



# DNF-10<sup>®</sup> as a New Material for Diet

## What is DNF-10<sup>®</sup>?

DNF-10<sup>®</sup> is made by extracting the *Saccharomyces cerevisiae* contents (removing cell walls). It is produced by hydrolyzing the proteins and collecting only peptides with average molecules of 10,000Da or lowers. It is all natural, safe and effective weight loss material from yeast. It supports weight loss by suppressing appetite and improving the lipid metabolism.

## Features of DNF-10<sup>®</sup>

- All natural material from yeast
- Proven to be safe and weight loss effect through clinical and animal tests.
- Innovative material with abundant research data and technical data
- Unique taste and flavor

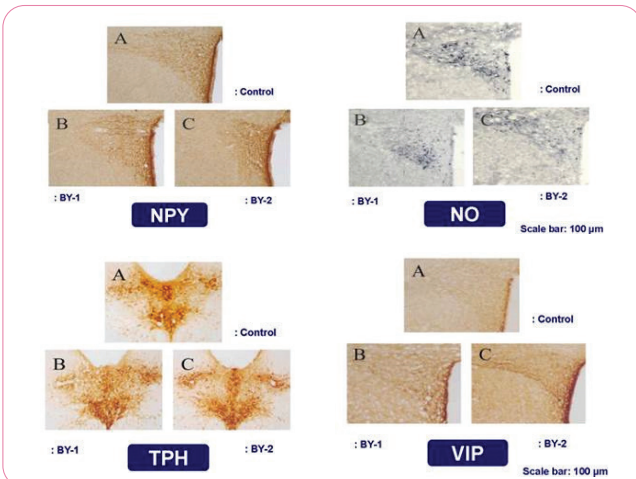
## DNF-10<sup>®</sup> Mechanism in the Body

- Controls Appetite and reduces preference for food
- Decreases Ghrelin, an appetite inducing hormone
- Increases Leptin, an appetite deterring hormone
- Inhibits Fatty Acid Synthesis
- Decreases Body Fat and Body Weight Gain
- Improves Lipid Metabolism

## Control of neuropeptides for appetite

The content of appetite peptide was measured by orally administering DNF-10<sup>®</sup> for 4 weeks in a high-dose mouse group(1.0g/kg), in a low-dose mouse group(0.1g/kg), and in a mouse group without DNF-10<sup>®</sup>. As a result, the expression of peptide involved in increased appetite {Neuropeptide Y(NPY),Nitric oxide(NO)} was low in the group that ingested DNF-10<sup>®</sup> and the concentration of peptide involved in the suppression of appetite{Tryptophan hydroxylase(TPH), Vasoactive intestinal peptide(VIP)} was high in the group with DNF-10<sup>®</sup>. Consequently, DNF-10<sup>®</sup> has effects on both the control of appetite and the level of peptide.

(E.Y. Jung et al. (2008). *Phytotherapy research* 22, 1417-1422),  
(E.Y. Jung et al.(2009). *Phytotherapy Research* 23, 619-623)

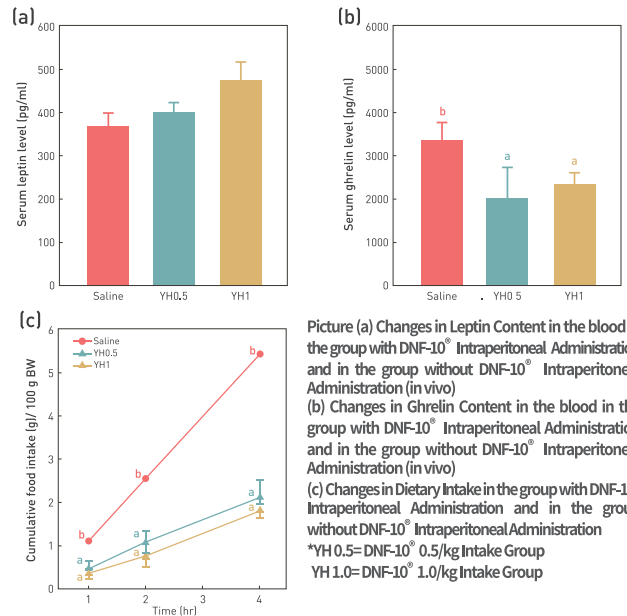


Picture 1. Changes of peptide for the control of appetite in the group with DNF-10<sup>®</sup> and in the group without DNF-10<sup>®</sup>  
BY-1:0.1g/kg BY-2:1.0g/kg

## Decrease in Ghrelin as an Orexigenic Hormone, Increase in Leptin as an Anorexigenic Hormone

The blood concentration changes of Leptin and Ghrelin in a group that DNF-10<sup>®</sup> was intraperitoneally administered to 8-week-old rats were compared with that in a group that DNF-10<sup>®</sup> was not intraperitoneally administered to 8-week-old rats within a short time, which indicated that the blood concentration of Leptin, an anorexigenic hormone, increased and the blood concentration of Ghrelin, an orexigenic hormone, in the blood decreased (picture3(a)(b)). In addition, the dietary intake significantly decreased 1 hour after intraperitoneal administration (picture3(c)). This result shows that DNF-10<sup>®</sup> intake helps suppress appetite.

