Validation of a hypnomagnetism method for thinning

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In order to lose weight, several techniques are possible: changes in food, increase in physical activity or use devices. A new method is currently being validated, the hypnomagnetism. The overweight subjects have to listen to a soundtrack. The aim of this protocol is to validate this technique. The study population consists of a "Patients" sample who received the treatment Hypno-Slim® and a "Placebo" sample who received placebo. To monitor changes in body composition of the subjects during the protocol, measurements of weight, circumferences and multifrequency bioimpedance were performed every 15 days during the 3 months of treatment. There are no significant differences at baseline between the placebo and the patient samples. After 3 months of treatment, in the "Patients" group, 61.4% of the population lost weight. According to BMI at the start of treatment, the effects are more or less significant. The average weight loss of 3 kg but can stretch up to 7.5kg. The weight lost is mostly fat. Some patients gained muscle mass or lost total body water. Placebo group did not lose weight on average during this treatment. At the end of this treatment, there are significant differences between "Patients" and "Placebo" on Weight, Fat Mass and Muscle Mass. This technique is useful for weight loss method, it would be interesting to practice for longer to analyze the long-term duration. It would be interesting to review the topics one year after the study to control their body composition. In order to lose weight, several techniques are possible.

KEY WORDS: Hypnomagnetism - Body composition.

Changes in food may be advised. Therefore, several programs exist: mono-diets (Pineapple, Hollywood,[1] cabbage soup); low-calorie (Dr Scardale,[2] Mayo, Weight Watchers, Jenny Craig); differentiated (Antoine diet, Shelton, Montignac);[3] chrono-nutrition (Dr. Alain Delabos) [4] or high protein (Dr. Atkins, Dukan, Fricker).[5]

An increase in physical activity can also be proposed.

Finally, several techniques and devices exist and have slimming virtues: lipo-massage,[6] vibration platforms, infrared, etc.[7]

A new method is currently being validated, the hypnomagnetism. The overweight subjects have to listen to a soundtrack. The aim of this protocol is to validate this technique.

Materials and methods

The study population consists of a "Patients" sample who received the treatment

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HypnoSlim® (tape induction hypnomagnetism type) and a sample "Placebo" who received placebo (tape containing the same background without inductions). The treatment was provided in a double-blind. Patients gave written informed consent after having all the necessary information and be assured of the anonymity of the results. Table I describes the distribution of the population in terms of age, weight, size and body mass index (BMI). Placebo population was originally composed of 12 subjects but 7 dropped during the study due to the non-efficacy of the treatment. To monitor changes in body composition of the subjects during the protocol, measurements of weight, circumferences and multifrequency bioimpedance (Z-Metrix®, BioparHom©, France) were performed every 15 days during the 3 months of treatment. This multifrequency impedance is validated by a clinical study (2008-A01373-52).[6, 7] It performs measurements of body composition through medical disposable electrodes, put at the wrists and ankles. The injected current is low (77μA). This allows measuring the resistance (R) and reactance (X) at several frequencies ranging from 1 kHz to 1000 kHz.

Using a new model derived from Cole-Cole method,[8, 9] the resistance of the extracellular space (Re) and total compartment (Rinf) are extrapolated.

Using these measurements and the data of the subject (age, height, sex and weight), tissue [10] and fluids [11, 12] are calculated.

The population's analyzes were made by paired Student's test and analysis versus placebo were made by unpaired Student's test. The therapy had a positive effect when the patient lost weight during the protocol.

Results and discussion

There is no significant differences (unpaired Student's test) at baseline between the placebo and the patient samples with P = 0.475 for age, P = 0.499 for weight, P = 0.082 for size and P = 0.184 for BMI.

