

Effectively

Coaching the 4x100 Relay

*Presented by Brian FitzGerald
Rio Mesa High School*

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A Review of Relay Basics

- Basic Premise: **Get the baton safely around the track as fast as possible.**
- Because they run turns, the 1st & 3rd legs run in the left (inside) half of the lane, and they receive / hold the baton in the right hand
- The 2nd & 4th legs run in the right (outside) half of the lane and receive / hold the baton in the left hand

Relay Zone Measurements

30 Meters

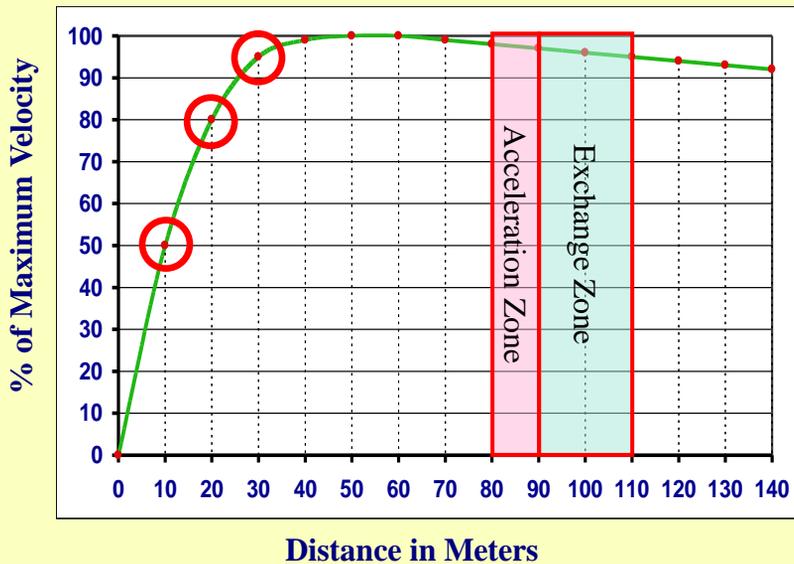
10m

20m

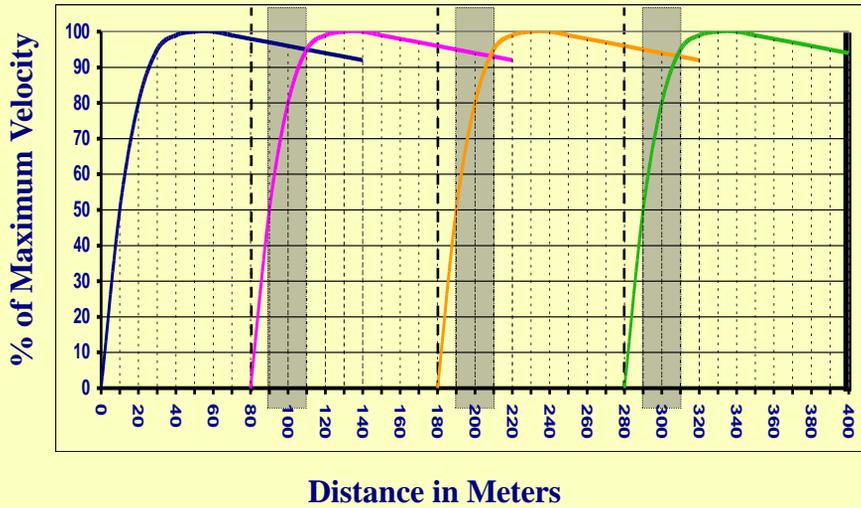
Acceleration
Zone

Exchange
Zone

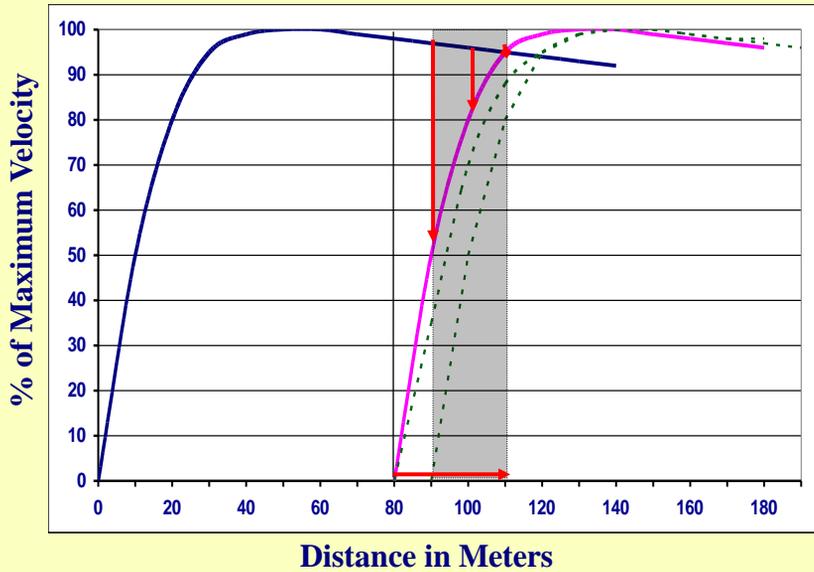
Typical Acceleration Curve



