

BIFIDOBACTERIUM LONGUM SUBSP. LONGUM REDUCES PERCEIVED PSYCHOLOGICAL STRESS IN HEALTHY ADULTS: AN EXPLORATORY CLINICAL TRIAL

Boehme, M ; Rémond-Derbez, N ; Lerond, C ; et al.
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With Expert Review from Ana-Paula Agrela

Psychosocial stress is a common issue and one way in which nutrition may modulate the stress response is via the microbiota-gut-brain axis. This 6-week randomised, double-blind, placebo-controlled trial of 45 healthy adults with mild-to-moderate stress evaluated the effects of Bifidobacterium longum (BL) NCC3001 on psychological and physiological markers of stress. Compared to placebo, probiotic intake led to a significant decrease in perceived stress and an improvement in subjective sleep after 6 weeks. There was no difference in cortisol awakening response. The subjects in both groups did not experience significant gastrointestinal symptoms and scored low on anxiety and depression at baseline. In response to the acute stress test, cortisol levels were higher in the probiotic than the placebo group, whilst no clear differences were seen in heart rate and heart rate variability. Subjects in the probiotic group had a lower pain experience during the stress test whilst subjects in the placebo group had an increase in positive mood following the test. The authors conclude that these results support their hypothesis that BL NCC3001 may alleviate stress and improve sleep in adults with stress.



EFFECTS OF LACTOCOCCUS LACTIS SUBSP. CREMORIS YRC3780 DAILY INTAKE ON THE HPA AXIS RESPONSE TO ACUTE PSYCHOLOGICAL STRESS IN HEALTHY JAPANESE MEN.

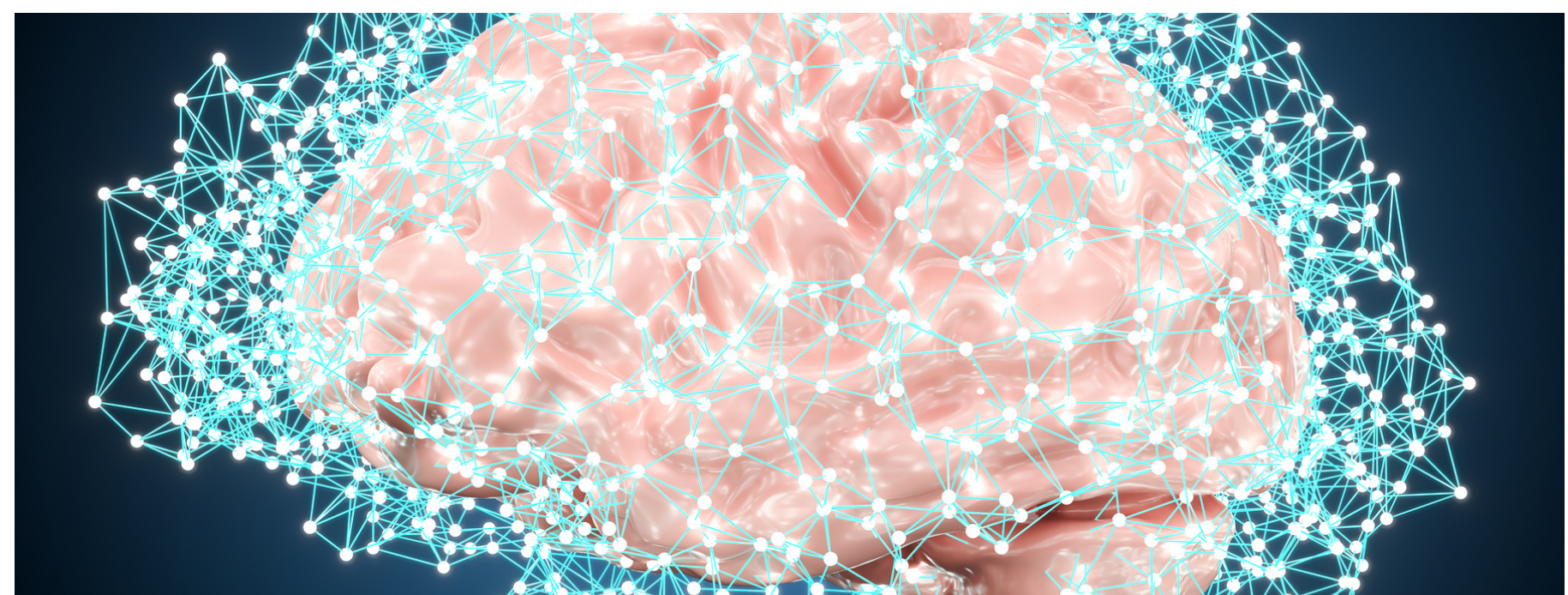
Matsuura, N ; Motoshima, H ; Uchida, K ; Yamanaka, Y
European journal of clinical nutrition. 2022;76(4):574-580