Table II describes the characteristics of

TABLE I.—*Distribution of samples in terms of age (years), weight (kg), height (cm) and BMI (kg·m-²).*

PLACEBO				
	Age	Weight	Height	BMI
Men n=2 (40%)	40.5 ± 14.8	102.2 ± 13.6	174.06 ± 15.6	39.7 ± 2.6
Women n=3 (60%)	55.0 ± 6.6	75.0 ± 4.3	165.0 ± 2.6	27.5 ± 1.2
All n=5	49.2 ± 11.8	93.1 ± 25.9	168.6 ± 9.4	32.4 ± 6.9
PATIENTS				
	Age	Weight	Height	BMI
Men n=10 (17.6%)	51.5 ± 11.2	122.5 ± 35.7	173.1 ± 7.0	40.7 ± 10.8
Women n=47 (82.4%)	47.3 ± 11.6	92.8 ± 24	164.7 ± 6.7	34.1 ± 8.1
All n=57	48.0 ± 11.5	97.8 ± 28.3	166.1 ± 7.4	35.2 ± 8.9

TABLE II.—*Characteristics of the sample of patients with positive therapy.*

	n=35 (61.4%)	Women n=29 (61.7%)	Men n=6 (60%)
Age	50.1 ± 11.6	49 ± 11.6	55.7 ± 10.9
BMI	36.7 ± 9.7	35.4 ± 8.6	43.1 ± 12.9
Height	165.5 ± 7.3	163.8 ± 6.2	174.0 ± 6.4
Weight	101.6 ± 31.8	95.3 ± 25.4	131.8 ± 44.1
The distribution by BMI categories gives the following characteristics:			
		Women	Men
BMI less than 30		N=9 (31%)	N=1 (16.7%)
BMI between 30 and 40		N=13 (44.8%)	N=2 (33.3%)
BMI higher than 40		N=7 (24.2%)	N=3 (50%)

the patients with a positive effect of the therapy. 61.7% of women were responsive to therapy and 60% of men.

Students' tests were conducted to identify a profile of patients with positive therapy. No usual setting body composition is different between the two profiles. It does not follow typical profile of positive patient therapy.

The results are to be operated by BMI categories.

BMI less than 30kg/m²

For patients who, at the beginning of the protocol, have a BMI less than 30 kg/m², weight loss is about 4% (2.8kg) of the initial weight.

In this weight loss, there is almost 4% weight loss for about 9% loss of body fat while the loss of lean body mass is negligible. The loss of body fat is between -2.7 kg and 10 kg and corresponds to a change of -9% of body weight.

On fluids, there is a water's loss of 2.2%. It can come from small overcharge drainage water linked to poor nutrition intake with too rich ions quantities. The total average loss of water by treatment of 1.6L but some patients taking water (1L maximum).

It is observed an average of 5% loss of sodium and potassium with a transfer of the potassium to the extracellular compartment in order to drain and rebalance the compartments.

Table III and Figure 1 summarize the results.

TABLE III.—*Summary of significant changes in body composition (P <0.05) for patients with a BMI <30 kg/m² at the beginning of the treatment.*

Indicator	Variation during the treatment		P Student
	Mean	Standard Deviation	
BMI (kg·m-2)	-3.7	1.8	0.0002 (***)
Weight (kg)	-2.8	1.3	0.0001 (***)
Fat Free Mass FFM (kg)	-1.5	0.8	0.0003 (***)
FFM (%W)	2.4	1.3	0.0001 (***)
Fat Mass FM (kg)	-6.5	2.5	0.00001 (***)
FM (%W)	-1.5	0.7	0.00001 (***)
Lean Body Mass LBM (kg)	-1.8	1.8	0.0116 (*)
LBM (%W)	-0.2	2.9	0.8278 (NS)
Total Body Water TBW (L)	-1.6	2.0	0.032 (*)
Free sodium (mmol)	-4.9	6.2	0.0283 (*)
Free potassium (mmol)	-5.5	7.1	0.0368 (*)
Concentration of extracellular potassium (mmol/l)	4.1	4.4	0.014 (*)