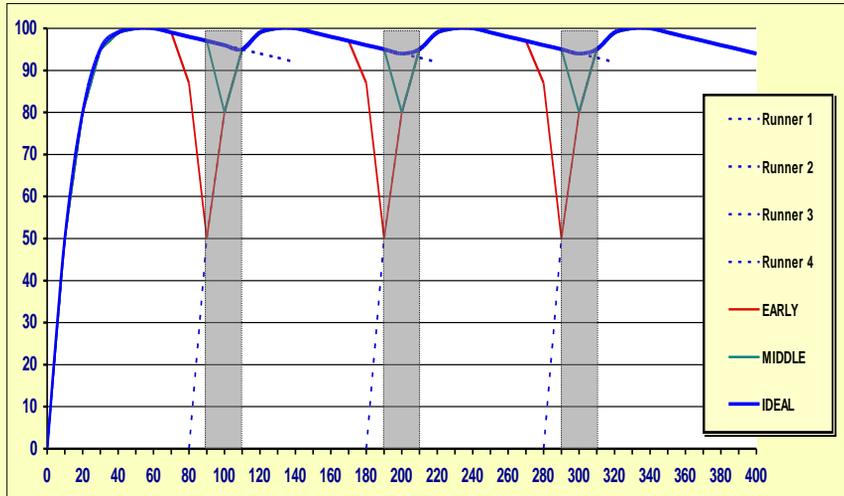
4x100 - Entire Race



Baton Speed in Exchange Zone

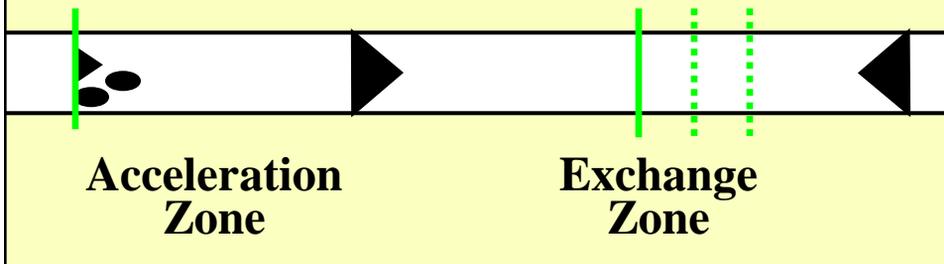


Ideal Baton Speed



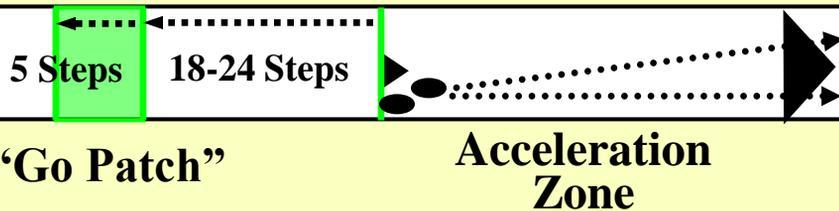
2 Cardinal Rules of the Relay

1. Outgoing runner always sets up at the *very beginning* of the Acceleration Zone.
2. The baton exchange should occur *as late as safely possible* in the zone.



Determining When to “Go”

- Measure 18-24 heel-toe steps back from the start of the Acceleration Zone & mark spot. This point varies so that runners mesh at the proper point in the Exchange Zone.
- Measure back five more steps & mark to create the “Go Patch.”
- Outgoing runner leaves as incoming runner enters into the “Go Patch.”



