Drug Repurposing

Using a drug that was developed or approved to treat one disease as a treatment for another.

Why repurpose?
Finding new drugs is tough, but getting those drugs approved for use in humans is even more daunting.

It often takes about $2.6 billion and more than 10 years to move a drug from the lab to the clinic.

Using drugs that have already passed part of the process, such as safety testing, may save precious resources and time, and more quickly get effective treatments to the people who need them most.

Metabolism
The total sum of the chemical reactions in the body that fuel life.

Insulin
A hormone produced by the pancreas that helps the body process sugar, which is either used as energy for cells or stored for later use.

So, what does that mean?

Diseases may look different on the outside, but may share many of the same features on the inside.

That means that a drug originally developed to treat one disease may also be effective for other diseases that impact the same underlying processes in the body.

Take diabetes and Parkinson’s disease, for example.

Similarities
People with diabetes have a slightly increased risk for developing Parkinson’s, and the two disorders might share some underlying molecular changes.

GLP-1 receptors, which help cells communicate, are associated with both diseases and are found both in the gut and in the brain.

Insulin plays an important role in processing sugar and helps protect brain cells from stress.

Both diseases are linked to problems with the way cells produce and process energy.

Diabetes
Affects the body’s ability to process sugar, resulting in too much being absorbed into the blood.

Type 1 diabetes typically arises in childhood, while type 2 diabetes usually occurs later in life. Most people with diabetes have type 2.

Parkinson’s
Marked by rigidity and gradual loss of movement as well as non-motor symptoms such as loss of sense of smell and gastrointestinal issues.

Most are cases diagnosed after age 50. Less than 10 percent of Parkinson’s cases are inherited. The remaining 90 percent likely occur due to a combination of genetic, epigenetic and environmental factors.

References