An alternative approach to solve the false start problem
by A. Lennart Julin

Although the introduction of the new false start rule during the past indoor season worked well, a minority of athletes and coaches are still against the initiative. In this Viewpoint, the author considers whether there is an alternative solution for reducing the number of false starts. He analyses the start procedure from the starters and the athletes’ perspective and compares it with what is stated in the IAAF Handbook.

The author concludes that the quality of the starters handling of the starting procedure and a different approach to use of the technical equipment could lead to fairer starts and a successful reduction of false starts without need for rule changes.

Abstract

There is unanimity within the athletics family that our sport needs to bring the number of false and faulty starts in sprint races down to an absolute minimum. However, not everyone has welcomed the new, more draconian rule approved by the 2001 IAAF Congress, which become effective as of 1 January 2003. Could there perhaps exist an alternative solution to the problem, a solution that could be just as - or even more - effective at reducing the number of false starts?

The key question to analyse when searching for such a solution is: What makes sprinters attempt to anticipate the gun rather than waiting for it? The simple answer: they believe that there is a considerable chance that they will “get away with it” - which would give them a significant competitive advantage. Thus, an alternative approach must target creating a “setting” where the athletes view the probability of successful guessing to be almost nil.

In other words: The athletes must be confident in the Starter’s ability to guarantee that there won’t be any “lucky guesses” slipping through. If that were to be the case, no athlete would waste energy on trying to anticipate. So, the false start problem experienced is actually demonstrating an alarm-
ing lack of trust in the Starter by the athletes. Is it possible to (re-)establish confidence in the Starter’s competence to “create” fair starts?

The answer is actually to be found in the IAAF Handbook. Rule 162.2 states: “All races shall be started by the report of the Starter’s gun … after he has ascertained that competitors are steady and in the correct starting position”. Unfortunately, our Starters do not adhere to this in a consistent way. Far too often, the gun is fired before the competitors are still in the set position - not to mention before that the Starter has had sufficient chance to personally ascertain that the runners are indeed “set”.

Analysing videotapes of numerous sprint starts has proven that to fulfil the demands of Rule 162.2, there must be a time (“the holding time”) of not less than two seconds between the “Set” command and the firing of the gun. This time is needed to allow all athletes to hear the command, to react to the command, to begin, accomplish and stop the rising into the final set position - and for the Starter to truly ascertain that all athletes are indeed steady in the set position.

Often it has been stated that a long holding time creates false starts - but actually, it is the other way around! Because if the athletes feel that there is not enough time after getting into the steady set position to start a highly focussed listening for the gun they are more or less forced into adopting a strategy of anticipation rather than reaction.

A sufficiently long holding time on the other hand not only allows for that period of full concentration - it also discourages athletes from trying to guess because the probability of a lucky guess diminishes to almost nil when the window of time within which the gun will be fired is widened. A Starter consistently applying Rule 162.2 will have - depending upon how quickly the whole field of runners will have reached simultaneous stillness in the set position - a holding time varying between 2.0 and 2.7 seconds.

That span of 0.7 s should be compared to the diminutive time window of 0.04 s (difference between the perfect guess 0.10 and a normal reaction time of approximately 0.14), which the athlete must strike within to avoid getting caught by the false start control device (if not already by the Starter or the Recallers). With such lousy odds, any athlete still attempting to guess must be desperate beyond all sense and logic.

However, adhering to Rule 162.2 it is not really about holding times (although there is, as said, a minimum to not to fall short of) but about creating a distinct “palpable” moment of absolute stillness among the runners before pulling the trigger. To achieve this it is absolutely necessary that the Starter has assumed a position where he has the whole field under full visual control to immediately observe any twitches or other cases of unsteadiness.

This is only possible from a position slightly behind the prolongation of the starting line. Unfortunately, Starters are today in most countries taught to adopt a position in front of the starting line. Although it is true that in a start the hands are lifted before the feet, the actual starting motion (cf. Rule 162.6) has to begin in the legs. Just consider what would happen if the athlete tried to lift his hands from the ground without first having begun pressing his feet hard against the starting blocks …

Furthermore, any unsteadiness - twitching or rocking - while in the set position is mainly manifested in the knee joints and the but-
stocks. So to spot the kind of movements that - according to Rule 162.2 - shall prohibit the Starter from pulling the trigger, he needs to view the runners from a point where he sees the legs of the runners, i.e. from behind the starting line.

However logical and convincing the arguments above might appear on paper there is always the question if it would/could work in the real world. Is it indeed possible to create a starting situation that would discourage runners from trying to “guess the gun”? Are not the runners so edgy and nervous at the start that they will find it more or less impossible to keep still even though they intellectually are fully aware of the negligible odds that they will be successful?

Actually, the “sufficiently long holding time to create that distinct moment of complete stillness in the set position” method is something far from new although the understanding of it seems to have been forgotten. But it has been used - and proven itself to work just as well in practice as in theory! Or what do you say about the 1972 Olympic Games in München, when there were just two (2!!) recalls in the 228 races conducted?!

