

# Gut Health: The Second Brain



**Building the Research Base for Nutritional Gut-Brain Interventions**

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# Complementary Health Products

- According to the National Health Statistics Report (NHSR) "the definition of any complementary approach included the use of one or more of the following during the past 12 months: acupuncture; Ayurveda; biofeedback; chelation therapy; chiropractic care; energy healing therapy; special diets (including vegetarian and vegan, macrobiotic, Atkins, Pritikin, and Ornish); folk medicine or traditional healers; guided imagery; homeopathic treatment; hypnosis; naturopathy; **nonvitamin, nonmineral dietary supplements**; massage; meditation; progressive relaxation; qi gong; tai chi; or yoga."

# Rates

- 34% of adults (18 years and older) used any complementary health approach in 2012
- Between 2007-2012 no change in the percentage of overall use of nonvitamin, nonmineral dietary supplement
- However, there was variability in the use of **specific** supplements used within the past 30 days

**Table 3. Adults aged 18 and over who used selected types of nonvitamin, nonmineral dietary supplements during the past 30 days: United States, 2007 and 2012**

Dietary supplements <sup>1</sup>	2007		2012		p value
	Number (in thousands)	Age-adjusted percent <sup>2</sup> (standard error)	Number (in thousands)	Age-adjusted percent <sup>2</sup> (standard error)	
Fish oil <sup>3</sup> . . . . .	10,923	4.8 (0.17)	18,848	7.8 (0.22)	†
Glucosamine or chondroitin . . . . .	7,236	3.2 (0.14)	6,450	2.6 (0.11)	†
Probiotics or prebiotics . . . . .	865	0.4 (0.05)	3,857	1.6 (0.09)	†
Melatonin . . . . .	1,296	0.6 (0.06)	3,065	1.3 (0.08)	†
Coenzyme Q-10 (CoQ10) . . . . .	2,691	1.2 (0.08)	3,265	1.3 (0.08)	††
Echinacea . . . . .	4,848	2.2 (0.12)	2,261	0.9 (0.06)	†
Cranberry (pills or capsules) . . . . .	1,560	0.7 (0.06)	1,934	0.8 (0.06)	††
Garlic supplements . . . . .	3,278	1.4 (0.09)	1,927	0.8 (0.06)	†
Ginseng . . . . .	3,345	1.5 (0.10)	1,752	0.7 (0.06)	†
Ginkgo biloba . . . . .	2,977	1.3 (0.10)	1,619	0.7 (0.06)	†
Green tea pills (not brewed tea) or EGCG (pills) <sup>4</sup> . . . . .	1,528	0.7 (0.06)	1,503	0.6 (0.05)	††
Combination herb pill . . . . .	3,446	1.5 (0.10)	1,463	0.6 (0.05)	†
MSM (methylsulfonylmethane) . . . . .	1,312	0.6 (0.05)	1,051	0.4 (0.04)	†
Milk thistle (silymarin) . . . . .	1,001	0.4 (0.05)	988	0.4 (0.04)	††
Saw palmetto . . . . .	1,682	0.7 (0.07)	988	0.4 (0.04)	†
Valerian . . . . .	877	0.4 (0.05)	801	0.3 (0.04)	††

† p < 0.05.

†† Difference is not statistically significant.

<sup>1</sup> Respondents may have used more than one nonvitamin, nonmineral dietary supplement.

<sup>2</sup> The denominator used in the calculation of percentages was all sample adults.

<sup>3</sup> In 2007, fish oil was described as fish oil or omega 3 or DHA fatty acid. In 2012, fish oil was described as fish oil or omega 3 or DHA or EPA fatty acid.

<sup>4</sup> EGCG is epigallocatechin gallate.

NOTES: Estimates were age-adjusted using the projected 2000 U.S. population as the standard population and using four age groups: 18–24, 25–44, 45–64, and 65 and over. Estimates are based on household interviews of a sample of the civilian noninstitutionalized population.

SOURCE: CDC/NCHS, National Health Interview Survey, 2007 and 2012.



