How are your tumble turns? Quick?

The tumble turn is one of the more highly technical skills to be mastered in swimming.
While swimming strokes demand fluid and powerful repetitive motions, the turn resembles a tumbling exercise akin to a gymnastic routine – underwater. It's safe to say that virtually everyone who has learned a tumble turn executed hundreds of them before reaching a high level of proficiency and ease.
More highly competitive swimmers are obsessed with hitting the perfect turn. In a 50 metre freestyle (S.C.), a mishap at the wall can cost valuable tenths of a second, enough to win or lose a race. Distance swimmers in a 1500 metre freestyle encounter 59 turns over the course of the race. By improving the tumble turn by a mere one tenth of a second, the endurance swimmer can drop over 5 seconds off his or her 1500 time.
While there are dozens of technical aspects to the turn, a commonly asked question pertains to the position of the feet on the wall just prior to the push off. Should they be pointed upwards, sideways, downwards? In other words, how much should the feet rotate just prior to the feet landing on the wall?
Before detailing the common foot placement positions among adult swimmers, it should be stated that during any tumble turn, the body should be rotated as a unit, head to toe. In other words, if the feet land on the wall pointing to the left 45 degrees, then the body should also be rotated 45 degrees to the left at that point in the turn. The rationale behind keeping the body aligned can be easily realized by attempting to jump to one's maximum height with the feet turned in one direction and the body facing the other.

There are four foot placement positions to consider:

1) Straight up (0 degrees)

To achieve this foot position, the swimmer flips the feet to the wall with no rotation in the feet and body. As the feet land on the wall the swimmer is directly on his back looking upward. While this may be the quickest and most direct approach to the wall, it can be difficult for many adult swimmers to achieve a frontal freestyle from a "straight up" position leaving the wall. However, many experienced athletes who have achieved a high level of control over their movements use this type of turn. The "straight up" foot position is also used in the backstroke tumble turn.

2) 45 – degree Placement

Many swimmers prefer to initiate the rotation towards the front just before the feet reach the wall. While some swimmers rotate to the left, others will rotate to the right. While this slight rotation may be generally classified as 45 degrees, the swimmer may be closer to a 30 degree or 60 degree turn. As the feet land on the wall, the swimmer, while on his back, has rotated towards one side. As with the straight up placement, the swimmer gradually rotates the body as he leaves the wall, attaining frontal position eventually through the underwater push off.

3) 90 – degree Placement

When executing this placement, the swimmer rotates a quarter- turn to the left or right just prior to the feet reaching the wall. Swimmers who use this amount of rotation often begin to show signs of a delay in the turn due to the excessive rotating of the body. Also, swimmers who rotate 90 degrees are in danger of sending the feet off of centerline, landing the feet on the wall away from the best target. The result may be the swimmer coming off the wall at an angle good for circling practice, but not for racing in a straight line.

4) Over 90 – degree Placement

The advantage to using a rotation past 90 degrees is that the swimmer is able to push off in more of a frontal position while obtaining a vision of the pool below. However, this advantage is clearly overshadowed by the excessive delay in significantly rotating the body. What accounts for the delay in reaching the over 90 degree position is the time it takes to rotate the hips to that position. Primarily, the rotation should be delayed until after the push off, initiated by a corkscrew action as the swimmer releases from the wall.

To decide which foot position is best for you, try all of them repetitively. Also, have your coach give you a series of time trials for turns using each foot placement. Chances are, even without data, you'll get a feel for the foot placement that best suits you.

Here are some more tips with regard to “tumble turns”

1) Allow the feet to travel over the body in unison. In other words, do not lead with one foot ahead of the other. This will result in a delay in both feet reaching the wall plus a likely loss of power in thrust off the wall.

2) Keep the feet no wider that shoulder width apart as the reach the wall. Consider separating the feet only by centimetres to reduce resistance forces for the streamline off the wall. The wider the legs apart, the greater the surface area to move through the water.

3) When executing a turn, avoid looking back at the wall to view foot placement and/or distance from the wall. Keep the head aligned horizontally with the shoulder and hips to achieve a more streamlined and balanced push off position.