World in Union. 
International Rugby Conference.

Tackling the Big Issues. Passing on Knowledge. Kicking it Forward.

28th June-30th June, 2017
Palmerston North, New Zealand.

CONFERENCE PROGRAMME 
AND PROCEEDINGS
We’re delighted to host the World In Union (New Zealand) Conference 2017 in Palmerston North.

We warmly welcome all conference participants to our city.
It is with great pleasure that we welcome you all here.
Welcome to the home of the Rangitāne people. Indeed, welcome to Massey University, home to some of the best athletes and academics in the world. This conference builds on the inaugural conference in Brighton, 2015, in tackling the big issues, passing on knowledge and kicking it forward.

There is a local saying:

Whāia te pae tawhiti kia tata. Pursue distant horizons. (i.e. thinking globally)
Whāia te pae tata kia maua kia tīna. Pursue near horizons so your dreams may become your reality. (i.e. acting locally).

This conference is a time to dream about what could be in the world of rugby and sport and to make it a reality for ourselves, our families, our communities.
We hope you enjoy your time with us, keep safe, learn lots, and enjoy the occasion.

Nō reira, tēnā koutou, tēnā koutou, tēnā anō tātau katoa

On behalf of the World in Union (New Zealand) 2017 Conference Organising Committee.
On behalf of Massey University and the School of Sport & Exercise, I would like to extend a very warm welcome to all our conference delegates.

We are lucky to be hosting an international array of academics, practitioners, educators and rugby enthusiasts. Delegates and keynotes have travelled from Australia, the United States, Canada, the United Kingdom, Europe and Japan, as well as from the length and breadth of New Zealand. Our aim over the next few days is to ‘kick it forward’ with the most up-to-date information. We will tackle some of the challenging and cutting edge issues rugby is facing in an increasingly global and competitive environment.

I would like to thank Stephen Berg and the New Zealand Rugby Museum, Tim and the team at POWA Rugby, Phil Hildred from the Central Economic and Development Agency (CEDA), Wharerata and the Sport & Rugby Institute, and the friendly staff at the Hotel Coachman, for their support and assistance.

I also extend sincere thanks to the Palmerston North City Council and Mayor Grant Smith for generously contributing funds to support this event.

Best wishes to everyone for a stimulating and enjoyable experience!

*Dr Rachel J. Batty*

*Conference Director*
I would like to extend a warm welcome to all delegates, guests, academics and rugby aficionados at the World in Union (New Zealand) 2017 International Rugby Conference. Massey University prides itself on being a catalyst for sporting excellence: Massey was New Zealand’s first ‘Athlete Friendly University’; and is the University of choice for elite and developing athletes as reflected in the number of Prime Minister’s Scholarship recipients in our student body and within our Academy of Sport. At the 2016 Rio Olympics Massey students and alumni comprised over 40% of the NZ Olympic Team, impressively winning 11 of New Zealand’s 18 Olympic medals.

Of particular relevance to this conference, Massey University also has an outstanding Rugby reputation. Massey students include former and current All Blacks Rico Gear, Nehe Milner-Skudder and James Parsons, whilst William Webb Ellis trophy winner, Sir Graham Henry, coach of the All Blacks for the 3-0 series victory over the British & Irish Lions when the sides last met in 2005 is a Massey alumnus.

The accolades are not constrained to our students: renowned sport psychologist Professor Emeritus Gary Hermansson (School of Sport & Exercise), was part of the Wellington Rugby side that beat the British & Irish Lions in the 1960’s. Whilst more recently, Dr Farah Palmer (School of Management), Black Ferns World Cup winning captain and IRB Hall of Fame inductee, became the first female to be appointed to the Board of NZ Rugby.

Massey University positions itself as the centre for sporting excellence in New Zealand. The recent appointment of a Director for Sport Advancement and the formation of a Sport@Massey steering group is an indication of Massey’s intent to strengthen this position and this conference further reflects this desire.

Dr Andrew Foskett  
Director, Sport Advancement  
Head of School of Sport & Exercise  
Massey University
CONFERENCE PROGRAMME

6pm-730pm, Wednesday 28th June, New Zealand Rugby Museum
Conference welcome, including speeches, a guided tour of the New Zealand Rugby Museum and drinks and nibbles.

830am to 5pm, Thursday 29th June, Sport & Rugby Institute
Cultural welcome, conference presentations and discussion forums. Morning tea, lunch and afternoon tea provided.

9am to 5pm, Friday 30th June, Sport & Rugby Institute
Conference presentations and discussion forums. Morning tea, lunch and afternoon tea provided.

630pm to 930pm, Friday 30th June, Hotel Coachman
The conference dinner. This will include speeches, prizes, keynote speaker Wayne Goldsmith, cultural performances and farewell.
Getting around Palmerston North

It is approx. 6.5 Km from the Sport & Rugby Institute to the New Zealand Rugby Museum. This a maximum 10 minute drive.

It is approx. 6.5 Km from the Sport & Rugby Institute to the New Zealand Rugby Museum. This a maximum 10 minute drive.

Free parking is available at the Sport & Rugby Institute.

Buses travel regularly between the Palmerston North Main Street Station and Massey University Bus Terminal (approximately every half hour between 730am and 5pm). Adult Fares are $2.50. The Sport & Rugby Institute is a short 10 minute walk from the Massey University Bus Terminal.
# Conference Presentation Schedule: Thursday 29th June

