	3	2	2	2	2	2	3	2	2	3
Weekly exercise over 30mins	0	5	3	0	0	0	0	2	0	2	2

	BASELINE	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10	Treatment 11
WEIGHT VARIANCE	84.40	0	0	0.5	-1.1	0.3	0.8	0.8	1.5	1.2	1.8	0.7
WAIST VARIANCE	111.76	0	-1.27	-2.54	-3.81	0	-1.27	-2.54	0	-2.54	-3.81	-3.81

Weight difference (kg)	0.7
Waist measurement difference (cm)	-3.81

Case 8

Participant	8
Age	61
Gender	F
Height (cm)	157
Calculated BMI	30.2
Skin Type	4
Skin Texture	7
Smoker	Yes
Medical Conditions	Yes
Medication	Hisinopril, omeprazole, citalopram
Major surgery in last 3 months	No
Medical Information	High blood pressure
Job sedentary	Mixed

	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
Date	20/07/2022	23/07/2022	26/07/2022	06/08/2022	30/08/2022	09/09/2022	16/09/2022	01/10/2022	03/10/2022	17/10/2022
Weight (kg)	74.60	74.50	73.50	72.00	73.10	72.90	71.40	70.20	70.50	70
Waist measurement (cm)	106.68	106.68	106.68	106.68	106.68	106.68	106.68	106.68	106.68	104.14
Controlled diet	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
Weekly alcohol consumption	0	0	0	0	21	7	0	0	0	4
Daily water consumption (l)	3	2	3	3	3	3	3	3	3	3
Weekly exercise over 30mins	5	5	0	5	0	4	0	0	0	0

	BASELINE	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
WEIGHT VARIANCE	74.60	0	-0.1	-1.1	-2.6	-1.5	-1.7	-3.2	-4.4	-4.1	-4.6
WAIST VARIANCE	106.68	0	0	0	0	0	0	0	0	0	-2.54

Weight difference (kg)	-4.6
Waist measurement difference (cm)	-2.54

Case 9

Participant	9
Age	44
Gender	F
Height (cm)	167
Calculated BMI	30.8
Skin Type	3
Skin Texture	3+7
Smoker	No
Medical Conditions	No
Medication	No
Major surgery in last 3 months	No
Medical Information	N/A
Job sedentary	No

	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
Date	09/08/2022	16/08/2022	30/08/2022	07/09/2022	13/09/2022	21/09/2022	27/09/2022	04/10/2022	11/10/2022	18/10/2022
Weight (kg)	87.10	86.60	88.40	86.70	87.00	86.40	88.30	87.90	86.00	88
Waist measurement (cm)	111.76	111.76	111.76	111.76	111.76	111.76	110.49	109.22	109.22	109.22
Controlled diet	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Weekly alcohol consumption	0	0	0	0	0	0	0	0	0	0
Daily water consumption (l)	1	2	2	2	2	2	3	3	2	2
Weekly exercise over 30mins	4	2	2	4	3	3	4	3	2	4

	BASELINE	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
WEIGHT VARIANCE	87.10	0	-0.5	1.3	-0.4	-0.1	-0.7	1.2	0.8	-1.1	0.9
WAIST VARIANCE	111.76	0	0	0	0	0	0	-1.27	0	-2.54	-2.54

Weight difference (kg)	0.9
Waist measurement difference (cm)	-2.54

Case 10

Participant	10
Age	34
Gender	F
Height (cm)	174
Calculated BMI	22.4
Skin Type	5
Skin Texture	3
Smoker	No
Medical Conditions	No
Medication	No
Major surgery in last 3 months	No
Medical Information	N/A
Job sedentary	No

