

NEWS

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Bacillus Subtilis PXN 21 and Parkinson's

New Research in Worms Shows
Bio-Kult Bacteria...

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New Research in Worms Shows Bio-Kult Bacteria Strain Could Guard Against Parkinson's. [Alzheimer's, Dementia, MS] Bio-Kult Mind

Bacillus subtilis PXN® 21® found within leading bacteria brand **Bio-Kult** that boosts digestive health can **slow – and even reverse build-up** of a protein associated **with Parkinson's**, new research suggests.

Building on previous research linking **brain function to gut bacteria**, this study in a Parkinson's model of roundworms, identified that a strain from our Bio-Kult product line — *Bacillus subtilis* PXN® 21® — helped **prevent the formation of toxic clumps that starve the brain of dopamine**, a key chemical that coordinates movement. These new findings could pave the way for future studies that gauge how supplements such as live bacteria impact the condition.

The Research

In the brains of people with Parkinson's disease, alpha-synuclein protein misfolds and builds up, forming toxic clumps. These clumps are associated with the death of nerve cells responsible for producing dopamine. The loss of these cells causes the motor symptoms associated with Parkinson's, including freezing, tremors and slowness of movement.

The researchers from the Universities of Edinburgh and Dundee used roundworms altered to produce the human version of alpha-synuclein that forms clumps. They fed these worms with different types of over-the-counter live bacteria supplements to see if bacteria in them could affect the formation of toxic clumps.

The scientists found that strain found in the Bio-Kult range, called *Bacillus subtilis* PXN® 21® had a **remarkable protective effect** against the build-up of this protein and **also cleared some** of the already formed protein clumps. This improved the movement symptoms in the roundworms.

The researchers also found that the bacteria was able to **prevent the formation of toxic alpha-synuclein clumps** by producing chemicals that change how enzymes in cells process specific fats called sphingolipids.

The study published in the journal Cell Reports, was funded by Parkinson's UK, the EMBO and the European Commission. The study is available here:

<https://dx.doi.org/10.1016/j.celrep.2019.12.078>

What People are Saying

This is the latest in a number of recent studies which have found a link between brain function and the thousands of different kinds of bacteria living in the digestive system, known as the gut microbiome. Other studies into mice have found that the gut microbiome has an impact on the motor symptoms.

Lead researcher, Dr Maria Doitsidou, from the Centre for Discovery Brain Sciences at the University of Edinburgh, said: "The results provide an opportunity to investigate how changing the bacteria that make up our gut microbiome affects Parkinson's. The next steps are to confirm these results in mice, followed by fast-tracked clinical trials since the probiotic we tested is already commercially available."

Dr Beckie Port, Research Manager at Parkinson's UK, said: "Changes in the microorganisms in the gut are believed to play a role in the initiation of Parkinson's in some cases and are linked to certain symptoms, that's why there is ongoing research into gut health and probiotics.

"The results from this study are **exciting** as they show a link between bacteria in the gut and the protein at the heart of Parkinson's, alpha-synuclein. Studies that identify bacteria that are beneficial in Parkinson's have the potential to not only **improve symptoms** but **could even protect people from developing the condition in the first place.**"

Dr. Ashton Harper (Medical Director at ADM Protexin Ltd.) commented: 'This ground-breaking research takes us one step closer to unravelling the pathophysiology and treatment of Parkinson's disease. Recent advances in the management of Parkinson's disease now enable many to achieve a normal life expectancy, however, the quality of life can often be severely impaired. Options to prevent, treat, and delay onset and progression would therefore represent a major breakthrough. Human clinical trial data utilising this technology is eagerly awaited.'

Bio-Kult is a range of live bacteria supplements. *Bacillus subtilis* PXN® 21® can be found in Bio-Kult Advanced Multi-Strain Formulation, for digestive health and the **latest addition to the range Bio-Kult Mind**, with added grapefruit and wild blueberry extracts as well as zinc to support normal cognitive function.



www.bio-kult.com/aboutmind

Designed to Target both the Digestive Tract and Cognitive Function

Bio-Kult Mind is an advanced multi-action formulation designed to target both the **Digestive Tract and Cognitive Function**. **Bio-Kult Mind** contains bioavailable flavonoids, grape and wild blueberry extracts, and zinc. Zinc contributes to normal cognitive function and the protection of cells from oxidative stress. Zinc also contributes to the normal function of the immune system. **Bio-Kult Mind** gives you the confidence that you are helping to support your cognitive function and immune system.



Tell me more...

- Targets the digestive tract and cognitive function
- **Backed by clinical research** [see **pto**, Bio-Kult NEWS, 15.01.2020 www.bio-kult.com/article/447-bacillus-subtilis-pxn-21-and-parkinsons]
- Suitable for everyday use as part of a healthy lifestyle
- Great travel companion (no need to refrigerate)
- Leading bacteria brand, internationally acclaimed range, made in the UK by ADM Protexin Ltd.
- **Bio-Kult Mind** capsules can be pulled apart and the contents sprinkled onto food, mixed with a drink
- No sugar, artificial colours or flavours
- Gluten free
- Vegetarian Society approved

Ingredients:

Bulking agent (microcrystalline cellulose)

Grape (*Vitis vinifera*) & blueberry (*Vaccinium angustifolium*) extracts, vegetable capsule (hydroxypropyl methylcellulose)

Live bacteria (**milk, soya**) see strain below

Zinc citrate

Live bacterial strain:

Bacillus subtilis PXN® 21®

Nutrition information (per capsule)

Grape & blueberry extracts 45mg

Zinc citrate 7mg, provides 2mg zinc (20% NRV)

NRV = Nutrient Reference Value

1 billion microorganisms (1 x 10⁹ CFU/ capsule) equivalent to 6.3 billion microorganisms per gram (6.3 x 10⁹ CFU/g).

Concentration of 1 billion microorganisms per capsule throughout the shelf life.

Storage

Store in a cool dry place – out of direct sunlight. Can be stored at room temperature. No need to refrigerate.

Keep out of reach of children.

Allergen advice:

For allergens, see ingredients list in bold. Contains milk and soya used in the fermentation process. Content of milk is at a level that would not affect lactose intolerance sufferers.

Directions for use*:

Take 1-2 capsules once or twice daily. If taking two or more capsules daily, you may wish to split the dose.



Pregnancy:

We would always suggest consulting your doctor or healthcare practitioner before taking any food supplement.

Do not exceed recommended daily intake.

Food supplements should not be used as a substitute for a varied diet and a healthy lifestyle.

*If you are taking any medications or have any medical conditions, please consult your doctor before taking any nutritional food supplements.

Alongside Bio-Kult Mind why not try the following?

- Regular exercise such as walking, swimming, pilates or tai chi
- Keep the mind active by being socially involved with the community through activities such as singing, music and card playing
- Enjoy daily “brain teasers” such as sudoku and crosswords
- Practice mindfulness – regularly focusing attention on the present moment, whether by breathing exercises, meditation or whenever you consciously remember
- Sleep well – try to get 7-8 hours of good quality restorative sleep each night
- Consume a range of colourful seasonal wholefoods such as fruits, vegetables and salads with omega 3 rich olive oil and oily fish, and keep processed foods, sugar and refined carbohydrates to a minimum similar to that of a traditional Mediterranean diet.