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
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<tbody>
<tr>
<td>08:30-09:30</td>
<td>Cultural Welcome</td>
<td>Green Room</td>
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<tr>
<td>09:30-10:00</td>
<td>Morning Tea (SRI Foyer)</td>
<td>Green Room</td>
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<tr>
<td>10:00-10:55</td>
<td>Keynote Speaker [1] Ken Hedge</td>
<td>Conference Room</td>
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<tr>
<td>11:00-11:25</td>
<td><strong>Session 1</strong>&lt;br&gt;Laia Diez&lt;br&gt;National Coach/Development Manager&lt;br&gt;Ukiah RFC&lt;br&gt;(Keynote)&lt;br&gt;Legends&lt;br&gt;Rugby Union Screening&lt;br&gt;Ukiah RFC&lt;br&gt;Sarah Bluth, Sally Lark</td>
<td>Conference Room</td>
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<td><strong>Session 2</strong>&lt;br&gt;A New Zealand Rugby Leadership&lt;br&gt;International Coach&lt;br&gt;Jeremy Huggett</td>
<td>Conference Room</td>
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<td><strong>Session 3</strong>&lt;br&gt;Rugby Union Development&lt;br&gt;International Coach&lt;br&gt;Jeremy Huggett</td>
<td>Conference Room</td>
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<td></td>
<td><strong>Session 4</strong>&lt;br&gt;Rugby Training Simulator&lt;br&gt;POKE Rugby Equipment&lt;br&gt;Kicking Robot</td>
<td>Conference Room</td>
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<tr>
<td>11:30-11:55</td>
<td>The Challenges of Japan Rugby Football Unions:&lt;br&gt;Developing Tours from Grassroots Development&lt;br&gt;Yauko Uskuda, Yusuke Iwamoto, Yoshitaro Yokohama</td>
<td>Conference Room</td>
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<td><strong>Session 5</strong>&lt;br&gt;Lunch: SRI Foyer</td>
<td>Conference Room</td>
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<tr>
<td>12:00-12:30</td>
<td><strong>Session 6</strong>&lt;br&gt;Constitution App Development&lt;br&gt;Stewart (the SCGTS)&lt;br&gt;David Tindale</td>
<td>Conference Room</td>
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<td><strong>Session 7</strong>&lt;br&gt;Cultural Competitiveness in Rugby&lt;br&gt;Jewel Apra &amp; Ernst Cloke</td>
<td>Conference Room</td>
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<td></td>
<td><strong>Session 8</strong>&lt;br&gt;Rugby Training Simulator&lt;br&gt;POKE Rugby Equipment&lt;br&gt;Kicking Robot</td>
<td>Conference Room</td>
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<tr>
<td>13:00-13:55</td>
<td>Where is the World Cup Really Worths to a West Country’s:Challenge From NZ 2011&lt;br&gt;Paul Archer</td>
<td>Conference Room</td>
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<td><strong>Session 9</strong>&lt;br&gt;Skip Stoker &amp; Paul Stoker &lt;br&gt;Away From Home&lt;br&gt;Opera Rugby Sport's Manager&lt;br&gt;Robert Koch, Donald Koele</td>
<td>Conference Room</td>
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<td><strong>Session 10</strong>&lt;br&gt;Building a Community Through Rugby&lt;br&gt;Helen Yard&lt;br&gt;London Rugby</td>
<td>Conference Room</td>
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<td><strong>Session 11</strong>&lt;br&gt;The Story of How Coaches in Rugby Players&lt;br&gt;So Far&lt;br&gt;Jeff Lush</td>
<td>Conference Room</td>
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<td></td>
<td><strong>Session 12</strong>&lt;br&gt;Rugby Union Development&lt;br&gt;International Coach&lt;br&gt;Jewel Apra &amp; Ernst Cloke</td>
<td>Conference Room</td>
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<tr>
<td>14:00-14:25</td>
<td><strong>Session 13</strong>&lt;br&gt;Rugby Strength &amp; Conditioning Working With the&lt;br&gt;Tsunami Recovery&lt;br&gt;Graeme Anderson &amp; Phil Handcock</td>
<td>Conference Room</td>
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<td><strong>Session 14</strong>&lt;br&gt;Rugby Training Simulator&lt;br&gt;POKE Rugby Equipment&lt;br&gt;Kicking Robot</td>
<td>Conference Room</td>
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<td><strong>Session 15</strong>&lt;br&gt;Rugby Training Simulator&lt;br&gt;POKE Rugby Equipment&lt;br&gt;Kicking Robot</td>
<td>Conference Room</td>
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<tr>
<td>15:00-15:55</td>
<td>The Difficulties in Booming Rugby Union&lt;br&gt;Rebuilding&lt;br&gt;Ayaka Ota, Takako Tani, etc</td>
<td>Conference Room</td>
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<td><strong>Session 16</strong>&lt;br&gt;Impact of Threat on Team Performance&lt;br&gt;Women's Leadership in Rugby</td>
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<td><strong>Session 17</strong>&lt;br&gt;Women's Leadership in Rugby&lt;br&gt;Michaela Goodey</td>
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<td><strong>Session 18</strong>&lt;br&gt;Rugby Training Simulator&lt;br&gt;POKE Rugby Equipment&lt;br&gt;Kicking Robot</td>
<td>Conference Room</td>
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<tr>
<td>16:00-16:25</td>
<td><strong>Session 19</strong>&lt;br&gt;Rugby Training Simulator&lt;br&gt;POKE Rugby Equipment&lt;br&gt;Kicking Robot</td>
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<td><strong>Session 20</strong>&lt;br&gt;Constitution App Development&lt;br&gt;Stewart (the SCGTS)&lt;br&gt;David Tindale</td>
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<td><strong>Session 21</strong>&lt;br&gt;Constitution App Development&lt;br&gt;Stewart (the SCGTS)&lt;br&gt;David Tindale</td>
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<tr>
<td>17:00-17:55</td>
<td>The Difficulties in Booming Rugby Union&lt;br&gt;Rebuilding&lt;br&gt;Ayaka Ota, Takako Tani, etc</td>
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<td><strong>Session 22</strong>&lt;br&gt;Rugby Training Simulator&lt;br&gt;POKE Rugby Equipment&lt;br&gt;Kicking Robot</td>
<td>Conference Room</td>
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<tr>
<td>18:00-19:00</td>
<td><strong>Session 23</strong>&lt;br&gt;Afternoon Tea: SRI Foyer</td>
<td>Conference Room</td>
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<td></td>
<td><strong>Session 24</strong>&lt;br&gt;Perth's Coaching Experience&lt;br&gt;Incomes to Confront&lt;br&gt;Kevin Tesweld, Terry O'Shaughnessy</td>
<td>Conference Room</td>
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<tr>
<td></td>
<td><strong>Session 25</strong>&lt;br&gt;Perth's Coaching Experience&lt;br&gt;Incomes to Confront&lt;br&gt;Kevin Tesweld, Terry O'Shaughnessy</td>
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<tr>
<td>19:00-19:55</td>
<td><strong>Session 26</strong>&lt;br&gt;POKE Rugby Equipment&lt;br&gt;Kicking Robot</td>
<td>Conference Room</td>
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</table>