It might sound like a fairy-tale, but it is the truth. And the explanation given by Head Starter Franz Buthe-Pieper in a report in “Leichtathletik” (No 17/1972 p 591-592) is straightforward: The gun was never fired until the last runner had reached his set position and he and all other runners were absolutely still.

In Sweden, we have taught our Starters this principle for about two decades and we have almost completely eradicated false starts on the national elite level. Because when the athletes, of course after first trying to outsmart the Starters, realised that there wouldn’t be any “fast guns” - not even on the fifth attempt - they stopped guessing. And from then on there were almost no false starts at all! Q.E.D!

The only problem that remains is that visiting athletes used to “fast guns” quite often will begin using their normal anticipation strategy before they realise it is indeed futile. It is actually amazing to see many athletes blasting off the blocks so early that no gun is even fired. They obviously have been trained by their coaches that starting is not about reacting to the sound of the gun - but rather about leaving the blocks when they “feel for it” hoping that the gun will be fired at approximately the same moment. (This attitude is the root to the false start problem!)

That athletes are always optimising their strategies was very clearly proven in 1988 during the US Olympic Trials. The Indianapolis Starters right from the beginning followed the principle of never firing the gun before there had been a very distinctive still “Set moment”. The holding-time between “Set” and “bang” never was below 2.5 seconds and the average was something like 2.7.

Combining this with the character of the meet (top-3 to the Olympics - everybody else would have to wait four more years for their Olympic chance), the extreme competitiveness in US sprinting, the small margins that could be expected to decide the top positions and a schedule mimicking the Olympic (1st round, 2nd round, semis and finals) one would have expected a multitude of false starts.

Actually there was just a handful (all in early rounds) despite almost 50 races (flat and hurdles) just on the finishing straight! And with winning times of 9.78 (Carl Lewis) and 10.49 (Florence Griffith-Joyner) in the 100 metres finals the performances didn’t suffer. In that legendary 10.49 race e.g. the holding time was 2.7 seconds without even the slightest twitch in the field. Something that clearly disproves the common contention that it is “impossible for sprinters to be still in the set position for such long times”.

There is an interesting and quite revealing post-script to the 1988 US Olympic Trials: ... a long holding time creates false starts - but actually it is the other way around! ...

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many of those runners who thus patiently waited for the gun blast in Indianapolis without even thinking about trying to anticipate then went to Europe to compete on the international circuit. But there - because of the traditionally “fast guns” - the very same athletes had reverted to the guessing strategy and thereby caused numerous false starts.

This example clearly proves that it is indeed how the Starter acts that is the key factor. If the Starter never wavers from the demands of Rule 162.2 - i.e. never fires the gun before he has ascertained that everybody is still in the set position - the athletes will refrain from the anticipation game that is causing the multiple false starts that we all want to rid our meets of.

This alternative approach to solving the false start problem has several advantages compared to the new “harsher punishment” rule. One is that by using trust (in the competence of the Starter) rather than fear (in making a costly mistake) we don’t add to the stress and nervousness already experienced by the athletes in this very tense situation. Instead, we help installing quiet and a sense of comfort in the minds of the athletes.

Another one is that the risk of “miscarriage of justice” is minimised, as a misplaced warning still is just a warning - not a disqualification. For the newly introduced rule to be considered absolutely fair, there are three criteria that have to be met:

1. All false starts are “malicious”, i.e. caused by an athlete consciously trying to get an unfair advantage.
2. All false starts are “caught” by the Starters and/or the technical equipment.
3. All warnings are attributed to the athlete at fault, i.e. the runner responsible for the false start.

Unfortunately, none of these are met in the real world. Contrary to widespread belief, not even the implementation of a state-of-the-art false start control equipment solves either the second or the third task. There have been several examples of technical malfunctions producing erroneous starting times (a more appropriate term than the commonly used “reaction times”) in recent years, even at the very highest international level (Olympic Games, Area Championships, IAAF Grand Prix meets etc).

Furthermore, this kind of equipment cannot be used to catch runners “twitching” in the blocks. Despite being truly responsible (by triggering runners in adjacent lanes to get away), a twitch will normally not show up in the starting times recorded. Instead, those numbers would rather appear as proof of innocence and, far too often, this has resulted in the warning being wrongly attributed. Something that under the new rule will have truly disastrous effects with innocent athletes getting disqualified!

Thus, the key to successfully discouraging athletes from trying to anticipate the gun is for the Starter to adhere to Rule 162.2 by providing a short - but clearly discernible - moment of full stillness in the set position. If that is achieved (by a sufficient long holding time) the start will not be about clairvoyance/luck but about good reaction ability.

Thereby the actual fairness of the starting moment will be enhanced. Although not formally illegal, a start of an elite straight sprint/hurdles race where the starting times recorded by the control device has a spread exceeding 0.04s has not been fair. Because if everybody r-e-a-l-l-y reacts to the gun - neither good nor bad guesses involved - the true human reaction ability doesn’t vary more than a few hundredths between individuals.

CONTACT

Contact:
lennart.julin@friidrott.se