



Lactobacillus helveticus R0052

Bifidobacterium longum R0175

Lactobacillus plantarum DR7

For stress, mood balance and gastrointestinal system health

This table is a summary of the key research showing efficacy of these three probiotic strains in supporting stress, mood balance, immune function and gastrointestinal system health.

Publication	Study Design	Participants	Intervention	Outcomes	Clinical Relevance
Messaoudi, M, Lalonde, R, Violle, N, Javelot, H, Desor, D, Nejd, A, Bisson, J-F, Rougeot, C, Pichelin, M, Cazaubiel, M & Cazaubiel, J.M 2010, 'Assessment of psychotropic-like properties of a probiotic formulation (<i>Lactobacillus helveticus</i> R0052 and <i>Bifidobacterium longum</i> R0175) in rats and human subjects', <i>British Journal of Nutrition</i> , Vol. 105, N.05, pp.755–764.	Randomised, double-blind, placebo-controlled, parallel group study.	55 healthy males and females, 30-60 years, with a score of <12 in the HADS-anxiety subscale (HADS-A) and in the HADS-depression subscale (HADS-D) and equal to or less than 20 in the HADS total score on initial examination.	<i>Lactobacillus helveticus</i> R0052 and <i>Bifidobacterium longum</i> R0175, combined 3 billion CFU, or placebo, daily for 30 days.	Psychological testing was completed at baseline (Day 0) and completion of the study (Day 30). After 30 days of <i>Lactobacillus helveticus</i> R0052 and <i>Bifidobacterium longum</i> R0175 supplementation participants showed a significant improvement in somatisation (p=0.03), depression (p<0.05) and anger-hostility (p<0.02) subscales assessed with the Hopkins Symptom Checklist (HSCL-90). The percentage changes in the Hospital Anxiety and Depression Scale (p=0.03) and HADS-A (Hospital Anxiety and Depression Scale-Anxiety) scores (p=0.06) were higher in the treated participants compared to placebo. Median urinary free cortisol significantly decreased between baseline and completion of the study in the probiotic participants (p=0.04) whereas the placebo group remained stable (p=0.28).	Mood and Stress Efficacy Study <i>Lactobacillus helveticus</i> R0052 and <i>Bifidobacterium longum</i> R0175 supplementation significantly improved mood, particularly depression and anger/hostility. Improvements in the effects of stress were seen via psychological testing and urinary free cortisol, as a physiological indicator of stress level, suggesting it may be beneficial in times of increased stress. The results indicate that gut microflora plays a role in mood balance and mitigating the effects of stress. <i>Lactobacillus helveticus</i> R0052 and <i>Bifidobacterium longum</i> R0175 were well tolerated.
Messaoudi, M, Violle, N, Bisson, J-F, Desor, D, Javelot, H, & Rougeot, C 2011, 'Beneficial psychological effects of a probiotic formulation (<i>Lactobacillus helveticus</i> R0052 and <i>Bifidobacterium longum</i> R0175) in healthy human volunteers', <i>Gut Microbes</i> , Vol. 2, No.4, pp.256–261.	Randomised, double-blind, placebo-controlled, parallel group study.	55 healthy males and females, 30-60 years, with a score of <12 in the HADS-anxiety subscale (HADS-A) and in the HADS-depression subscale (HADS-D) and equal to or less than 20 in the HADS total score on initial examination. This analysis of the data was conducted in a sub-population of 25 subjects, 10 PF and 15 placebo, with UFC levels between 10 and 50 ng/ml at baseline.	<i>Lactobacillus helveticus</i> R0052 and <i>Bifidobacterium longum</i> R0175, combined 3 billion CFU, or placebo, daily for 30 days.	Psychological testing was completed at baseline (Day 0) and completion of the study (Day 30). The subgroup with urinary free cortisol between 10-50ng/ml showed significant improvements in depression (p<0.05), anger-hostility (p<0.01), obsessive compulsive (p<0.05), anxiety (p<0.05) and paranoid ideation (p<0.05) sub-scores of the HSCL-90. The HADS and Perceived Stress Scale scores showed significant improvement in change from baseline to the end of the study in the probiotic group (p<0.05).	Mood and Stress Efficacy Study <i>Lactobacillus helveticus</i> R0052 and <i>Bifidobacterium longum</i> R0175 supplementation significantly improved depression, anxiety, anger/hostility and stress in participants with a lower urinary free cortisol. The results indicate that gut microflora plays a role in mood balance in those with low levels of stress. <i>Lactobacillus helveticus</i> R0052 and <i>Bifidobacterium longum</i> R0175 were well tolerated.
Diop, L, Guillou, S, Durand, H 2008, 'Probiotic food supplement reduces stress-induced gastrointestinal symptoms in volunteers: a double-blind, placebo-controlled, randomized trial', <i>Nutrition Research</i> , Vol. 28, No. 1, pp.1–5.	Randomised, double-blind, placebo-controlled, parallel group study.	75 healthy males and females, 18-60 years old, affected by daily stress.	<i>Lactobacillus helveticus</i> R0052 and <i>Bifidobacterium longum</i> R0175, combined 3 billion CFU, or placebo, daily for 3 weeks.	A questionnaire assessing stress-induced symptoms was completed at baseline (Day 0) and at the end of the study (Day 21). Participants taking <i>Lactobacillus helveticus</i> R0052 and <i>Bifidobacterium longum</i> R0175 showed a significant improvement in abdominal pain (p=0.032) and nausea/vomiting (p=0.034) after 3 weeks compared to placebo.	Mood and Stress Efficacy Study <i>Lactobacillus helveticus</i> R0052 and <i>Bifidobacterium longum</i> R0175 significantly improved stress-induced gastrointestinal symptoms including abdominal pain, nausea and vomiting suggesting it may be beneficial to those who experience gastrointestinal symptoms at times of stress. <i>Lactobacillus helveticus</i> R0052 and <i>Bifidobacterium longum</i> R0175 were well tolerated.



