Turnover rate: the number of substrate molecules that 1 molecule of enzyme can turn into products per minute.

- E.g. catalase turnover rate = several million
- The rate of an enzyme-catalysed reaction will vary with a change in the concentration of the enzyme.
 - > The increase in the concentration of enzyme will increase the number of active sites available
 - Thus increasing the rate of reaction. \geq

(IV) Enzyme inhibition:
Inhibition occurs when enzyme action is slowed down or stopped by another substance are spiratory poison)
The inhibitor combines with the enzyme either directly or innect supreventing the enzyme from forming an enzyme-substrate-complex
Competitive inhibition:
Competitive inhibitors: have a molecular shape similar to the state of the stat

Competitive inhibitors: have a molecular shape similar to that of the substrate.

- This allows the inhibitor to occupy the active site of an enzyme in place of the substrate.
- The substrate & the competitive inhibitor compete for the active site
 - E.g. malonic acid competes with succinate for the active site of succinic dehydrogenase
 - > (an enzyme in the Krebs cycle of aerobic respiration)
- If the substrate concentration is increased, the substrate will decrease the effect of • the inhibitor.
- The more substrate molecules present, the greater the chance of colliding with an active site
 - \geq Leaving fewer active sites occupied by the inhibitor.
- The competitive inhibitor is not permanently bound to the active site
 - > When the inhibitor leaves the active site
 - Another molecule can take its place \geq
 - > This could be another competitive inhibitor or a substrate molecule.
 - \checkmark Depending on the concentration of each.

Non-competitive inhibition:

Non competitive inhibitor: is a chemical that binds to the enzyme at a location that is not the active site,

- In such a way that the active site can no longer be complementary to the substrate. \succ
- As the substrate & inhibitor molecule attach to different parts of the enzyme •
- They are not competing for the same sites \geq
 - There is unaffected by the substrate concentration.

- \checkmark Attaches itself to part of the enzyme cytochrome oxidase
- \checkmark & inhibits aerobic respiration.