



# CONCENTRE CORALLINE

*CHRONOBIOLOGICAL CONTOURING*

**CODIF**  
Recherche & Nature



SERVE... BE INSPIRED... REVEAL... OBSERVE... BE INSPIRED... REVEAL... OBSERVE...

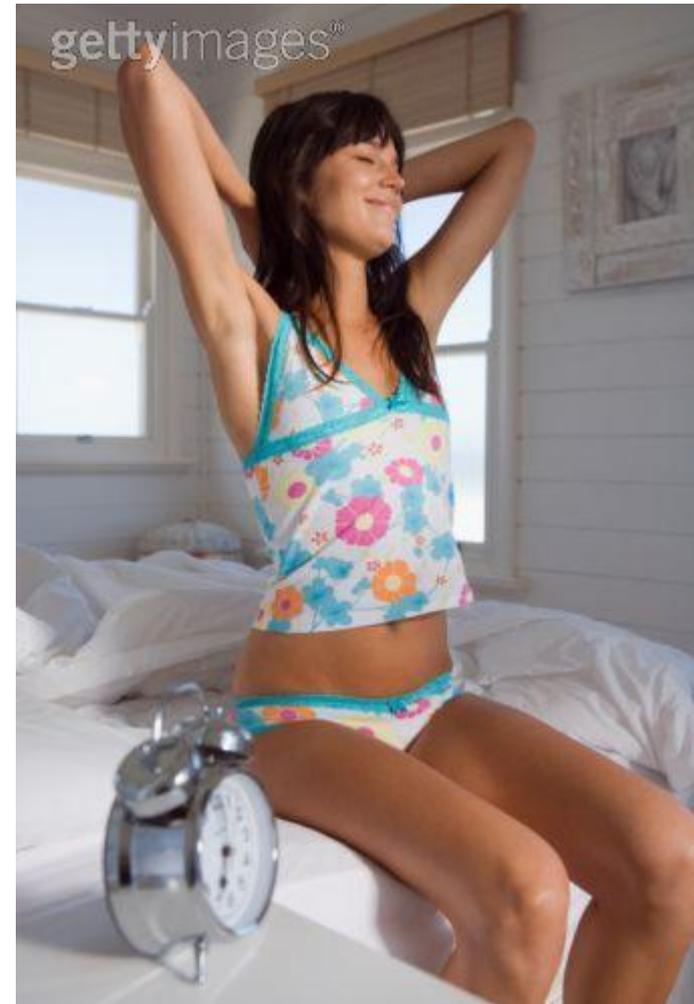
# THE CONCEPT(S)

## ***Chronobiological action:***

stops adipocyte's appetite while sleeping and  
burns fats while working

## ***Adipo – Reverse Action:***

decreases the formation of adipocytes and  
increases collagen synthesis





*Be inspired...*

***Corallina officinalis, a Marine Plant Coral***

# Concentre Coralline: extracted from *Corallina officinalis*

- *Corallina officinalis* belongs to the family of Coralline algae, calcareous red seaweeds which grow on rocky shores.
- Also called Marine Plant Coral
- The first coralline alga recognized as a living organism was probably *Corallina* in the 1st century AD.
- In 1837 Rodolfo Amando Philippi recognized that coralline algae were not animals.
- Coralline algae play an important role in the ecology of coral reefs. Sea urchins, parrot fish, limpets (molluscs) and chitons (molluscs) feed on the microorganisms which dwell in its dense tufts.



# Corallina: description and habitat

- Corallina forms calcium carbonate deposits within its cells which serve to strengthen the thallus.
- It appears pink with white patches where the calcium carbonate is particularly concentrated
- The calcium carbonates makes it unpalatable to most rocky shore grazers.

## Distribution

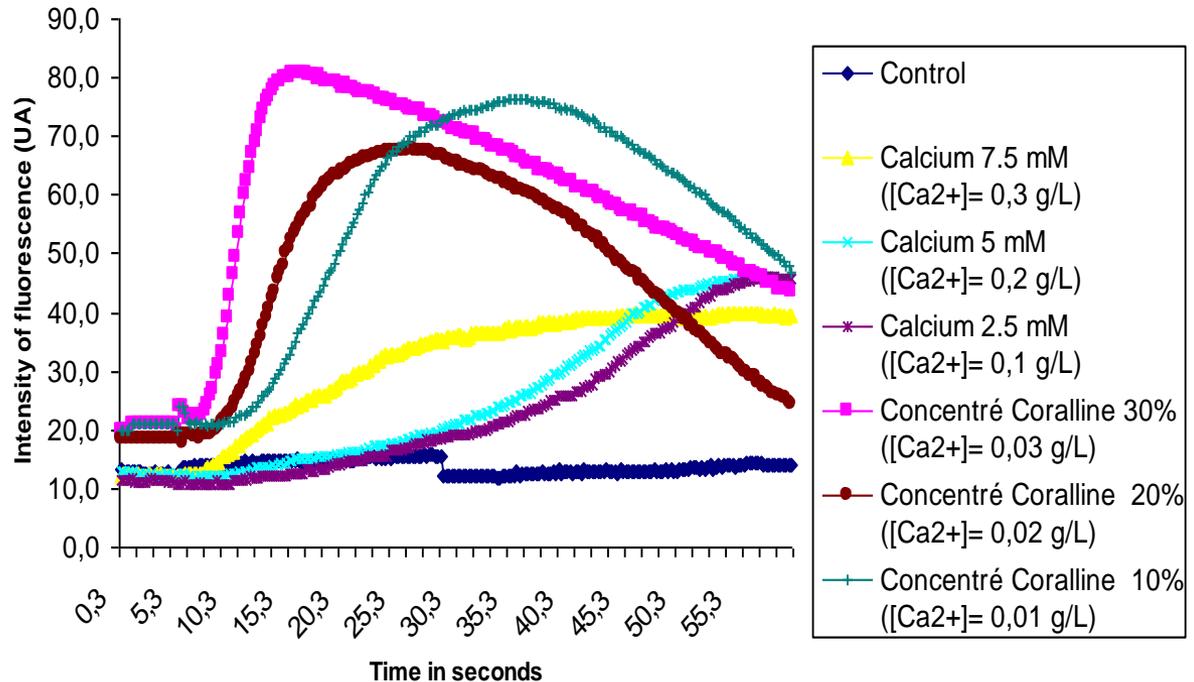
- Solid rock on the north Atlantic coast
- Intermittently from Greenland to Argentina
- Also found in some parts of Japan, China and Australasia.



