



## Weight Loss after 5, 10, 15, and 20 Cold Wrap Treatments in a Private Slimming Center in the Philippines

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### Abstract

**Introduction:** Cold Wraps have been used by slimming centers in Switzerland since the 1960's to lose weight by reactive thermogenesis. Being warm-blooded, we need to maintain a homeostatic temperature so exposure to cold with resultant hypothermia would signal the body to burn fat. Cold Wraps were a novel idea and it boasts of being able to burn as much as a thousand calories for each treatment done for only several minutes but whose effect lasts for 2-3 days. Though a few studies have been done to show that Cold exposure increases Calorie Burning, there has been no documentation on its end result of producing actual concrete weight loss results.

**Materials and Methods:** A random sample of 325 patients in a private slimming centre in the Philippines was chosen. After application of the inclusion and exclusion criteria, 64 patients remained. All had 5 Cold Wrap treatments, but only 46 continued to have 10 Cold Wrap treatments, 22 continued to have 15 Cold Wrap treatments, and 8 continued to have 20 Cold Wrap treatments. Subjects were existing patients several months to a couple of years before the data was collected in December of 1998.

**Results:** The average weight loss after 5 Cold Wrap treatments by mean is 3.22 lbs. (206.66/64), by mode is 2 lbs. (13 patients), and by median is 5.4 lbs. (highest 10 lbs., lowest 0.8 lbs.). The average weight loss after 10 Cold Wrap treatments by mean is 5.51 lbs. (253.36/46), by mode is 5 lbs. (5 patients), and by median is 8.5 lbs. (highest 15 lbs., lowest 2 lbs.). The average weight loss after 15 Cold Wrap treatments by mean is 9.67 lbs. (212.76/22), by mode is 7 & 10 lbs. (3 patients), and by median is 9 lbs. (highest 14 lbs., lowest 4 lbs.). The average weight loss after 20 Cold Wrap treatments by mean is 10.39 lbs. (83.1/8), by mode is 5 lbs. (2 patients), and by median is 9.75 lbs. (highest 14.5 lbs., lowest 5 lbs.). The average weight loss per treatment for the first 5 treatments (1<sup>st</sup> to 5<sup>th</sup>) is 0.644 lbs. (3.22/5), second 5 treatments (6<sup>th</sup> to 10<sup>th</sup>) is 0.458 lbs. (2.29/5), third 5 treatments (11<sup>th</sup> to 15<sup>th</sup>) is 0.832 lbs. (4.16/5), and the fourth 5 treatments (16<sup>th</sup> to 20<sup>th</sup>) is 0.144 lbs. (0.72/5). The overall average weight loss per treatment (1<sup>st</sup> to 20<sup>th</sup>) is 0.5195 lbs. (2.078/4).

**Conclusion:** There is weight loss after Cold Wrap treatments in a private Slimming Centre in the Philippines. The average weight loss per treatment is 0.5195 lbs.

**Keywords:** Cold exposure; Cold wrap; Hypothermia; Thermogenesis; Calorie burning; Weight loss; Slimming centre; Elastic bandages; Cold solution

### Introduction

In the early 1990's, Leptin wasn't discovered yet [1] and Brown Adipose Tissue was only noted to be present in babies [2]. Fat hormones (adipokines) that signal a person from eating too much [3] and uncoupling protein 1 (UCP-1) that facilitates calorie burning [4] was not part of the arsenal to fight too excess body fat and being overweight. Obesity wasn't classified yet as a chronic disease directly linked to metabolic diseases [5]. The entire craze about losing weight was not for getting in shape for health and wellness but rather simply for vanity. One of the novel treatments to lose weight was by use of Cold Wraps more popularly known by its trademark "Fat Mobilisation System" or FMS [6]. It has been used by slimming centres in Switzerland since the 1960's to lose weight. The treatment induces thermogenesis by artificially creating a mild form of hypothermia [7]. Being warm-blooded, we need to maintain a homeostatic temperature so exposure to cold with resultant hypothermia would signal the body to burn fat. FMS boasts of being able to burn as much as a thousand calories for each treatment done for only several minutes but whose effect lasts for 2-3 days. This happens as brown fat is stimulated and calorie burning is increased [8] by Cold Acclimation [9]. It also provides a reduction in girth at the waist (decrease in Visceral Fat as well as subcutaneous Fat). But most dramatic of all is its ability to induce weight loss per treatment depending on the body's response. Though a few studies have

been done to show that Cold Exposure increases calorie Burning [7], there has been no documentation on its end result of producing actual concrete weight loss.

### Objective

To determine and document the average weight loss induced by Cold Wrap treatments 5.