	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
Date	23/07/2022	30/07/2022	03/08/2022	16/08/2022	25/08/2022	14/09/2022	27/09/2022	04/10/2022	01/11/2022	07/11/2022
Weight (kg)	67.90	66.90	66.90	67.00	67.20	66.80	68.20	67.40	67.20	68.9
Waist measurement (cm)	91.44	91.44	91.44	91.44	90.17	88.90	88.90	88.90	87.63	86.36
Controlled diet	No	No	No	Yes	Yes	No	Yes	No	No	No
Weekly alcohol consumption	14	10	7	2	14	7	0	14	7	14
Daily water consumption (l)	2	2	2	2	2	2	2	2	2	2
Weekly exercise over 30mins	4	0	1	5	0	3	3	2	3	2

	BASELINE	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
WEIGHT VARIANCE	67.90	0	-1	-1	-0.9	-0.7	-1.1	0.3	-0.5	-0.7	1
WAIST VARIANCE	91.44	0	0	0	0	-1.27	-2.54	-2.54	0	-3.81	-5.08

Weight difference (kg)	1
Waist measurement difference (cm)	-5.08

Case 11

Participant	11
Age	43
Gender	F
Height (cm)	164
Calculated BMI	22.6
Skin Type	5
Skin Texture	1+2
Smoker	No
Medical Conditions	Herpes/cold sores
Medication	No
Major surgery in last 3 months	No
Medical Information	N/A
Job sedentary	No

	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
Date	26/07/2022	03/08/2022	09/08/2022	27/09/2022	05/10/2022	12/10/2022	17/10/2022	24/10/2022	01/11/2022	01/12/2022
Weight (kg)	61.00	59.40	59.50	61.60	61.00	60.00	60.00	59.60	59.70	59
Waist measurement (cm)	88.90	88.90	88.90	87.63	87.63	86.36	86.36	85.09	33.00	83.82
Controlled diet	Yes	No	Yes	No	No	No	No	No	Yes	No
Weekly alcohol consumption	24	6	14	14	14	22	26	22	0	0
Daily water consumption (l)	1	2	3	2	2	2	2	2	2	2
Weekly exercise over 30mins	5	2	2	3	2	2	2	1	3	2

	BASELINE	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
WEIGHT VARIANCE	61.00	0	-1.6	-1.5	0.6	0	-1	-1	-1.4	-1.3	-2
WAIST VARIANCE	88.9	0	0	0	-1.27	-1.27	-2.54	-2.54	0	-55.9	-5.08

Weight difference (kg)	-2
Waist measurement difference (cm)	-5.08

Case 12

Participant	12
Age	48
Gender	F
Height (cm)	171
Calculated BMI	28.9
Skin Type	2
Skin Texture	3+4
Smoker	Yes
Medical Conditions	No
Medication	No
Major surgery in last 3 months	No
Medical Information	N/A
Job sedentary	No

	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
Date	07/09/2022	14/09/2022	21/09/2022	28/09/2022	12/10/2022	18/10/2022	01/11/2022	08/11/2022	22/11/2022	14/12/2022
Weight (kg)	83.80	83.90	83.90	84.90	84.90	85.60	85.40	85.90	86.10	86.8
Waist measurement (cm)	109.22	109.22	109.22	109.22	109.22	107.95	106.68	106.88	106.68	101.6
Controlled diet	No	No	No	Yes	No	No	No	No	No	No
Weekly alcohol consumption	0	0	0	0	0	0	0	0	0	0
Daily water consumption (l)	2	2	3	2	2	3	2	3	3	2
Weekly exercise over 30mins	0	0	0	3	0	0	0	0	0	0

	BASELINE	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
WEIGHT VARIANCE	83.80	0	0.1	0.1	1.1	1.1	1.8	1.6	2.1	2.3	3
WAIST VARIANCE	109.22	0	0	0	0	0	-1.27	-2.54	0	-2.54	-7.62

Weight difference (kg)	3
Waist measurement difference (cm)	-7.62

Case 13

Participant	13
Age	36
Gender	M
Height (cm)	181
Calculated BMI	30.9
Skin Type	5
Skin Texture	3
Smoker	No
Medical Conditions	No
Medication	No
Major surgery in last 3 months	No
Medical Information	N/A
Job sedentary	No