**N.B.** Some abstract titles have been shortened to fit the schedule formatting. Full abstract titles are noted with accompanying abstracts in the conference programme (to be released in June).
# Conference Presentation Schedule: Friday 30th June

<table>
<thead>
<tr>
<th>Time</th>
<th>Session 1</th>
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<th>Session 3</th>
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<tbody>
<tr>
<td>9am-9:15am</td>
<td>Keynote Speaker (T) Katie Anderson</td>
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<tr>
<td>9:15am-9:30am</td>
<td>Session 4</td>
<td>Session 5</td>
<td>Session 6</td>
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<td>9:30am-9:45am</td>
<td>Session 7</td>
<td>Session 8</td>
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<td>9:45am-10:00am</td>
<td>Session 10</td>
<td>Session 11</td>
<td>Session 12</td>
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<td>10:00am-10:15am</td>
<td>Session 13</td>
<td>Session 14</td>
<td>Session 15</td>
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<td>10:15am-10:30am</td>
<td>Session 16</td>
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<td>Session 18</td>
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<td>10:30am-10:45am</td>
<td>Session 19</td>
<td>Session 20</td>
<td>Session 21</td>
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<tr>
<td>10:45am-11:00am</td>
<td>Session 22</td>
<td>Session 23</td>
<td>Session 24</td>
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**MORNING TEL: MIA FAYE**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session 25</th>
<th>Session 26</th>
<th>Session 27</th>
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<tbody>
<tr>
<td>11:00am-11:15am</td>
<td>Session 28</td>
<td>Session 29</td>
<td>Session 30</td>
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<tr>
<td>11:15am-11:30am</td>
<td>Session 31</td>
<td>Session 32</td>
<td>Session 33</td>
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<tr>
<td>11:30am-11:45am</td>
<td>Session 34</td>
<td>Session 35</td>
<td>Session 36</td>
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<tr>
<td>11:45am-12:00am</td>
<td>Session 37</td>
<td>Session 38</td>
<td>Session 39</td>
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<tr>
<td>12:00pm-12:15pm</td>
<td>Session 40</td>
<td>Session 41</td>
<td>Session 42</td>
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<tr>
<td>12:15pm-12:30pm</td>
<td>Session 43</td>
<td>Session 44</td>
<td>Session 45</td>
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<tr>
<td>12:30pm-12:45pm</td>
<td>Session 46</td>
<td>Session 47</td>
<td>Session 48</td>
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**AFTERNOON TEL: MIA FAYE**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session 49</th>
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<th>Session 51</th>
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<tbody>
<tr>
<td>1:30pm-1:45pm</td>
<td>Session 52</td>
<td>Session 53</td>
<td>Session 54</td>
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<tr>
<td>1:45pm-2:00pm</td>
<td>Session 55</td>
<td>Session 56</td>
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**LUNCH: MIA FAYE**

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<td>2:00pm-2:15pm</td>
<td>Session 61</td>
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<td>2:15pm-2:30pm</td>
<td>Session 64</td>
<td>Session 65</td>
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<tr>
<td>2:30pm-2:45pm</td>
<td>Session 67</td>
<td>Session 68</td>
<td>Session 69</td>
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**CONFERENCE ROOM**

<table>
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<tr>
<th>Time</th>
<th>Session 70</th>
<th>Session 71</th>
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<tr>
<td>3:00pm-3:15pm</td>
<td>Session 73</td>
<td>Session 74</td>
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<td>3:15pm-3:30pm</td>
<td>Session 76</td>
<td>Session 77</td>
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<td>3:30pm-3:45pm</td>
<td>Session 79</td>
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<td>Session 81</td>
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**SYDNEY ROOM**

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<th>Session 82</th>
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<td>3:45pm-4:00pm</td>
<td>Session 85</td>
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<td>4:00pm-4:15pm</td>
<td>Session 88</td>
<td>Session 89</td>
<td>Session 90</td>
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<td>4:15pm-4:30pm</td>
<td>Session 91</td>
<td>Session 92</td>
<td>Session 93</td>
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<tr>
<td>4:30pm-4:45pm</td>
<td>Session 94</td>
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**BOARD ROOM**

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<th>Time</th>
<th>Session 97</th>
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<td>4:45pm-5:00pm</td>
<td>Session 100</td>
<td>Session 101</td>
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<td>5:00pm-5:15pm</td>
<td>Session 103</td>
<td>Session 104</td>
<td>Session 105</td>
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<tr>
<td>5:15pm-5:30pm</td>
<td>Session 106</td>
<td>Session 107</td>
<td>Session 108</td>
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<tr>
<td>5:30pm-5:45pm</td>
<td>Session 109</td>
<td>Session 110</td>
<td>Session 111</td>
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</tbody>
</table>

*Note: Some abstract titles have been shortened to fit the schedule layout. Full abstract titles are noted with accompanying abstracts in the conference programme pack to be released in June.*
Conference Keynote Speakers

Mike Chu, National Coach Development Manager for New Zealand Rugby. Mike is currently the National Coach Development Manager for NZ Rugby. Prior to this he was the High Performance Coach Development Manager for NZ Rugby from 2003-2011, before a 4 year stint as the GM for Rugby Canada. Before working in Rugby, Mike was a lecturer in Sport Coaching and Psychology at Massey University from 1993-2002.

John Evans, Professor in Indigenous Health Education at University of Technology, Sydney, Australia. John has extensive academic and industry experience in sports and exercise science, and Indigenous sport and education. John co-authored Advanced Rugby Coaching: An Holistic Approach, which sold out in Europe in the lead up to Rugby World Cup 2015.