### Subjects and Methods

Subjects were existing patients several months to a couple of years before the data was collected in December of 1998. A sample of 325 patients represented by their index cards in the filing cabinet was randomly drawn. That is 13 patients per alphabet (A to Z, except X) corresponding to the first letter of their surname; in order to reach more than 300 patients as dictated by the statistician. The information written on the index cards were copied. These consisted of treatments done, documented weights,

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Received October 19, 2017; Accepted November 03, 2017; Published November 06, 2017

Citation: Torres AS (2017) Weight Loss after 5, 10, 15, and 20 Cold Wrap Treatments in a Private Slimming Center in the Philippines. J Nutr Weight Loss 2: 109.

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if given a diet, concomitant diseases related to weight, medications that induce weight gain, etc. Each client's index card was designated a client number (names specifically excluded) and the pertinent data after application of the inclusion and exclusion criteria were tabulated. Inclusion Criteria:

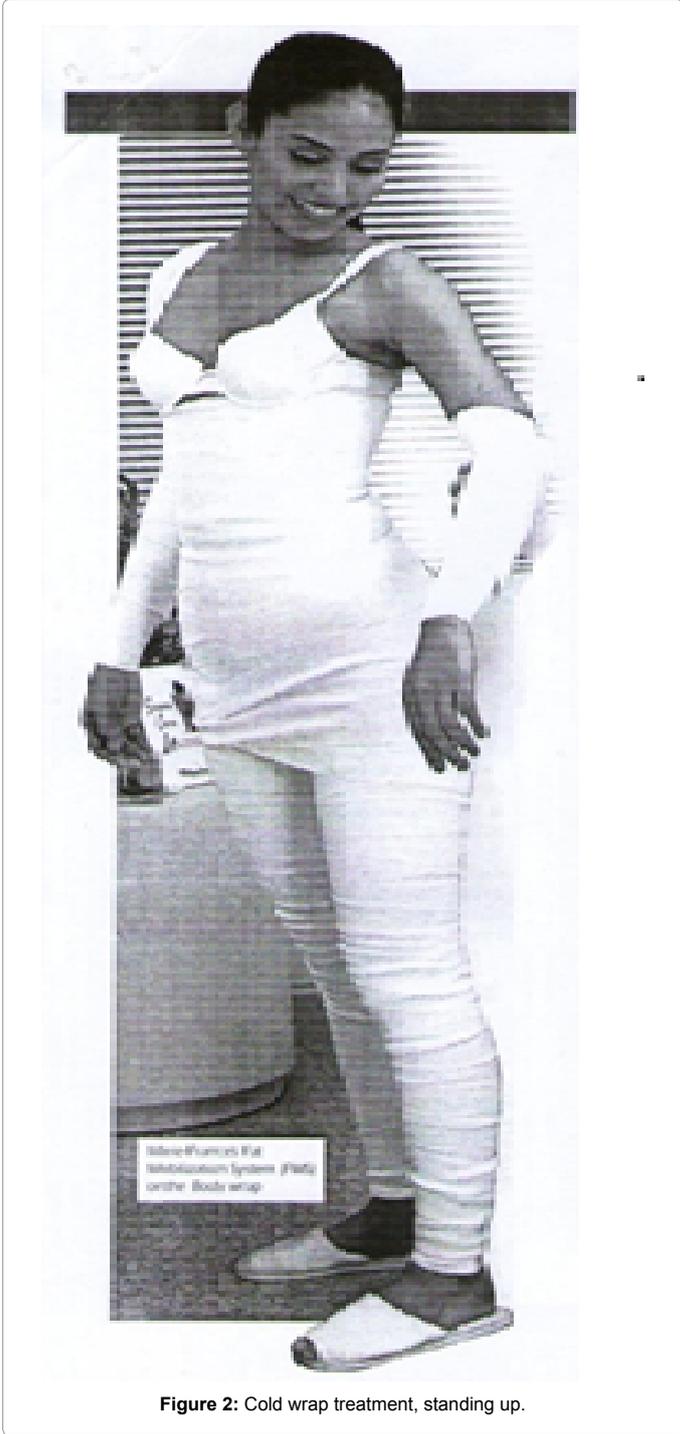
1. Had 5, 10, 15 or 20 Cold Wrap treatments
2. Had the Cold Wrap treatments on a regular basis (at least 2X a week)
3. Had regular weight documentation

Exclusion Criteria:

1. Any concomitant disease related to weight gain/loss (Ex-diabetes, hypothyroid, etc.)
2. Intake of medications that induce weight gain/loss (Ex-hormone replacement therapy, oral/injectable steroids)
3. Any specific diet with the purpose of losing weight in a short span of time (Ex-hypocaloric "crash" diets, etc.)
4. If other treatments are being done in the slimming centre (Ex-trans epidermal nerve stimulation, skin curving treatments using positive and negative pressure by suction/vacuum, etc.)