# Corallina: source of bioavailable calcium

Coralline's calcium afford a remarkable and immediate availability for human cells.

Measure of the penetration (calcic flash) of different sources of calcium in cells.  
Use of a fluorescent probe sensible to calcium.



Compared to CaCl<sub>2</sub>, Concentre Coralline causes a calcic flash of higher and earlier intensity, suggesting a high potential efficacy for skin health and homeostasis

# From Corallina to Concentre Coralline

- Concentre coralline is an aqueous extract obtained by lixiviation of dried *corallina officinalis*
- The seaweed is harvested by diving in the waters of the Pink Granite Coast in Brittany
- Corallina is an encrusting form, and slow growers. It expands by 0.1 to 80 mm annually.
- For this reason and in order to preserve this specie, Codif is working on photo-bioreactor cultivation.





***Observe...***

***Adipocyte's way of life***

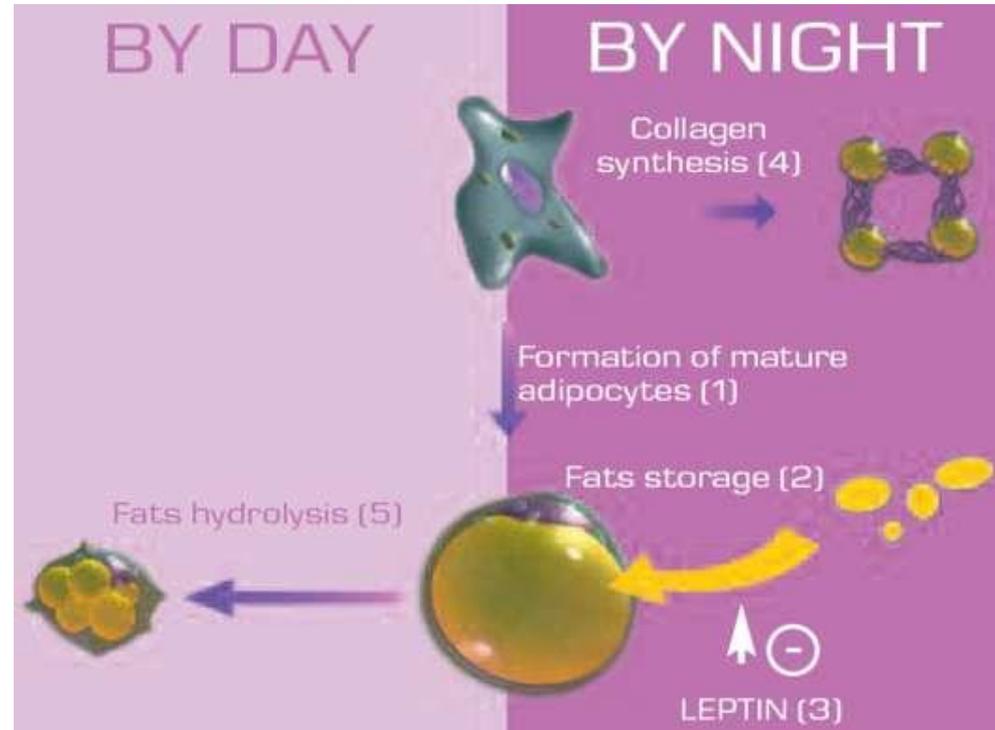
# DAY / NIGHT ACTIVITIES OF ADIPOCYTES

## BY DAY:

Adipocytes burn the fats stored during the night to deliver energy to the organism

## BY NIGHT:

- Formation of new adipocytes by differentiation of pre-adipocytes into mature adipocytes
- Storage of fats by mature adipocytes
- Synthesis of leptin : the satiety signal which stops fat storage
- Synthesis of collagen by pre-adipocytes



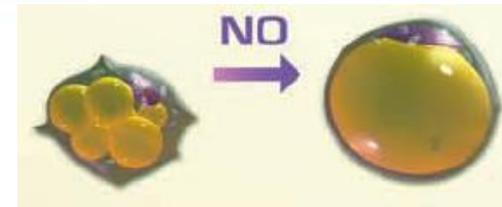
**IN OUR MODERN & SEDENTARY WAY OF LIFE: FATS STORAGE INCREASES WHILE FATS BURNING AND COLLAGEN SYNTHESIS DECREASE.**

**ORANGE PEEL APPEARS**

# ROLE OF CALCIUM IN ADIPOCYTE'S LIFE

- Calcium inhibits the differentiation of pre-adipocytes into mature adipocytes:

- Decrease in the number of mature adipocytes = decrease in the fat storage capacities
- Increase in the number of pre-adipocytes = increase in collagen synthesis