Ken Hodge, Professor in Sport and Exercise Psychology at the School of Physical Education, Sport & Exercise Sciences, University of Otago, New Zealand. Ken's research focuses primarily on the psycho-social effects of participation in sport. Ken currently serves on the Editorial Boards for The Sport Psychologist, Journal of Applied Sport Psychology, Sport, Exercise & Performance Psychology, and Psychology of Sport & Exercise. He has worked for the New Zealand Rugby Union as a mental skills trainer. In 2014 Ken worked with the IRB Sevens Rugby Referees squad. He is co-author of Thinking Rugby: Training Your Mind for Peak Performance; and co-author of Smart Training for Rugby: The Complete Rugby Training Guide.

John Nauright, Professor in Sport Management and Chair of the Department of Kinesiology, Health Promotion and Recreation at the University of North Texas, USA. He is the author of Rugby and the South African Nation and editor of a trilogy of books on global rugby union: Making Men: Rugby and Masculine Identity (co-winner of the inaugural World in Union edited book prize); Making the Rugby World: Race, Gender, Commerce and the 2017 book The Rugby World in the Professional Era. He was the conference director of the inaugural World in Union rugby conference held at the time of the 2015 Rugby World Cup in partnership with the World Rugby Museum held in Brighton, England.

Melodie Robinson, New Zealand sports journalist and presenter, and former international rugby union player for the New Zealand women’s national rugby union team. Melodie played 18 tests for the New Zealand women's team, the Black Ferns, from 1996 to 2002. She won two world cups in that time, playing blindside or openside flanker. Melodie also represented New Zealand in sevens at the Hong Kong 7s and Japan 7s.

Wayne Goldsmith, renowned elite sports coach. Wayne has worked with a long list of Olympic athletes and coaches and influenced numerous professional sporting teams including several AFL teams, NRL teams and Super Rugby teams as well as the Wallabies and the All Blacks.
Leg Muscles Function of Front Row Rugby Union Scrummaging

Mr Mostafa Yaghoubi, Dr Sally Lark, Dr Sarah Shultz
Massey University

The Rugby union scrum comprises of three phases before the ball is introduced: crouch, bind and set. It is important that the Loose Head and Tight Head players act in unison particularly at the bind and set stages. They train for this synchronicity, however, we do not know if the scrum machine is the best form of training to ensure this. The current study analysed muscle activation behaviour using electromyography. Activities of the quadriceps (vastus lateralis and rectus femoris) and gastrocnemius muscles of the Tight Head and Loose Head positions in response to the ‘set’ call were compared between the professional and amateur rugby players and when using the scrum machine versus a live situation.

Professional players activated their vastus lateralis muscles more quickly and powerfully after the ‘set’ call compared with amateur players. There was quicker onset of muscle engagement and greater activation in all muscles measured of both professional and amateur players when scrummaging against the machine than in the live situation. The Tight Head and Loose Head players were more synchronised in their muscle activation patterns both in the professional player group and when practising against the scrum machine.

The results indicate a higher skill performance level in professional players. Ideally Tight and Loose Head players should be moving in unison in the scrum, and this strategy was seen more in the professional players; however this synchronicity in muscle activation decreases from the simulation to the live scrum scenario as there is no early push back per-se from the scrum machine. Furthermore, the requirement for additional muscle activation for stabilisation purposes is not accounted for when using a scrum machine. Perhaps this indicates the need for more live scrummaging during training than use of the scrum machine.
Is NZ Rugby culturally blind or competent?

Jeremy Hapeta
Massey University

This paper explores socio-cultural issues contained within various Rugby texts and how they convey cultural assumptions through personal stories (of cultural identity) and how these narratives can effect transmission of meaning and knowledge. Using the cultural competence continuum (Cross et al., 1989), specifically adapted for NZ sports contexts (Hippolite & Bruce, 2010), as a lens this paper examines stories to determine the level/s of ethno-cultural ‘inclusiveness’ in NZ rugby settings. Using a thematic narrative analysis (NA) method (Sparkes & Smith, 2003; 2004; 2005; 2014), the results allows us to appreciate and gain understandings of the (dis)connections between individual and collective (cultural) identity in NZ rugby settings that are quite topical at the moment. The findings of this analysis are presented and discussed in relation to the narratives that have continued over the decades within stories from NZ rugby sources. In terms of the main findings, this paper concludes that NZ rugby once was ‘culturally blind’, but is moving towards becoming a culturally competent organisation. However, there is still a long way to go insofar as NZR becoming what Hippolite and Bruce (2010; 2013) term culturally proficient on their modified continuum. This paper offers some suggestions as to how NZR and wider NZ society can use the lessons to achieve greater ethno-cultural inclusion, not only in sport and rugby, but in general NZ society. Indeed, NZ rugby settings have come a long way, but must ensure that going backwards is not an option; the implication is that being future and forward(s) focused is the key to maintaining our ‘legacy’ of being world-leaders in Rugby.
The challenge of Japan Rugby Football Union (JRFU):
Developing fans from casual spectators

Yusuke Kuroda\textsuperscript{1}, Farah Palmer\textsuperscript{1}, Satoshi Iwamura\textsuperscript{2}, Makoto Nakazawa\textsuperscript{3} & Naoko Yoshioka\textsuperscript{3}

\textsuperscript{1}Massey University \textsuperscript{2}Higashi Nippon International University \textsuperscript{3}University of Tsukuba