The actual Cold Wrap treatment is done by soaking elastic bandages in a solution that promotes convection once the subject is already wrapped with it. Convection is when air travels close to the body and attracts heat away from it [10]. The solution in the bandages while wrapped around the body of the subject (Figure 1) evaporates with time.

The actual Cold Wrap treatment is done by soaking elastic bandages in a solution that promotes convection once the subject is already



wrapped with it. Convection is when air travels close to the body and attracts heat away from it [10]. The solution in the bandages while wrapped around the body of the subject (Figures 1 and 2) evaporates with time.

### Results

Among the subjects, 64 patients had 5 Cold Wrap treatments, but only 46 continued to have 10 Cold Wrap treatments, 22 continued to have 15 Cold Wrap treatments, and 8 continued to have 20 Cold Wrap treatments (Table 1). Subjects were existing patients several months to

Client ID#	Date Started	Weight Started	Date of 5th CWT	Weight at 5th CWT	Date of 10th CWT	Weight at 10th CWT	Date of 15th CWT	Weight at 15th CWT	Date of 20th CWT	Weight at 20th CWT
#2	13-Feb	126 lbs.	26-Feb	123 lbs.	26-Mar	121 lbs.	xxx	xxx	xxx	xxx
#5	05-May	126.4 lbs.	20-May	124.12 lbs.	11-Jun	123 lbs.	xxx	xxx	xxx	xxx
#9	05-May	127 lbs.	05-Jun	122 lbs.	xxx	xxx	xxx	xxx	xxx	xxx
#17	07-Aug	150 lbs.	19-Aug	142 lbs.	23-Sep	140.4 lbs.	11-Nov	136.4 lbs.	xxx	xxx
#18	24-Jun	114.4 lbs.	08-Jul	111.12 lbs.	xxx	xxx	xxx	xxx	xxx	xxx
#22	08-Jul	164.8 lbs.	14-Jul	162.12 lbs.	xxx	xxx	xxx	xxx	xxx	xxx
#23	29-May	127.4 lbs.	13-Jun	124 lbs.	xxx	xxx	xxx	xxx	xxx	xxx
#24	25-Feb	114 lbs.	18-Mar	110 lbs.	xxx	xxx	xxx	xxx	xxx	xxx
#48	15-Apr	93.4 lbs.	05-May	90.8 lbs.	xxx	xxx	xxx	xxx	xxx	xxx
#49	19-May	178.8 lbs.	04-Jun	176.4 lbs.	01-Jul	174.12 lbs.	16-Jul	170.4 lbs.	29-Jul	168 lbs.
#69	09-Feb	134 lbs.	13-Feb	132 lbs.	26-Feb	129.8 lbs.	xxx	xxx	xxx	xxx
#70	07-Sep	121 lbs.	29-Sep	114.8 lbs.	xxx	xxx	xxx	xxx	xxx	xxx
#71	08-Feb	100 lbs.	27-Feb	98 lbs.	xxx	xxx	xxx	xxx	xxx	xxx
#72	03-Dec	128 lbs.	15-Dec	124.8 lbs.	xxx	xxx	xxx	xxx	xxx	xxx
#80	05-Sep	118 lbs.	18-Sep	116.2 lbs.	06-Oct	113.2 lbs.	30-Oct	111 lbs.	xxx	xxx
#82	03-Oct	128 lbs.	14-Oct	126.4 lbs.	02-Nov	123 lbs.	23-Nov	118 lbs.	xxx	xxx
#86	02-Jun	123.12 lbs.	13-Jun	122.2 lbs.	11-Jul	120.12 lbs.	xxx	xxx	xxx	xxx
#91	08-Oct	182 lbs.	20-Oct	178 lbs.	08-Nov	176 lbs.	06-Dec	173 lbs.	20-Dec	168 lbs.
#96	27-Feb	135 lbs.	20-Mar	132 lbs.	06-Apr	125 lbs.	12-May	121 lbs.	xxx	xxx
#97	21-Mar	118 lbs.	04-Apr	116 lbs.	21-Apr	116 lbs.	02-May	114 bls	30-May	113 lbs.
#103	19-Feb	158 lbs.	10-Mar	153 lbs.	02-Apr	151 lbs.	14-Apr	146 lbs.	xxx	xxx
#104	06-Mar	110 lbs.	14-Mar	108.8 lbs.	29-Mar	106 lbs.	xxx	xxx	xxx	xxx
