

# Industrial enzymology is the investigation of how enzymes are being used in manufacturing.

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## What are Enzymes?

Enzymes are proteins that aid in the speeding up of our bodies' metabolism (chemical reactions). They build certain things and tear down others. All living creatures contain enzymes.

Enzymes are naturally created by our bodies. Enzymes, on the other hand, can be found in both processed and unprocessed meals [1].

## What do enzymes do?

One of the most important tasks of enzymes is to aid digestion. The process of turning food into energy is referred to as digestion. For example, enzymes can be present in our saliva, pancreas, intestines, and stomach. They break down fats, proteins, and carbohydrates. Enzymes require these nutrients for cell development and repair [2].

Enzymes also help with:

- Breathing.
- Building muscle.
- Nerve function.
- Ridding our bodies of toxins.

What are the different types of enzymes?

In the human body, there are thousands of different enzymes. Each enzyme has a single function. Sucrase, for example, is a sugar that is broken down by the enzyme sucrase. Lactase is a digestive enzyme that breaks down lactose, a sugar present in milk.

Some of the most common digestive enzymes are:

- Carbohydrase breaks down carbohydrates into sugars.
- Lipase breaks down fats into fatty acids.
- Protease breaks down protein into amino acids:

## What are the parts of an enzyme?

Each enzyme has its own "active site." This location has an interesting form. An enzyme's substrate is the material on which it works. The substrate, too, has a particular shape. The enzyme and the substrate must be compatible in order to work [3].

## How do temperature and pH affect enzymes?

Enzymes require specific conditions to work properly.

Enzymes can change form if the conditions aren't appropriate. They can no longer operate since they are no longer compatible with substrates.

Temperature and pH are required for each enzyme:

**pH:** Enzyme activity is affected by acidity and alkalinity. If the environment is too acidic or basic, they will not function effectively. Pepsin is a protein-degrading enzyme present in the stomach, for example. If your stomach isn't acidic enough, pepsin won't work.

**Temperature:** When your body temperature is normal, which is 98.6°F (37°C), enzymes work best. The number of enzyme reactions increases as the temperature rises. If the temperature becomes too high, the enzyme will cease operating. This is why a high body temperature might be dangerous [4].

## Do I need to take enzyme supplements?

People who don't have any chronic illnesses can usually obtain all of the enzymes they need from a balanced diet. However, if you have specific medical concerns, your doctor may advise you to take enzyme supplements. Many people with EPI, for example, may take a digestive enzyme before eating. This aids in the absorption of nutrients from food by their bodies. Before using any form of enzyme supplement, check with your doctor.

## Can medications affect enzyme levels?

A balanced diet can usually provide all of the enzymes required by those who do not have any chronic conditions. Your doctor may suggest you to take enzyme supplements if you have certain medical issues. For example, many persons with EPI may take a digestive enzyme before eating. This enhances their bodies' absorption of nutrients from diet. Consult your doctor before using any type of enzyme supplement.

**Coenzyme:** Any of a number of freely diffusing chemical molecules that work as cofactors with enzymes to promote a wide range of metabolic reactions. Coenzymes take part in enzyme-mediated catalysis in stoichiometric (mole-for-mole) proportions, are modified during the reaction, and may require another enzyme-mediated reaction to return to their original state. Examples include nicotinamide adenine dinucleotide [5].

## References

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