In Japan, core fans have always formed the basis of the spectator market in professional rugby; even though, historically, there have been several booms in rugby’s popularity where number of casual spectator increased during that time. In general, because of this large fluctuation in casual spectatorship, rugby has not been able to attain national sports status as professional baseball and professional soccer have where there is a good number of casual spectators along with core fans attending games. Thus, in addition to maintaining the core fan base in rugby, there is a need for developing new casual spectators and developing them into core fans. The purpose of this study was to generate strategies for appealing to casual spectators by examining the characteristics of the Japanese core fans and casual spectators observed in Japanese national team games played against the Māori All Blacks (MAB) in 2014. Data were collected at Japan vs MAB games (Kobe and Tokyo) from spectators by questionnaire surveys (n= 664, response rate: 27.7%). Spectators were classified based on their attitude (team identification) and behaviour (frequency of attendance) (Dick & Basu, 1994). Spectators were classified as casual spectators when identification and frequency were low, and survey responses helped to develop an understanding of this cohort based on their demographics as well as spectating attitude and behaviour. Results of the analysis showed the following tendencies among casual spectators: 1) match information came by word of mouth from friends and acquaintances; 2) they live near the event venue (i.e., stadium); 3) a trigger for attending games was an invitation and/or receiving their ticket from friends and/or acquaintances. It was suggested to the JRFU (who will be hosting the Rugby World Cup in 2019) to correspond with casual spectators directly, encourage core fans to invite others based on relationship marketing strategies, and implement promotional events and/or community activities near event venues to evoke interest among residents.
Concussion App Development Based on the SCAT3

David Sturrock, Wyatt Page & Sally Lark
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Sport related concussions are of increasing concern for sport/recreation participation at all levels. This is illustrated in rugby union with 8.9 concussion injuries per 1000 playing hours at the professional level\(^1\), 6.01 concussions per 1000 playing hours in school-boy (Archbold et al., 2015) and 7.97 amateur level rugby. The identification of concussion and level of recovery is important, particularly in second impact syndrome, and unrecognised or mismanaged cases. This is especially important in children and adolescents, as developing brains are more susceptible to the effects of concussion.

The aim is to develop and validate a self-administered concussion detection tool (App) which utilises smartphone technology to identify concussion at the amateur/recreational level. The App is designed to assess important parameters consistent with SCAT 3 such as: symptomology; working memory; simple reaction time and sensorimotor processing speed; and also includes an assessment involving the auditory pathway. Utilising a personal smartphone device, non-concussed participants will complete a baseline test. Additional tests will be completed at two, seven and 35 days post-baseline. Participants will be required to perform an incremental treadmill test to maximal exertion. Following 5 minute rest, they will then complete the concussion assessment App.

Analysis of the data is to determine the test-retest reliability of the App as a whole, and individual components of the App. This allows an assessment of the repeatability and sensitivity of individual elements. Comparison of baseline and post-exercise data will provide information on how fatigue affects the reliability and sensitivity of concussion detection measures.
Do dual pathways burst performance bubbles or build champions?

Greg Mumm
The Final Whistle

With increased awareness on the challenges elite athletes face in transition, the desire for athletes to develop career options alongside their sport has become common practise. Ambiguity has remained surrounding whether this is the responsibility of the athlete or the duty of care of the sporting organisation, which has tended to leave the question of dual pathways out of the performance arena. However with increased anecdotal evidence and athlete feedback highlighting the beneficial performance effects of dual pathways, does this open the door for sport to involve these programs as part of the holistic development of a high performing athlete.

Within this discussion we seek to clarify what dual pathways mean, how are they are currently implemented and how they presently fit into elite sport environments. We investigate the benefits of holistic development during an athlete’s competitive years and in transition, and whether the creation of self-identity and self-worth in interests outside of sport add or detract to an athlete’s ability to focus and perform.

This research includes qualitative responses from athletes and coaches, sports psychologists and administrators. We also analyse quantitative data on athlete career interest trends as well as survey and education statistics from leading sporting organisations.

Further research could include quantitative analysis of the benefits of dual pathways on athlete wellbeing, recovery and career longevity, performance and burnout.
Building Rugby to Build Community: 
How the Toronto Inner-City Rugby Foundation (TIRF) is Changing the Game and Transforming Lives in Toronto

Ige Egal
Toronto Inner-City Rugby Foundation (TIRF)

Rugby has great potential to change lives and transform communities especially in the context of economic and social exclusion. The unique nature and values of the game means that it can provide a great life-long journey for individuals and communities. So why aren't more people playing? This was the challenge for the Toronto Inner-City Rugby Foundation (TIRF) in 2011. Six years on, 20,000 participants, 200 program partners, and one national team player, TIRF continues to be the leading grassroots rugby program in Canada. So how did TIRF get a 'non-traditional' and 'niche' sport off the ground in Canada's largest city? It starts with rugby. A change within can spark growth for the game and tremendous impacts for individuals and communities involved. Building a pathway to performance and empowering young people beyond the pitch, TIRF is rugby for social good in action.
The head, neck and shoulder region is one of the most commonly injured areas of the body during rugby games. However the effects can be cumulative rather than singularly catastrophic. For example, neck function, as measured by range of motion (ROM) and proprioception, is noticeably negatively affected from neck extension, with the number of playing years to the point a 30 year old career rugby player has the equivalent neck ROM of a 70 year old1. We have found that neck function is negatively affected after a single game2, as well as over an entire playing season3. More alarming, is that the off-season does not appear to be adequate for full recovery4 and with more international games being played the off-season is becoming shorter still.

Here we report both the effects of a single game and playing season on neck function and the degree of recovery during the off-season. Neck proprioception via head repositioning and active cervical range of motion (ACROM) are assessed pre- and post-game, as well as pre- and post-season using a validated CROM device in flexion-extension, side flexion, and lateral rotation.

Both Forwards and Backs are affected but it appears that Forwards are the most affected, and as fatigue sets in over a playing season the decrement gets worse. The studies indicate that more targeted active recovery for neck injuries and normal function both during the playing seasons and off-season should be considered.
Global mega-sporting events have also become synonymous with increased government support for the hosting of such events. One of the main arguments often used to support claims for public funding is the expectation of significant economic impacts that flow from increased spending attributable to the event. A 2008 report from Deloitte suggested that the Rugby World Cup was worth a substantial amount to host countries in economic terms, with potential direct expenditures from visitors into host economies ranging from £200 million to £800 million, and potential economic impacts ranging from £610 million to £2.1 billion.

