



**Frandsen Publishing Presents  
Favorite ALL-Ways™ Newsletter Articles**

**Pace Handicapping with Brohamer Figures**

**Part 3 of the 4 Part Series  
“Percent Early” Energy Distribution**

This is the third of a four-part series covering the groundbreaking concepts in Tom Brohamer's book, "Modern Pace Handicapping", based, in part, on the Sartin Methodology to which Tom Brohamer was a key contributor. With permission from both Tom Brohamer and Howard Sartin, these concepts have been implemented in ALL-Ways Handicapping Software. This third part of the series looks at the Sartin Methodology concept of how a horse distributes its energy in a race (referred to in ALL-Ways Software as "Percent Early"). This concept helps us understand how a horse's preferred energy distribution pattern matches up with the energy distribution demands of the specific race being run at the specific track. In his book, Tom Brohamer commented: "Measuring the level of exertion of a horse is original to the Sartin Methodology and represents some of the most creative thinking in modern handicapping". **It is this kind of advanced information that handicappers need to gain an edge over their competitors.**

The content in this article stands alone. However, if you would like to read Part 1 ("Velocity Based Pace Figures") and/or Part 2 ("The Brohamer Track Decision Model") of this 4-part series, you will find them in the Favorite Articles Series that is posted in the Newsletter Section of the Frandsen Publishing Web site at [www.Frandsen.com](http://www.Frandsen.com).

**Even if you are not an ALL-Ways Software handicapper, we suggest reading this and the other articles in the series. The concepts presented are fundamental to effective pace handicapping. And, pace handicapping should, in our opinion, be a part of everyone's analysis of the races. Remember, most races are won by horses that are not the top speed figure horse coming into the race. More often than not, the top speed figure horse does not win because it is not well suited to the pace match-up scenario in the race.**

*All past ALL-Ways Newsletters, as well as a Major Topic Index, are posted on both the BRIS and Frandsen Publishing Web sites and they are always free. Also, articles already published as part of the Favorite ALL-Ways Newsletter Article series are posted in the Newsletter Section on the Frandsen Publishing Web site and they are free as well. See the links at the end of this article.*

### **Part 3: “Percent Early” Energy Distribution**

Knowing how a horse’s preferred energy distribution pattern matches up with the energy distribution demands of the specific track and the specific race can help solve some of horse racing’s most perplexing handicapping riddles. For example, in contentious races, which of the contenders are most likely to be real candidates to win the race? How will a horse take to a track when it is trying the track for the first time? How well is a horse likely to do when stretching out from a sprint to a route or shortening up from a route to a sprint? When is a maiden going to “wake up” and win its first race. The concept of energy distribution is very helpful for answering these and other very tough handicapping questions.

**So, let’s get started.** It is pretty much universally accepted now that every horse has a preferred running style that is either Early (“E”), Early Presser (“EP”), Presser (“P”) or Sustainer (“S”). Well, it is also true that every horse has a preferred energy distribution pattern as well. To measure a horse’s distribution of energy, we want to know how much of the total energy the horse expends in a race is expended (used up), racing from the gate to the Second Call (4 furlongs in sprints and 6 furlongs in routes). We can express this as a percentage. Tom Brohamer refers to this as Percent Early. In ALL-Ways software, we use the shorthand notation of “%Early”.

Let’s look at how %Early is calculated. If you are an ALL-Ways Software handicapper, you do not need to make these calculations because ALL-Ways software automatically makes them for you. But, it is always a good idea to know what is behind the handicapping factors you use.

$$\text{Total Energy} = \text{EP} + \text{Third Fraction}$$

$$\% \text{Early} = \text{EP} / \text{Total Energy}$$

These formulas indicate that the total amount of energy expended by a horse in a race can be represented by the sum of the horse’s Brohamer Early Pace Rating (EP), which is the average feet-per-second velocity of the horse from the gate to the Second Call, plus the average feet-per-second velocity of the horse in the third fraction of the race. The horse’s %Early figure then is the horse’s Brohamer EP Rating divided by the Total Energy expended.

