Characteristics, training loads, injury patterns and stretching habits of Australian Ironman Triathletes

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I hereby certify that the work embodied in this thesis is the result of original research and has not been submitted for a higher degree to any other University or Institution

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ABSTRACT

The Ironman triathlon is an individual sport consisting of three disciplines – swimming, cycling and running. This endurance sport has grown in popularity with over 22 races annually worldwide and 24,000 participants. Despite this participation there are insufficient data concerning injuries in the Ironman triathlon and regarding athletes' stretching and training habits, especially in Australia. The aim of this retrospective cross-sectional study was to investigate the incidence of overuse injuries in this sport according to anatomical site, and their relationships to gender, age, training hours, stretching habits and other factors.

Questionnaires were provided in the race packs of 1250 participants of the Australian Ironman Triathlon in 2006. Two hundred and ninety-six questionnaires were returned giving a low response rate of 24% (74.3% male, 25.7% female). In this sample, 86.1% reported suffering an overuse injury related to competition or training in the last year. The most common site of injury was the knee (35.1% of respondents), followed by the lower back (34.1%) and the ankle/foot (30.7%). There was no statistical relationship between incidence of injury and training load, gender or age, however triathletes with a triathlon coach had a lower injury rate. Participants reported stretching less before training (41.2%) than after training (67.2%). Among those participants who stretched, the most commonly stretched muscle groups were the hamstrings (88.9%), calves (88.5%) and quadriceps (86.1%). The lower back (61.5%), upper back (31.8%) and shoulder (53.4%) muscles were not stretched by as many participants. Lower back injuries had a significant association with cycling ($n = 101$, $r = 0.256$, $p = 0.01$). A strong positive trend was demonstrated between stretching after training and a reduction in total injuries ($p=0.059$). The health professional intervention most utilised by participants was physiotherapy. The overuse injuries in Ironman triathlons in other countries were reported to be most common in the knee, ankle/foot and lower back, which

was confirmed in this study of Australian Ironman triathletes. These areas injury need further investigation, to develop interventions to prevent or minimise injuries in this population.

There is a need to educate physiotherapists on the injury profile of these athletes, so they are better prepared to treat and design interventions to prevent these types of injuries.