The 2011 Rugby World Cup was projected to make an operational loss of NZ$39.3 million, of which taxpayers were to foot two-thirds of the bill. This was in contrast to profits of A$48 million for the 2003 tournament in Australia and €30 million for the 2007 tournament in France. This paper examines the realised economic impact of Rugby World Cup-related visitor spending on twelve host cities in New Zealand during the 2011 tournament using a two-pronged methodology. Firstly, the impact of the Rugby World Cup on aggregate visitor spending is estimated using a time-series model of New Zealand’s travel services exports. Secondly, time-series models using the city’s Gross Domestic Product (GDP) as the dependent variable were estimated for each of the host cities. Results from this modelling showed that the size of the aggregate realised impact on the GDP of the host cities was approximately 25% of pre-event projections of visitor spending. The likelihood associated with impacts of the magnitudes of pre-event projections materializing in host cities was estimated at less than 4 percent.
Rugby strength and conditioning: Knowing where we come from helps us to know where we need to go

Tania Cassidy & Phil Handcock
University of Otago, Dunedin, New Zealand

Quinn et al (1996) suggest that professional intellect operates on four levels; knowing what, knowing how, knowing why and caring why. Rugby strength and conditioning coaches (SCCs) are generally well versed in the first two, but the latter two levels often receive less emphasis. Contemporary rugby SCCs face challenges that will extend well beyond simply knowing ‘what’ and knowing ‘how’. Limited attention has been given to sociocultural and pedagogical issues in the strength and conditioning literature. A similar gap was evident in the sports coaching literature a decade ago (see Cassidy et al, 2004). Pioneering SCCs came primarily from a tradition of weight training, so strength and conditioning education has traditionally been grounded in the exercise sciences (e.g. Vescovi et al, 2004; Dorgo, 2009) that focuses predominantly on the ‘what’. Practical experiences through internships, workshops and conferences help SCCs to complement the knowing ‘what’ with knowing ‘how’ to train.

In this paper we explore professional development opportunities for strength and conditioning coaches and discuss how the four levels of professional intellect are represented within those opportunities. The discussion stems from a ‘mapping’ exercise that used a professional competence framework (e.g., Cheetham & Chivers, 1996, 1998) to provide a picture of the strength and conditioning (S & C) field. While knowing ‘what’ and knowing ‘how’ appear prevalent in continuing education offerings, discussions on ‘knowing why’ and ‘caring why’ were notable only by their absence. On this basis we make a case for the benefits of starting a conversation with SCCs about the merits of exploring S & C practices and interpreting them using pedagogical, social and cultural informed scholarship.
Walk with the Wise and Become Wise

Robert Buchanan
Wisconsin Rugby Sports Complex - National Sports Heritage Collection

In the United States and many other nations, the future grassroots growth of rugby, by players and spectators, is dependent upon the development of financially sustainable, community-based facilities. In other nations, existing rugby facilities may be trying to reinvent themselves to become more financially sustainable. Single-use facility developments, such as rugby clubhouses with playing fields, are no longer realistically viable without extensive government subsidies. In this presentation we will share our insights, which have resulted from eight years of research through hundreds of site visits and professional consultations: locally, nationally and internationally. Our development model incorporates the historical ethos of rugby, while developing a flexible, multiple purpose design, which incorporates the three pillars of sport tourism: nostalgia (history & education), inspiring facility development, and the hosting of engaging events. In addition, we will share techniques for developing significant public, private, and non-profit collaborations, which are necessary for not only securing the funding for development, but also for insuring diverse revenue streams to establish future financial sustainability.
Impact of travel on team performance – the case of Super Rugby

David Bond and Stephen Frawley
University of Technology Sydney, Australia

This study will examine the impact of increased travel on players due to the expansion of the Super Rugby competition. In 2016 three additional teams were added to the Super Rugby competition, one each from South Africa, Argentina and Japan. Even prior to this expansion the competition is unique in world sport due to teams from three (widely dispersed) countries competing over a 16-week playing season. We will provide evidence of the change in travel demands on teams, as well as examine the impact on team performance.

Overall there was an average increase in regular season travel of 24.9 percent (from 35,120 kilometres to 43,865 kilometres) for 2016 as compared to the three-year average for the years 2013 to 2015. This change in travel however is not evenly distributed across the three main countries. Australian and New Zealand teams had relatively small changes to their travel (10.6% and 16.6% respectively), whilst South African teams had an average increase of 52.4%. The expansion team based out of Japan, the Sunwolves, had the highest recorded travel of 74,860 kilometres for the season.

Turning to the impact of travel on team performance, the univariate results suggest that travelling long distances prior to a game is not detrimental at all, and if anything, seems to be a positive. The home team wins 62.95% on average over the period, but this increases to 71.43% when the home team has travelled more than 8,000 kilometres since their previous match. On the flip side, the away team wins 35.26% on average, and this is not significantly different to when they have travelled more than 8,000 kilometres since their previous match – a slight increase to 35.48%. Whilst these results do not control for team quality, on face value, there is no suggestion that long travel impacts team performance.
Side-stepping, rucking or fending the gender issue in rugby leadership: A front-row perspective

Farah Palmer
Massey University

This paper explores the macro-, meso- and micro-level experiences of women in leadership roles in the sport of rugby. A review (Burton, 2015) of research regarding the ongoing underrepresentation of women in sport leadership provided an analysis of issues at the macro- (institutionalized practices of gender in sport), meso- (stereotyping, discrimination, organisational culture), and micro-level (women’s expectations in leadership, occupational turnover, symbolic interactionism) that may explain this ongoing under-representation. Rugby in New Zealand has recently received both negative and positive publicity around the role of women in rugby. On the negative side, behaviour and attitudes toward women have received extensive media scrutiny and a review of the culture of rugby focusing on respect and responsibility due to be finalised in July 2017 has a strong focus on gender, sexism and attitudes/behaviour toward women in and around the game. On the positive side, there was a 12% increase in female player numbers from 2015 to 2016, the first female in 124 years was appointed to the NZ Rugby Board at the end of 2016, and the first female was appointed as Chair of a Provincial Union Board and as a Super Rugby Team Manager in 2017. More women are taking up leadership roles in rugby in the C-suite, as coaches, as game officials, and as board members. This paper is based on experiences of women in rugby leadership and will address the macro-, meso- and micro-level issues that women in rugby leadership want to share.
The challenges associated with retaining community rugby union referees