(K.B. Hong et al. (2015). *Progress in Nutrition* 17, 262-264)

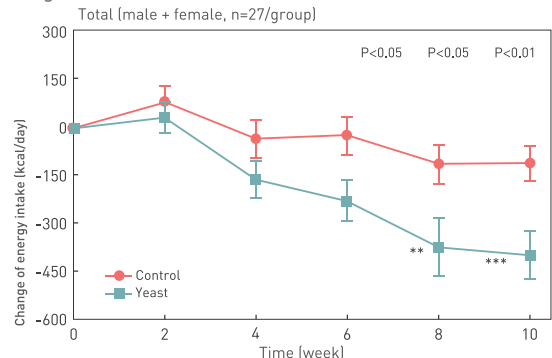


Picture (a) Changes in Leptin Content in the blood in the group with DNF-10<sup>®</sup> Intraperitoneal Administration and in the group without DNF-10<sup>®</sup> Intraperitoneal Administration (in vivo)  
(b) Changes in Ghrelin Content in the blood in the group with DNF-10<sup>®</sup> Intraperitoneal Administration and in the group without DNF-10<sup>®</sup> Intraperitoneal Administration (in vivo)  
(c) Changes in Dietary Intake in the group with DNF-10<sup>®</sup> Intraperitoneal Administration and in the group without DNF-10<sup>®</sup> Intraperitoneal Administration  
\*YH 0.5= DNF-10<sup>®</sup> 0.5/kg Intake Group  
YH 1.0= DNF-10<sup>®</sup> 1.0/kg Intake Group

## Reduces food-intake

It was shown that the dietary intake was 392.38kcal/day lower than that of the non-intake group for 10 weeks in the female and male group who have consumed capsules including DNF-10<sup>®</sup> 1g for 6 weeks. In particular, 376.18 kcal of intake was decreased in male and 405.34kcal/day in female, which means that there was a bigger difference in the female group than that in the male group. (Picture 2)

(E.Y. Jung et al. (2014). *Nutrition* 30, 25-32)

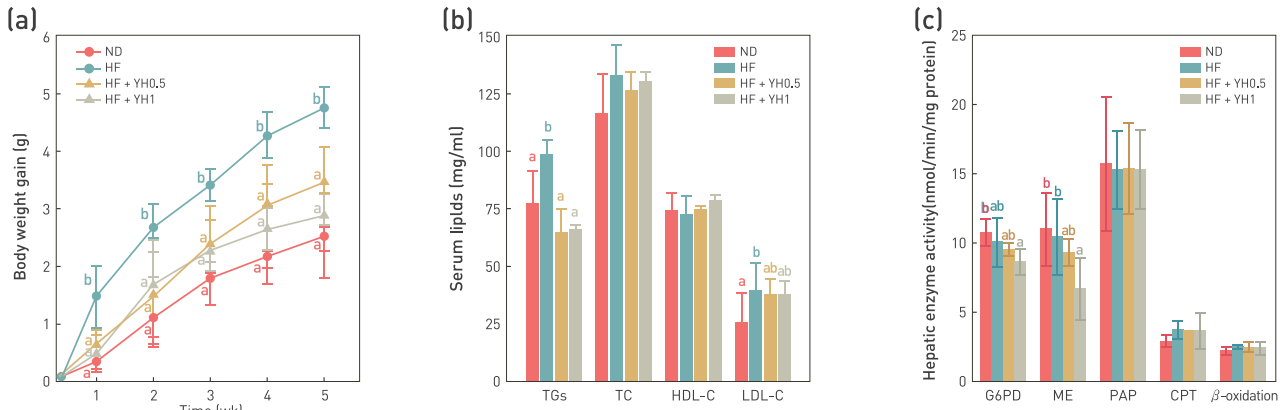


Picture 2. Changes in energy intake in the Group with DNF-10<sup>®</sup> and Control

### Weight Reduction, Body Fat Reduction and Inhibition of Fatty Acid Synthesis

The changes in the obese-induced mice for 8 weeks was measured by dividing into the group orally administered DNF-10<sup>®</sup> at a high(1.0g/kg, HF+YH1)/low(0.5g/kg, HF+YH0.5) concentration with high fat diet, and the group of high fat diet(HF)/normal diet(ND) without DNF-10<sup>®</sup>. As a result, the weight gain decreased in the high concentration group despite high fat diet (picture 4 (a)). It showed in the DNF-10<sup>®</sup>.intake group that lipogenic enzymes were at a low level and steatolytic enzymes were at high level (picture 4(c)). Consequently, lipogenesis was more suppressed in the DNF-10<sup>®</sup>. intake group than the general diet group.

