

## Participation and Attrition of Children in *Kids of Steel*

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One of the goals of contemporary society is to immerse its children in sport. The benefits of exercise have been well documented and these include decreases in common stress symptoms such as anxiety, depression and anger, enhanced self-concept and enhanced quality of life (Berger & McInman, 1993). Although youth participation in sport is seen by society as a desirable endeavour and the intent is to promote lifelong participation in sport, research has suggested that youth participation in sport is precarious. In a study of youth participation in sport Seefleldt, Gilliam, Blievernicht and Bruce (1978) reported a progressive decline in participation after age 12 for both males and females, and the rate of attrition in youth sports has been estimated to be approximately 33% per year (Petlichkoff, 1996; Saap & Haubenstricker, 1978, cited in Burton, 1984).

A number of reasons have been suggested for attrition and children may drop out for different reasons (Lindner, Johns, & Butcher, 1991). Guppy, Feltz, Horn & Weiss (1982 cited in Klint & Weiss, 1986) found that competitive swimmers dropped out because they had other things to do, they were not as good as they wanted to be, did not like the pressure, wanted to play another sports, and that the swimming was boring. Klint & Weiss (1986) reported that attrition in gymnastics was the result of having other things to do, not liking pressure, lack of fun, taking too much time, not being as good as they wanted, not liking coaches, not being able to be with friends, injuries, training being too hard and anxiety. Burton (1992) found that expectancy for future success was related to attrition in adolescent wrestlers and perceived ability has been linked to attrition (Burton, 1984; Roberts, 1978). Finally, participating in an activity may also reflect a "trial and error" process in which children try an activity to see if they like it and dropping out may be an indication that the activity was not suitable to them (Petlichkoff, 1996; Weiss & Petlichkoff, 1989; Burton, 1984).

In comparison to many sports, *Kids of Steel* is unique in structure. The events themselves are open to any child under the age of 16, demand considerable effort with minimal skill, an event at a single venue typically occurs once per year, and well developed training programmes for young children are not common. In contrast, sports such as soccer or judo require a time commitment from the child (e.g., registration for a season with regularly scheduled practices and games) and offer programmes for skills development. *KOS* does not require an extensive time commitment from the children and most children who participate do not have coaches.

This structure suggests that some reasons for attrition seem more likely than others. Reasons such as taking too much time, training being too hard and not liking the coaches probably do not apply to most children participating in *KOS*. Most children do not train for *KOS* (although many might belong to a swim club) and most do not have coaches. However, the reasons of "trial and error" and expectancies for success may be applicable to the *KOS* setting. *KOS* operates on a "drop in" basis, meaning that any child who wishes to participate need only to show up at

registration. Thus, a *KOS* event may attract a substantial number of children who just want to try the sport.

Given the relatively high attrition rates in sports as children age, this study examined attrition rates of children in triathlon from a number of different venues. Do children drop out at high rates? Are there distinct patterns of participation?

## Method

Data were obtained on 822 athletes in 40 *KOS* races 13 venues across Canada, of which 9 venues were annual events. Data collected included the name of the athlete (solely for the purpose of matching records), age category, completion time and rank in the race. If the child started the race but did not finish (DNF), or was disqualified (DQS), that child was included in the dataset as having participated but time and rank were recorded as missing. If the child did not start the race, he/she was considered to have not participated. Children in the age categories below 8-9 years were excluded (infrequently reported), as were children in team events or those in age categories higher than 16 years.<sup>1</sup>

## Results

Attrition rates were modelled using hazard and survival analyses using MPlus, version 4.2 (Muthèn & Muthèn, 1999-2006). A hazard analysis asks the question “When is a child most likely to drop out of racing?” A survival analysis asks the question “Having raced a certain number of races, what is the probability that the child will race again?”

The results of both analyses are presented in Figure 1. At the y intercept (number of races=0) all of the children will participate: the probability of dropping out is 0 and the probability of racing is 1.0. The hazard analysis (probability of dropping out) indicates that the greatest attrition occurs after the first race. Approximately one-half of children raced only once, and another 30% drop out after the second race.