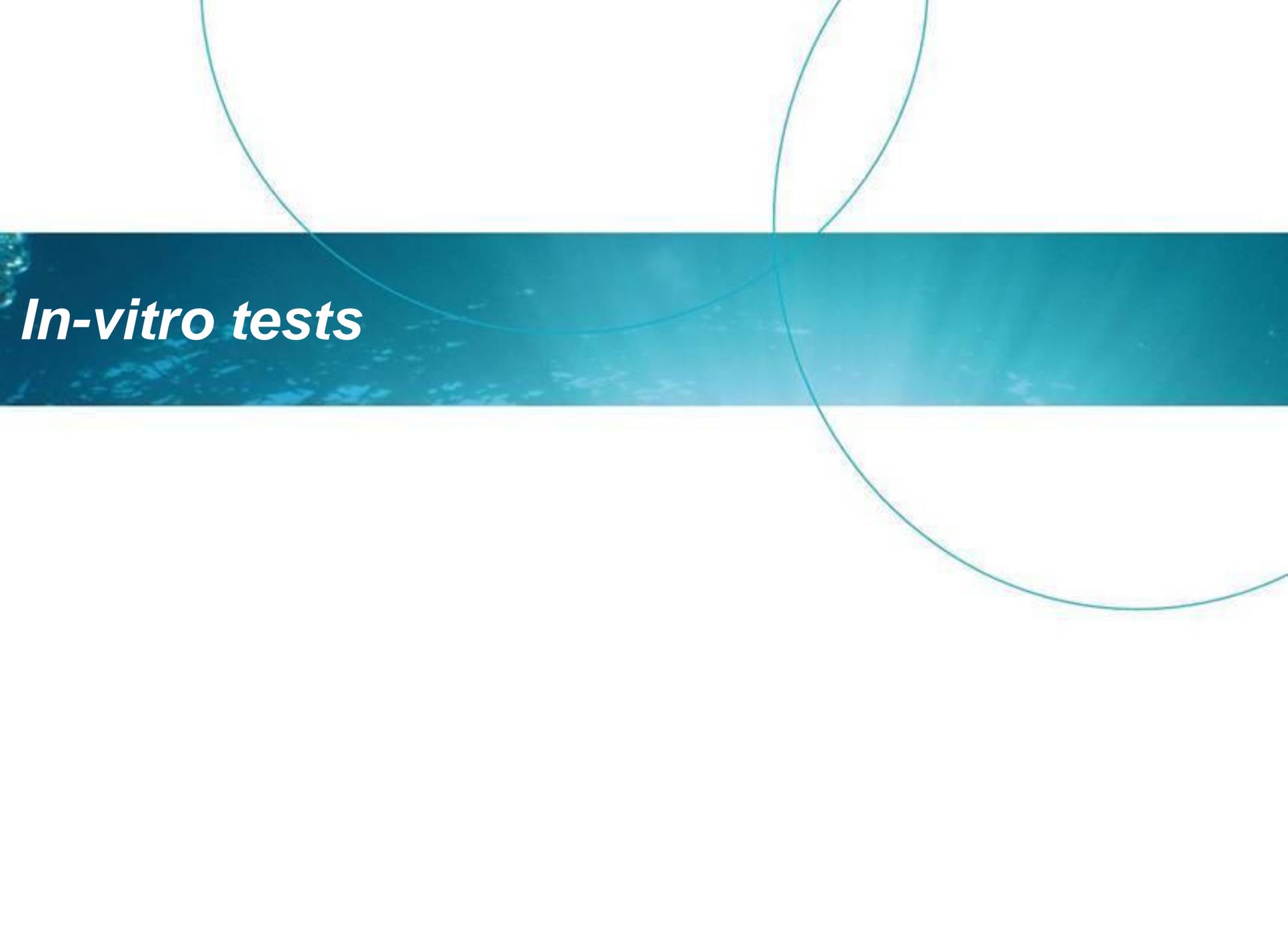


- Calcium stimulates leptin release:

- Calcium favours the limitation of the nocturnal storage of fats



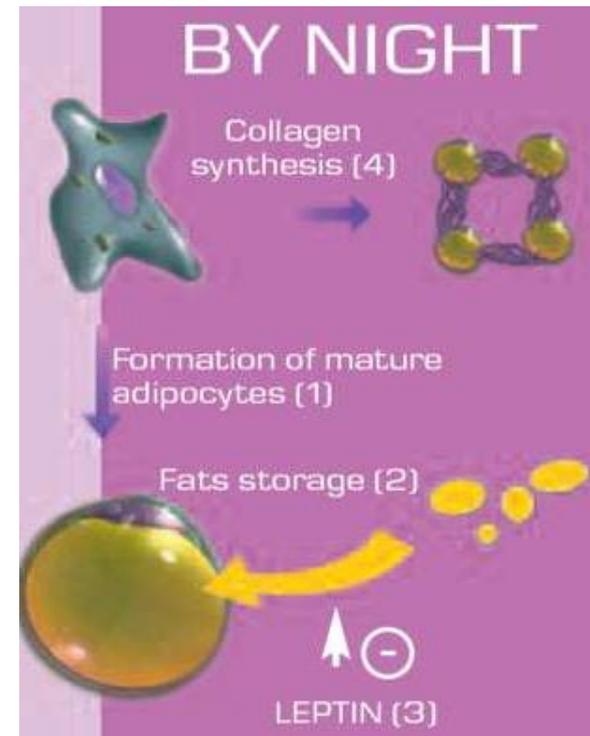
*Leptin is a messenger which is released between 10:00 PM and 3:00 AM and stops fat storage*

A horizontal teal bar with a subtle water-like texture is positioned across the middle of the page. Two thin, light teal circular lines are drawn over the bar, one on the left and one on the right, partially overlapping the bar and extending into the white background above and below it.