#105	04-Jun	160 lbs.	13-Jun	150.2 lbs.	04-Jul	145 lbs.	xxx	xxx	xxx	xxx
#109	15-May	117 lbs.	27-May	115.4 lbs.	13-Jun	114 lbs.	xxx	xxx	xxx	xxx
#113	29-Mar	138 lbs.	14-Apr	134.12 lbs.	17-May	130.12 lbs.	xxx	xxx	xxx	xxx
#117	06-Nov	164 lbs.	16-Nov	162 lbs.	10-Dec	161.4 lbs.	xxx	xxx	xxx	xxx
#118	21-Jan	128 lbs.	11-Feb	126 lbs.	12-Mar	125 lbs.	xxx	xxx	xxx	xxx
#119	12-Jan	125 lbs.	21-Jan	122 lbs.	xxx	xxx	xxx	xxx	xxx	xxx
#121	02-Dec	122.5 lbs.	10-Dec	120 lbs.	03-Jan	116 lbs.	16-Jan	112 lbs.	06-Feb	108 lbs.
#127	03-Apr	135.8 lbs.	12-Apr	132.12 lbs.	20-Apr	129 lbs.	05-May	127.14 lbs.	xxx	xxx
#129	21-Nov	108 lbs.	01-Dec	103.4 lbs.	22-Dec	101 lbs.	05-Feb	97.4 lbs.	xxx	xxx
#152	18-Mar	126 lbs.	27-Mar	123.12 lbs.	10-Apr	122.8 lbs.	xxx	xxx	xxx	xxx
#154	05-Aug	132 lbs.	20-Aug	130 lbs.	11-Sep	129 lbs.	xxx	xxx	xxx	xxx
#157	05-Sep	123 lbs.	05-Oct	118 lbs.	xxx	xxx	xxx	xxx	xxx	xxx
#163	24-Mar	130 lbs.	08-Apr	127 lbs.	xxx	xxx	xxx	xxx	xxx	xxx
#164	21-Aug	115 lbs.	01-Sep	110.4 lbs.	22-Sep	108 lbs.	05-Nov	104.4 lbs.	xxx	xxx
#169	03-Jan	155 lbs.	14-Jan	153.4 lbs.	02-Feb	150 lbs.	23-Feb	145 lbs.	xxx	xxx
#174	08-Jun	122 lbs.	14-Jun	119.4 lbs.	xxx	xxx	xxx	xxx	xxx	xxx
#175	10-Feb	158 lbs.	18-Feb	156 lbs.	04-Mar	152 lbs.	24-Mar	148 lbs.	14-Apr	145 lbs.
#177	25-Jan	124 lbs.	18-Feb	120 lbs.	xxx	xxx	xxx	xxx	xxx	xxx
#179	15-Mar	97 lbs.	05-Apr	95.6 lbs.	09-May	94.8 lbs.	xxx	xxx	xxx	xxx
#180	06-Aug	170 lbs.	16-Aug	168 lbs.	10-Sep	167.4 lbs.	xxx	xxx	xxx	xxx
#185	09-May	139 lbs.	13-May	137 lbs.	26-May	134.8 lbs.	xxx	xxx	xxx	xxx
#186	01-Sep	147 lbs.	15-Sep	145 lbs.	02-Oct	144 lbs.	13-Oct	143 lbs.	10-Nov	142 lbs.
#189	15-Feb	130 lbs.	27-Feb	128 lbs.	15-Mar	126 lbs.	12-Apr	123 lbs.	26-Apr	118 lbs.
#192	07-Mar	139 lbs.	29-Mar	132.8 lbs.	xxx	xxx	xxx	xxx	xxx	xxx
#195	22-Oct	172 lbs.	03-Nov	162 lbs.	19-Nov	157 lbs.	xxx	xxx	xxx	xxx
#196	03-Nov	138 lbs.	12-Nov	134.4 lbs.	20-Nov	131.12 lbs.	05-Dec	129.4 lbs.	xxx	xxx
#210	08-Sep	130 lbs.	27-Sep	128 lbs.	xxx	xxx	xxx	xxx	xxx	xxx
#214	03-Jun	150 lbs.	15-Jun	146.8 lbs.	xxx	xxx	xxx	xxx	xxx	xxx
#216	21-Dec	106 lbs.	11-Jan	104 lbs.	12-Feb	101 lbs.	xxx	xxx	xxx	xxx
#220	05-Oct	116 lbs.	18-Oct	114.2 lbs.	06-Nov	111.2 lbs.	30-Nov	109 lbs.	xxx	xxx
#221	06-Feb	122 lbs.	14-Feb	120.8 lbs.	Feb-29	118 lbs.	xxx	xxx	xxx	xxx
#227	19-Sep	129 lbs.	10-Oct	124 lbs.	02-Nov	122 lbs.	14-Nov	117 lbs.	xxx	xxx
#231	07-Oct	146 lbs.	19-Oct	138 lbs.	23-Nov	136.6 lbs.	11-Jan	132.6 lbs.	xxx	xxx
#242	29-Jul	105 lbs.	14-Aug	101.12 lbs.	17-Sep	97.12 lbs.	xxx	xxx	xxx	xxx
#249	27-Jul	136 lbs.	20-Aug	133 lbs.	06-Sep	126 lbs.	12-Oct	122 lbs.	xxx	xxx
#263	12-Jan	97 lbs.	21-Jan	94 lbs.	xxx	xxx	xxx	xxx	xxx	xxx
#270	19-Jun	130.8 lbs.	04-Jul	128.4 lbs.	01-Aug	126.12 lbs.	16-Aug	122.4 lbs.	29-Aug	122 lbs.