	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
Date	09/08/2022	16/08/2022	25/08/2022	30/08/2022	07/09/2022	14/09/2022	21/09/2022	27/09/2022	04/10/2022	11/10/2022
Weight (kg)	90.30	89.90	90.80	90.90	91.70	91.50	91.80	92.10	91.70	92.3
Waist measurement (cm)	101.60	101.60	101.60	101.60	101.60	101.60	101.60	101.60	101.60	101.6
Controlled diet	Yes	Yes	No	Yes	No	Yes	Yes	No	No	No
Weekly alcohol consumption	0	0	0	21	0	0	0	0	0	0
Daily water consumption (l)	2	2	2	3	3	3	3	3	2	3
Weekly exercise over 30mins	4	4	3	4	5	4	5	4	4	4

	BASELINE	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
WEIGHT VARIANCE	90.30	0	-0.4	0.5	0.6	1.4	1.2	1.5	1.8	1.4	2
WAIST VARIANCE	101.6	0	0	0	0	0	0	0	0	0	0

Weight difference (kg)	2
Waist measurement difference (cm)	0

Case 14

Participant	14
Age	31
Gender	F
Height (cm)	158
Calculated BMI	22.4
Skin Type	3
Skin Texture	1
Smoker	No
Medical Conditions	No
Medication	No
Major surgery in last 3 months	No
Medical Information	N/A
Job sedentary	No

	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
Date	28/06/2022	06/07/2022	13/07/2022	20/07/2022	27/07/2022	30/07/2022	10/08/2022	17/08/2022	25/08/2022	
Weight (kg)	55.80	55.50	56.50	56.40	56.10	55.90	56.40	57.30	57.70	
Waist measurement (cm)	87.63	83.82	83.82	87.63	81.28	82.55	83.82	81.28	81.28	
Controlled diet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Weekly alcohol consumption	0	0	4	0	8	0	0	0	0	
Daily water consumption (l)	3	2	2	2	3	2	3	2	3	
Weekly exercise over 30mins	4	5	5	4	5	5	0	2	0	

	BASELINE	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
WEIGHT VARIANCE	55.80	0	-0.3	0.7	0.6	0.3	0.1	0.6	1.5	1.9	N/A
WAIST VARIANCE	87.63	0	-3.81	-3.81	-3.81	-6.35	-5.08	-3.81	-3.81	-6.35	N/A

Weight difference (kg)	1.9
Waist measurement difference (cm)	-6.35

Case 15

Participant	2
Age	45
Gender	female
Height (cm)	175.25
Calculated BMI	26.9
Skin Type	1
Skin Texture	2
Smoker	No
Medical Conditions	No
Medication	No
Major surgery in last 3 months	No
Medical Information	NA
Job sedentary	No

	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
Date	11/10/2022	18/10/2022	25/10/2022	01/11/2022	10/11/2022	15/11/2022				
Weight (kg)	83.5	83	83	82.5	82.5	82				
Waist measurement (cm)	102	101.5	101	101	101	100				
Controlled diet	No	No	No	No	No	No				
Weekly alcohol consumption	0	0	0	0	0	0				
Daily water consumption (l)	2 lires	2 lites	2 lires	2 litres	2 Litres	2 litres				
Weekly exercise over 30mins	yes	Yes	Yes	Yes	Yes	Yes				

	BASELINE	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
WEIGHT VARIANCE	83.5	0	-0.5	-0.5	-1	-1	-1.5	N/A	N/A	N/A	N/A
WAIST VARIANCE	102	0	-0.5	-1	-1	-1	-2	N/A	N/A	N/A	N/A

Weight difference (kg)	-1.5
Waist measurement difference (cm)	-2

Case 16

Participant	3
Age	45
Gender	male
Height (cm)	172.72
Calculated BMI	31.8
Skin Type	2
Skin Texture	3
Smoker	No
Medical Conditions	Wheelchair bound
Medication	No
Major surgery in last 3 months	No
Medical Information	NA
Job sedentary	Yes

