New horizons for record setting: the case of technology and swimsuits

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Swimming, technology, swimsuit materials, record setting, polyurethane, non-textile

Aim of abstract/paper - research question
What is the effect of swimsuit materials on swimmers' racing times?

Theoretical background or literature review*
To date, the literature on management and technology has mainly focused on how the technology used affects the structure, design and processes of an organisation (e.g. Perrow, 1968). The literature on sport and technology has examined the relationship from the perspective of biological enhancements, such as, genetic modifications (Miah, 2004) or doping (Houlihan, 2002). Research has also looked at enhancing performance through such things as athlete feedback (Liebermann et al., 2002) and equipment design (Fuss, Subic, & Ujihashi, 2007) which can raise a number of ethical considerations for how we regard sport. In this respect, technology has changed the way people play and watch sport as for example, the use of instant video replay in a variety of sports, electronic timing and wind tunnels in sprint races, the ongoing debate with goal line technology in Association Football, replays of line calls and the use of ball tracking technology in such sports as tennis and cricket and in swimming the use of touch pads at each end of the pool and electronic sensors in the starting blocks.

Methodology, research design and data analysis
In this paper we focus on the impact of swimsuit technology on performance, specifically looking at the effect of different materials on swimmers' times. Data were obtained from long course swimming ranking lists from December 2000 to December 2011, interviews with current and former Olympians, world record holders and international team coaches. Interviews are currently ongoing; we will speak to a minimum of 20 individuals. The interviews are designed to gain the opinions of high profile swimmers and coaches with regard to the implications of technological changes to the sport. A diverse group of swimmers were contacted that were of different gender, nationality, swim stroke discipline, distance of preferred event and swimmers who are/were sponsored by different swimsuit manufacturers. The study examines the overall difference between non-textile and the polyurethane suits and the impact of gender, stroke types (butterfly, backstroke, breaststroke freestyle and individual medley), relay events and event distance, in relation to the suits worn, on performance times. This is to ascertain whether the height of the 'suit-era' in 2009 had a one off impact on swimming performance times or if any residual effects transferred into swimmers training and racing and whether athletes that wore the polyurethane suits were disproportionately at an advantage dependant on these factors.

Results, discussion and implications/conclusions**
Statistical analysis of the data set is currently in progress using the SPSS software package; the results and conclusions are guaranteed in time for the conference. Preliminary inspection of the ranking times matrix reveals that on average swimmers' times in 2010/2011 are slower than in 2008/2009 yet significantly faster than times from 2000-2007. Further, the analysis of event times over the study period reveals backstroke events have seen the greatest percentage change . Men's freestyle event times yielded the smallest percentage difference of times between 2000 and 2011. The discussion will demonstrate interpretations of results in relation to the stroke, the event, the distance and gender, and also looks at the impact of FINA's (Fédération Internationale de Natation) decision to ban the polyurethane suits.

References – limited to 5

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