#272	15-Apr	125 lbs.	27-Apr	123.4 lbs.	13-May	123 lbs.	xxx	xxx	xxx	xxx
#281	13-May	102 lbs.	28-May	99 lbs.	26-Jun	97 lbs.	xxx	xxx	xxx	xxx
#290	29-Jun	164.4 lbs.	13-Jul	161.12 lbs.	xxx	xxx	xxx	xxx	xxx	xxx
#292	02-Jul	112 lbs.	13-Jul	111.2 lbs.	11-Aug	109.12 lbs.	xxx	xxx	xxx	xxx
#304	07-Apr	142.8 lbs.	16-Apr	139.8 lbs.	30-Apr	139.12 lbs.	xxx	xxx	xxx	xxx

**Table 1:** Tabulation of weights per patient after 5,10,15,20 cold wrap treatments (CWT).

a couple of years before the data was collected in December of 1998 (as indicated in the dates). Based on the existing protocol at that time, the patients had their weight documented every 5 treatments.

**I. Average weight loss of 64 patients after 5 Cold Wrap Treatments (Tables 2 and 3)**

$$\text{Mean} = \frac{\text{Sum of all weight loss}}{\text{Total No. of patients}}$$

$$= \frac{206.66 \text{ lbs.}}{64 \text{ patients}} = 3.22 \text{ lbs.}$$

$$\text{Median} = \frac{\text{Highest weight loss} + \text{lowest weight loss}}{2}$$

$$= \frac{10 \text{ lbs.} + 0.8 \text{ lbs.}}{2} = 5.4 \text{ lbs}$$

Mode=weight loss of most number of patients

= 2 lbs. (13 patients)

**II. Average weight loss of 46 patients after 10 Cold Wrap Treatments (Tables 4 and 5)**

$$\text{Mean} = \frac{\text{Sum of all weight loss}}{\text{Total No. of patients}}$$

$$= \frac{253.36 \text{ lbs.}}{46 \text{ patients}} = 5.51 \text{ lbs.}$$

$$\text{Median} = \frac{\text{Highest weight loss} + \text{lowest weight loss}}{2}$$

$$= \frac{15 \text{ lbs.} + 2 \text{ lbs.}}{2} = 8.5 \text{ lbs.}$$

Mode=weight loss of most number of patients

=5 lbs. (5 patients)

**III. Average weight loss of 22 patients after 15 Cold Wrap Treatments (Tables 6 and 7)**

$$\text{Mean} = \frac{\text{Sum of all weight loss}}{\text{Total No. of patients}}$$

$$\text{Median} = \frac{\text{Highest weight loss} + \text{lowest weight loss.}}{2}$$

Client ID #	Weight Loss	Client ID #	Weight Loss
#2	3 lbs.	#154	2 lbs.
#5	2.28 lbs.	#157	5 lbs.
#9	5 lbs.	#163	3 lbs.
#17	8 lbs.	#164	4.6 lbs.
#18	3.28 lbs.	#169	1.6 lbs.
#22	2.68 lbs.	#174	2.6 lbs.
#23	3.4 lbs.	#175	2 lbs.
#24	4 lbs.	#177	4 lbs.
#48	2.6 lbs.	#179	1.4 lbs.
#49	2.4 lbs.	#180	2 lbs.
#69	2 lbs.	#185	2 lbs.
#70	6.2 lbs.	#186	2 lbs.
#71	2 lbs.	#189	2 lbs.
#72	3.2 lbs.	#192	6.2 lbs.
#80	1.8 lbs.	#195	10 lbs.
#82	1.6 lbs.	#196	3.6 lbs.
#86	0.92 lbs.	#210	2 lbs.
#91	4 lbs.	#214	3.2 lbs.
#96	3 lbs.	#216	2 lbs.
#97	2 lbs.	#220	1.8 lbs.
#103	5 lbs.	#221	1.2 lbs.
#104	1.2 lbs.	#227	5 lbs.
#105	9.8 lbs.	#231	8 lbs.
#109	1.6 lbs.	#242	3.88 lbs.
#113	3.88 lbs.	#249	3 lbs.
#117	2 lbs.	#263	3 lbs.
#118	2 lbs.	#270	2.4 lbs.
#119	3 lbs.	#272	1.6 lbs.
#121	2.5 lbs.	#281	3 lbs.
#127	3.68 lbs.	#290	3.28 lbs.
#129	4.6 lbs.	#292	0.8 lbs.
#152	2.88 lbs.	#304	3 lbs.