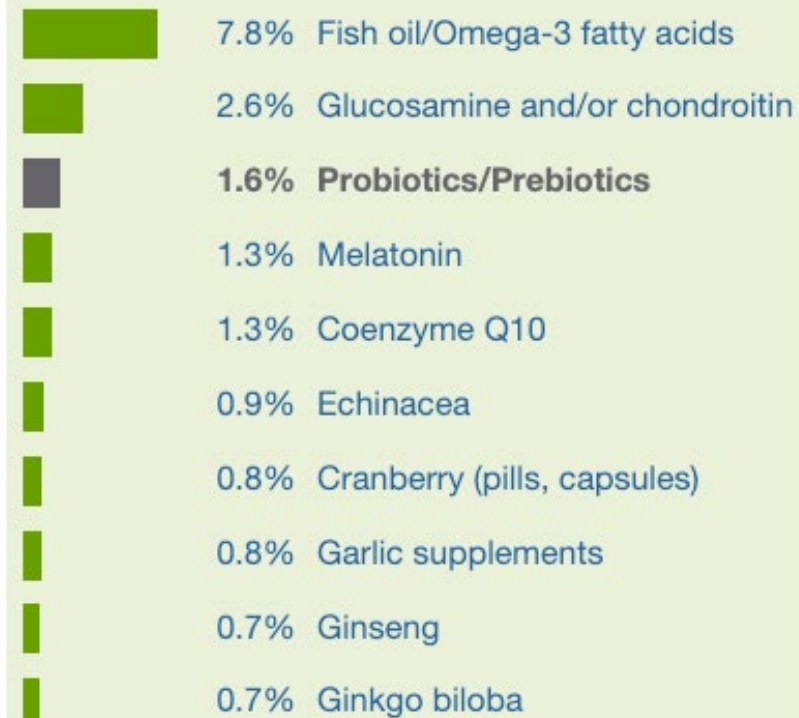
## Rates of Probiotics/Prebiotics

- In 2012, the use of probiotics or prebiotics by adults was 4x times higher than in 2007.
- Nearly 3 million more adults used probiotics or prebiotics in 2012 than in 2007.

1.6% of U.S. adults (3.9 million) used **probiotics/prebiotics**

### Adults

Click on any product below for details



(2017, Sept) Use of Complementary Health Approaches in the US. Retrieved from <https://nccih.nih.gov/research/statistics/NHIS/2012/natural-products/biotics>

# Why?



People are using them to improve overall health and wellbeing



Relieve symptoms of chronic disease



Aid with side effects of conventional medication



Most often used to complement conventional care rather than replace it



Increase knowledge about various types of natural health products

# Chronic Disease

Use of complementary health products seems to be higher amongst those with chronic disease(1)

Some of the most commonly reported reasons for using Natural Health Products (NHPs) are anxiety, depression, and chronic pain

Complementary therapies are used more often than conventional therapies for those with anxiety attacks and severe depression (2, 3)

1. Tulunay, M., Aypak, C., Yikilkan, H., & Gorpelioglu, S. (2015). Herbal medicine use among patients with chronic diseases. *Journal of intercultural ethnopharmacology*, 4(3), 217-20.

2. Kessler RC, Soukup J, Davis RB, et al: The use of complementary and alternative therapies to treat anxiety and depression in the United States. *American Journal of Psychiatry* 158:289-294, 2001

