Rotation and body roll in freestyle swimming

What is body roll / rotation?
In swimming jargon we call body roll your rotation around your 'long axis' during the stroke. This is the rotation of your shoulders, torso and hips. The terms 'body roll' and 'rotation' mean the same thing, we use them interchangeably.

For good efficient swimming technique, the shoulders, torso and hips should all roll together as one. For your kick, this means you kick on the side slightly as you rotate.

In the freestyle stroke it is quite rare to see someone with too much body roll but it is very common to see too little. It is also common to see swimmers rolling well to one side but not to the other in their stroke technique.

Important: The head should remain stationary and not roll with the body unless you are breathing.

Why is it so important?

Body roll is a very important part of your stroke technique, so much so that we call it a fundamental of freestyle swimming. There are many small technical reasons why body roll is important but here are three main ones:


Lie in a flat position on your front and try recovering your arms over the ground like you are swimming.

Even if you are very flexible in the shoulder it's very hard to do this. You're going to struggle to clear the water's surface when you're swimming.

This awkward action puts stress on your rotator cuff muscles as you perform it.

Also notice how the hand has to lead the elbow to get round - this swinging path has momentum and when you enter the water at the front of the stroke your hand will want to cross the centre line.

Cross-overs (where the hands cross each other as they push into the water in the front) put even greater stress on your shoulder and are a leading cause of shoulder injury.

Try now lying perfectly on your side with the bottom hand out in front of you. See how it is now easy to recover the arm high over the water. The shoulder is much more relaxed or 'neutral' with this technique.
Useful info from Lois Maslen

This high arm movement is purely 'up and over' - there is no swing to the side. This removes the tendency to cross the centre line at the front of the stroke because there is no sideways momentum during hand entry.

Practise leading with the elbow until your arm passes your shoulder.

2. Using Your Larger Muscles and Core For Power

Your lats, core and back muscles are very powerful, good rotation lets you use them to drive the stroke (and paddle stroke!)

When you roll from one side to the other you transfer the power from the rotation to the propulsive arm in the water. By rotating with this action you are using your lats, pecs and core muscles to power the stroke. This is a good technique because these muscles are very strong and powerful.

Conversely, when you swim (or paddle) with a flat body position you are only using your shoulder muscles to power the stroke. These are a lot weaker than your chest and back muscles. Using these small muscles as the main source of propulsion puts a lot of stress on them.

3. A Longer Stroke

When you rotate well you are able to reach further forward. As you catch the water at the front of the stroke you are able to do this earlier and more effectively.

This means you will travel further with each stroke - taking less strokes to cover a length of the pool, up to a point this is considered good swimming technique.