

093 **THE INCIDENCE OF INJURIES AND ILLNESS DURING OPEN-WATER SWIMMING EVENTS: OPTIMISING SWIMMER SAFETY**

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Background Open-water swimming (OWS) is a popular mass-participation sport in the UK; however, it presents unique safety and medical challenges.

Objective To compare the incidence of illness and injury during OWS events with those in the swim leg of similar distance triathlon events.

Design Retrospective analysis of OWS and triathlon water rescue race reports.

Setting Mass-participation community-based OWS races (between 200m and 1900m distance) and triathlons (400m, 750m and 1500m swim leg) in the UK between 2013–2016.

Patients (or Participants) All participants requiring intervention from the water rescue team were included. Relay participants were excluded.

Interventions (or Assessment of Risk Factors) Event type, swimming distance, and participant demographics were recorded.

Main Outcome Measurements Reasons for intervention and/or extraction from the water by the rescue teams were logged.

Results Reports from 4 OWS races and 7 triathlons were analysed. There were 60,859 participants in total. 490 swimmers required intervention from the water rescue team in the OWS races, of which 50/490 (11%) required extraction (3/1000 swimmers). In triathlon events, 818 required intervention during the swim leg, and 232/818 (28%) required extraction (5/1000 participants).

Reasons cited for extractions in both groups were tiredness (approximately one third) and breathing difficulties (18% OWS extractions, 15% triathlon extractions). Cramp was more common in the OWS group (31% vs 12% in the triathlon group), whereas injury was more likely to be a cause for extraction in the triathlon (8% vs 1.4% in OWS). In the triathlon there were two cases of cardiac arrest in the water.

Conclusions Open-water swimming has a low incidence of illness and injury, but in some cases can result in serious medical illness and death. This study gives an insight into the common causes for intervention from the water rescue teams. Event organisers and medical teams should be aware of the risks to ensure optimal medical care and competitor safety for all open-water swimming and triathlon events.

094 **ABSTRACT WITHDRAWN**

095 **RISK FACTORS FOR BOTH RETROSPECTIVE AND PROSPECTIVE SHOULDER INJURIES IN WATER POLO**

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Introduction The main objective was to estimate whether previous injury, changes in strength, range of motion (ROM) or upward scapular rotation (UR) are related to new shoulder injuries in water polo players.

Methods Thirty-nine players with were included in the study. Frontal plane shoulder internal (IR) and external rotation (ER) peak torque was measured using an isokinetic device at 90° abduction (CONtrex MJ). Shoulder flexibility for both ER and IR was measured using standard goniometry. Scapular upward rotation (UR) was measured with the shoulders at 90° abduction using a laser digital inclinometer. Independent t-tests and Mann-Whitney U tests were used to compare groups with and without new injuries. Effect sizes were calculated with a Hedge's g correction. Chi squared analysis compared proportion of injured players with and without previous injury.

Results Eighteen participants (46%) had previous injuries at baseline. Players with a previous injury showed higher peak torques for IR (0.62 ± 0.15 vs 0.54 ± 0.13 N/kg, $p=0.04$, $g=0.60$); larger loss of IR ROM (9.9 ± 9.1 vs $4.1 \pm 7.5^\circ$, $p=0.04$, $g=0.68$), but no statistical difference in UR ($p=0.70$). After nine months, there were no statistical strength differences between groups. Loss of IR ROM was significantly higher in the injured group (9.8 ± 9.8 vs $4.0 \pm 6.7^\circ$, $p=0.04$, $g=0.68$), as well as UR (13.0 ± 3.0 vs $10.4 \pm 3.3^\circ$, $p=0.01$, $g=0.81$). History of previous injury was significantly related to developing a new injury (OR 6.5, $p=0.02$). Logistic regression found previous injury and UR most important contributors to injury risk.

Conclusions Previous injury, changes in IR ROM and UR are related to new shoulder injuries in water polo, but further variables such as rest, training load, or psychosocial factors may explain the incidence of new injuries.

096 **ABSTRACT WITHDRAWN**

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098 **THE INCIDENCE OF SWIMMER'S SHOULDER AND ITS RELEVANCE WITH THE RANGE OF MOVEMENT AMONGST YOUNG SWIMMERS**

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Background The main symptom of the swimmer's shoulder is the pain in the shoulder region during or after the swimming action. This is followed by the gradually increasing restriction of the ROM and deterioration in function.

Objective Our study aimed to establish the prevalence of the swimmer's shoulder amongst competitive swimmers at a young age.

Design Non-randomised cross-section study.