Let's look at an example. This is based on the same six furlong dirt sprint example used in the first two parts of this series of articles. Note that the "EP", "AP", "SP" and "FX" factors are the Brohamer velocity based pace figures introduced in Part 1 of this series of articles.

Fraction	#1	#2	#3
Furlongs	2	2	2
Feet	1,320	1,320	1,320
Horse's Times	22.2	45.3	70.5
Fraction Time	22.2	23.1	25.2
Feet-Per-Second	59.46	57.14	52.38

Early Pace (EP)	Average Pace (AP)	Sustained Pace (SP)	Factor X (FX)
58.28	56.33	55.33	55.92

$$\text{Early Pace (EP)} = 2640/45.3 = 58.28$$

$$\text{Total Energy} = 58.28 + 52.38 = 110.66$$

$$\% \text{Early} = 58.28/110.66 = 52.67\%$$

The horse in this example has a %Early figure of 52.67% for this specific race. Another way to describe this figure is that the horse expended 52.67% of its total energy by the Second Call leaving 47.33% for running the final fraction.

Here is a table that shows typical %Early figures and ranges for the four different Preferred Running Style designations.

Preferred Running Style	Typical %Early	Typical %Early Range
Early "E"	53.00%	52.00% – 54.00%
Early Presser "EP"	52.50%	51.50% – 53.50%
Presser "P"	52.00%	51.00% – 52.50%
Sustainer "S"	51.00%	49.50% – 51.50%

There obviously is quite a bit of overlap between running styles. This fact makes %Early even more important as a handicapping tool because it goes even deeper to quantify “How much early?” and “How much sustained?”

### **“Preferred”**

In ALL-Ways software, we refer to a horse’s running style designation of “E”, “EP”, “P” or “S” as the horse’s Preferred Running Style. We also refer to a horse’s energy distribution pattern as its Preferred %Early. To arrive at these “Preferred” figures, ALL-Ways Software looks at each of the horse’s past performance lines and assigns a running style and %Early figure for each specific race. Then, using algorithms that give the most weight to the races in which the horse performed the best, ALL-Ways software settles on a single running style designation and %Early figure for the horse. Because the horse’s better races were given the most importance, we refer to these designations and figures as “Preferred”. The logic here is that the jockey and trainer, and indeed the horse itself, all want the horse to run the kind of race that will produce the best results. This “Preferred” concept is used by most successful pace handicapping methodologies.

We now have an overall Preferred %Early figure for the horse. But, there is still something missing. Earlier we said that it is important to know how a horse’s preferred energy distribution pattern matches up with the energy distribution demands of the specific track and specific race.

It is known that each track has its own unique set of pace bias characteristics, generally shown in a track profile. Indeed, ALL-Ways Software provides very detailed running style and race call position/beaten lengths statistics. In Part 2 of this series on Brohamer pace figures, we presented the Brohamer “Track Decision Model” that shows, among other things, whether a track favors the highest Brohamer EP rated horses or the highest Brohamer SP rated horses or if it has a neutral bias. For example, we saw that Calder Race Course strongly favors the best Brohamer SP rated horses in one mile dirt routes. These would generally be horses with a Preferred Running Style of Presser (“P”) or Sustainer (“S”).

So, we know that Calder favors Sustained Pace for one mile dirt races. But, just how much Sustained Pace is optimum for the track? Well, just as we can arrive at a Preferred %Early figure for a horse, we can also arrive at an Optimum %Early figure for each individual track and race type. This figure is an important element of the overall track profile. Here are the Optimum %Early figures for the four basic race types at Calder.

### Optimum %Early Energy Figures for Calder Race Course

Dirt Sprints	Dirt Routes	Turf Sprints	Turf Routes
52.65%	51.91%	51.4%	50.12%

For clarity, remember that the higher the %Early figure is, the more early bias influence is in play at the track. Pretty much as you would expect, the early bias decreases as you move from dirt sprints to dirt routes to turf sprints to turf routes.