While the highest probability of dropping out occurs at the first race, there is a steady decline in the probability of dropping out as the number of races increases. As children gain more experience and race more frequently, they are more likely to continue to race. Yet, there is a “saturation” point in which racers who have considerable experience stop racing.

The survival analysis (probability of racing again) reflects this pattern. There is a dramatic drop in the likelihood of participating a second time. Approximately one-half of those children who participated in a *KOS* participated in a second race. However, only one-quarter of children raced a third time, and the probability of participation continued an inverse exponential decline as the number of races increased. Yet, as the number of races increased, the participation rates stabilized.

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<sup>1</sup> Approval for the study was obtained from the Interdisciplinary Committee for Ethics in Human Research at Memorial University of Newfoundland under the conditions that racers, venues and sources of data not be identified. Specific questions concerning source of the data may be addressed to the author.

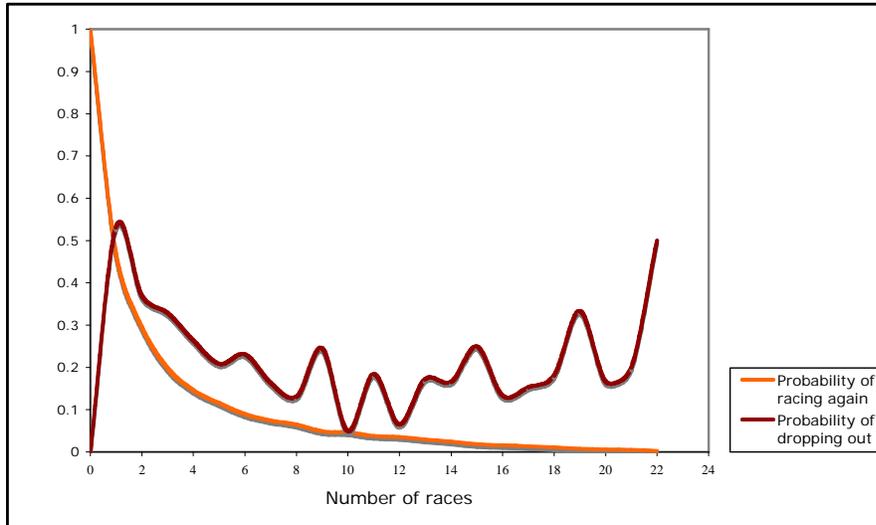


Figure 1. Probability of racing based upon number of races completed.

## Discussion

The results of the hazard and survival analyses may be interpreted as describing several patterns of participation. The first pattern is the *try-it-and-see* or *one-time racer*, a child who shows up to a venue, tries it, and does not race again which is a common occurrence in sport (Petlichkoff, 1996; Weiss & Petlichkoff, 1989; Burton, 1984).. This describes approximately one-half of all racers. The second pattern, approximately 20% of racers, is the *give-it-another-chance* or *two-time racer*, that child who decides to try a second race. A third pattern is the *immersive experience*. This pattern describes children who race in multiple venues over a period of years. Approximately 10% of the racers will race more than six times, and 5% will race ten or more times.

If children approach triathlon with a “try it and see” attitude, it seems that a significant portion of children do not find the sport appealing, as indicated by not racing a second time. There are many possible explanations: lack of training opportunities limits children’s enjoyment; scheduled local races conflict with other events; children find the sport unappealing. There is little in the data that speak to the reasons for attrition.

Whatever the reasons, these results are important because the attrition rates are much higher than the 33% reported in previous studies (Petlichkoff, 1996; Saap & Haubenstricker, 1978, cited in Burton, 1984). Given high rates of childhood obesity (see Canning, Courage, Frizzell & Seifert, 2006 for a discussion), the need for physical activity is critical for well-being. Understanding reasons for attrition becomes ever more important. What is it that attracts children to an activity, and why do they choose to stay or leave?

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