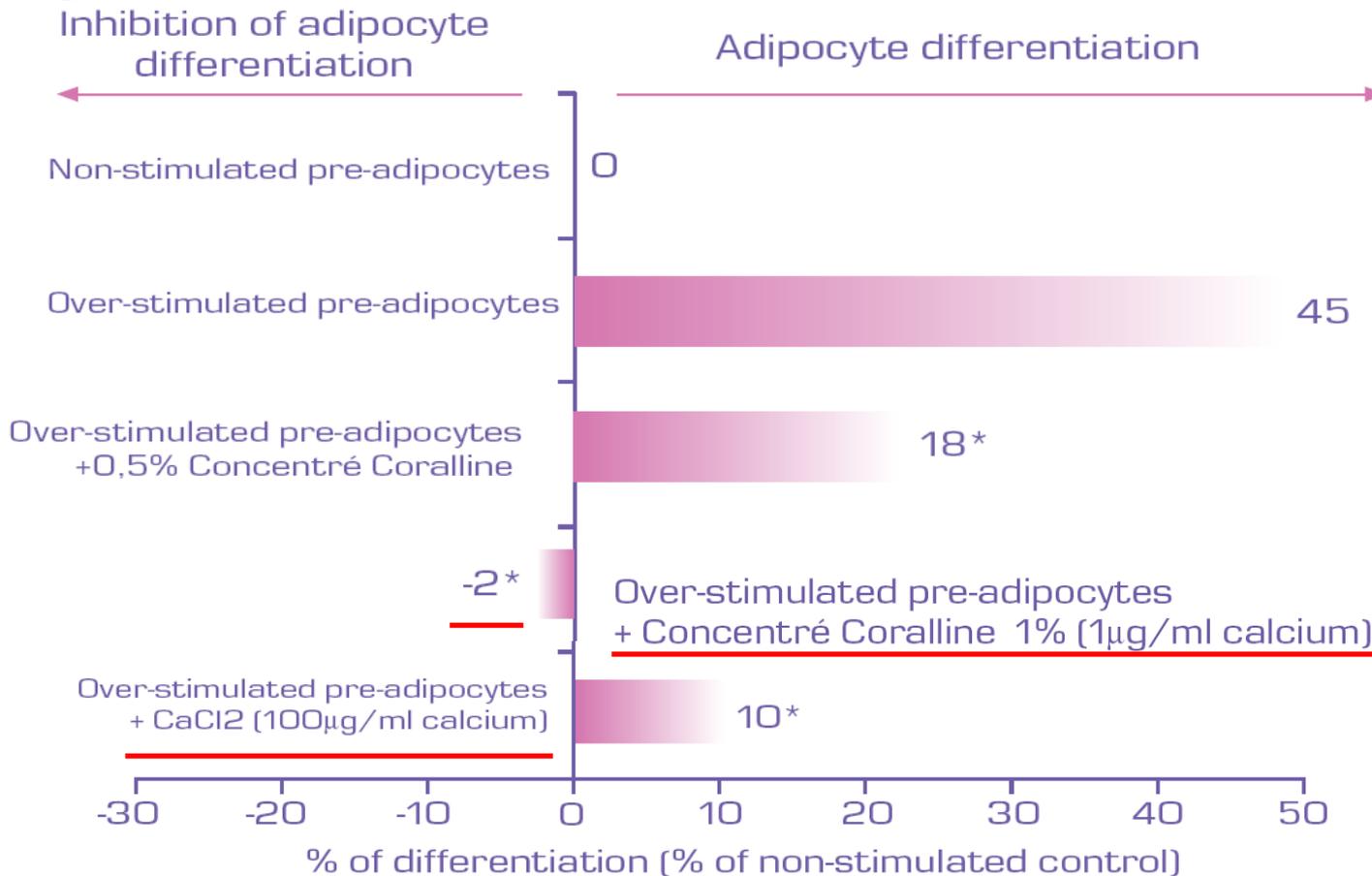
# ***In-vitro tests***

# CONCENTRE CORALLINE

## « BY NIGHT » EFFICACY



# IN-VITRO TEST: EFFECT OF CONCENTRE CORALLINE ON THE FORMATION OF NEW MATURE ADIPOCYTES (ADIPOCYTE DIFFERENTIATION)



## Protocol:

Differentiation process induced in cultures of pre-adipocytes (over-stimulated pre-adipocytes) in the presence or absence of Concentré Coralline or CaCl<sub>2</sub>.

After 14 days, evaluation of the stage of differentiation by the capacity of adipocytes to store fatty acids (demonstration using oil red O staining)

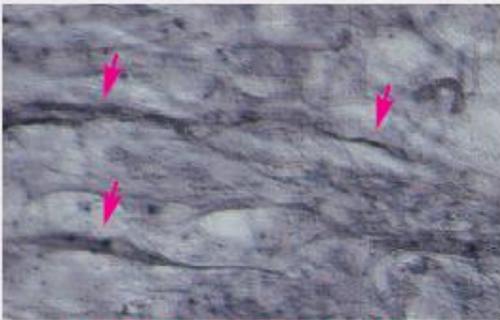
\* $p < 0.05$  student test t

**Concentré Coralline, 1%, completely and significantly inhibits the differentiation of pre-adipocytes. Used at a concentration 100 times lower than that of mineral calcium, the calcium of Concentré Coralline is 10 times more effective.**

# IN-VITRO TEST : EFFECT OF CONCENTRE CORALLINE 1% ON COLLAGEN SYNTHESIS

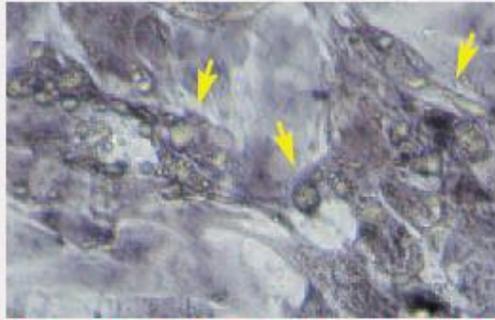
Protocol:  
The differentiation process is induced in cultures of pre-adipocytes in the presence or absence of Concentré Coralline . After 14 days of culture, we determined the synthesis of collagen I using immunohistochemical labelling.