**Table 2:** Weight loss after 5 CWT 64 pxx. (Mean Ave. of 64 subjects=3.22 lbs.).

Weight Loss	No. of Clients	Weight Loss	No. of Clients	Weight Loss	No. of Clients
0.8 lb	1	2.5 lbs.	1	3.68 lbs.	1
0.92 lb	1	2.6 lbs.	2	3.88 lbs.	2
1.2 lbs.	2	2.68 lbs.	1	4.0 lbs.	3
1.4 lbs.	1	2.88 lbs.	1	4.6 lbs.	2
1.6 lbs.	4	3.0 lbs.	8	5.0 lbs.	4
1.8 lbs.	2	3.2 lbs.	2	6.2 lbs.	2
2.0 lbs.	13	3.28 lbs.	2	8.0 lbs.	2
2.28 lbs.	1	3.4 lbs.	1	9.8 lbs.	1
2.4 lbs.	2	3.6 lbs.	1	10.0 lbs.	1

**Table 3:** Weight loss after 5 CWT treatments by mode (mode Ave. of 64 subjects=2.0 lbs.).

Mode =weight loss of most number of patients

=7 lbs. & 10 lbs. (3 patients for both)

**IV. Average weight loss of 8 patients after 20 Cold Wrap Treatments (Tables 8 and 9)**

Client ID #	Weight Loss	Client ID #	Weight Loss	Client ID #	Weight Loss
#2	5 lbs.	#113	7.88 lbs.	#195	15 lbs.
#5	3.4 lbs.	#117	2.6 lbs.	#196	6.88 lbs.
#17	9.6 lbs.	#118	3 lbs.	#216	5 lbs.
#48	3.5 lbs.	#121	6.5 lbs.	#220	4.8 lbs.
#49	4.68 lbs.	#127	6.8 lbs.	#221	4 lbs.
#69	4.2 lbs.	#129	7 lbs.	#227	7 lbs.
#80	4.8 lbs.	#152	3.2 lbs.	#231	9.4 lbs.
#82	5 lbs.	#154	3 lbs.	#242	7.88 lbs.
#86	3 lbs.	#164	7 lbs.	#249	10 lbs.
#91	6 lbs.	#169	5 lbs.	#270	4.68 lbs.
#96	10 lbs.	#175	6 lbs.	#272	2 lbs.
#97	2 lbs.	#179	2.2 lbs.	#281	5 lbs.
#103	7 lbs.	#180	2.6 lbs.	#292	2.88 lbs.
#104	4 lbs.	#185	4.2 lbs.	#304	3.68 lbs.
#105	15 lbs.	#186	4 lbs.	-	-
#109	3 lbs.	#189	4 lbs.	-	-

**Table 4:** Weight loss after 10 CWT treatments per client (Mean Ave. of 46 subjects=5.51 lbs.).

Weight Loss	No. of Clients	Weight Loss	No. of Clients	Weight Loss	No. of Clients
2 lb	2	3.68 lbs.	1	6.8 lbs.	1
2.2 lb	1	4 lbs.	4	6.88 lbs.	1
2.6 lbs.	2	4.2 lbs.	2	7 lbs.	4
2.88 lbs.	1	4.68 lbs.	1	7.88 lbs.	2
3 lbs.	4	4.8 lbs.	8	9.4 lbs.	1
3.2 lbs.	1	5 lbs.	2	9.6 lbs.	1
3.4 lbs.	1	6 lbs.	2	10 lbs.	2
3.5 lbs.	1	6.5 lbs.	1	15 lbs.	2

**Table 5:** Weight loss after 10 CWT treatments by mode (Mode Ave. of 46 subjects=5.0 lbs.).

Client ID #	Weight Loss	Client ID #	Weight Loss	Client ID #	Weight Loss
#17	13.6 lbs.	#121	10.5 lbs.	#196	8.6 lbs.
#49	8.4 lbs.	#127	8.66 lbs.	#220	7 lbs.
#80	7 lbs.	#129	10.6 lbs.	#227	12 lbs.
#82	10 lbs.	#164	10.6 lbs.	#231	13.4 lbs.
#91	9 lbs.	#169	10 lbs.	#249	14 lbs.
#96	14 lbs.	#175	10 lbs.	#270	8.4 lbs.
#97	4 lbs.	#186	4 lbs.		
#103	12 lbs.	#189	7 lbs.		

