



Relay Starts: When Should I swing My Arms

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What do high school state championships, college dual meets and the Olympics have in common? No one wants to be the person responsible for disqualifying a relay. The stakes are high and so are the point values.

The common response to this added pressure is to employ safe starts. Unfortunately, safe in this instance actually means slow. When winners are determined by hundredths of a second, a slow relay start can be the difference between a gold medal and no medal.

At this year's World Championships, American relays were consistently among the slowest in terms of reaction times. So how can we improve?

While there is no magic formula to determine the perfect relay start, the following are our observations based on finals relays at five of the major international championship meets during the past four years.

- Regardless of gender, **a wind-up relay start should take no longer than one second to complete** from the initiation of the arm swing to the time the feet leave the block.
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- Based on average velocity, the best male freestylers in America cover about 2.75 meters in the final second of their race, while the women cover about 2.25 meters in the final second. For both genders, this is slightly less than **one stroke cycle**.
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- The slowest average velocity approaching the wall is for female breaststrokers. These women cover about 1.75 meters in the final second of their race. This final second is again slightly less than one stroke cycle.

Based on these observations, it is obvious that the speed of the incoming swimmer must be used to determine the best time to initiate the arm swing. The practical application of that speed is up to each individual.