



Frandsen Publishing Presents  
Favorite ALL-Ways™ Newsletter Articles

**Pace Handicapping with Brohamer Figures**

Part 1 of the 4 Part Series  
**“Velocity Based Pace Figures”**

**Series Preamble**

Tom Brohamer first published his book, "Modern Pace Handicapping", in 1991. James Quinn, another fine author of handicapping books, wrote the introduction to "Modern Pace Handicapping". He said: "I predict, without hesitation, this book will stand for decades as the final authority on effective pace handicapping." **How right he was!** In our opinion, "Modern Pace Handicapping" is one of the finest handicapping books ever written. And, Tom Brohamer, in addition to being a first rate handicapper, is one of the nicest people you will ever encounter in this world of horse racing. The pace material in "Modern Pace Handicapping" is largely based on concepts developed by Howard Sartin and his group of dedicated handicappers, which included Tom Brohamer. We are grateful indeed to both Howard Sartin and to Tom Brohamer for giving Frandsen Publishing their permission to include the pace methodology described in "Modern Pace Handicapping" in ALL-Ways Handicapping Software. **Note:** A revised version of "Modern Pace Handicapping" has recently been available on Amazon.com.

**Even if you are not an ALL-Ways Software handicapper, we suggest you read this and the subsequent 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 loses because it cannot handle the pace match-up scenario.**

This article is the first of our four-part series covering the concepts in "Modern Pace Handicapping" that we will be presenting over the coming months as part of the Favorite ALL-Ways Newsletter Article Series. Each part of this series stands alone, so the material can be put into practice without waiting for the next part to be published.

This first part of the series explains the fundamental pace figures employed by the methodology and provides some insight into how to use them. The next three articles will cover the Brohamer "Track Decision Model", the Sartin Methodology concept of energy distribution (referred to in ALL-Ways Software as "Percent Early") and an extensive discussion of "Turn Time", sometimes referred to as "the hidden pace fraction".

*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 1: Velocity Based Pace Figures

Necessarily, much of "Modern Pace Handicapping" is devoted to an explanation of how to make all the calculations required to develop the pace figures. This includes calculating track par times, daily track variants, track-to-track adjustments, feet-per-second velocity figures for each race fraction, the all important Compound Pace Ratings and each horse's running style and percent early energy distribution figures. It also explains how to develop and maintain track bias statistics and the powerful Brohamer Track Decision Model. **Fortunately, ALL-Ways Software handles all of this automatically allowing ALL-Ways Software handicappers to simply focus on employing the Brohamer concepts in their handicapping.**

### Internal Fractions

Tom Brohamer calls these fractions "races within the race". There are three internal fractions in a race.

#### in sprints

- Fraction #1:* gate to 2 furlongs
- Fraction #2:* 2 furlongs to 4 furlongs
- Fraction #3:* 4 furlongs to finish

#### in routes

- Fraction #1:* gate to 4 furlongs
- Fraction #2:* 4 furlongs to 6 furlongs
- Fraction #3:* 6 furlongs to finish

After making any required adjustments to a horse's time, such as applying the daily track variant, the starting point for the Brohamer figures is to calculate the feet-per-second velocity of a horse for each of the three fractions making up the horse's pace-line race. For example, in a sprint, if a horse ran the first fraction in 22.2 seconds, its feet-per-second velocity would be 1,320 feet divided by 22.2 seconds for a velocity of 59.46 feet-per-second. This is the average rate of speed for this horse as it was running Fraction #1 of the race. Just as the speedometer in your car shows how fast you are traveling in miles-per-hour, think of the horse's velocity as what a speedometer hanging on the horse's neck would show in terms of how fast the horse is traveling in feet-per-second. Also note that there are 660 feet in a furlong and 1,320 feet in two furlongs, the latter being the length of Fraction #1 in a sprint.

Let's look at the calculation of all three fractions for a six furlong race. In the example below, the horse's actual times have already been adjusted for the daily track variant.

<b>Fraction</b>	<b>#1</b>	<b>#2</b>	<b>#3</b>
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

Once we have the feet-per-second velocity figures for each fraction, we then move on to calculating the Early Pace Rating (EP) and the Compound Pace Ratings of Sustained Pace (SP), Average Pace (AP) and Factor X (FX).

### **Early Pace (Second Call)**

Early Pace is NOT calculated at the end of Fraction #1. Early Pace ratings are based on the horse's time from the gate to the end of Fraction #2. In the example above, the horse's Early Pace Rating is based on the horse's 45.3 seconds time at the Second Call, which is at the four furlong mark in sprints. Expressed in feet-per-second velocity figures, in the example above, the horse's Early Pace figure is 58.28 which is 2640 feet divided by 45.3 seconds. Note: The ALL-Ways First Call Position Index and the Quirin Speed Points in ALL-Ways Software indicate a horse's propensity to be on or near the lead at the end of Fraction #1, which is the First Call. (See ALL-Ways Newsletter #13.)