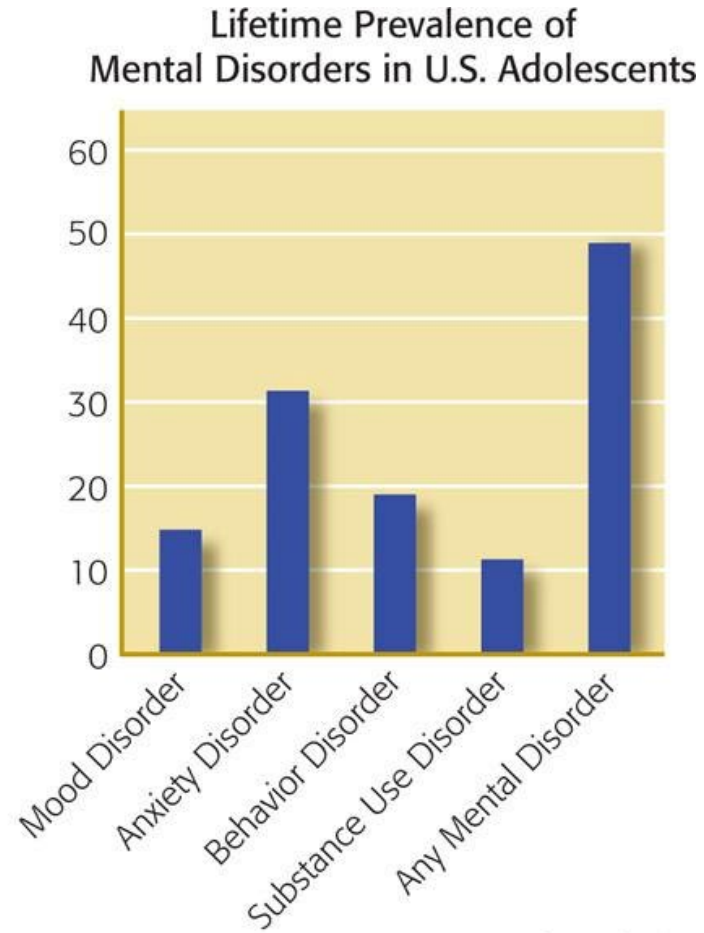
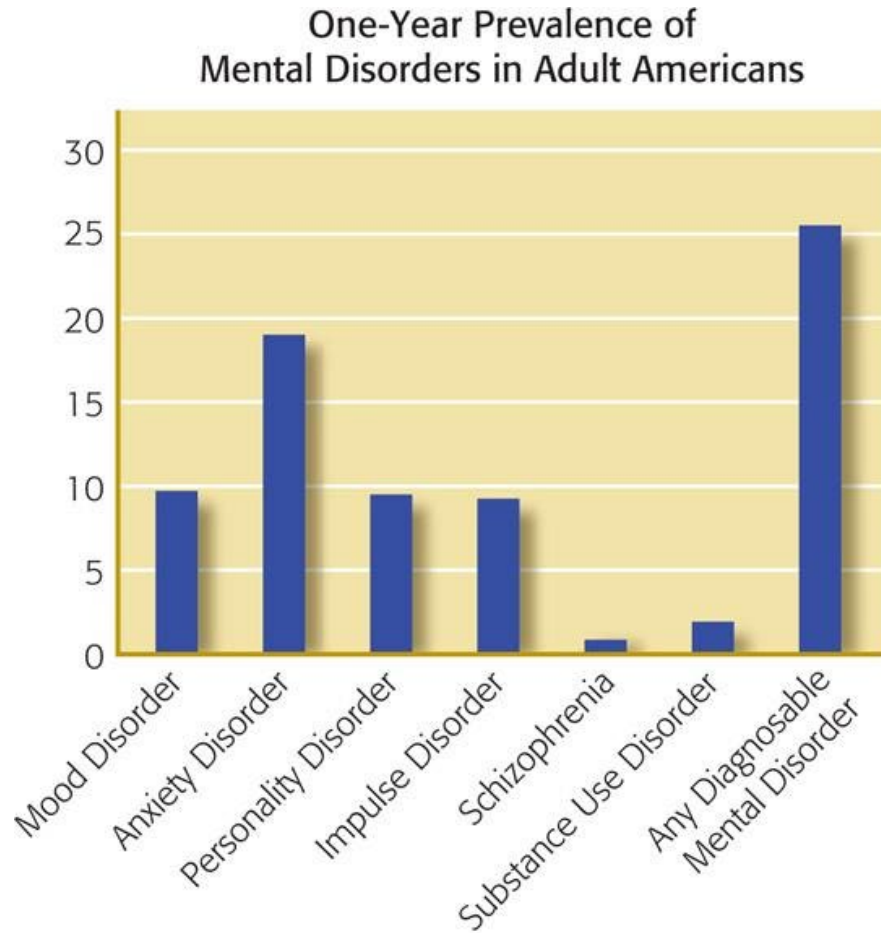
<https://www.ncbi.nlm.nih.gov/pubmed/11156813>