We now know the Preferred %Early figure for horses and the Optimum %Early figures for Calder, our sample track. These figures are averages for each general race type. We are now going to get more specific as we look at how to use this information in our handicapping.

#### **“The Zone”**

The Preferred %Early of a horse should always be considered in relation to the Optimum %Early for the track. We examined literally thousands of races at a dozen different tracks in North America and found that almost 65% of the winning horses had a %Early figure that was within  $\pm 0.5\%$  of the Optimum %Early for the track. A whopping 87% were within  $\pm 1.0\%$ . We also found that if there was a surprise winner, the tendency was for the horse to have a %Early figure slightly more than 1.0% on the high side, meaning a little more early speed. All in all, we peg the most effective area around the Optimum %Early for the track to be between minus 0.5% to plus 1.0%. We call this “The Zone”. For example, if the Optimum %Early for dirt sprints at a track is 52.8%, then The Zone would be 52.3% to 53.8%. For sprints at 7 furlongs and longer and routes at 1 1/8 mile and longer, you can move the entire Zone down about 0.2% to 0.3%. Moving the figures down means we are shifting a bit away from early pace toward sustained pace.

We want to expand on “The Zone” a little bit by looking at how it is implemented in ALL-Ways Software. The Optimum %Early figures shown above for Calder are automatically maintained in ALL-Ways Software. But, ALL-Ways Software also goes a bit further in two ways. First, it maintains %Early figures for each specific distance and surface for the races run at each track. Second, it determines a range from “Low %Early” to “Median %Early” to “High %Early” for each specific race distance and surface.

Staying with our Calder example, including the one mile dirt route race we have used to illustrate Brohamer Pace Ratings and the Brohamer “Track Decision Model” in Part 2 of this series, here is the Zone for one mile dirt routes at Calder. Note that ALL-Ways Software maintains “The Zones” for both win and place horses. Remember, the average Optimum %Early for all dirt route distances at Calder shown above is 51.91%.

#### **The %Early Zone at Calder Race Course for One-Mile Dirt Routes**

	<b>Low %Early</b>	<b>Median %Early</b>	<b>High %Early</b>
<b>Win Horses</b>	50.9%	52.0%	52.9%
<b>Place Horses</b>	51.4%	52.3%	53.3%

Looking at the Zone for winning horses, here is how to read this chart. Half of all winners had %Early figures below 52.0% and half of all winners had %Early figures above 52.0%. This is what is meant by “Median”. The Low and High %Early figures are determined such that 90% of all winners fall within the low and high range.

**Place Horses:** Notice that the Zone for Place Horses shows they tend to have slightly higher %Early figures than Win Horses, meaning they expend a bit more energy by the 2<sup>nd</sup> Call. You can think of this as Win Horses having a bit more energy “left in the tank” to support their stretch run.

**Expanded vs. Narrow Zone:** We think of the full range shown in the chart above as the “Expanded Zone” because it accounts for 90% of winning horses. The low end of the range for the Zone discussed earlier would be 51.5%. This is the Median figure less 0.5%. In our example, this more “Narrow Zone” would be from 51.5% to 52.9% and would account for about 80% to 85% of all winners.

**Example:** In Part 2 of this series, in which we covered the Brohamer “Track Decision Model”, we used a one mile dirt route at Calder as an example. There were 12 horses in the field, which the Track Decision Model helped us narrow down to six contenders. The Win, Place, Show and 4<sup>th</sup> place finishers all came for these contenders. The chart on the next page shows each of the 12 horse’s %Early figures and how they matched up to the %Early “Zone” for the race.