Lactobacillus helveticus R0052, Bifidobacterium longum R0175 and Lactobacillus plantarum DR7

Publication	Study Design	Participants	Intervention	Outcomes	Clinical Relevance
Chong, H.X, Yusoff, N.A.A, Hor, Y-Y, Lew, L-C, Jaafar, M.H, Choi, S-B, Yusoff, M.S.B, Wahid, N, Abdullah, M.F.I.L, Zakaria, N, Ong, K-L, Park, Y-H, Liong, M-T 2019, 'Lactobacillus plantarum DR7 alleviates stress and anxiety in adults: a randomised, double-blind, placebo-controlled study', <i>Beneficial Microbes</i> , Vol. 10, No. 4, pp.355-373.	Randomised, double-blind, placebo-controlled study.	111 males and females, 18-60 years, Subjects from both groups fulfilled the inclusion criteria of moderately stressed on Cohen's Perceived Stress Scale (PSS-10).	Lactobacillus plantarum DR7 1 billion CFU or placebo, daily for 12 weeks.	<p>Psychological testing with the Depression, Anxiety and Stress Scale (DASS-42) questionnaire was completed at baseline (Day 0), week 4, 8 and 12.</p> <p>A higher reduction in stress ($p=0.024$) and anxiety ($p=0.017$) scores for all <i>Lactobacillus plantarum</i> DR7 treated participants was shown after week 8, compared to placebo. These effects were predominately attributed to improvement in relaxation ($p=0.011$), alleviated use of nervous energy ($p=0.012$), improvement in swallowing ($p=0.001$) and reduction in trembling ($p=0.002$).</p> <p>Cognitive function was assessed at the end of the study (week 12). Participants taking <i>Lactobacillus plantarum</i> DR7 demonstrated enhanced speed for verbal learning and memory ($p=0.021$) and social emotional cognition. Speed needed for basic attention ($p=0.034$) and associate learning ($p=0.01$) was improved for individuals >30 years compared to placebo over 12 weeks.</p> <p><i>Lactobacillus plantarum</i> DR7 treated participants had significantly reduced plasma cortisol levels ($p=0.008$), reduced pro-inflammatory cytokines such as IFN-γ ($p<0.001$) and TNF-α ($p=0.006$), and increased plasma anti-inflammatory cytokines IL-10 ($p=0.035$) compared to the placebo group after 12 weeks.</p> <p>Significant effects on enzymes involved in neurotransmitter pathways, serotonin and dopamine, were observed in the treated group compared to placebo over 12 weeks.</p>	<p>Mood and Stress Efficacy Study</p> <p><i>Lactobacillus plantarum</i> DR7 reduced stress and anxiety as well as showed positive results in cognition and memory in moderately stressed adults. These results combined with lower plasma cortisol in treated participants, indicate that DR7 supplementation may be beneficial at times of stress and mild anxiety.</p> <p>Observed effects on inflammatory cytokines and enzymes involved in neurotransmitter pathways may indicate mechanisms that the gut microbiota influences mood and cognition via the gut-brain axis.</p> <p><i>Lactobacillus plantarum</i> DR7 was well tolerated and complied with the selection characteristics for probiotic microorganisms (FAO/WHO, 2006).</p>
Liu, G, Chong, H-X, Chung, F, Y-L, Li, Y & Liong, M-T 2020, 'Lactobacillus plantarum DR7 Modulated Bowel Movement and Gut Microbiota Associated with Dopamine and Serotonin Pathways in Stressed Adults', <i>International Journal of Molecular Sciences</i> , Vol. 21, No. 13, pp.4608-4624.	Randomised, double-blind, placebo-controlled study.	111 males and females, 18-60 years, Subjects from both groups fulfilled the inclusion criteria of moderately stressed on Cohen's Perceived Stress Scale (PSS-10). 99 subjects provided faecal samples for microbial analysis.	Lactobacillus plantarum DR7 1 billion CFU or placebo, daily for 12 weeks.	