So, Early Pace and Second Call are terms that are linked together. **The importance of the Second Call cannot be overemphasized.** At that point in the race, upwards of two thirds or so of the race has already been run. While the winner may not be specifically identified at the Second Call, the horses capable of winning the race are clearly in focus at that point in the race.

While the Second Call is an extremely important call in a race, pace handicapping is more than just figuring out which horse will lead at the Second Call. It is not enough to just look at a horse's Early Pace Rating, so we move on now to the Compound Pace Ratings.

### **Compound Pace Ratings**

Horses that exhibit good performance in only a single fraction are generally not good plays. Most horses that win have demonstrated good performance in at least two different fractions of a race. **Stated another way, horses that perform well in multiple internal pace segments have an advantage over horses exhibiting only a single powerful fraction.**

The people who were involved in developing the Sartin Methodology examined 143 race variables. They were looking for variables that would place the winner of a race in the top four horses for that particular variable 67% of the time. They found three such factors as well as one more that qualified only in sprint races. All of these factors involved two or more fractions, not just a single fraction. These factors were Early Pace at the Second Call (EP), Average Pace (AP) and Sustained Pace (SP). The fourth factor, for sprints only, is called Factor X (FX). Remember, all these factors are velocity based and measured in feet-per-second (FPS).

Since ALL-Ways Software does all the work to calculate these figures, you do not need to know the formulas for calculation purposes. However, it is helpful to know what makes up these numbers in order to better understand how to use them in your handicapping. Here are the formulas ALL-Ways Software uses to calculate the EP and the Compound Pace ratings.

- **The Early Pace (EP) Pace Rating**

$$EP = \text{Second Call distance} / \text{Second Call time}$$

In our 6 furlong sprint example above, we see that this is:

$$2,640 \text{ feet} / 45.3 \text{ seconds} = 58.28 \text{ FPS.}$$

- **The Sustained Pace (SP) Compound Pace Rating**

$$SP = (EP + 3rd\ fraction)/2$$

In our 6 furlong sprint example above, we see this is:

$$(58.28 + 52.38)/2 = 55.33\ FPS.$$

- **The Average Pace (AP) Compound Pace Rating**

Average Pace (AP) is different for sprints and routes.

**AP in sprints:**

$$AP = (1st\ fraction + 2nd\ fraction + 3rd\ fraction)/3$$

In our 6 furlong sprint example above, we see this is:

$$(59.46 + 57.14 + 52.38)/3 = 56.33\ FPS.$$

**AP in routes:**

$$AP = (EP + SP)/2$$

- **The Factor X (FX) Compound Pace Rating**

The FX figure is for sprints only.

$$FX = (1st\ fraction + 3rd\ fraction)/2$$

In our 6 furlong sprint example above, we see this is:

$$(59.46 + 52.38)/2 = 55.92\ FPS.$$

Let's pause for a quick recap: The four primary pace figures used in the Brohamer and Sartin pace methodology, all measured in feet-per-second velocity, and that are included in ALL-Ways Software are:

- **Early Pace (EP) Pace Rating = Second Call distance/Second Call time**
- **Sustained Pace (SP) Rating = (EP + 3rd fraction)/2**
- **Average Pace (AP) Rating for sprints = (1st fraction + 2nd fraction + 3rd fraction)/3**
- **Average Pace (AP) Rating for routes = (EP+ SP)/2**
- **Factor X (FX) Rating for sprints only = (1st fraction + 3rd fraction)/2**

## Using the Brohamer Pace Ratings

### EP (Early Pace)

“On pace” horses have a distinct advantage ... period! This is why the Early Pace velocity figure has a significant influence on both the Average Pace Rating and the Sustained Pace rating. The top Early Pace horses should always be given consideration. How much weight to give this figure in your handicapping of a particular race depends on the prevailing track bias and the pace match-up in the race. Favor the Early Pace horse(s) if there is a strong Early Pace track bias or if the top Early Pace horse is the dominant or the only front running horse in the race.

Now, here is a very important thought: The actual distance of the race also has a bearing on how much weight to give to the top Early Pace horses. Look at the chart below.

Total Distance	Total Feet	Feet to 2nd Call	Percent of Total
6 furlongs	3,960	2,640	66.6%
6 1/2 furlongs	4,290	2,640	62.0%
7 furlongs	4,620	2,640	57.0%
one mile	5,280	3,960	75.0%
1 1/16 mile	5,610	3,960	71.0%
1 1/8 mile	5,940	3,960	66.0%

First, this chart shows one very good reason why the Early Pace figures are so important. Well more than half of the total distance of the race has been run by the Second Call. This may look obvious now, but few handicappers alter their judgment based on the specific length of a race. They tend to generalize their thinking into the two broad categories of sprints and routes.