**Table 6:** Weight loss after 15 CWT treatments (Mean Ave. of 22 subjects=9.67 lbs.).

Weight Loss	No. of Clients	Weight Loss	No. of Clients	Weight Loss	No. of Clients
4 lb	2	9 lbs.	1	13.4 lbs.	1
7 lb	3	10 lbs.	3	13.6 lbs.	1
8.4 lbs.	2	10.5 lbs.	1	14 lbs.	2
8.6 lbs.	1	10.6 lbs.	2		
8.66 lbs.	1	12 lbs.	2		

**Table 7:** Weight loss after 15 CWT treatments BY Mode (Mode Ave. of 22 subjects=7 & 10 lbs.).

$$\text{Mean} = \frac{\text{Sum of all weight loss}}{\text{Total No. of patients}} = \frac{83.1\text{lbs.}}{8 \text{ patients}} = 10.39 \text{ lbs.}$$

$$\text{Median} = \frac{\text{Highest weight loss} + \text{lowest weight loss}}{2} = \frac{14.5 \text{ lbs.} + 5 \text{ lbs.}}{2} = 9.75 \text{ lbs.}$$

Client ID #	Weight Loss
#49	10.8 lbs.
#91	14 lbs.
#97	5 lbs.
#121	14.5 lbs.
#175	13 lbs.
#186	5 lbs.
#189	12 lbs.
#270	8.8 lbs.

**Table 8:** Weight loss after 15 CWT treatments per client (Mean Ave. of 8 subjects=10.39 lbs.).

Weight Loss	No. of Clients
5 lbs.	2
8.8 lbs.	1
10.8 lbs.	1
12 lbs.	1
13 lbs.	1
14 lbs.	1
14.5 lbs.	1

**Table 9:** Weight loss after 15 CWT treatments by Mode (Mode Ave. of 46 subjects=5 lbs.).

Mode =weight loss of most number of patients  
=5 lbs. (2 patients)

V. Summary of average weight loss after 5, 10, 15, 20 Cold Wrap treatments by Mean (Figure 3)

Average weight loss after:

- 5 Cold Wrap treatments=3.22 lbs.
- 10 Cold Wrap treatments= 5.51 lbs.
- 15 Cold Wrap treatments= 9.67 lbs.
- 20 Cold Wrap treatments= 10.39 lbs.

VI. Average weight loss per treatment for the:

$$5 \text{ treatments} = \frac{3.22 \text{ lbs.}}{5 \text{ treatments}} = 9.75 \text{ lbs.}$$

$$\text{Second 5 treatments} = \frac{(\text{Ave wt. loss after 10 TX}) - (\text{Ave wt. Loss after 5 TX})}{5}$$

$$= \frac{5.51 \text{ lbs.} - 3.22 \text{ lbs.}}{5 \text{ treatments}} = 0.458 \text{ lbs}$$

$$\text{Third 5 treatments}(11^{\text{th}} \text{ to } 15^{\text{th}}) = \frac{(\text{Ave Wt. loss after 15 TX}) - (\text{Ave Wt. loss after 10 TX})}{5}$$

$$= \frac{9.67 \text{ lbs.} - 5.51 \text{ lbs.}}{5 \text{ treatments}} = 0.832 \text{ lbs.}$$

$$5 \text{ treatments} = \frac{10.39 \text{ lbs.} - 9.67 \text{ lbs.}}{5 \text{ treatments}} = 0.144 \text{ lbs.}$$

$$\text{Overall average weightLoss per treatment}(1\text{st} \text{ to } 20\text{th}) = \frac{\text{Sum of all averages}}{4}$$

$$= \frac{0.644 + 0.458 + 0.832 + 0.144}{4}$$

$$= 0.5195 \text{ lbs.}$$

## Discussion and Interpretation of Results

First of all, it should be noted that there were only 64 patients out of

the 325 sample population who were included in the study. Most were excluded because they had other slimming treatments aside from the Cold Wrap while a few had medical problems related to their weight gain. However, some were excluded because they underwent a hypo caloric diet endorsed by the slimming centre itself. These were the clients who were losing weight slowly, not losing at all, or even gaining weight despite their Cold Wrap treatments. That may be a significant factor why not even 1 out of 64 patients posted a negative weight loss result (weight gain). So if you will look at the graph of the linear progress of weight loss (Figure 4), all the individual lines were going down and not even one went up although the Cold Wrap treatment has been “historically” proven since the 1960’s to induce weight loss because calories are burned by thermogenesis in response to hypothermia [7], there are other factors not in control of the slimming centre but definitely in control of the patient [10-12] (overeating, inactivity, stress, poor sleep) where the cold wraps may fail to induce weight loss. During formulation of the protocol for the study, patients who underwent a diet with a specific purpose of losing weight in a short span of time was excluded for the simple reason that any weight loss recorded may be due to the diet but wrongly attributed to the cold wrap. However, during the data collection/gathering period, it was noted that patients who would have posted a negative weight loss result, were inadvertently excluded due to their undergoing of a hypo caloric diet given by the staff of the slimming centre itself. Therefore, the results in the study are relatively higher than the true value.