(Continued)

## The %Early Zone at Calder Race Course for One-Mile Dirt Routes

	Low %Early	Median %Early	High %Early
Win Horses	50.8%	52.0%	52.9%
Place Horses	51.4%	52.3%	53.3%

### Horse %Early Figures Compared to Calder One Mile Dirt Route %Early Zone

	Finish	Within the Narrow Win “Zone”	Within the Expanded Win “Zone”	Outside the Expanded Win “Zone”
Horse A				53.00%
Horse B	4th	52.57%		
Horse C		52.18%		
Horse D	Place	51.84%		
Horse E				53.56%
Horse F			51.26%	
Horse G				53.31%
Horse H			51.22%	
Horse I	Win	52.21%		
Horse J				53.41%
Horse K	Show	51.50%		
Horse L				53.37%

Note: The low end of the “Narrow Zone” is 0.5% below the Median figure.

Note that all of the top four finishers came from the five horses that were in the “Narrow Zone”. And, all five horses outside the “Expanded Zone” did not finish in the top four positions. Once again, we refer to Part 2 of this series for more detailed information about this sample race.

### *Effective Use of %Early*

%Early is not a standalone handicapping factor. %Early is most effective as a supplemental factor in your handicapping. The concept is most powerful when separating contenders. It will seldom isolate whom to play, but it can be deadly

accurate in eliminating false contenders including false favorites. Keeping this in mind, let's look now at specific ways to incorporate %Early into your handicapping.

### ***Contentious and Chaos Races***

It is difficult to isolate which contenders are actually the best candidates to win in races considered to be Contentious races or Chaos races. %Early can be a big help here. Horses that are outside the Zone on the low side can generally be eliminated from consideration as the winner. Do not, however, eliminate them on this basis as possible place or show horses. Mind you, these horses will indeed win a few races, but the demands of the track are working against them.

### ***Maiden Races***

Figuring out when an experienced maiden horse, such as an 0 for 4 or 0 for 8 horse, will wake up and win its first race is a pretty tough handicapping challenge. A horse with a poor record such as this but that is "in the Zone" and that is not totally in over its head, is a legitimate candidate to succeed today. If it is the only horse in The Zone, it may be an excellent play.

Another maiden situation %Early helps us with is when there are first timers in the race. If a first time starter has a decent pedigree and has acceptable workouts, it has an excellent chance to score a win against experienced horses that have %Early figures outside The Zone or even at the far extremes of The Zone.

One note of caution here is to not use %Early in races carded for 2-year olds. Frequently in such races all horses have very high %Early figures that are way out of The Zone on the high side. These young horses tend to run as fast as they can early on in the race and have not yet established a reliable Preferred %Early figure.

### ***False Favorites***

An absolute key to playing the races profitably is to be able to identify false favorites. %Early can be a powerful tool to help us accomplish this. If the %Early of the favorite is outside The Zone on the low side, it will have a "strike against it" in terms of its chances of winning the race. Our analysis shows us that such favorite horses win less than 14% of the time in non-maiden races, about half of what you would expect. This drops to 8% or less in maiden races making it a deadly accurate way of eliminating false maiden favorites.



### ***Slow and Fast Race Pace Shapes***

**Slow Pace Shape:** In ALL-Ways software, Slow Pace Shape races have no “E” or “EP” horses. None of the horses in this kind of race wants the lead. But, one of the “P” or “S” horses is going to get the lead whether they want it or not. Such races are often won by a horse that gets the lead by default and then goes on to wire the field. The winner is often the horse with the highest %Early figure. This is a case when you can use %Early to identify a win candidate.

**Fast Pace Shape:** At the other extreme are Fast Pace Shape races. These are races with two or more “E” horses. The more “E” horses, the stronger the play. These races tend to expand the low end of The Zone to a full percentage point below the Optimum %Early for the track. Instead of The Zone being -0.5% to + 1.0%, it is now more like +/- 1.0%. Very often horses at the low end of the expanded Zone have an excellent chance to win the race because they have more energy “left in the tank” to mount a strong stretch run against the tiring front runners. And, often these horses go off at longer odds.