(E.Y. Jung et al. (2012). Nutrition and Metabolism 61, 89-94)

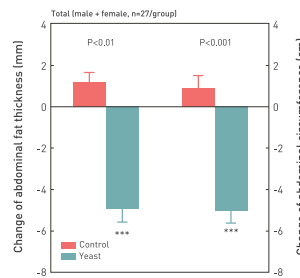


Picture 4. Comparison of (a) Body Weight Gain (in vivo) in the Group with High Fat Diet and DNF-10<sup>®</sup> per concentration and in the Group without them, (b) Blood Lipid Changes (in vivo) in the Group with High Fat Diet and DNF-10<sup>®</sup> per concentration and in the Group without them, (c) Hepatic Enzyme Activity in the Group with High Fat Diet and DNF-10<sup>®</sup> per concentration and in the Group without them

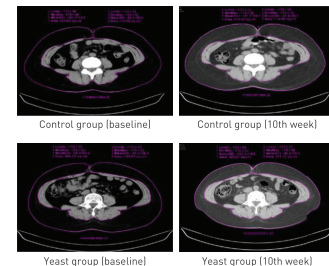
### Decrease in Abdominal Fat

As the result of measuring that 54 men and women aged 20 to 50 whose BMI index was over 25kg/m<sup>2</sup> were divided into a group with 1g per day of DNF-10<sup>®</sup> 30 minutes before breakfast and dinner for 10 weeks and a group without DNF-10<sup>®</sup>, it showed a significant decrease in the abdominal fat in both male and female groups with DNF-10<sup>®</sup>(Picture 5). Furthermore, as a result of doing a CT scan on abdominal circumference before intake and 10 weeks after intake, it showed that abdominal circumference in the DNF-10<sup>®</sup> intake group greatly decreased. (Picture 6)

(E.Y. Jung et al. (2014). Nutrition 30, 25-32)



Picture 5. Comparison of Abdominal Fat in the DNF-10<sup>®</sup> intake group and in the Non-intake Group



Picture 6. Comparison of Abdominal Circumference in the DNF-10<sup>®</sup> intake group and in the Non-intake Group

### Weight Loss and Body Fat Reduction

As the result of the experiment that 21 students whose BMI index was more than 25kg/m<sup>2</sup> out of female college students aged 20 to 28 were asked to take in the prepared food with DNF-10<sup>®</sup> for 6 weeks, it showed that weight, obesity, body mass index, etc. have significantly decreased for 6 weeks. (table 1)

(E.Y. Jung et al. (2008). Journal of Clinical Biochemistry and Nutrition 43, 1-3)

	Placebo(n=9)		DNF-10 <sup>®</sup> (n=12)	
	Baseline	6Weeks	Baseline	6Weeks
Body weight(kg)	67.2±7.7	67.0±7.6	67.4±8.6	66.3±8.8
Fat ratio(%)	25.8±4.0	27.1±4.4	26.4±4.4	25.9±3.9
Fat mass(kg)	17.3±4.0	18.1±4.6	17.8±4.2	17.3±4.0
Lean body mass(kg)	49.9±4.6	49.0±4.0	49.6±5.6	49.0±5.7
BMI(kg/m <sup>2</sup> )	25.7±2.7	25.6±2.7	25.6±2.4	25.2±2.4
RMR(kcal/d)	1816.0±265.6	1889.0±259.0	1674±339.1	1671±238.0

Table 1. Body Change of the Intake Group of Preparations including DNF-10<sup>®</sup>  
 BMI: Body mass index = body weight (kg) / height (m<sup>2</sup>) / RMR: Resting metabolic rate

### Product Information

Parameter	Specification
Appearance	Light Brown Powder
Foreign material	Not Included
Moisture (%)	Less than 8.0%
Crude Protein (%)	More than 40%
Total Plate Count	Less than 3,000 cfu/g
E.colis	Negative
Packing Unit	10kg (Inside-PE, Outside-Aluminium)