



# DIGESTIVE ENZYMES

Digestive enzymes (DEs) serve to chemically break down food into molecules that can be absorbed and used by the body. Most DEs are produced by the pancreas, but they are also active in the mouth, stomach, and small intestine. If the body does not have sufficient enzymes to break down the food you eat, that food passes into the large intestine undigested (where microorganisms feed on it, causing cramping, bloating, gas, and altered bowel movements). You could be eating the healthiest diet in the world, but if you are not properly digesting and absorbing, you may still feel sluggish and fatigued.



## SUPPLEMENTATION

DEs are often supplemented to manage digestive symptoms and to help increase nutrient levels. They are most appropriate to take in cases of food allergy, when gut function is compromised, or during intense healing. Ideally, DEs should not be supplemented long-term because a healthy digestive system will produce what is needed.

*If taken with a meal, DEs will break down food.  
If taken on an empty stomach, DEs will break down other proteins in the body (helping manage inflammation in the skin, muscles, and joints).*

## COMMON ENZYMES

and what they break down

- AMYLASE - *starch*
- CELLULASE - *cellulose*
- SUCRASE - *sucrose sugar*
- MALTASE - *maltose sugar*
- LACTASE - *lactose sugar*
- LIPASE - *lipids/fats*
- PROTEASES/PEPTASES/PROTEOLYTIC ENZYMES - *proteins*
- PEPSIN/TRYPSIN - *proteins*
- BROMELAIN - *proteins (from pineapple)*
- PAPAIN - *proteins (from papaya)*
- BETAINE HCL - *not a DE, but stomach acid (needed to activate some enzymes, often found in DE blends)*
- OX BILE - *not a DE, but bile (needed to emulsify fats, often found in DE blends)*

*Lactase insufficiency (followed by microbial fermentation) underlies what people know as lactose intolerance. Counterintuitively, eating MORE dairy can upregulate lactase production and reduce symptoms of lactose intolerance.*