

## Clinical Pilot Study



Undertaken by Dr Jean-François Coulombié in Marseilles, from January to March 2008

### **Introduction**

NARL 517 is a machine which works with low frequency ultra sound. This process has been patented worldwide. It combines a frequency of **517 Khz** and an intensity of 110 Mw/cm<sup>2</sup> stimulating the sympathetic nerve system terminals. This specific stimulation by this patented frequency, releases the Noradrenaline stocked in these nerve terminals and will act on the lipolyse. This reaction originates the name of the machine, NARL®, being the abbreviation of NorAdrénalineReLease.

### **I – Physiological facts :**

There are two varieties of fat cells – the white and the brown ones – and, consequently, two types of fat tissues (currently just called « fat ») : the white fat tissue or white fat and the brown fat tissue or brown fat. The human beings are born with brown fat for about 5% of their weight almost completely lost after birth. Numerous mammal species keep this brown fat all life long since it is an important source of heat, particularly for the hibernating species.

The white fat is the most important body's reserve of energy. Actually, the white fat tissue contains almost all the triglycerides stocked in the body. There are two types of white fats :

- the intra abdominal fat or visceral fat
- the extra abdominal fat, called as well sub-cutaneous fat

The body uses this energy reserve when the glucides reserve has run-out . The lipolyse allows the mobilisation of the two types of fat.

This lipolyse is stimulated by the noradrenaline, a neuro-mediating hormone. This hormone variety plays the role of a messenger and allows the nervous impulse to run from a nerve cell to another nerve cell or towards other cells.

The noradrenaline is a stress hormone which leads the body into an alert state , preparing it to an intellectual and physical activity.

The Noradrenaline is being released then, fixing itself onto the receivers. These can be either, the beta receivers activating the melting of the fat, or the alpha receivers inhibiting the fat. Most of the beta receivers are found in the intra-abdominal fat, whereas most of the alpha receivers are located in the sub-cutaneous area.

The direct consequence is that the Noradrenaline release will also have an important effect of lipolysis in the visceral fat.

The lipolysis induced by the Noradrenaline will activate the release and expulsion of the fat of the adipocytes cells, leading them to the blood, through the non-sterified fatty acids which are left over, to be used as an energy resource by other cells of the body.

Bearing in mind that, if this blood fatty acids are not used by the body, for instance, by a muscle activity, they will go to the adipocytes reserve to be used within the next 60 minutes approximately after the lipolysis action.

## II - Protocol

The aim is to match the theory with the reality.

A treatment for the abdominal area has been selected in order to find the answers of these two questions :

- a) Can a local slimming be obtained with the NARL 517 without losing weight ?
- b) Does the volume loss really occur , both in the intra abdominal fat and in the sub-cutaneous fat?

The answer to the second question has a medical implication. Actually, it is recognised nowadays that excess fat, in particular the intra abdominal area, presents a very high risk factor in the fields of preventive diseases, such as heart diseases, diabetes, sleep apnea, etc...

- This pilot study has been undertaken by Dr Jean-François Coulombié in the Clinical Centre 'Phénicia' in Marseilles between January and March 2008. This Clinical Centre is specialized in the medicine of beauty and beauty surgery.

Two machines have been used during the clinical study :

- **a NARL®517 BASIC** with 16 active cells



- a **NARL® 517 MS DELUXE** with 66 active cells



The ultra sound sessions NARL® 517 (worldwide patented technology) last for **10 minutes**, followed at once by an electro-therapy session lasting for **20 minutes** with a machine of triple electro-therapy muscle stimulation called TRIPLE 333 ( **M**ultiple **M**atrix **M**odulation **W**ave, technology also patented worldwide).



These 20 minutes of muscle activation correspond to the physical exercise which is indispensable for consuming the fatty acids released in the blood by the 10 minutes use of NARL 517.

This study has been undertaken with the agreement of 28 healthy persons. Only two of them have not finished the 12 sessions for personal reasons. Therefore, there were 21 women and 7 men. The treatment areas were, as follows :

- umbilical point (navel area) in 24 cases
- trochanters/hips (jodhpurs) in 4 cases
- inner thighs in 1 case.

### **III - Results**

The results can be read in **charts B and M**.

The following observations are outstanding :

#### **Abdominal slimming**

The results are remarkable for the 23 patients with only 12 sessions.

Slimming varies from - **3 cm to - 10 cms** with an average of - **6 cms** with NARL 517 BASIC and NARL 517 MS DELUXE.