## Non-induced control



Pre-adipocytes with an elongated appearance similar to that of fibroblasts. Visualisation of collagen synthesis (red arrows).

## Induced control



Rounded cells loaded with lipid droplets (yellow arrows) characteristic of mature adipocytes. Absence of collagen synthesis

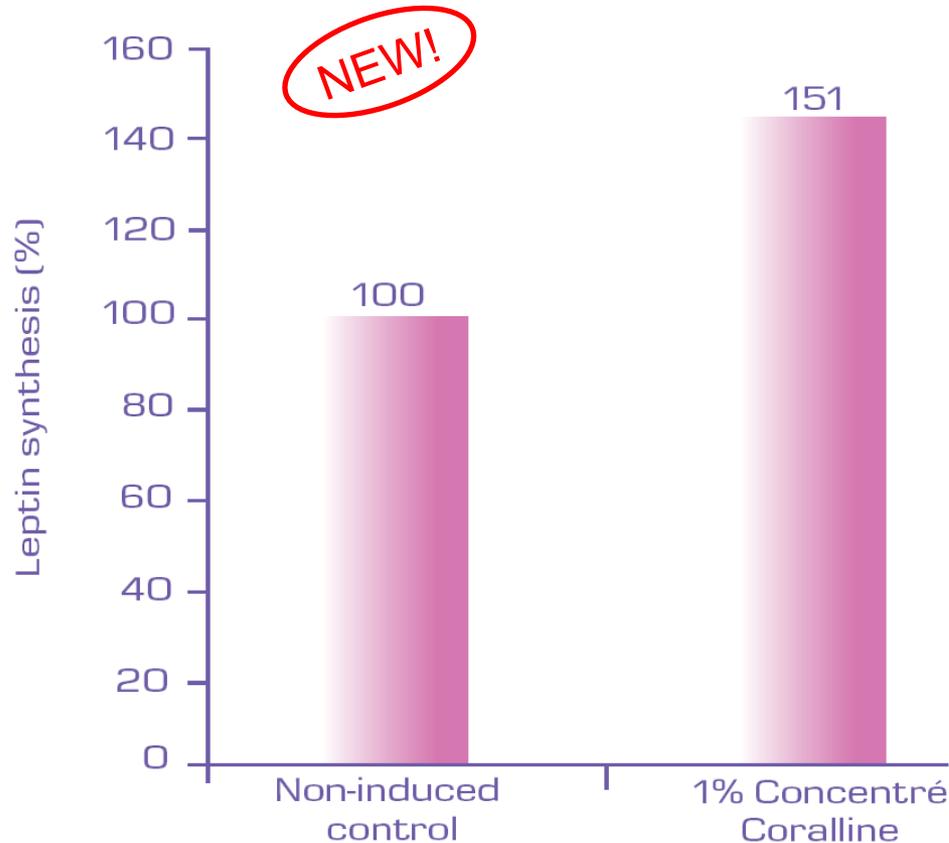
## 1% Concentré Coralline



Cellular morphology characteristic of pre-adipocytes, absence of lipid droplets, and collagen synthesis.

**By inhibiting the differentiation of pre-adipocytes into mature adipocytes, Concentré Coralline 1% promotes and enhances collagen I synthesis by pre-adipocytes**

# IN-VITRO TEST: EFFECT OF CONCENTRE CORALLINE 1% ON THE RELEASE OF LEPTINE



## Protocol:

The differentiation process is induced in cultures of pre-adipocytes in the presence or absence of Concentré Coralline . After 14 days of culture, we determined the quantity of leptin secreted in the culture medium by the adipocytes.

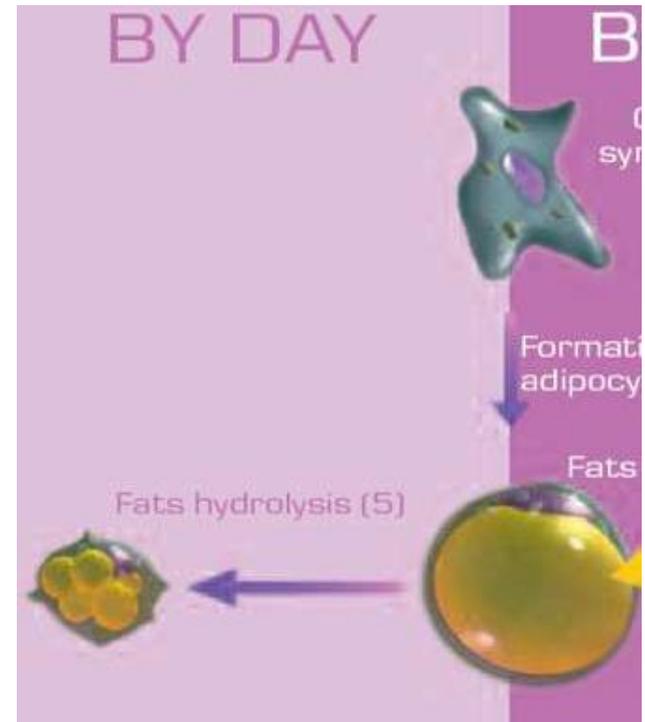
**Leptin is a cytokine that is secreted by the adipocytes between 10 O'clock in the evening and 3 O'clock in the morning.**

**Its release into adipose tissue is perceived as a signal of satiety by the adipocytes and is therefore directly accompanied by a decrease in fat storage.**