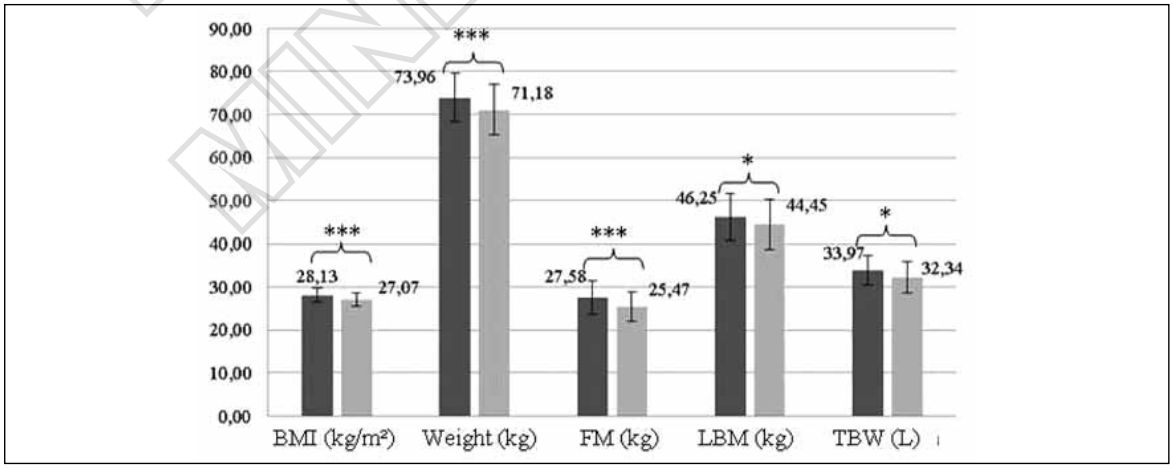

Figure 1.—Summary of main changes in body composition in patients with a BMI<30 kg/m² during the protocol.

BMI between 30 and 40 kg/m²

For patients with a BMI between 30 and 40 kg/m², there is a weight loss of about 2.7% (2.5 kg) of the initial weight. This weight loss is balanced between a significant loss of fat mass by almost 2% of initial weight and gain muscle mass. There is also a regulation and a rebalancing of intracellular and extracellular compartments. Loss of fat mass is between 0.2 and 5.4kg; the muscle mass gains go up 5.6kg.

For this population, the loss of body fat is located in the trunk and nearly 4% increase in lean body mass. So a weight loss, we can assume, leads to a change in silhouette, refining shapes. There is also a significant loss of about 10L of total water in the trunk.

Table IV and Figure 2 show the results.

BMI higher than 40 kg/m²

For patients having a BMI higher than 40 kg/m², there is a significant weight loss of about 2% of the initial weight. This weight loss is primarily fat mass of the trunk with losses ranging between 0.6 and 7.5kg in the trunk.

There is also a negative change in total and extracellular water for removal of water retention probably due to an ion's excess.

Table V and Figure 3 show the results.

Table VI shows the minima and maxima of the main indices significant by BMI category. When the number is positive, this is a gain of mass or volume; if negative, this is a loss of mass or volume. Note the difference between weight loss (in % or kg) and fat mass lost (in kg or %) by increasing or

TABLE IV.—*Summary of main changes in body composition in patients with a BMI between 30 and 40 kg/m².*

Indicator	Variation during the treatment		P Student
	Mean	Standard Deviation	
BMI (kg·m^{-2})	-2.72	2.05	0.0001 (***)
Weight (kg)	-2.54	1.91	0.0001 (***)
Fat Mass FM (kg)	-1.86	1.35	0.0001 (***)
FM (%W)	-0.96	0.73	0.0001 (***)
Lean Body Mass (%W)	1.49	2.32	0.024 (*)
Muscle Mass (%W)	3.71	3.75	0.0022 (***)
Trunk Fat Mass (%W)	-3.4389	7.2540	0.064 (NS)
Trunk LBM (%W)	3.2165	5.8691	0.068 (NS)
Trunk TBW (L)	-9.19	11.87	0.009 (**)