Christopher Baldwin
Australian Catholic University

The retention of sports referees is a critical factor in the ability of local, state and national sporting organisations to deliver community sport to its clients on a weekly basis. Previous studies have been dedicated to investigating the retention rates of coaches and players however little work has focused upon the sports referee and why referees continue to officiate. Using data from interviews and material sourced from the Australian Bureau of Statistics (ABS) and the Australian Rugby Union (ARU) this research looked at the factors which influenced community based rugby union referees from choosing to remain involved in officiating. This research highlights the real life experiences of referees, by listening to their first-hand accounts, we are better able to understand their reasons to become referees and subsequent reasons as to why they chose to cease refereeing. Results revealed that decisions to join and decisions to leave differ greatly amongst the referees who participated in the research. Factors including camaraderie amongst referees, level of enjoyment and success experienced were all identified as key elements in helping referees decide to remain.
Pacific Island perspectives of leadership in rugby

Katie Dee, Gaye Bryham, Lesley Ferkins & Mike Naylor
Auckland University of Technology

Sport, especially rugby union, plays a major role in New Zealand Pacific Island communities. There is however, a significant difference in the number of Pacific Island people playing rugby on the field versus those participating in non-playing leadership roles (e.g. coaching, refereeing and committee members).

To gain a better understanding of why this difference exists, this study sought to understand and appreciate the meaning of “leadership” from a Pacific Island perspective, in the context of rugby within the Auckland region. This study sits within a qualitative, constructivist-interpretive paradigm allowing for deeper insights of leadership to be explored (Denzin & Lincoln, 2011). Participants were purposively selected and were a mix of former international players, coaches and referees who were engaged in rugby across all levels. Semi-structured, in-depth interviews were conducted. The data were analysed using an inductive thematic analysis to allow for themes to emerge from the rich and insightful sharing’s.

The findings of this study highlighted a service orientation view of leadership that incorporates developing people and helping others. The perspectives of leadership were strongly influenced by cultural values and upbringing. Another key message conveyed was that leadership is more informal and collective and is not just about an individual in a formal role. These insights align with a number of leadership theories such as servant leadership, collaborative leadership and leadership as a social, relational experience (Ospina & Schall, 2001; Welty Peachey, Zhou, Damon & Burton, 2015).

This study contributes to the limited research about Pacific Island perspectives of leadership in sport and provides insight that supports the need for further research in this area. This presentation will explain the background of the study, detail the method, explain the key findings and identify implications and future research opportunities for sport leadership.
Modern computational performance has allowed the realistic simulation for full length sporting contests to become feasible. The application of such simulations in the areas of sports science, gaming and wagering is limited only by the extent to which these simulations can be considered to sufficiently replicate real life.

This work presents an artificial intelligence (AI) engine capable of simulating full length rugby Union contests in 3D. The AI engine was tuned so that its output was not significantly different (p < 0.05) from rugby matches played in the 2016 Super rugby competition in terms of average totals for points scored, tries, tackles, missed tackles and handling errors.

The engine is subsequently used to demonstrate how improvements in player attributes such as speed and tackling success impact on the winning percentage of the team, and how this information can be used to infer training priority.

The simulations are also used to demonstrate that small changes in initial conditions can dramatically affect the outcome of a single contest. This allows for the quantitative demonstration that removal of a negative event from a match, such as a poor referring decision does not necessarily result in an improved outcome for the team that was apparently disadvantaged by that decision. In the same way, it is also quantitatively demonstrated that the training improvement of player skills and attributes does not necessarily lead to an improved result in a given contest.

Understanding these results may allow coaches and players to make better decisions about training priorities when faced with the highly uncertain and variable outcomes of sporting contests. The current limitations and future use of sporting simulations for enhancing performance are also discussed.
From Blues to Green: Pat Lam’s Coaching Evolution from Auckland to Connacht Rugby

Gary Byrne, University College Cork, Ireland
Tania Cassidy, University of Otago, New Zealand

In 2013 Pat Lam joined Connacht Rugby as Head Coach of what was then an emerging professional provincial team in Ireland. He arrived after being sacked in 2012 as coach of the Auckland Blues (see Gray, 2012). Since his arrival in Connacht, Lam has led the professional team to unprecedented success culminating in the province winning its first ever major piece of silverware in 2016 when the team were crowned Pro 12 Champions.

Pat Lam has been instrumental in forging Connacht’s culturally relevant vision of ‘Grass Roots to Green Shirts’ that aligns the off-pitch transactions and relationships with on-field game plans and team identities. Lam has consistently and fluently elucidated how Connacht’s vision and subsequent successes has developed (see MacKenzie, 2013; O’Rourke, 2016; Roache, 2016; Thornley, 2016). This paper provides a case study exposition of Pat Lam’s journey, from his sacking at the Blues to his remaking as a Head Coach of Connacht, and how his reconstructed predispositions towards coaching were both acted out, and acted upon, in Connacht, which in turn led to yet new and evolving predispositions. This paper presents the ongoing evolution of Lam’s coaching philosophy, professional practice and growth as a coach through an exploration of the following themes:

- “Learnings” from being sacked by Auckland and the workability of these “learnings” in Connacht
- The naturalistic evolution of Connacht’s vision: “It’s all about relationships…I share my philosophy with everyone”
- A philosophy of coaching as: “the game, culture, leadership…not just rugby”
  “Thinking, talking and behaving like champions”: “Belief is massive…”it starts with the coach”
- “Developing, growing, understanding takes time”: Tensions between apprenticeship and results

This case study highlights how interruptions, transitions or sackings are fertile ground for researching professional coach development.
Evolving Game Practises in New Zealand