	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
Date	11/10/2022	18/10/2022	25/10/2022	01/11/2022	10/11/2022	15/11/2022				
Weight (kg)	97	97	96.5	96.5	96.5	96				
Waist measurement (cm)	120	120	118	117	116	115				
Controlled diet	No	No	No	No	No	No				
Weekly alcohol consumption	No	No	No	No	No	No				
Daily water consumption (l)	3 litres	3 litres	3 litres	3 litres	3 litres	3 litres				
Weekly exercise over 30mins	Yes	Yes	Yes	Yes	Yes	Yes				

	BASELINE	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
WEIGHT VARIANCE	97	0	0	-0.5	-0.5	-0.5	-1	N/A	N/A	N/A	N/A
WAIST VARIANCE	120	0	0	-2	-3	-4	-5	N/A	N/A	N/A	N/A

Weight difference (kg)	-1
Waist measurement difference (cm)	-5

Case 17

Participant	4
Age	36
Gender	Female
Height (cm)	170.18
Calculated BMI	14.4
Skin Type	2
Skin Texture	3
Smoker	no
Medical Conditions	No
Medication	No
Major surgery in last 3 months	No
Medical Information	No
Job sedentary	Yes

	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
Date	01/10/2022	11/10/2022	18/10/2022	25/10/2022	01/11/2022	10/11/2022				
Weight (kg)	96	96	95.5	95.5	95.5	95.5				
Waist measurement (cm)	105	103.5	103.5	103	102.5	102.5				
Controlled diet	No	No	No	No	No	No				
Weekly alcohol consumption	No	No	No	No	No	No				
Daily water consumption (l)	2 lites	2 litres	2 litres	2 litres	2 litres	2 litres				
Weekly exercise over 30mins	Yes	Yes	Yes	Yes	Yes	Yes				

	BASELINE	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
WEIGHT VARIANCE	96	0	0	-0.5	-0.5	-0.5	-0.5	N/A	N/A	N/A	N/A
WAIST VARIANCE	105	0	-1.5	-1.5	-2	-2.5	-2.5	N/A	N/A	N/A	N/A

Weight difference (kg)	-0.5
Waist measurement difference (cm)	-2.5

Case 18

Participant	5
Age	39
Gender	Male
Height (cm)	172.72
Calculated BMI	32.7
Skin Type	2
Skin Texture	3
Smoker	no
Medical Conditions	Wheelchair bound
Medication	Yes
Major surgery in last 3 months	Yes
Medical Information	Ripped bicep
Job sedentary	Yes

	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
Date	01/10/2022	11/10/2022	18/10/2022	25/10/2022	01/11/2022	10/11/2022				
Weight (kg)	97.00	97.00	96.50	96.50	96.50	96.00				
Waist measurement (cm)	103.00	103.00	102.50	102.00	101.00	101.00				
Controlled diet	No	No	No	No	No	No				
Weekly alcohol consumption	No	No	No	No	No	No				
Daily water consumption (l)	2 llitres	2 litres	2 litres	2 litres	2 litres	2 litres				
Weekly exercise over 30mins	Yes	Yes	Yes	Yes	Yes	Yes				

	BASELINE	Treatment 1	Treatment 2	Treatment 3	Treatment 4	Treatment 5	Treatment 6	Treatment 7	Treatment 8	Treatment 9	Treatment 10
WEIGHT VARIANCE	97	0	0	-0.5	-0.5	-0.5	-1	N/A	N/A	N/A	N/A
WAIST VARIANCE	103	0	0	-0.5	-1	-2	-2	N/A	N/A	N/A	N/A

Weight difference (kg)	-1.00
Waist measurement difference (cm)	-2.00

Conclusion:

With all candidates we observed a significant reduction when measuring around the waist. The skin quality was also observed to be tighter than at the start of the course of treatments.