3. Unutzer, J., Klap, R., Strum, R., Young A. S., Marmon, T., Shatkin, J., Wells K. B., Mental Disorders and the Use of Alternative Medicine: Results From a National Survey. *American Journal of Psychiatry* 157: 1857-1851

<https://doi.org/10.1176/appi.ajp.157.11.1851>



# The Frequency and Burden of Mental Disorders



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1-year prevalence of mental disorders in adult Americans and lifetime prevalence of mental disorders in American adolescents



# The Frequency and Burden of Mental Disorders

- The cost and burden to society is great
  - At least 25% of adult Americans and almost 50% of American children suffer from diagnosable disorder
  - the costs of mental disorders can be estimated at US\$2.5 trillion using a traditional human capital approach.
  - Mental disorders therefore account for more economic costs than chronic somatic diseases such as cancer or diabetes, and their costs are expected to rise

# Probiotics

- Grow naturally in the human gut
- Acquisition depends on various factors
  - Birth method
  - Diet
- Safe for human consumption, since it is acquired naturally from environmental sources and normally grows in human body
- Foods contain probiotic bacteria that enrich our intestinal flora
- Research interest in the positive effects of probiotics on gut microbiome and general therapeutic potential

Harmsen HJ, Wildeboer-Veloo AC, Raangs GC, Wagendorp AA, Klijn N, Bindels JG, Welling GW. Analysis of intestinal flora development in breast-fed and formula-fed infants by using molecular identification and detection methods. *J Pediatr Gastroenterol Nutr.* 2000 Jan;30(1):61-7.

# General Health and Probiotics

- Bifidobacteria and Lactobacilli --> Irritable Bowel Syndrome and other GI diseases.
- Inhibit colonization and growth of bacteria associated with the disease
- Plays an integral role in development of lymphoid tissue and the immune system

Hooper LV, Littman DR, Macpherson AJ. Interactions between the microbiota and the immune system. *Science*. 2012 Jun 8;336(6086):1268-73. doi: 10.1126/science.1223490. Epub 2012 Jun 6. Review.



# Mental Health and Probiotics

- Bacteria in the gut have been found to produce GABA and serotonin: 'Gut-Brain axis'
- Exact mechanism unknown, however disruptions are associated with anxiety and depressive disorders
- Disruptions:
  - Cesar birth
  - Bottle fed
  - Early/repetitive antibiotic use
  - Alteration in stress reactivity

Forsythe P, Sudo N, Dinan T, Taylor VH, Bienenstock J. Mood and gut feelings. *Brain Behav Immun*. 2010 Jan;24(1):9-16. doi: 10.1016/j.bbi.2009.05.058. Epub 2009 May 28. Review.

Bienenstock J. Commensal communication to the brain: pathways and behavioral consequences. *Microb Ecol Health Dis*. 2012 Aug 24;23. doi: 10.3402/mehd.v23i0.19007. eCollection 2012.

Bravo JA, Forsythe P, Chew MV, Escaravage E, Savignac HM, Dinan TG, Bienenstock J, Cryan JF. Ingestion of *Lactobacillus* strain regulates emotional behavior and central GABA receptor expression in a mouse via the vagus nerve. *Proc Natl Acad Sci U S A*. 2011 Sep 20;108(38):16050-5. doi: 10.1073/pnas.1102999108. Epub 2011 Aug 29.

# Gut microbiome can influence mental health

- dysbiosis → gut inflammation → mental health
- probiotics restore gut health and can potentially influence depression and anxiety
- healthy gut linked to normal CNS function

# Consequences of Mental Health

- Serious mental illness costs America \$193.2 billion in lost earnings per year
- Mood disorders, including major depression, dysthymic disorder and bipolar disorder, are the third most common cause of hospitalization in the U.S. for both youth and adults aged 18–44.
- Individuals living with serious mental illness face an increased risk of having chronic medical conditions. Adults in the U.S. living with serious mental illness die on average 25 years earlier than others, largely due to treatable medical conditions

