



Effects of Dietary Supplement Complexes on Liver Enzyme Levels, Intestinal Permeability and Body Composition in Overweight Adults

Biostile Protex® Complet · University of Primorska · NCT05333315

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INSTITUTION

Faculty of
Health
Sciences
University of
Primorska,
Izola

DURATION

8 weeks
Restriction
diet
protocol

PARTICIPANTS

120
subjects
BMI 25–30
kg/m²,
overweight
adults

REGISTRY

NCT05333315
Interventional,
randomized

STUDY OBJECTIVE

To evaluate the effects of five different dietary supplement complexes on components of the metabolic syndrome – including LDL cholesterol, visceral body fat, liver enzyme levels and intestinal permeability – in overweight and obese adults following a caloric restriction diet over 8 weeks.

METHODOLOGY

| | |
|-------------------|--|
| Design | Interventional, randomized, parallel-group clinical study |
| Participants | 120 healthy adults, BMI 25–30 kg/m ² , all following a caloric restriction diet |
| Intervention | Biostile Protex® Complet (3-component set) tested alongside 4 other supplements over 8 weeks |
| Primary endpoints | Liver enzymes AST and ALT, intestinal permeability marker (zonulin), body fat composition |
| Authors | Jenko Pražnikar Z., Mohorko N., Gmajner D., Kenig S., Petelin A. |
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PROTEX® CAPSULES

High-quality herbal extracts:

Pumpkin seeds

Artichoke

Cumin

Peppermint

Anise

Rosehip

+ Vitamin B6 · Vitamin C · Zinc

PROTEX® FIBER

4 types of dietary fibre from natural sources:

Blond plantain

Inulin (chicory)

Apple fibre

Apple pectin

Pellitory root

PROTEX® TEA

Specially selected seeds and herbs:

Fennel

Linseed

Tea tree

Oregano

Chamomile

Elderflower

Ginger

Vitamin B6

Contributes to normal energy-yielding metabolism, protein and glycogen metabolism

Vitamin C

Contributes to normal energy-yielding metabolism and reduction of tiredness and fatigue

Zinc

Contributes to normal carbohydrate and macronutrient metabolism and protein synthesis

KEY RESULTS — BIOSTILE PROTEX® COMPLET GROUP

2×

Lower liver enzyme levels (AST & ALT) compared to placebo group

After 8 weeks

2×

Lower intestinal permeability marker compared to placebo group

After 4 weeks

-1.22%

Reduction in body fat

After 4 weeks

INTESTINAL WALL INTEGRITY

Improved intestinal wall integrity was demonstrated in the Protex® Complet group, with up to a 2-fold decrease in the intestinal permeability marker (zonulin) compared to the placebo group after 4 weeks — indicating a significant strengthening of the intestinal lining. **25% of subjects** reported better and more regular digestion, improved bowel movement frequency and reduced bloating.

SAFETY & TOLERABILITY

- ✓ The Protex® Complet set was well tolerated across the 8-week study period. All subjects were healthy adults without active liver disease or metabolic disorders. The 2-fold reduction in AST and ALT enzyme levels indicates a favourable hepatic response. The study was conducted in accordance with the standards of the Faculty of Health Sciences, University of Primorska.

Biostile Protex® Complet demonstrated a 2-fold reduction in liver enzyme levels (AST and ALT) compared to placebo after 8 weeks, and up to a 2-fold reduction in the intestinal permeability marker after 4 weeks — statistically significant results achieved in a randomized clinical trial on 120 adults. The 3-component synergistic set targets gastrointestinal health, hepatic function and body composition simultaneously, with 25% of participants reporting noticeably improved digestive regularity.

¹ Full citation: Jenko Pražnikar Z. et al. "Effects of Four Different Dietary Fibre Supplements on Weight Loss and Lipid and Glucose Serum Profiles during Energy Restriction in Patients with Traits of Metabolic Syndrome." *Foods* 2023, 12(11), 2122. DOI: 10.3390/foods12112122. PMID: 37297364. ClinicalTrials.gov Identifier: NCT05333315. Results apply to the Biostile Protex® Complet investigational product group. *Results after 8 weeks. **Results after 4 weeks. Comparison to placebo group. Individual results may vary. This product is a food supplement and does not replace a balanced diet.