

**36th Conference of the  
International Society of Biomechanics in Sports**



**ISBS 2018**

Auckland, New Zealand

10-14 September

**CONFERENCE PROCEEDINGS**

September 10-14, 2018

Auckland University of Technology, Auckland, New Zealand



Edited by

**Patria A. Hume,<sup>1</sup> Jacqueline Alderson,<sup>2,1</sup> Barry Wilson,<sup>1</sup>**

<sup>1</sup>Sport Performance Research Institute New Zealand, Auckland University of Technology, Auckland New Zealand; <sup>2</sup>University of Western Australia, Perth, Australia

## FOREWORD

The ISBS is an international society totally dedicated to biomechanics in sports, whose primary purposes are:

- To provide a forum for the exchange of ideas for sports biomechanics researchers, coaches and teachers.
- To bridge the gap between researchers and practitioners.
- To gather and disseminate information and materials on biomechanics in sports.

ISBS 2018, held at the AUT City Campus in Auckland, New Zealand, was hosted in partnership between AUT, AUT Millennium, High Performance Sport New Zealand (HPSNZ) and Auckland Tourism Events and Economic Development (ATEED). Conference organisers are proud to have organised an eco-friendly sustainable conference. All documents (programme, presentation schedule, papers, proceedings etc.) are electronic only.

Published in the following proceedings are 275 papers across keynote, oral podium and oral poster pitch and digital poster presentations. There were at least two independent reviewers for each paper. The organising committee is indebted to all member of the scientific committee and the ISBS members who were willing to spend their time, energy and experience to undertake these reviews.

The conference proceedings are presented in the order of the conference programme for the following conference themes:

- Swimming
- Running
- Cycling
- Shoes
- Gym sports
- Motor control
- Implement sports
- Boat sports
- Combat
- Football codes
- Stronger
- Muscle
- Injury prevention
- Rehabilitation
- Technology/equipment
- Methods
- Other