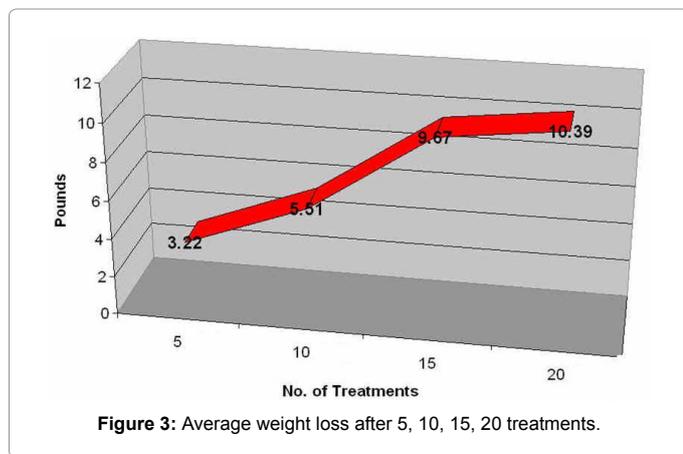


Figure 3: Average weight loss after 5, 10, 15, 20 treatments.

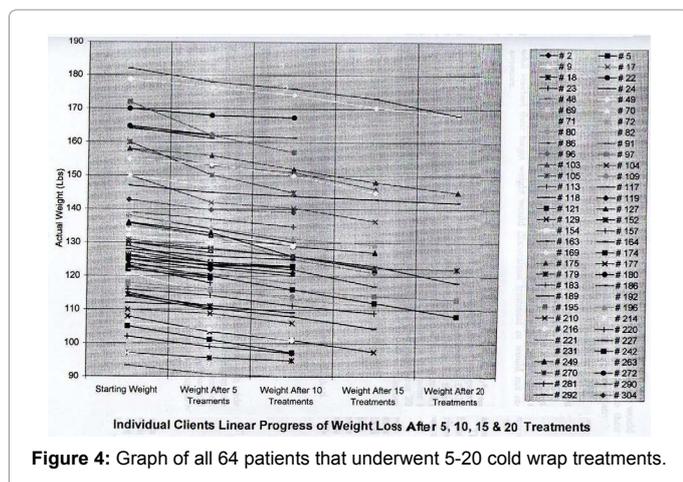


Figure 4: Graph of all 64 patients that underwent 5-20 cold wrap treatments.

Second, the patient number in the population goes down as the number of treatments increases (there are more patients who underwent 5 Cold Wraps than those who had 20 Cold Wraps). The reason for this is because those who experienced satisfactory weight loss would already convert their remaining treatments to other “maintenance” treatments (body contouring or skin firming without weight loss). Also, some patients who reached their target weight would totally discontinue their entire slimming program and be lost to follow-up already.

Lastly, the weight loss for the fourth 5 Cold Wraps (16<sup>th</sup> to 20<sup>th</sup>) tends to plateau or level off with an average of 0.144 lbs. per treatment which is approximately only 25% of the overall (1<sup>st</sup> to 20<sup>th</sup>) average weight loss per treatment of 0.5195 lbs. The reason for this is so obvious. The first 15 treatments already did their job of inducing weight loss so during the 16<sup>th</sup> to 20<sup>th</sup> Cold Wrap treatments; there was not much excess weight to lose anymore. Another reason which is not so obvious is the same reason given in the previous paragraph. It’s possible that patients who underwent 20 Cold Wrap treatments are the problematic ones where weight loss is slow or are not satisfactory.

### Limitation of the Study

The subjects in this study are private paying patients who went to the centre in order to lose weight. So this is more of a Multiple Case Report where all of the subjects underwent the Cold Wrap treatment and their average results tallied. A randomized controlled trial (RCT) would have been better wherein the study group would be given the Cold Wrap with the original solution while the Control Group would be given a Placebo Therapy (ordinary wrap using the same elastic bandages but soaked in plain water). Then, both groups would be given the same advice on diet and activity. However, the objective of the study was met wherein the weight loss results of Cold Wraps were determined and documented.

It also would have been better if the subjects were weighed every time they came into the slimming centre for treatment and not every 5 visits. Body measurements, specifically the waist circumference should be included, since this is a better marker for determining Visceral Fat that is directly related to the patient’s health status [13-15]. It is recommended that a larger population be used in future studies. It should include epidemiologic/demographic data to determine which subgroups have better results (e.g. who has better weight loss: male or female, single or married, which age group, which weight range, etc.) Those who underwent diet or have medical problems should also be included already but in a separate group so as not to dilute or concentrate the results, in general.

### Conclusion

There is weight loss after Cold Wrap treatments in a private Slimming Centre in the Philippines. The average weight loss per treatment is 0.5195 lbs.

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