It all starts from the gut



# Protocol: The 4 Rs

1. Remove
  2. Replace
  3. Reinoculate
  4. Repair
- .....Rebalance?

# Remove

- Remove pathogens and other inflammatory triggers
- ie. Gluten, refined sugar, inflammatory foods, stress, allergic foods, pathogens, yeast overgrowth
- Protocol:
  - [Detoxification](#)
  - [Removing parasites](#)
  - [Addressing Candida](#)
  - [Addressing Heavy Metals](#)

# Replace

- Replace inflammatory foods with gut healing foods
- High fibre
- Adding turmeric
- Digestive enzymes

Fermenting turmeric makes it easier to digest and assimilate. Add it to your juices, smoothies, drinks, herbal teas or when cooking stir-fries and stews. Our turmeric is naturally fermented to improve its flavour profile.



# Reinoculate

- Add beneficial bacteria
- Reduces inflammation
- Helps build intestinal integrity
- Improves immune system



# Repair

- Repair gut lining and reduce intestinal permeability
- Protocol:
  - [Leaky gut](#)

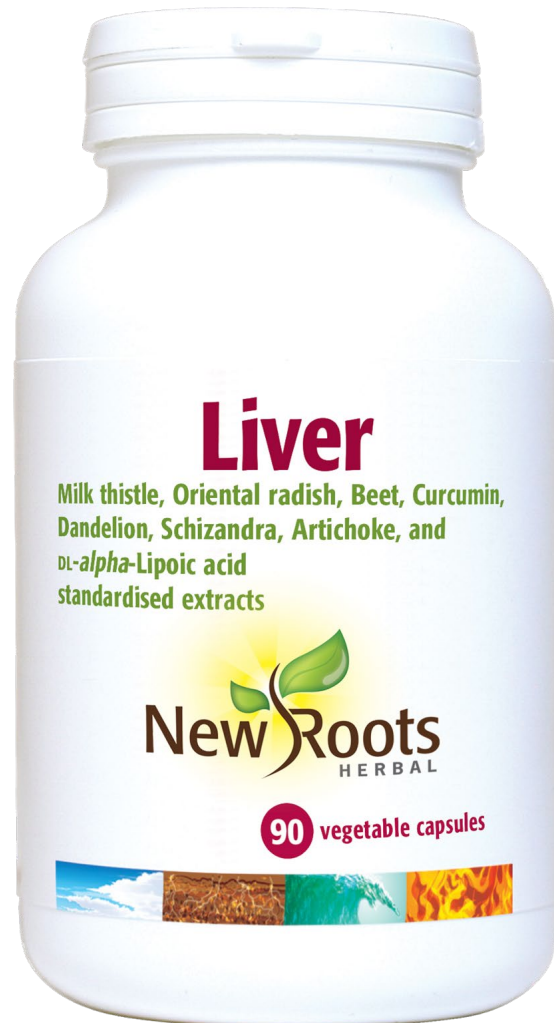
# Gut healing as a path to the brain

- [Detoxification](#)
- [Leaky gut](#)
- [Removing parasites](#)
- [Addressing Candida](#)
- [Removing Heavy Metals](#)

# Product Highlight



# Phase 1 detoxification



**LIVER.** Contains 8 ingredients that support the liver, spleen, gallbladder, pancreas and kidneys. It contains strong antioxidant properties to help protect and regenerate liver cells, as well as aiding detoxification and modulating the immune system.

Dose: 1 caps. 3 times daily with food.

## Nutritional information

**3 capsules  
(2 595 mg)**

Milk thistle <sup>1</sup> (80% silymarin)	750 mg
Oriental radish	360 mg
Beet	360 mg
DL-alpha-Lipoic acid	150 mg
Dandelion <sup>1</sup> (3% flavonoids)	150 mg
Turmeric <sup>1</sup> (95% curcuminoids*)	150 mg
Schizandra <sup>1</sup> (9% schisandrins)	150 mg
Artichoke <sup>1</sup> (5% cynarine)	105 mg
<sup>1</sup> standardised extract	

\*providing curcumin I, demethoxycurcumin, and bisdemethoxycurcumin

# Phase 1 detoxification



**METAL DETOX PROTECTOR.** Contains N-acetylcysteine, vitamin C and alpha lipoic acid. Helps eliminate heavy metals. Due to its antioxidant properties and ability to chelate heavy metals, this formula can be of great help for detoxification and their elimination from the body.