The hypothalamic-pituitary-adrenal (HPA) axis is involved in the stress response and is linked to the microbiome through a number of possible mechanisms, including immune-related ones. Lactococcus lactis subsp. cremoris YRC3780 (YRC3780), a probiotic isolated from kefir, has been shown to have beneficial immune-modulatory properties. The aim of this double-blind, placebo-controlled trial, which included 27 healthy young men, was to assess sleep quality, mental health, HPA axis activity (salivary cortisol) and response to an acute stress test during/after 8 weeks of supplementation with YRC3780. At 8 weeks, salivary morning cortisol levels were significantly reduced in the probiotic compared to the placebo group. The effect on the stress test depended on whether or not participants were considered "cortisol-responders" or not. Improvements in sleep quality were seen at 6 weeks (but not at any other time points) in 1 out of 2 sleep questionnaires in the YRC3780 group, whilst no significant differences were observed in actigraphy-measured sleep efficiency. There were no differences in mood between groups, but significant improvements in general health in the probiotic group. Interestingly, no changes in the microbiome of the probiotic group were seen, suggesting that the observed effects may be mediated via the immune system.

MULTISPECIES PROBIOTIC ADMINISTRATION REDUCES EMOTIONAL SALIENCE AND IMPROVES MOOD IN SUBJECTS WITH MODERATE DEPRESSION: A RANDOMISED, DOUBLE-BLIND, PLACEBO-CONTROLLED STUDY

Baião, R ; Capitão, LP ; Higgins, C ; Browning, M ; et al.
Psychological medicine. 2023;53(8):3437-3447

Gut microbiota may be able to augment an individual's mood, brain processing and cognition. Supplements containing live bacteria or a diet high in fibre which act as a substrate for beneficial gut bacteria may be of benefit to individuals with depression or mental illness. This 4-week randomised control trial aimed to determine the effect of a probiotic containing several different gut bacteria species on emotional processing and cognition in people with mild to moderate depression. The results showed that compared to placebo, probiotic intake increased empathy with others and improved some but not all aspects of cognition. Probiotic intake did not affect biological measures of stress but did improve feelings of depression. It was concluded that multispecies probiotics may change the emotional processing of people with depression. This study could be used by healthcare professionals to understand that the use of probiotics may be a good option to reduce the risk of people with mild to moderate depression developing a major depressive disorder.



INTAKE OF LACTIPLANTIBACILLUS PLANTARUM HEAL9 IMPROVES COGNITION IN MODERATELY STRESSED SUBJECTS: A RANDOMIZED CONTROLLED STUDY

Önning, G ; Montelius, C ; Hillman, M ; Larsson, N
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It is thought that there is a bidirectional communication pathway between the gut microbiota and the brain, known as the gut-brain axis. Stress, anxiety and low mood and the hormones produced when experiencing these have been shown to be improved by the introduction of healthy gut microbiota through probiotic use. As such, the use of probiotics may be of benefit to mental health problems. This randomised control trial of 129 individuals with moderate stress aimed to determine the effect of one probiotic strain Lactiplantibacillus plantarum HEAL9 (LPHEAL9) on the gut-brain axis. The results showed that following supplementation for 12 weeks, cognitive function was significantly improved compared to placebo and there was an improvement in the feelings of confusion, anger, and depression. There was a trend for improved sleep for individuals given LPHEAL9, however this was not significantly better than individuals given placebo. There were no benefits to perceived stress following LPHEAL9 supplementation. It was concluded that LPHEAL9 improved cognitive function compared to placebo and this may be due to improved mood and sleep. This study could be used by healthcare professionals to specifically recommend LPHEAL9 to individuals with stress, anxiety, and low mood.