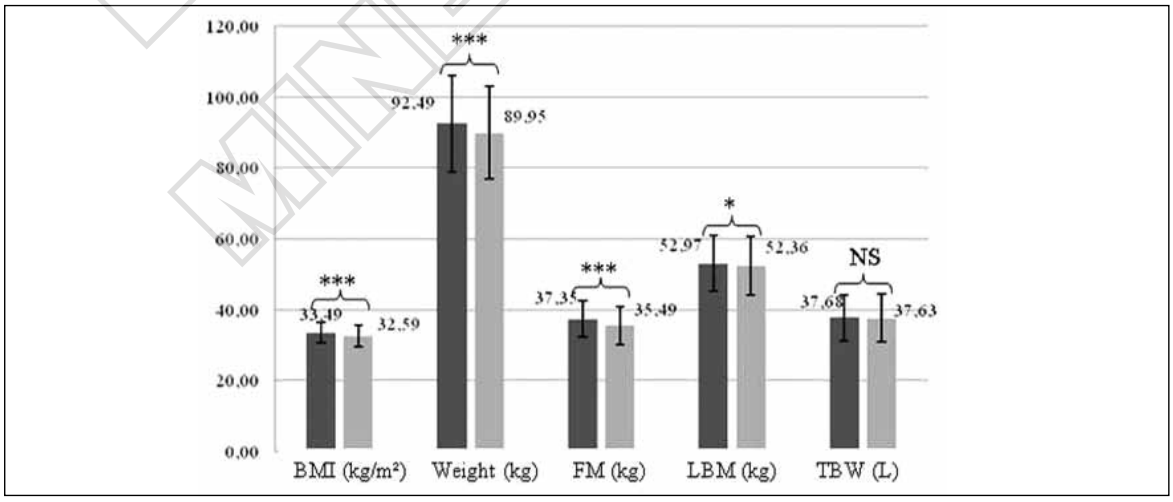

Figure 2.—Summary of main changes in body composition in patients with a BMI between 30 and 40 kg/m².

TABLE V.—*Summary of main changes in body composition in patients with a BMI higher than 40 kg/m².*

Indicator	Variation during the treatment		P Student
	Mean	Standard Deviation	
BMI (kg·m-2)	-1.9	1.5	0.007 (**)
Weight (kg)	-2.7	2.1	0.006 (**)
Fat Mass FM (kg)	-1.7	1.5	0.010 (**)
FM (%W)	-0.3	0.3	0.008 (**)
Lean Body Mass (%W)	-0.2	1.0	0.691 (NS)
Total Body Water (L)	-1.4	1.6	0.013 (*)
Extracellular Water (L)	-2.0	2.4	0.037 (*)
Free sodium (mmol)	-2.3	2.6	0.012 (*)
Trunk Fat Mass (kg)	-3.2	2.1	0.003 (***)