Dose: 1 caps. twice daily.

**Nutritional information:**

**1 capsule  
(610 mg)**

DL-alpha-Lipoic acid

75 mg

L-Glutathione

100 mg

N-acetyl-L-cysteine

125 mg

Vitamin C (ascorbic acid)

200 mg (250%\*)

\*NRV: Nutrient Reference Value in %



# Phase 2 detoxification



## **VITAMIN C PLUS**

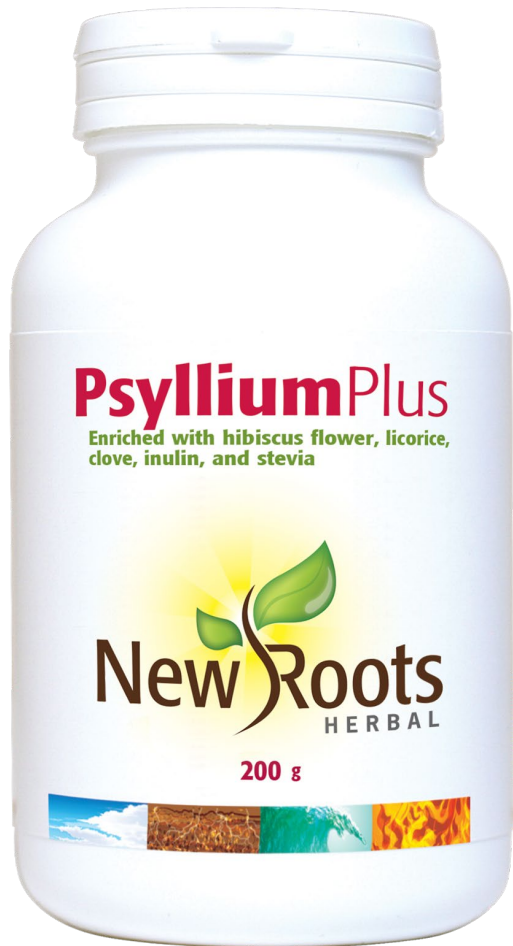
(time-release). Helps protect cells from oxidative damage, contributes to normal immune system function and energy metabolism and helps reduce tiredness and fatigue.

Dose: 1 tablet daily.

<b>Nutritional information:</b>	<b>1 tablet (1 848 mg)</b>
Vitamin C (L-Ascorbic acid)	1 000 mg (1 250%*)
Citrus bioflavonoids (50% hesperidin)	150 mg
Rose hips ( <i>Rosa canina</i> )	50 mg

\*NRV: Nutrient Reference Value in %.





Psyllium Plus is an excellent source of fibre. It is consisting of fibres of *Plantago ovata* (100% husks), enriched with hibiscus flowers, licorice root, stevia, and clove, combined with inulin extracted from chicory root.





**Nutritional information:****2 teaspoons  
(5 g)**

Psyllium (100% husks)

