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HOW TRIATHLETES MOUNT THEIR BIKES AFTER FIRST TRANSITION. A PROPOSAL OF CLASSIFICATION.

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Summary. A proposal is submitted for the classification referring to the different ways in which triathletes mount their bikes to start pedalling. This action happens at the end of the transition area (T1) after having gone across on foot, with the bikes at their side, or, led across by hand, in a specific way. The purpose of this research was concentrated in describing and classifying the motor behaviours that occur at the end of the transition area, in front of the “judge’s line”. This study was based on participants of 3 Spanish Elite Championships of different distances (407 triathletes). It was filmed in the moment when they picked up their bikes, passed through the transition area and mounted their bikes. Eleven different ways were discovered on how to mount a bike when passing the judge’s line.

Key words: triathlon, mounting a bike, mount-dismount line, swimming-riding transition, T1.

Introduction. Triathlon has been and is being studied at length from different areas of expertise. Various studies including: quick transition and analysis of transition time; the lost time in T1 & T2 (Cejuela et al., 2011); the effects swimming intensity on subsequent cycling performance (Peeling et al., 2005; Bentley et al., 2007); effect of cycling intensity (Hauswirth et al., 2001; Bernard et al., 2007); physiological and biomechanical adaptations to the cycle to run transition (Diaz Molina et al., 2009); strategy swimming pace (Delextrat et al., 2003; Rivas Feal, 2011); analysis of performance factors in sprint distance (Cejuela et al., 2007); competitive performance of elite olympic-distance triathletes (Paton and Hopkins, 2005); temporal activity in particular segments and transitions (Cejuela et al., 2013); change in neuromuscular control, running kinematics, muscle recruitment or motor coordination after cycling (Chapman et al., 2008; Chapman et al., 2009; Cala et al., 2009; Bonacci et al., 2010a; Bonacci et al., 2011a; Bonacci et al., 2011b); rating of perceived exertion during cycling and subsequent running economy in triathletes (Bonacci et al., 2013)... Only Fernández-Rodríguez, Merino-Marban and Romero-Ramos (2015) have studied the internal structure of motricity itself in the last part of T1 referring to the way in which triathletes carry their bicycles into the boxes. This area must be covered on foot carrying the bicycle next to you. It was the moment in which the triathlete picks up their bike, and travels through the transition area carrying the bike next to them as fast as possible. There were four habitual types of hold-riding bikes in the transition area. Despite being an essential characteristic aspect for the transitions, there has not yet been found any publications that have the same purpose as this study, with the aim of determining how many different ways a triathlete mounts their bike to start pedaling in the judge’s line.

Method. Participants.

The sample was composed by 407 Spanish triathletes, participants of three Spanish championship triathlons in 2013: medium-distance Spanish championship (elite and age groups, 99 participants: 61 men and 38 women), short distance Spanish championship (elite, 147 participants: 99 men and 48 women) and triathlon-cross Spanish championship (elite and age group, 161 participants: 98 men and 63 women). Full ethical approval was granted for all procedures used in this study by the Malaga University of Ethics Committee.

PROCEDURE and DESIGN.

It was decided to place two cameras (Panasonic SDR-H40) with a tripod recording at the same time, from different positions or points of view. Cameras were placed diagonally from each other, to get the image of the same triathlete both from the front and from the rear.

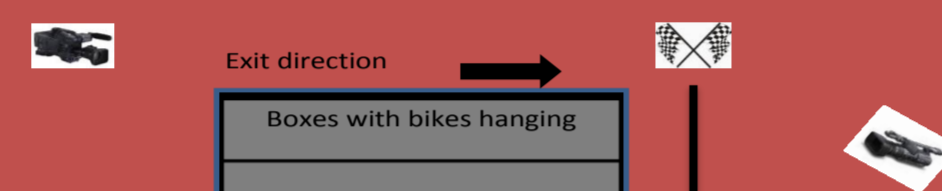


FIGURE 1. The Camera’s position to obtain crossed images of displacement in boxes.

Results. There are eleven ways a triathlete can mount their bike (table I). The way triathletes mount their bikes, at the end of the T1, at the judge’s line, is characterised by these ways of doing so.

Table 1. Ways in which triathletes mount their bikes to start pedaling. Summary.

1. STATIONARY MOUNTING

1.a. STATIONARY, PASSING FIRST THE INSIDE LEG/FOOT OVER THE TOP OF THE BICYCLE SADDLE.

1.a.1 Mounting of one point; unilateral or asymmetric.

1.a.2 Mounting of double points; unilateral or consecutive asymmetric

1.a.3 Mounting of double points; bilateral or consecutive symmetrical.

1.b. STATIONARY, “WITH SUPPORT” FROM THE OUTSIDE LEG/FOOT, ON THE INSIDE PEDAL.

1.b.1 Double consecutive support on both pedals; first the inside pedal, then the outer pedal

1.b.2. Triple consecutive support on both pedals; first on the inner pedal, then on the outer pedal and then again on the inner pedal

1.b.3. Double simultaneous support on both pedals; the inside and outside pedal at the same time

1.b.4. Stationary mount, placing the outer foot on the inside pedal, and with the other inside foot, pushing various times on the floor

2. SEMI-DYNAMIC MOUNTING: 2.1 Semi-dynamic mount with a jump

3. DYNAMIC MOUNTING

3.a. Dynamic mounting, jumping over the saddle.

3.b. Dynamic mounting with support from the outer foot on the inside pedal.

3.c. Dynamic mounting with direct support from the outer foot on the pedal, and the inner foot pushing various times on the floor or dynamic pedalling.

different legs. We don’t know why, but we can guess that pushing with either one foot or the other is due to:

-The bike cranks are slightly offset, in other words, they aren’t completely parallel with the floor, so the triathlete pushes against the best lever.

-The triathlete, although they mount on the same side as others (which can indicate if they are right-handed or left-handed) they end up pushing with the other leg due to the “force and security” of that leg and not in the other, independent to weather they are parallel to the floor.

In relation to the stationary mounts:

Use: The observations made in the video (due to lack of studies about these aspects) indicate that these types of mounts are characteristics of male or female beginners; a greater extent of female than male triathletes; triathletes with low skill level at bike handling.

In relation to the semi-dynamic mounting, it can be said that they have a similar use and observations to the stationary mounts. Although (due to a lack of studies), it seems that in the first type (stationary mounting) the internal non facilitators are more important, but in the semi-dynamics, they both seem to be as important as each other (external and internal factors). In relation to the dynamic mounts, we can say that (use): The observations made in the video (due to lack of studies about these aspects) indicate that these types of mounts are characteristics of: a greater number of male triathletes than females; male elite triathletes; triathletes with a high skill level at bike handling.

Conclusion. It is the first time that a classification has been made regarding this concrete aspect of T1. The triathletes, independent of their age and level, should know well and know how to mount adequately each one of the eleven categories of types of bicycle mounting presented in table 1. It is interesting that these eleven methods of mounting a bicycle are taught in triathlon schools, amateur, elite or professional teams. Knowing how to do this is important like technical and functional background of the different types of transition areas (width, length, distance between the rows of bikes, number of triathletes...).

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