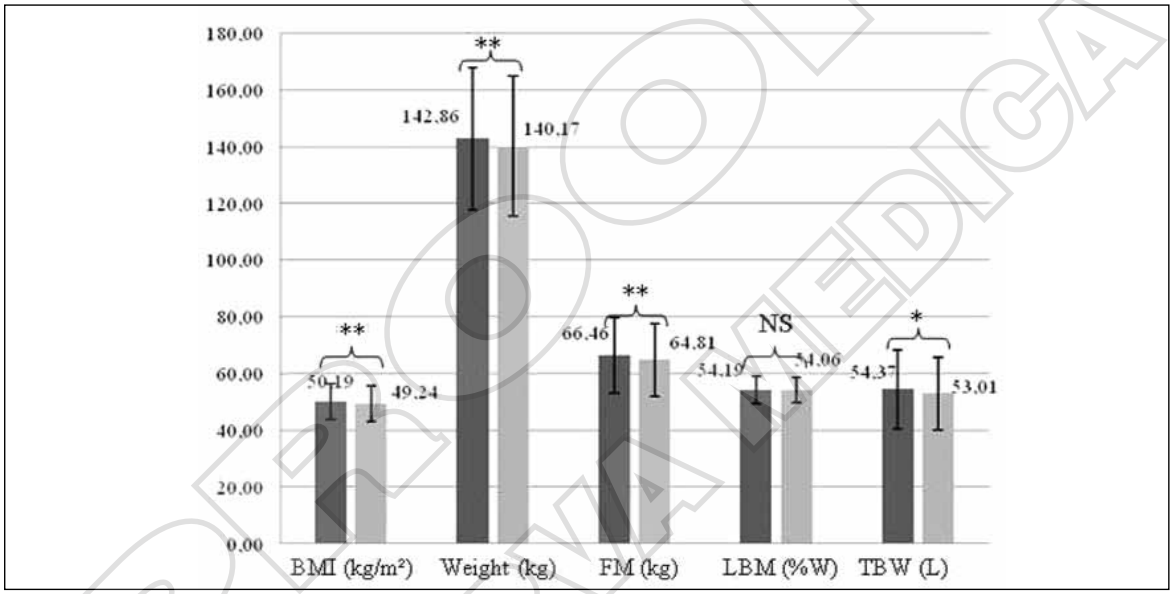

Figure 3.—Summary of main changes in body composition in patients with a BMI higher than 40 kg/m².

TABLE VI.—*Synthesis of minima and maxima of the main significant indices by BMI category.*

	BMI < 30		30 < BMI < 40		BMI > 40	
	Min	Max	Min	Max	Min	Max
Weight (Kg)	-1.4	-5.3	-0.3	-6.7	-0.3	-7
Weight (% *vs.* beginning Weight)	-1.3	-7.2	-0.3	-7.5	-0.4	-4.6
Fat Mass (kg)	-2.7	-10.5	-0.2	-4.8	-5.3	0.01
FM (% *vs.* beginning Weight)	-3.6	-16.8	-0.2	-5.4	-3.4	0.01
FM (%)	-0.4	-3	-0.1	-2.7	-0.9	0.1
Lean Body Mass (kg)	0.3	5.5	-2.3	5.2	-5.7	0.9
Total body water (L)	-4.7	1	-0.9	0.6	-4.6	1.7
TBW (% *vs.* beginning Weight)	-6.4	1.4	-4.3	4.5	-2.2	1.4
Extra Cellular Water (L)	NS	NS	-0.9	0.6	NS	NS
ECW (% *vs.* beginning Weight)	NS	NS	-1	0.7	NS	NS

not lean mass. One can also note that some subjects have drained their edema while others were rehydrated.

It may be noted that the treatment is more effective for patients who have a BMI less than 30 and therefore overweight. In addition to a significant loss of body fat, there is significant total water drainage.

Comparison with placebo

Table VII shows the mean and standard deviation as well as minimum and maximum changes between the beginning and the end of the program.

Only 5 Placebo subjects completed treatment to the end and are usable. The other 7 subjects stopped for the lack of effectiveness of the treatment. 60% are women (n = 3). 3 patients gained weight (0.01; 4kg), two have lost (-0.1; 0.5), not significantly.

There were no significant differences between the beginning and the end of the treatment with P = 0.315 for weight, P=0.278 for fat mass in kg and P = 0.139 for total water.

Table VIII shows significant data between changes in body composition data between positive therapy patients and Placebo group. The effect of treatment is well documented.

Kinetics of treatment in patients with positive therapy

Figure 4 and Table IX show the evolution of the main indices during treatment on positive therapy patients.

We note that between each measurement, the time is the same (14 days). Evolution is constant between the beginning and the last measure.

