**Probiotic formulation for intensive exercise** [1]

**Ecologic® PERFORMANCE formulation inside**

Ecologic® PERFORMANCE has been developed in collaboration with the Medical University of Graz, Austria. It is a multispecies probiotic product, developed with the specific aim to reduce the adverse effects of both physical and mental stress. The strains in Ecologic® PERFORMANCE have been specifically selected for their capacity to improve barrier function (level 2); improve redox balance (level 2 & 3); positively influence the immune system (level 3).

The selected strain combination from the Ecologic® Performance formulation:

- Bifidobacterium bifidum W23
- Bifidobacterium lactis W51
- Enterococcus faecium W54
- Lactobacillus acidophilus W22
- Lactobacillus brevis W63
- Lactococcus lactis W58

**Probiotic formulation for reduction of adverse effects of**
intensive exercise

Life is full of deadlines and demands, which can cause stress. Stress may have a physical or mental cause, such as endurance sport or exams. For many people stress is so usual that it has become a part of life. However, stress has adverse effects, such as a ‘leaky gut’, oxidative stress and low-grade inflammation (figure 2). Probiotics are able to reduce these adverse effects.

Research shows that stress increases the permeability of our gut\textsuperscript{1} (also called a leaky gut) and its associated symptoms and illnesses such as gastrointestinal complaints and an increased susceptibility to infection. Moreover, stress enhances the production of free radicals (oxidative stress). These free radicals attack the body’s own compounds, e.g. proteins and DNA. Many diseases are associated with oxidative stress, such as IBD and cardiovascular diseases. In addition, these free radicals negatively trigger the immune system and damage the intestinal barrier function. Stress is also linked with the body losing its ability to properly regulate the inflammatory response, which can cause a chronic low-grade inflammation and promote the development of disease.\textsuperscript{2} Previous research has shown that probiotics can alleviate the side effects of stress.\textsuperscript{3} Ecologic\textsuperscript{®} PERFORMANCE has shown to be effective in improving the intestinal barrier function and in reducing inflammation and the oxidation of proteins.\textsuperscript{4}

![Figure 2: Physiologic effects of stress. Stress leads to altered release/response to neuroendocrine factors, acting directly or indirectly on the gut wall, inducing barrier dysfunction and uptake of damaging substances from the lumen. The resulting inflammation causes disability and increases stress.](image)

**Ecologic\textsuperscript{®} PERFORMANCE**

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- improve barrier function (level 2);
- improve redox balance (level 2 & 3);
- positively influence the immune system (level 3).
Clinical support

Ecologic® PERFORMANCE has been tested in a randomized, double-blind, placebo-controlled trial at the Medical University of Graz, Austria. Twenty-three endurance sportsmen received a daily dose ($1 \times 10^7$ CFU/day) of Ecologic® PERFORMANCE or placebo for 14 weeks. The triple step test ergometry was used as a model for stress. This performance test to measure maximum endurance capacity was performed at baseline and at the end of the treatment. Markers for intestinal barrier function, oxidative stress and inflammation were measured. The trial showed that supplementation with Ecologic® PERFORMANCE significantly decreased stool zonulin levels (figure 3), an important marker for a ‘leaky gut’. Moreover, a trend was shown towards a decrease in the chronic inflammatory marker TNF-α (figure 4) and in the protein oxidation marker Carbonyl protein ($p=0.061$, results not shown). These results show that supplementation with Ecologic® PERFORMANCE can improve intestinal barrier function, low-grade inflammation and redox homeostasis.
**Figure 3:** Effect of Ecologic® PERFORMANCE on stool zonulin concentration.
* After 14 weeks of supplementation there is a significant decrease in zonulin concentration in the Ecologic® PERFORMANCE group compared to the placebo group (p=0.019).

**Figure 4:** Effect of Ecologic® PERFORMANCE on TNF- concentration.
* After 14 weeks TNF- was reduced by a trend in the Ecologic® PERFORMANCE group compared to the placebo group (p=0.054).

**Ecologic® Performance publications**


**Safety insurance**

The use of oral probiotics has been well researched in many different (incl. vulnerable) patient populations, including infants, elderly people and immunocompromised patients. The general conclusion is that there are no safety
risks for the studied bacterial strains in the dosages that were used in the studies. Caution is recommended in a number of highly vulnerable patient populations, such as oncology patients with severe leukopenia or mucositis. Probiotics use in acute pancreatitis is contraindicated. Read More about Safety... [2]

World Wide availability

The research formulations of Ecologic® are not sold as consumer products. However our worldwide business partners [3] offer a selection of the formulations their own branded product(s). Thus the specific bacterial compositions can be found in different products around the world.

References


Formulation ingredients

Bacterial strains

- Bifidobacterium bifidum W23
- Bifidobacterium lactis W51
- Enterococcus faecium W54
- Lactobacillus acidophilus W22
- Lactobacillus brevis W63
- Lactococcus lactis W58

Ingredients

Ingredients used in studies: Maize starch, maltodextrins, mineral mix (potassium chloride, magnesium sulphate, manganese sulphate), vegetable protein

Usage
Dosage
Dosage used in studies: 4 grams

Daily CFU

Dissolve in cold water or dairy

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https://www.ecologicinside.info/probiotic-formulation-intensive-exercise

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