<p>Gastrointestinal symptom questionnaire was completed at baseline (Day 0), week 4, 8 and 12. Faecal samples were collected at baseline and week 12 for microbial analysis.</p> <p><i>Lactobacillus plantarum</i> DR7 prevented an increase in bowel movement frequency in treated participants, compared to placebo over 12 weeks ($p=0.044$).</p> <p>Alpha diversity of gut microbiota was higher in <i>Lactobacillus plantarum</i> DR7 than the placebo group across class ($p=0.005$) and order ($p=0.018$) levels, while beta diversity differed between groups at class and order levels ($p<0.001$). Changes were observed along different taxonomic levels along the phyla of Bacteroides and Firmicutes and the classes of Deltaproteobacteria and Actinobacteria.</p> <p>Significant microbial compositional changes observed correlated with gene expressions of key enzymes such as dopamine beta hydroxylase and tryptophan hydroxylase-II involved in dopamine and serotonin pathways respectively.</p>	<p>Stress and Gastrointestinal System Function Efficacy Study</p> <p><i>Lactobacillus plantarum</i> DR7 modulated increased bowel movement frequency in moderately stressed participants indicating a role in supporting gastrointestinal health in times of stress.</p> <p>Changes in specific taxa of the gut microbiota correlated with several gene expressions of key enzymes involved in serotonin and dopamine pathways. This finding may indicate mechanisms that the microbiota influences mood and cognition via the gut-brain axis.</p>
Chong, H.X, Yusoff, N.A.A, Hor, Y-Y, Lew, L-C, Jaafar, M.H, Choi, S-B, Yusoff, M.S.B, Wahid, N, Abdullah, M.F.I.L, Zakaria, N, Ong, K-L, Park, Y-H, Liong, M-T 2019, 'Lactobacillus plantarum DR7 improved upper respiratory tract infections via enhancing immune and inflammatory parameters: A randomized, double-blind, placebo-controlled study', <i>Journal of Dairy Science</i> , Vol. 102, No. 6, pp.4783-4797.	Randomised, double-blind, placebo-controlled study.	109 healthy males and females, 18-60 years.	Lactobacillus plantarum DR7 1 billion CFU or placebo, daily for 12 weeks.	<p>Health condition questionnaires were completed at baseline (Day 0), week 4, 8 and 12. Blood samples were collected at baseline and week 12.</p> <p><i>Lactobacillus plantarum</i> DR7 significantly decreased the duration of nasal symptoms after 12 weeks ($p=0.033$) and frequency of upper respiratory tract infections (URTI) after 4 weeks ($p=0.042$) compared to placebo. Treated participants also showed marginally reduced duration of pharyngeal and general flu symptoms ($p=0.051$).</p> <p><i>Lactobacillus plantarum</i> DR7 treated participants exhibited decreased plasma pro-inflammatory cytokines such as TNF-α ($p=0.042$) and IFN-γ ($p<0.001$), and increased plasma anti-inflammatory cytokines such as IL-4 ($p=0.034$) and IL-10 ($p=0.006$) compared to placebo over 12 weeks.</p> <p>Participants administered <i>Lactobacillus plantarum</i> DR7 showed increased presence of non-resting and mature natural killer cells compared to placebo over 12 weeks.</p>	<p>Immune Function Efficacy Study</p> <p>12 weeks of treatment with <i>Lactobacillus plantarum</i> DR7 showed decreased frequency of URTI and reduced duration of common symptoms.</p> <p>Observed effects on inflammatory cytokines and immune cells such as natural killer cells, may indicate mechanisms that the gut microbiota influences immunity and reduces URTI frequency and symptom duration.</p> <p><i>Lactobacillus plantarum</i> DR7 fulfilled probiotic criteria and was well tolerated.</p>