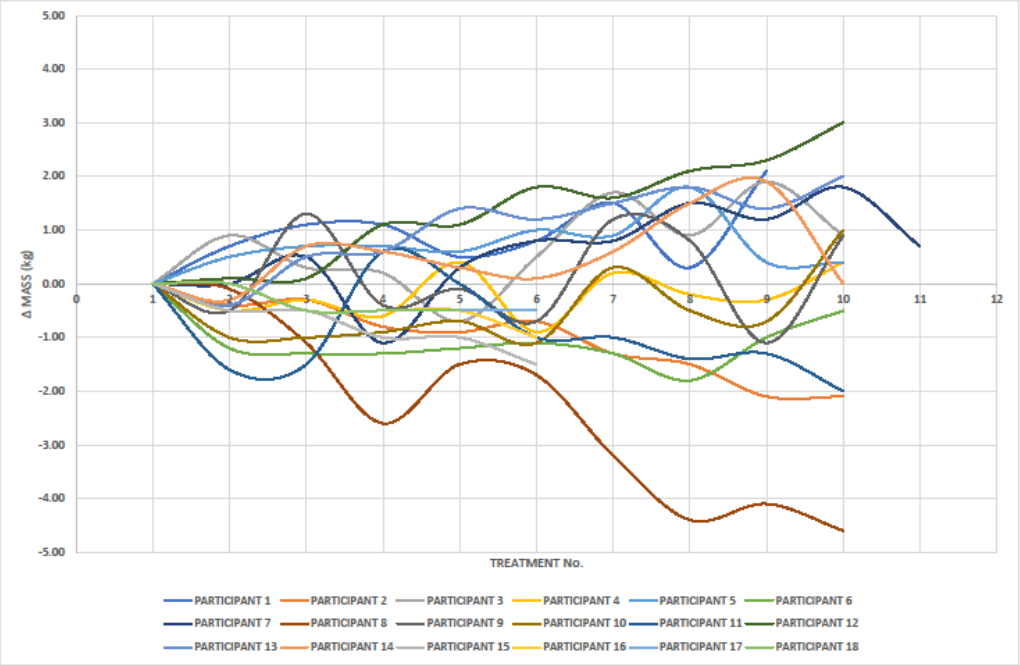
OBSERVATION. All patients achieved inch loss after just the first treatment. This is because the skin tightens as a reaction to the cold temperatures.

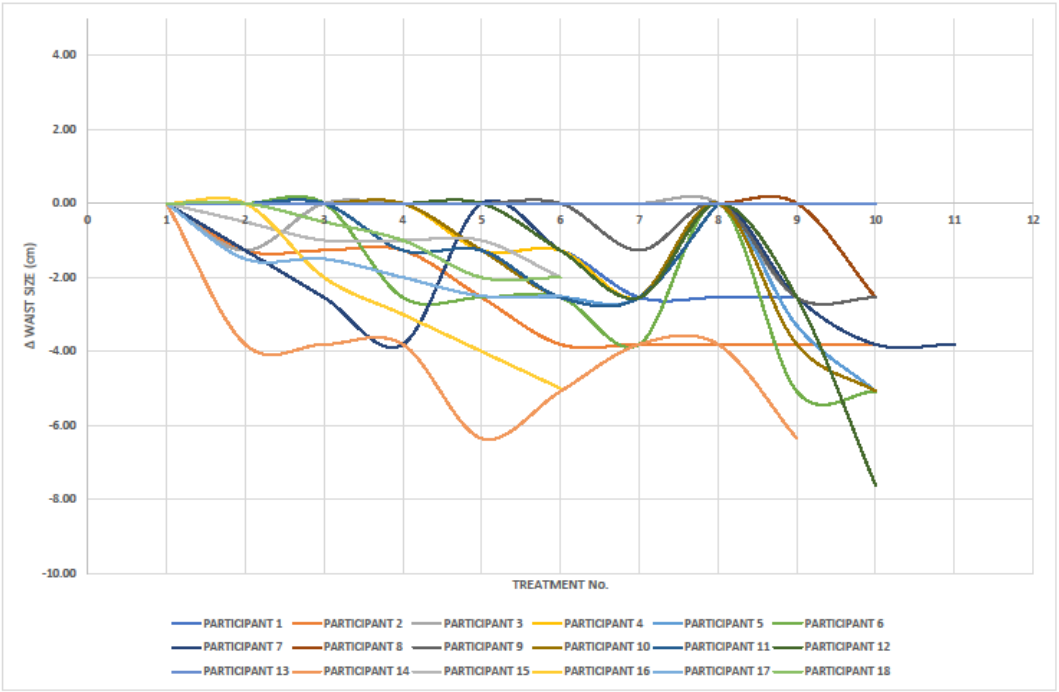
All patients after 10 weeks candidates had achieved a smaller waist with one client having 4” loss around the waist.