### ***Long Sprints and Routes***

We will define long sprints as 7 furlongs and longer and long routes as 1 1/8 miles and longer. You can generally safely discount horses in long sprints and routes that are above the high side of the Zone. These horses just run too fast too early and do not have enough “left in the tank” to finish the race effectively.

### ***Distance Switches***

**Route-to-Sprint:** Routers tend to have a difficult time when shortening up to a sprint. Those that make the switch successfully often have a %Early figure that is close to the Optimum %Early for sprints run at the track. Most routers, however, fall outside the low end of The Zone for sprints making them poor candidates to win.

**Sprint-to-Route:** In the case of the sprinter stretching out to a route, if the sprinter has a %Early figure that is outside The Zone for a route on the high side, the horse will probably not win the race unless the race is completely devoid of other early speed. If any kind of early speed pressure is put on such a horse, the horse will likely have nothing left coming down the stretch. On the other hand, a sprinter with a %Early figure that is within The Zone for a route at the track is a real threat to score.

## *First Time on the Track*

This isn't the only reason that explains the horses-for-courses phenomenon, but it is certainly part of the answer. A difficult handicapping situation occurs when a horse is racing on a track for the very first time. Will the horse take well to the track or not? Part of the answer is to require that the horse's %Early be within The Zone for the track. If it is not, we suggest you withhold support for the horse until it proves it can handle the track.

## **Caveats**

Here are some important final points regarding the use of %Early figures.

- Very high class horses almost always have low %Early figures. This is because they tend to run fast both early and late. Energy distribution is not particularly effective for the high end races.
- In Orderly races with one or two clearly superior horses, the %Early figures of the other horses are not particularly helpful in finding the winner. These superior horses are going to beat the lower horses regardless of how they distribute their energy.

## **Summary**

Armed with an understanding of a horse's Preferred %Early figure and a track's Optimum %Early Zone, gives us a powerful supplemental handicapping tool. And, this is a tool that the public never sees and would have difficulty getting to on their own. Using it wisely helps us gain the all important edge over the crowd at the track.

## **Coming Up**

In Part 4 of our four-part "Pace Handicapping with Brohamer Figures" Series, we will present a discussion of Turn Time. Turn-Time, when used with other pace and/or other handicapping information, is a very useful tool for assessing a horse's current form, for identifying and measuring its' competitive capabilities and for determining its likely performance in today's race. **This is the power of the "Hidden Fraction".** Then we will finish with a wrap up of the full series.

© Copyright 2011  
Frandsen Publishing Corporation  
All Rights Reserved  
Email: [FrandsenPublishing@Comcast.net](mailto:FrandsenPublishing@Comcast.net)  
Web Site: [www.frandsen.com](http://www.frandsen.com)  
Phone: 952.937.9180

*Frandsen Publishing Corporation is the publisher of the quarterly ALL-Ways Newsletters, which are widely considered to be one of the best sources of handicapping and wagering insights available in the industry. And, ALL-Ways Newsletters are FREE! These newsletters are posted on both the BRIS and Frandsen Publishing Web sites. All articles that are part of the Favorite ALL-Ways Article series are available on the Frandsen Publishing Web site.*

### [All Newsletters and Major Topic Index](#)

*Frandsen Publishing is also the developer of ALL-Ways Handicapping Software. ALL-Ways is serious software for professional and serious horseplayers. Phillips Racing Newsletter calls ALL-Ways Software "absolutely the best free handicapping tool on the market" and gives ALL-Ways a 9 ½ rating ... the highest ever awarded. And, ALL-Ways Software is FREE!*

### [More about ALL-Ways Software](#)

Bloodstock Research Information Services and Frandsen Publishing Corporation are pleased to provide ALL-Ways Software, ALL-Ways Newsletters and the "Favorite ALL-Ways Newsletter Articles" series, all for FREE.



**brisnet.com**   
Bloodstock Research Information Services