The chart above makes it clear that Early Pace will be more important in 6 furlong and shorter sprints than 6 1/2 or 7 furlong sprints. After hitting the Second Call where the Early Pace figures are always measured, the Early Pace horse has 1320 feet remaining in a 6 furlong race. However, in a 6 1/2 furlong race, the horse has the 1,320 feet to

run plus an additional 330 feet. Those 330 feet are longer than a football field. In a 7 furlong race, the horse has the 1,320 feet plus an additional 660 feet or more than two football fields. Likewise, Early Pace will be more important in one mile routes than 1 1/16 or 1 1/8 mile routes. These extra "football fields" explain why the prevailing track bias at most tracks starts shifting from early pace to a bit more towards sustained pace as the length of the final fraction increases.

### **SP (Sustained Pace)**

The Sustained Pace Rating is the average of a horse's Early Pace velocity and Final Fraction velocity. It relates the horse's potential Second Call performance with the horse's finishing ability. Favor this rating if there is a prevailing bias at the track that is friendly to closers.

Also, favor the top SP Rating horses if there is a lot of front end speed in the race that may set the race up for a solid closer. Remember, and this is very important, because of the strong influence of Early Pace in the SP rating, the top SP horse will most likely be in touch with the field at the Second Call, within striking distance to pass front running horses that are tiring in the stretch run.

The longer the sprint or the longer the route the more weight should be given to the top SP Rating horses. As the races get longer within the sprint and within the route categories, the weighting should gradually move from the top EP Rating horses to the top SP Rating horses.

One last point is that top SP Rating horses tend to have higher payoffs than top EP Rating horses.

### **AP (Average Pace)**

In sprints, the AP Rating is the average of all three race fractions. In routes, it is the average of a horse's Early Pace and Sustained Pace figures. According to Tom Brohamer, Average Pace is perhaps the best standalone factor identified by the Sartin group in terms of selecting winners. The most powerful use we have discovered for this factor is to use it in combination with either the Early Pace or the Sustained Pace rating, whichever we are giving the most weight to as described above. If we are favoring the Early Pace rating and the top horse is also in the top 2 or 3 of Average Pace ratings, that is a powerful combination. Likewise, if the top Sustained Pace horse is also in the top 2 or 3 of Average Pace ratings and we are favoring Sustained Pace, we have another powerful combination.

## **FX (Factor X)**

The Factor X rating is the average of a horse's first fraction velocity and its third fraction velocity. So, Factor X relates a horse's probable First Call performance with its finishing ability. The FX pace rating is appreciated by handicappers who place emphasis on how well horses do running to the First Call. ALL-Ways Software users can, of course, run an automatic Impact Value Analysis of all the Brohamer figures to judge their effectiveness for virtually any category of races. Remember, the Sartin people tell us the FX pace rating is best used for sprints and not for routes.

## **Exactas and Trifectas**

Everyone who has ever spoken with us or read our newsletters knows that we caution against mechanical play. If there was an area we might temper our advice on this, it would be when using Brohamer pace figures to play Exactas and Trifectas. Including the top Early Pace, Sustained Pace and Average Pace Brohamer figure horses in Exacta and Trifecta wagers can produce some nice results. We still caution to do this selectively. It is important to make sure there is good value in the wager and to make sure there is not a reason to discount any of these horses.

## **Where to Find the Brohamer Pace Ratings in ALL-Ways Software**

The Brohamer EP, SP, AP and FX pace ratings are included in ALL-Ways 87 Key Handicapping Factors and can be seen on the All Factors Handicapping Report. The ranking of every horse for these ratings is also shown on the Pace Line Handicapping Report. You can also print out the feet-per-second velocity figures for the individual race fractions using the ALL-Ways Custom Report feature. Finally, after this ALL-Ways Newsletter series was first published in 2000 and 2001, the ALL-Ways "Brohamer Plus" Handicapping Report was added to ALL-Ways Software. This includes all the pace factors described in this article as well as the full compliment of the unique Hall Pace and Speed figures. The Hall figures are also velocity based. They are unique because every Hall figure is normalized to the exact distance and surface and track of today's race.

## **Coming Up**

In Part 2 of our four-part "Pace Handicapping with Brohamer Figures" series, we will cover the Brohamer "Track Decision Model". That will be followed in Part 3 with a discussion of the Sartin Methodology of "Percent Early" Energy Distribution and in Part 4 with a discussion of Turn Time, the "hidden fraction".

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*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](#)

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