**Concentré Coralline 1% increases the synthesis of leptin by the adipocytes by 51%. Its action favours the limitation of the nocturnal storage of fats.**

# CONCENTRE CORALLINE

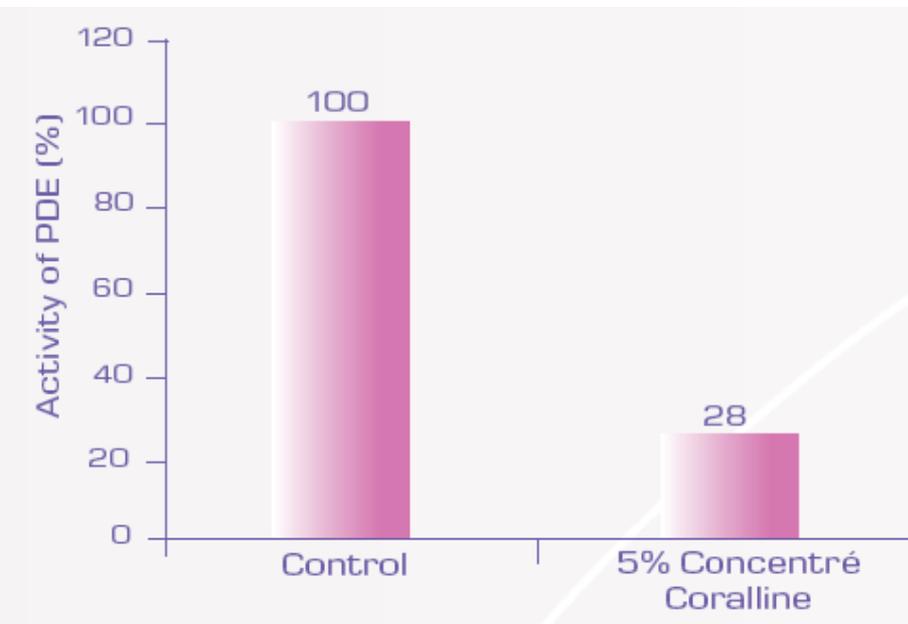
« BY DAY » EFFICACY



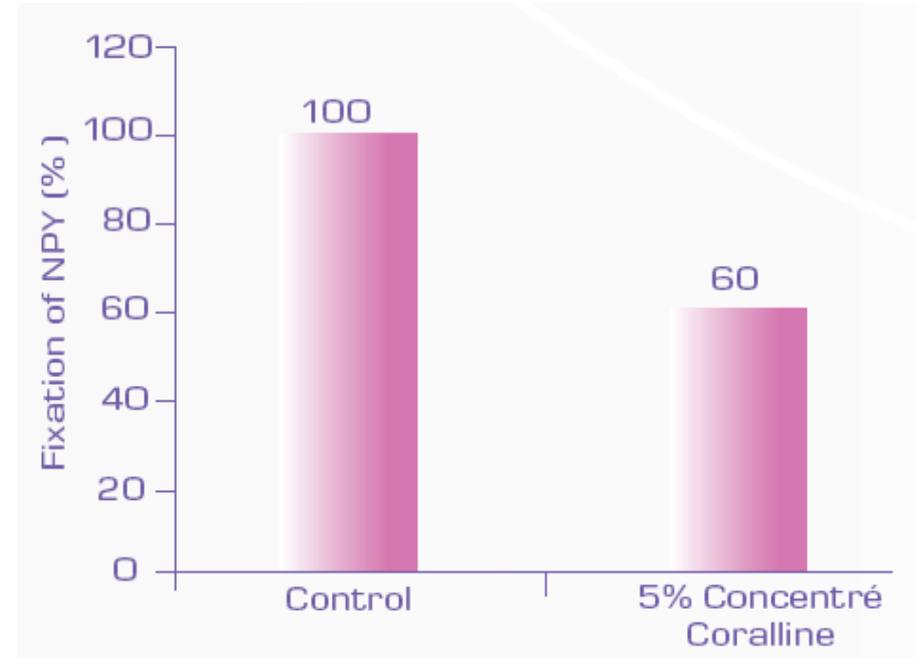
# IN-VITRO TEST: EFFECT OF CONCENTRE CORALLINE ON THE FACTORS THAT LIMIT FAT BURNING

Phosphodiesterase (PDE) and Neuropeptide Y (NPY) are both factors that inhibits the burning of fats (lipolysis).

## Inhibitory effect of Concentré Coralline on PDE



## Inhibitory effect of Concentré Coralline on NPY



**By decreasing the production of lipolysis inhibitors,  
Concentré Coralline stimulates fats burning**

The image features a white background with a horizontal teal band across the middle. Two thin teal lines form a large, stylized circular shape that overlaps the teal band. The text "Reveal..." is written in white, bold, italicized font on the teal band.