3 890 mg

Hibiscus flower

829 mg

Licorice root

104 mg

Stevia leaf

95 mg

Inulin

71 mg

Clove

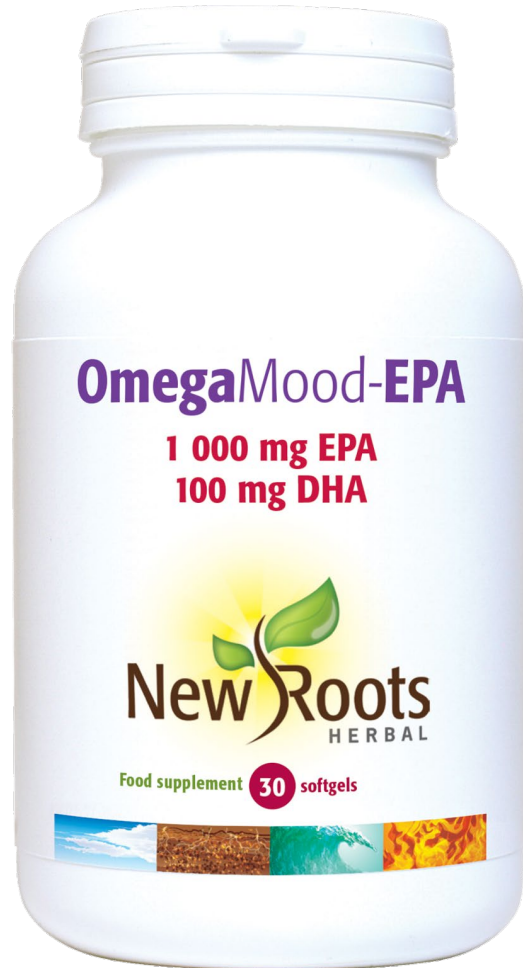
11 mg



Plant Digestive Enzymes is a food supplement consisting of a wide range of 100% highly bioavailable and easy to absorb vegetable enzymes. Expressed in international units of enzymatic activity for a better evaluation of the activity.



<b>Nutritional information:</b>	<b>3 capsules (1 662 mg)</b>
Protease I	124 311 FCC HUT
Protease II	22 140 FCC HUT
Protease III	171 FCC SAP
Papain	900 000 FCC PU
Amylase	35 436 FCC DU
Lactase	1 632 FCC ALU
Lipase	9 000 FCC LU
Cellulase	3 780 FCC CU
alpha-Galactosidase	57 FCC GalU
Maltase	390 FCC DP
Invertase	240 FCC INVU
Pectinase	180 endo-PGU
Glucoamylase	150 FCC AGU
Hemicellulase	99,9 FCC HCU
Phytase (phosphorus)	7,5 FCC FTU
Bromelain ( <i>Ananas comosus</i> ) [60 mg]	2 160 000 FCC PU
Dipeptidyl peptidase IV	6 150 FCC HUT
FCC: Food Chemical Codex	



**Nutritional information**

**1 softgel (1 779 mg)**

Wild fish oil\*

1 289 mg

Providing essential fatty acids omega-3:

EPA (eicosapentaenoic acid)

1 320 mg

DHA (docosahexaenoic acid)

100 mg

Other omega-3

20 mg

\* Oils of high purity, molecular distillation.



Human Biota contains more than 42 billion CFU from 12 beneficial strains of human origin complemented with prebiotics of natural origin: F.O.S. (chicory root) and A.O.S. (larch tree). Strains of human origin exhibit the ability to colonise at multiple sites in the gastrointestinal tract. The enteric coating of the capsule protects the product from gastric juices and ensures 100% potency.



<b>Nutritional information:</b>	<b>1 enteric capsules (640 mg)</b>
<i>Lactobacillus rhamnosus</i> UB5115	31,5 billion CFU
<i>Lactobacillus casei</i> UB1499	8,324 billion CFU
<i>Lactobacillus acidophilus</i> UB5997	1,680 billion CFU
<i>Bifidobacterium infantis</i> UB9214	105 million CFU
<i>Bifidobacterium lactis</i> UB3963	105 million CFU
<i>Bifidobacterium bifidum</i> UB4280	42 million CFU
<i>Bifidobacterium breve</i> UB8674	42 million CFU
<i>Bifidobacterium longum</i> UB7691	42 million CFU
<i>Lactobacillus crispatus</i> UB4719	42 million CFU
<i>Lactobacillus gasseri</i> UB8141	42 million CFU
<i>Lactobacillus acidophilus</i> LA-14	37,8 million CFU
<i>Lactobacillus rhamnosus</i> GG	37,8 million CFU
Inulin	15 mg
Arabinogalactan	15 mg
CFU: Colony-Forming Unit Cells	
The enteric coating GPS™ protects capsule contents from stomach acids and delivers 100% potency to the intestines.	



# Register with the link below to receive access to:

- Webinar recording and slides
- Programmes:
  - Detoxification (including Heavy Metal guide)
  - Leaky Gut
  - Candidiasis
  - Deparasitisation
- <https://www.newrootsherbal.eu/en/gut-health-the-second-brain-registration>
- **Contact:** Helen Edwards, Certified Nutritional Therapist: [hedwards@newroots.info](mailto:hedwards@newroots.info)

# Thank you!

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