The quality of skin was observed to be firmer.

All Patients also saw a visible firming and tightening of the skin and felt invigorated post-treatment.

All patients reported a feeling of well-being following the procedure and felt they would recommend KassenLife to friends and family for body sculpting.


5.00
4.00
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
-4.00
-5.00
Δ MASS (kg)
0
1
2
3
4
5
6
7
8
9
10
11
12
TREATMENT No.
PARTICIPANT 1
PARTICIPANT 2
PARTICIPANT 3
PARTICIPANT 4
PARTICIPANT 5
PARTICIPANT 6
PARTICIPANT 7
PARTICIPANT 8
PARTICIPANT 9
PARTICIPANT 10
PARTICIPANT 11
PARTICIPANT 12
PARTICIPANT 13
PARTICIPANT 14
PARTICIPANT 15
PARTICIPANT 16
PARTICIPANT 17
PARTICIPANT 18


4.00
2.00
0.00
-2.00
-4.00
-6.00
-8.00
-10.00
Δ WAIST SIZE (cm)
0
1
2
3
4
5
6
7
8
9
10
11
12
TREATMENT No.
PARTICIPANT 1
PARTICIPANT 2
PARTICIPANT 3
PARTICIPANT 4
PARTICIPANT 5
PARTICIPANT 6
PARTICIPANT 7
PARTICIPANT 8
PARTICIPANT 9
PARTICIPANT 10
PARTICIPANT 11
PARTICIPANT 12
PARTICIPANT 13
PARTICIPANT 14
PARTICIPANT 15
PARTICIPANT 16
PARTICIPANT 17
PARTICIPANT 18

DISCUSSION:

The aim of the study was to see if cold triggers a response that causes the adipocyte programmed death (apoptosis) and gradually lessens the fat layer and from our observations we could see inch loss around all candidates. Cryo-apoptosis effects are not immediate; however, statistically significant reduction may be obtained within approximately two months from application. Apoptosis of fat cells (adipocytes) is initiated when these cells are cooled to temperatures below +4◦C.

Our method showed the protocol could be an effective treatment for rapid inch reduction, skin toning and tightening. More studies are currently being carried out to see the long-term results of Cryo-Sculpting. Care should be taken to also look at the patient's diet and lifestyle which also are very important factors obviously in improving and maintaining the results. The process of using "Kaasen Life" for Fat Freezing was a simple and straightforward procedure.

The latest scientific research into cryo-stimulation and cold stress and apoptosis using cold temperatures suggests it provides multiple beneficial effects on the human body. From the perspective of this trial, we were most interested in the following processes and outcomes.