TABLE VII.—*Changes during treatment on placebo patients.*

Indicator	Variation during the treatment				P Student
	Mean	SD	Min	Max	
BMI (kg·m^{-2})	0.36	0.65	-0.1	1.5	0.286 (NS)
Weight (kg)	0.92	1.79	-0.5	4	0.315 (NS)
Fat Mass (kg)	0.58	0.93	-0.07	2.19	0.278 (NS)
Fat Mass (% W)	0.23	0.29	-0.03	0.69	0.171 (NS)
Muscle Mass (kg)	0.40	0.53	-0.4	1.1	0.169 (NS)
Muscle Mass (%W)	0.04	0.34	-0.4	0.4	0.582 (NS)
Total Body Water (L)	1.10	1.53	0.1	3.8	0.139 (NS)
Extracellular Water (L)	0.56	0.74	-0.1	1.8	0.164 (NS)
Intracellular Water (L)	0.31	0.71	-0.78	1.07	0.269 (NS)

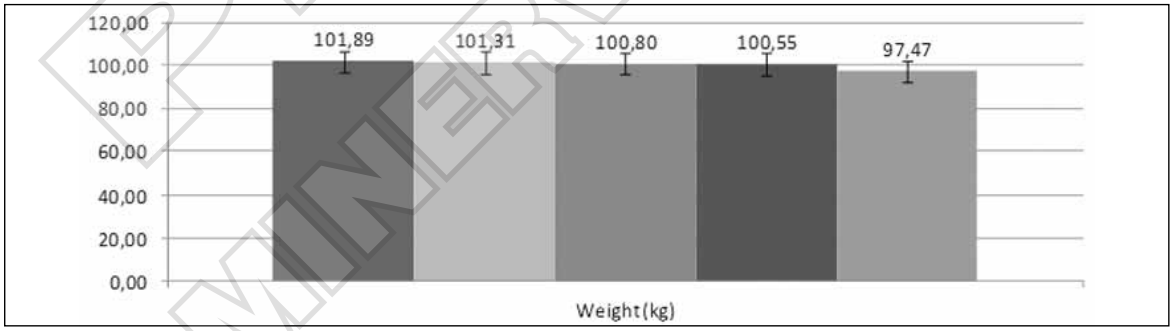

Figure 4.—Change in men weight during treatment for patients with positive therapy.

TABLE VIII.—*Difference of the variation between positive therapy patients and Placebo.*

Indicator	P Student
BMI (kg·m^{-2})	0.001(***)
Weight (kg)	0.0002(***)
Fat Mass FM (kg)	0.006(**)
Fat Mass (% W)	0.002(**)
Lean Body Mass (kg)	0.049(*)

TABLE IX.—*Mean changes during the treatment for patients with positive therapy.*

Indices	Mean variation (en g/day) or (mL/day)
Weight	-302 ± 280
Fat Mass	-187 ± 203
Muscle Mass	-98.2 ± 110
Total water	-196.5 ± 244

Indeed, the average deviation in the first three intervals is -0.45 kg of weight, -0.09 kg of fat mass and -0.38 of total water.

In the last interval, the difference is -3.08 kg for weight, -1.69 kg for fat mass and -0.99 L for total water.

It would be interesting to continue treatment and measures and check if the difference between the last two measures remains on the rest of the study.

Conclusions

The aim of this study was to validate a hypnomagnetisme method which is to listen to a soundtrack to the subjects in overweight and obesity.

For an average of three months, the body composition of the subjects was measured by bioimpedance. 61.4% of the population who received treatment lost weight. According to BMI at the start of treatment, the effects are more or less significant. The average weight is around 3 kg but can stretch up to 7.5 kg.

Placebo group did not lose weight on average during this treatment.

This technique is useful for weight loss method, it would be interesting to practice for longer to analyze the long-term duration. It would be interesting to review the topics one year after the study to control their body composition.

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