#### **Umbilical cutaneous skin fold**

The reduction of the medium umbilical cutaneous skin fold indicates an average loss of - **28.50%** with NARL 517 BASIC and of - **26%** with NARL 517 MS DELUXE.

#### **Trochanters/Hips (Jodhpurs)**

The slimming varies from - **5 cms to - 8 cms** with an average of - **7 cms** for the 4 patients concerned.

#### **Thighs**

A testing on thighs shows a slimming of - **6 cm** in the lower part of the thigh.

#### **Weight**

Weight is stable or in a light loss stage, in general. The explanation is easy. While NARL 517 enables the fat loss, TRIPLE 333 compensates that loss with an muscle volume increase.

#### **IMC Curve**

This IMC curve is interesting because it shows a varied sampling at this level, from thin people to excess weighted people.

For reminder :

- IMC under 18 : insufficient weight
- IMC from 8 to 24 : normal weight
- IMC from 25 to 30 : excess weight
- IMC from 30 to 40 : obesity
- IMC above 40 : morbid obesity

## Satisfaction rate

The satisfaction rate is very clear and significant. Comments can be read in **Annex S**.

- Sixteen people are very satisfied
- Six people are more or less satisfied, however will do it again.
- Three are disappointed.

## IV - Conclusion

This pilot study on 28 patients shows an excellent global satisfaction.

One of the cases, particularly favourable, seems to correspond to people called « normal weight », developing a small physiological fat tummy as from a certain age. It is hopeless trying to lose this tummy with an illogical and harmful diet for the health.

This diet, if efficient, will only make the fat tummy melt due to a general weight loss and no esthetical gain will result.

This is the typical case where the only treatment currently available is liposuction, yet questionable for this small fat volume.

In this case, and among multiple possibilities, NARL® 517 has here a strong indication.

At last, and in practice, it appears that NARL® slimming technology acts on visceral fat as well as sub-cutaneous fat, with no risk.

For overweight people, a minimum of 24 sessions tends to be reasonable behaviour.



(H.PIERANTONI Prize for INNOVATION 2007)

## V – Satisfaction Survey

Hereafter, the synthesis of particular comments from treated people at the time of Dr. Coulombié's study. These answers have been collected before results were communicated to the patients.

- AN** : - it works, the body outline has changed  
- clothing : feels more comfortable, wears now old trousers  
- no efforts, no pain, spectacular results
- BC** : - a less swollen and more flexible tummy  
- less tightened in his clothes, will do it again
- BL** : - visible effect  
- wears old trousers, very happy
- GC** : - feels more comfortable, tummy less fatty  
- would like to continue  
- a good body feeling, would like a new series of 12 sessions
- FP** : - visible and neat progress on trousers, does not regret
- FE** : - pleased, tummy less fatty, less marked and flatter edge of Caesarean scar
- MP** : - less tense tummy, will do it again  
- excellent results as per his spouse
- OE** : - feels a little reduction of the jodhpurs, less swollen
- PF** : - correct results, will do it again
- PV** : - trousers are falling down, visible reduction, delighted, will do it again
- SA** : - quite happy, good feeling, not bad, with an impression of fat spreading before fat reduction occurred
- HA** : - softer tummy, but the volume reduction is questionable
- VA** : - feels less swollen from the inside and frankly better  
- would like to do it again

- MS** : - medium satisfactory
- MC** : - feels better, no doubt will do it again
- AC** : - feels less swollen – can't pinch her tummy anymore  
- very happy, impeccable, incredible reduction of her fatty tummy
- LB** : - less tight in her clothes, does not regret
- PA** : - feels much better. Even the relatives and friends circle have noted,  
- more comfortable in her clothes – very efficient, will do it again
- RF** : - average results and medium satisfaction
- FH** : - delighted, visible loss of fatty tummy and of umbilical cutaneous skin fold  
- spectacular results  
- would like to do it again.
- GD** : - quite visible legs slimming with less thick fat  
- easy, quick, no efforts and visible results with 12 sessions
- IJ** : - very efficient, results obtained as from the 6th session, will do it again
- PJ** : - significant loss at the thighs - satisfied
- LP** : - very pleased, feels comfortable in trousers  
- the game is worth a candle, will do it again
- AS** : - very satisfied
- FC** : 9 sessions - feels tummy less fatty – it is worthy
- BM** : 8 sessions – had to stop the sessions due to moving house, very pleased