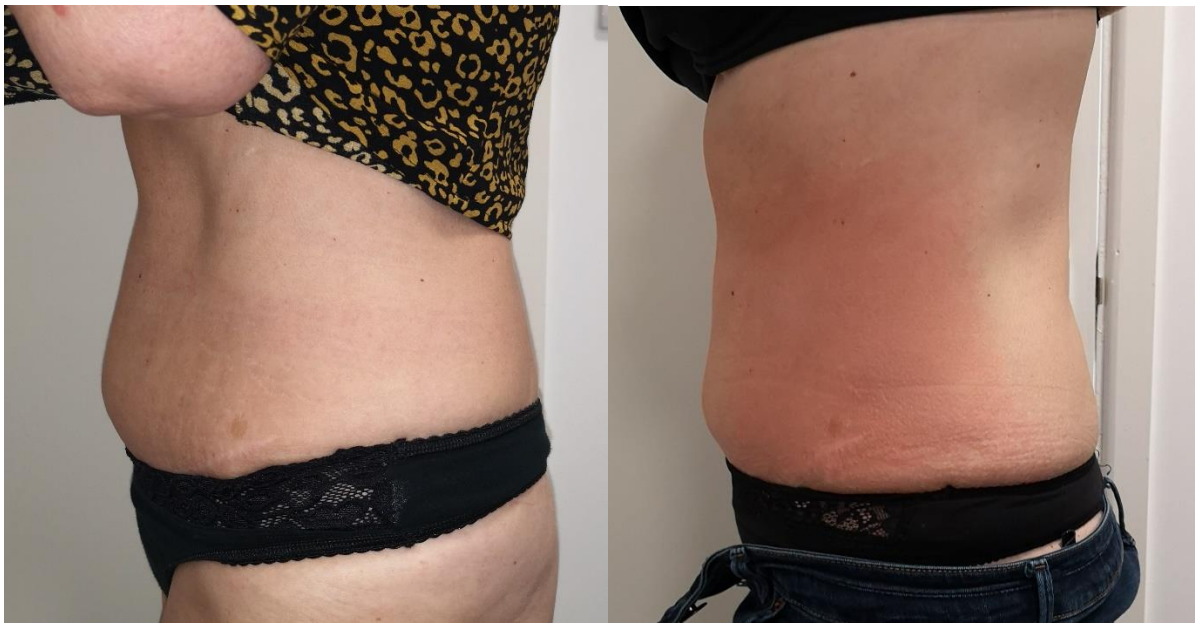
- Cryo-Apoptosis - the permanent destruction of fat cells, which are then flushed through the lymphatic system
- Increased browning of adipose tissue (fat cells); a process which makes the fat cells metabolise more efficiently, and so fat loss occurs more quickly
- Accelerated microcirculation (the smallest blood vessels which supply the skin), which supports better oxygenation of derma cells and encourages collagen production for healthier skin
- Removal of dead skin to stimulate new smoother skin growth
- The reaction to cold causing vasoconstriction and dilation of blood vessels to flush toxins and impurities away
- Increases dopamine which boosts metabolism and energy levels

To confirm these biological responses more studies would be needed to carry out.

Another biological mechanism mentioned would also need more exploration into would be concerning a beige effect that cold temperatures have on fat. There are two types of adipose or fat tissue: brown and white. White adipose tissue stores energy - this is also the type of fat that can add inches to your waist and thighs. Brown adipose fat, which is primarily located around the neck and collar bones, is metabolically active and can burn or oxidise white adipose tissue,
Some Cryotherapy studies have shown that regular cryotherapy sessions can activate the brown adipose fat and muscles. Once activated, they release two hormones: irisin and FGF21. These hormones then burn white fat tissue and help you lose weight.
Studies have shown that what activating irisin does is, that it converts white fat into healthier brown fat - this improves the glucose tolerance of the body.
Case Reports in Dermatological Medicine promise results have been confirmed in studies; therefore, it seems to be an excellent alternative for localized fat reduction without major adverse effects.

Scientific studies also indicate that using Cryo Stimulation induces triggers apoptosis, destroying fat cells permanently which are then flushed through the lymphatic system. More studies need to be done to discover if Cryo Sculpting also causes the browning of stubborn fat (adipose tissue) and helps in burning off fat.

To improve the protocol in future studies, post-treatment, a light-pressure massage to aid the process of flushing out the destroyed fat cells through the lymphatic system maybe something that could benefit the protocol.



Treatment protocols followed by another clinic

Treatment protocols followed by another clinic