The Outgoing Runner

- May stand or crouch with feet pointing down the track, left foot forward--right foot back



The Outgoing Runner ...continued

- Always lines up on the outside of lane*
- Starts with confidence when torso of incoming runner enters “Go Patch”
- Accelerates smoothly and powerfully
- Extends soft, steady hand on verbal or visual cue
- Grasps baton after it is placed in his/her hand
- Never looks back!

The Incoming Runner

- Must push through the zone & catch outgoing runner, never slowing (max. speed endurance)
- Gives verbal cue at appropriate time*
- Extends baton at appropriate time
- Maintains speed in zone after pass
- Stays in lane until all other teams have completed their passes

The Psychology of Running in the Zone

- The three exchange zones are the most critical areas of the relay.
- The goal in these areas is to have minimal decrease the linear horizontal velocity of the baton.
- The incoming runner must enter the zone with the idea of catching (and even running past) the outgoing runner. S/he must realize that any slowing will result in an inferior exchange. Maximum speed endurance becomes critical. Don't relax mentally. **“Push through the zone!”**
- The outgoing runner must accelerate smoothly and powerfully, without hesitation. Any interruption in the acceleration process will result in a decrease of baton velocity as the runners mesh.

Types of Relay Exchanges

- **Overhand Downsweep Pass**
 - used by most high school & collegiate teams
 - used by all U.S. national teams
 - Advantage: supposed “Free Distance”
- **Push Pass**
 - variation of overhand, used by the Canadians
 - Advantages: less alteration of sprint mechanics
supposed baton acceleration
- **Underhand Upsweep Pass**
 - used by many European teams
 - Advantages: sprint mechanics maintained
safe and easy

Disadvantages of the Overhand Downsweep Pass

- Proper sprint mechanics are significantly altered
- A good pass requires exact timing
- More chance the baton will be dropped
- More chance the initial pass attempt will be missed
- The concept of “Free Space” is flawed

The Myth of Free Distance

- Gains made through lean and full arm extension are more than offset by slowing due to altered sprint mechanics



The Myth of Free Distance ...continued

- Since the **overhand pass cannot occur without free space**, it is necessarily manufactured by the incoming runner by decreasing velocity in the most critical juncture of the race.



Advantages of the Upsweep Underhand Pass

- Proper sprint mechanics are maintained, ensuring smooth acceleration and minimal deceleration of the baton in the zone.



Advantages of the Upsweep Underhand Pass



Advantages of the Upsweep Underhand Pass

- Missed initial attempt doesn't break sprint rhythm
- Doesn't require exact timing or precise spacing
- Palm down hand is a better target
- **Disadvantage: "The Shrinking Baton"**
 - must be rotated up in hand

How Far Does Each Runner Run?

	Exchange Point	Accel.	Running w/Baton	Total Meters
1st Leg	Mid-Zone	0	100	100
	3/4 - Zone	0	105	105
2nd Leg	Mid-Zone	20	100	120
	3/4 - Zone	25	100	125
3rd Leg	Mid-Zone	20	100	120
	3/4 - Zone	25	100	125
4th Leg	Mid-Zone	20	100	120
	3/4 - Zone	25	95	120

Personnel and Placement Considerations

- **1st Leg**: good starter, good turn runner, trouble receiving pass, shorter, fastest (?)
- **2nd Leg**: good baton handler, taller, lefty, well-developed speed endurance, faster than 3rd leg (?)
- **3rd Leg**: good baton handler, good turn runner, shorter, well-developed speed endurance, slower than 2nd leg (?)
- **4th Leg**: not necessarily fastest, aggressive, resilient, handles pressure well, possibly slowest (?)

Teaching & Practicing the Relay

- **Progression for teaching the pass mechanics**
 1. Stationary with receiving hand back
 2. Stationary with arm swings & verbal cue
 3. Jogging with (and w/o) verbal cue
 4. Staggered sprinting with (and w/o) verbal cue

- **Practicing the exchange**

Must simulate racing speed to be accurate

-use spikes

-have adequate run-in

Practice 1st and 3rd exchange together on same turn, and then practice 2nd exchange (maybe on another day)

- **Coaching points**

Warm-up with batons

View from a distance

Vary lanes and conditions

Time the baton through the X-zone to determine efficiency