***Reveal...***

***Clinical tests***

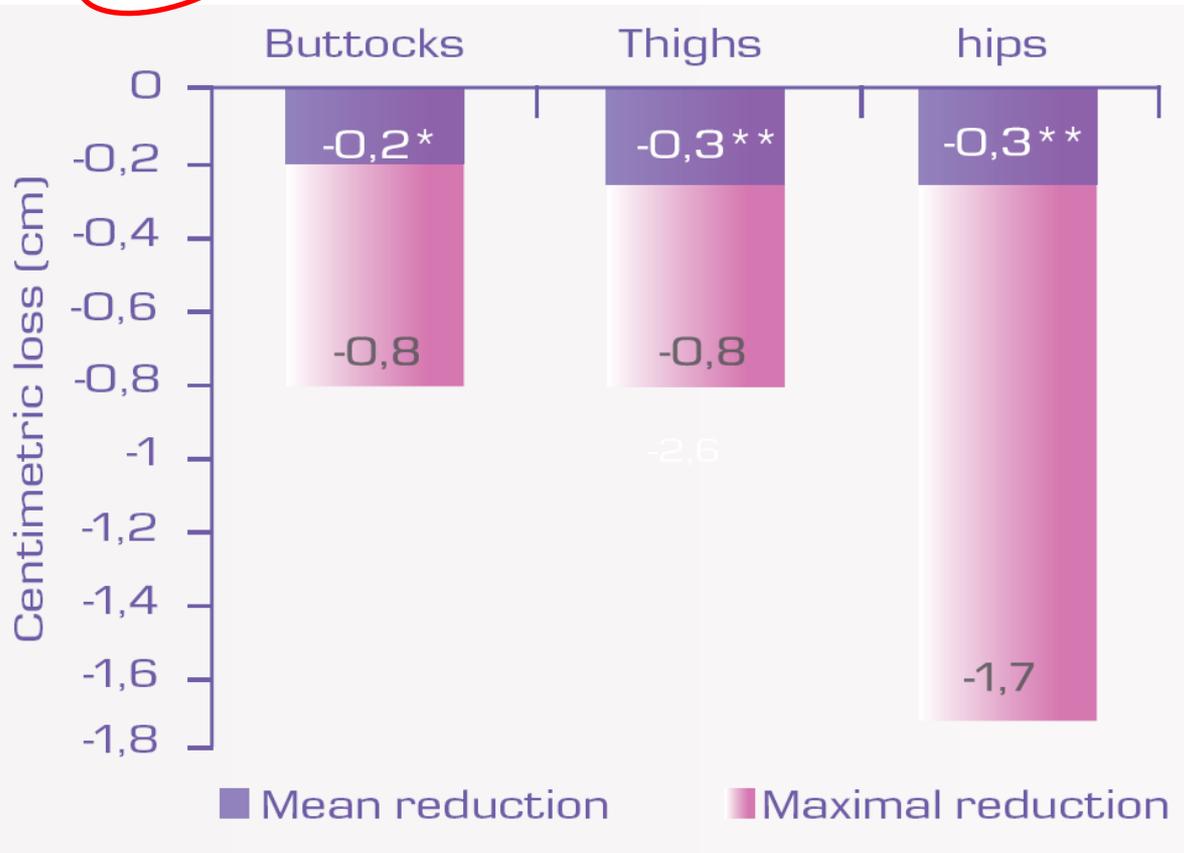
NEW!

# CLINICAL TEST: PROTOCOL

- 17 volunteers aged between 35 and 55 years
- 1% Concentré Coralline
- Twice daily application for 28 days on the thighs, hips and buttocks
  
- Evaluation of centimetric loss
- Evaluation of the thickness of the adipose tissue by ultrasonography
- Measurement of the firmness of the skin by cutometry
- Evolution of the grade of the orange peel

# CLINICAL TEST: EFFECT OF CONCENTRE CORALLINE 1% ON CENTIMETRIC LOSS

NEW!



\*p<0.05

\*\*p<0.01 Student test t

**Buttocks: up to -0.8cm**

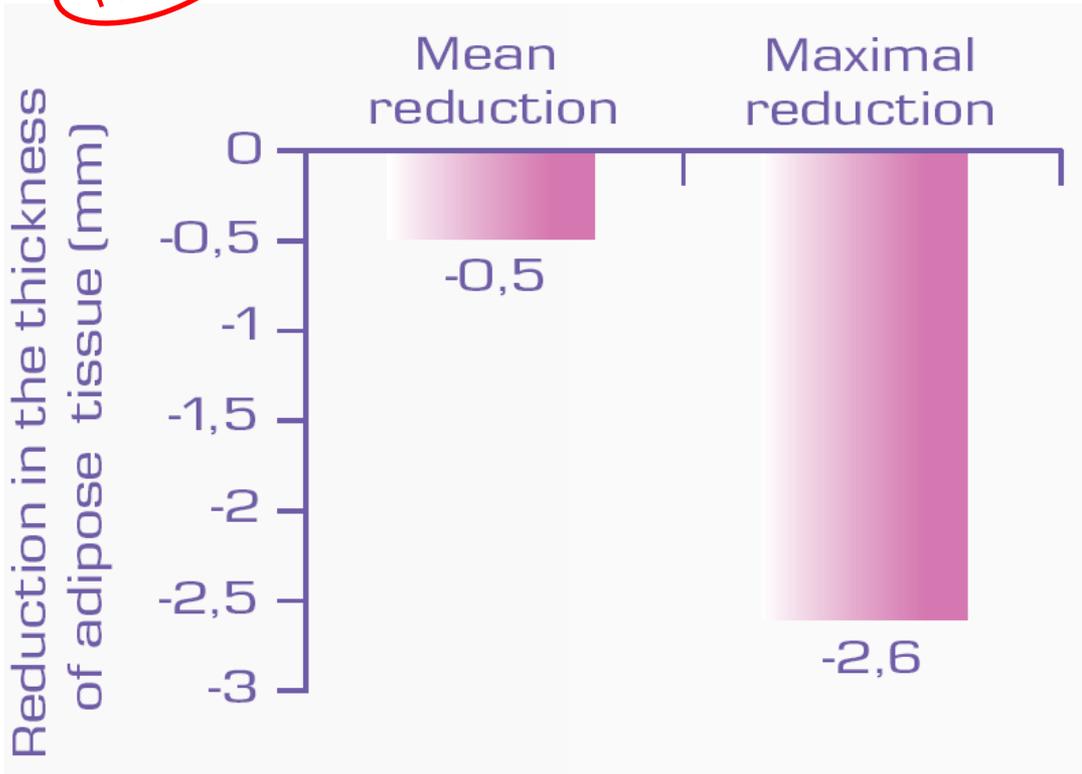
**Thighs: up to -0.8cm**

**Hips: up to -1.7cm**

**Concentre Coralline 1% significantly promotes centimetric losses on the buttocks, the thighs and the hips**

# CLINICAL TEST: EFFECT OF CONCENTRE CORALLINE 1% ON THE THICKNESS OF THE ADIPOSE TISSUE

NEW!



The measurements are made at the top of the cellulite bulge of one randomized thigh.

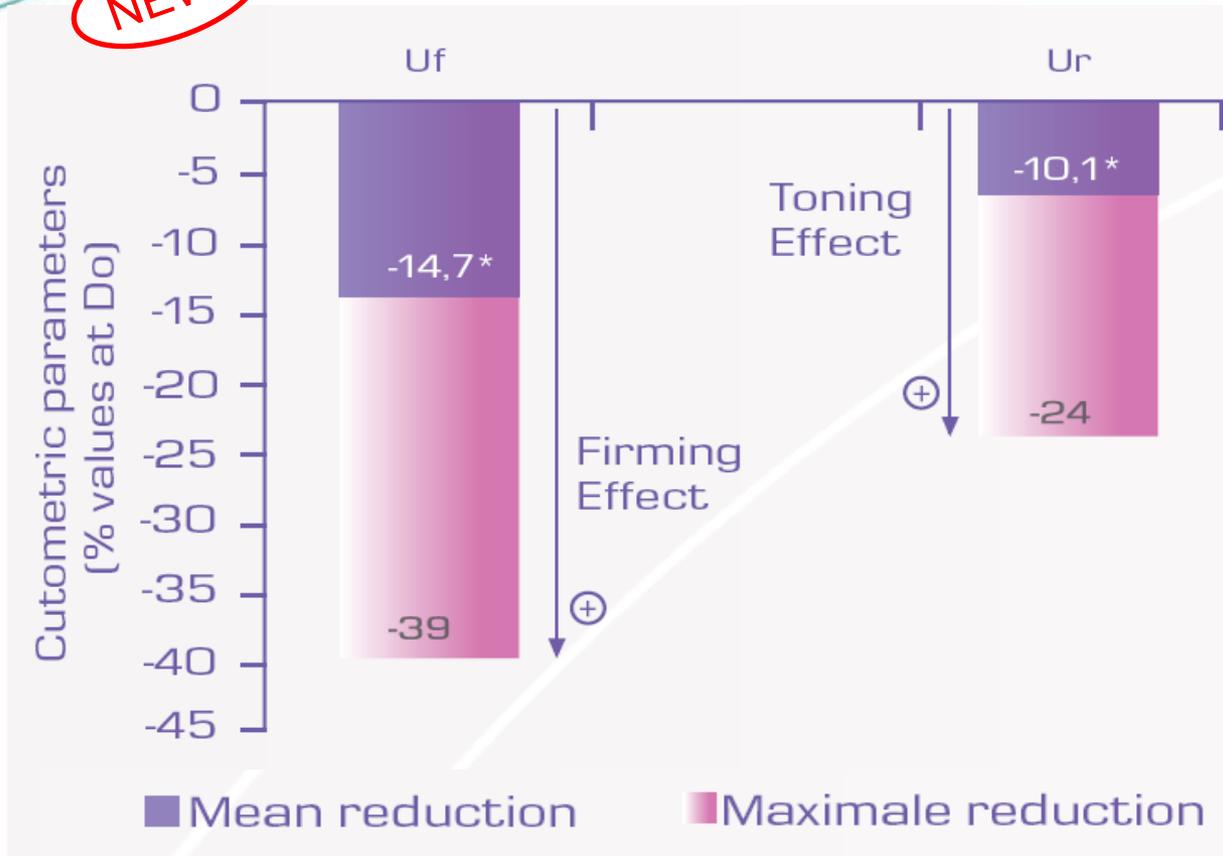
The ultrasonic measurement parameter studied is the adipose tissue thickness in mm.

A reduction in this parameter demonstrates a slimming effect of the product.

**Concentre Coralline 1% decreases the thickness of the adipose tissue**

# CLINICAL TEST: EFFECT OF CONCENTRE CORALLINE 1% ON THE FIRMNESS OF THE SKIN

NEW!



## Protocol:

The cutometric method involves assessing the firmness (decrease in Uf parameter) and the tone (decrease in Ur parameter) of the tissues.

\* $p < 0.05$  Student test t

**Concentre Coralline 1% significantly increases the firmness and the tone of the skin**

# CLINICAL TEST: EFFECT OF CONCENTRE CORALLINE 1% ON THE GRADE OF ORANGE PEEL

NEW!



**Concentre Coralline 1% visibly erases the orange peel  
aspect of cellulite**

# CONCENTRE CORALLINE CHRONOBIOLOGICAL CONTOURING

- **BY NIGHT Concentré Coralline:**
  - Inhibits the formation of mature adipocytes
  - Limits the nocturnal storage of fats
  - Stimulates collagen synthesis
- **BY DAY Concentré Coralline:**
  - Promotes fats burning
- **AFTER 28 DAYS Concentré Coralline:**
  - Significantly stimulates centimetric loss on buttocks, thighs and hips
  - Decreases the thickness of adipose tissue
  - Significantly improves the firmness and the tone of the skin
  - Visibly erases orange peel aspect

# CONCENTRE CORALLINE

<b>Available versions</b>	<b>Preservatives</b>	<b>Formulation</b>
Concentre Coralline	Parabens	1 %
Concentre Coralline P	Phenoxyethanol	1%
<b>Concentre Coralline G</b>	<b>Preservative free, Ecocert approved Cosmos approved</b>	<b>2%</b>  