Dennis Slade, Andrew Martin & Geoff Watson
Massey University

This paper presents a chronology of evolving game practise in New Zealand (NZ) from traditional technique focused to athlete centred learning methodologies and especially use of the Teaching Games for Understanding (TGfU) model (Bunker & Thorpe, 1982), which follows quite closely the international pattern of game practise development over the past 40 years. Former All Black coach (1973-76), ‘JJ’ Stewart, suggested a modified games approach arguing that rugby for young players appeared to lack fun and the 15 aside per team meant that too few players got to touch the ball. In terms of coaching he thought too much emphasis was placed on technique and not just playing the game. During the same period former All Whites football coach, Barrie Truman, was advocating using modified games and a problem solving approach. He argued that “the coach should look upon himself as the creator of learning situations, with the players, where possible, learning for themselves.” (1975, p. 56). Truman’s work also influenced Bill Freeman, the then NZ Rugby Director of Coaching. A decade later, Brian Maunsell trainer of the 1976 Olympic winning NZ Men’s Hockey team published ‘Sport for Children’ (1986), which promoted the use of small-sided games, modified equipment, playing space and game duration. In the late 1990s, the TGfU method became more prominent in NZ, as ‘Games Sense’ and questioning, ‘Query Theory’, and empowerment approaches were promoted advocating ‘athlete centred coaching’ (Kidman, and improved player decision-making. All Black coach Wayne Smith continues to advocate such approaches arguing that “the areas that we have needed to work on as coaches are developing our ability to grow self-awareness, understanding and problem solving... we have to becomes better questioners” (Johnson et al., 2014, p. 196). Examples will be presented of how such best practice ‘game sense’ approaches continue to be implemented in rugby.
With 150,000 participants rugby is one of the most sports played in New Zealand, providing it with a unique ability to cross cultural, socio-economic and geographical borders. Despite its popularity, rugby represents the single largest source of injury numbers and costs within the sport and recreation sector. Based on this evidence NZR is committed to finding and implementing strategies to reduce this burden.

NZR created the RugbySmart programme to address the occurrence of catastrophic neck injuries. Since its inception this program has been of tremendous social and financial value to the rugby and broader communities, as demonstrated by its replication across other sports and countries. Whilst NZR continues to believe strongly in the present RugbySmart programme, it is recognised that more needs to be done. In partnership with ACC, NZR is expanding the concept of RugbySmart which has previously focused primarily on the coaches out to a much broader stakeholder audience encompasses coaches, referee, players, the wider rugby community and health care providers. The revised program will focus on the following key areas:

- **Player Education** – providing players with skills and techniques to keep them and their team mates safe.

- **Health Provider Engagement** – tools and decision making aids to allow health providers to manage concussion and other sport related injuries more effectively.

- **First Aid** – education for the rugby community that equips individuals with the skills to better manage injured athletes safely.

- **Respect and Responsibility** – will focus on respectful relationships, including consent, sexual assault and violence prevention.

- **Rugby Specific Warm-Up** – research based injury prevention programme based around a warm-up routine.

- **Coach and Referee Education** – this represents the current RugbySmart programme; but has been expanded to include the Blue Card initiative where any players suspected of sustaining a concussion is issued a Blue Card and must seek medial clearance before returning to play.
The formal professionalization of rugby union in the mid-1990s has radically altered the content, form, and structure of the game. These changes are perhaps nowhere more apparent than in the movement of an ever-growing number of players crossing country and continent in pursuit of the post-amateur era’s expanding array of economic opportunities. While the endpoints and origins of these athletic nomads are multiple, players of Pasifika heritage have collectively emerged as a major feature of the global rugby diaspora. From the Southern Hemisphere to Europe, to places further afield, players either born in, or with ancestral ties to, the Pacific Islands have become one of the more striking symbols of rugby’s globalization since the advent of professionalism. For people of Pasifika heritage the symbolism of such rugby migrations has the potential for added significance. Arguably, emigrant players also provide an avenue through which to cultivate and express a sense of collective belonging which transcends national borders and formal allegiance. In this paper, I examine such possibilities within the context of professional rugby in Aotearoa New Zealand. More specifically, I explore how, for Pasifika people, Pasifika players connote a multi-local sense of connection which challenges common-sense understandings of nationalism as coterminous with citizenship. At the same time as it constitutes a site for symbolic resistance, I also consider how the institutional structures of world rugby serve to standardize particular forms of nationalism at odds with narratives of multiplicity and alternative ways of belonging.
Measurement of Competitive Balance in NSW Premiership Rugby and the Impact of the Player Points System

David Bond
University of Technology Sydney

This study will first provide descriptive evidence of the level of competitive balance within the NSW Premiership Rugby competition. The NSW Premiership Rugby Competition is a key development pathway for players into the Australian Super Rugby franchises and having suitable levels of competition are important in providing quality playing stocks to these higher level teams (Owen and Weatherston, 2002). Numerous Australian as well as international sporting competitions have previously been studied in this context, but to date no such study has documented the level of competitive balance within a domestic rugby competition in Australia.

The second is to examine whether the introduction of the Player Points System (PPS) in the NSW Premiership Rugby competition in 2009 led to an improvement in the level of competitive balance. Concerns have been raised regarding the continuing poor performance of a number of teams, as well as the dominance of Sydney University (Robinson, 2013) over an extended period of time. In reaction to these concerns a non-monetary salary cap, the PPS was put in place for the 2009 season. The PPS is similar to a normal salary cap, but instead of a cap in terms of dollars, it is a cap in terms of player points, which are based on representative honours, 1st grade caps, club loyalty and junior club.

Results using a number of different measures of competitive balance, including the actual-to-idealized standard deviation and the Herfindahl Index of competitive balance (Lenten, 2015), suggest that firstly, the NSW Premiership Rugby Competition is not competitively balanced and secondly, the introduction of the PPS did nothing to alleviate this. Implications of these findings will be discussed.
This paper examines several dimensions of the tour to New Zealand and Australia by the 1950 British Lions. Firstly, in a direct comparison with the British Empire Games staged in Auckland in January 1950, it considers the tour within an evolving New Zealand identity in which enduring devotion to Britain was being challenged by Cold War and other global imperatives. Secondly, with reference to the previous and somewhat controversial British rugby tour to New Zealand in 1930, the paper assesses the overall ‘health’ of New Zealand rugby in the two decades following the abolition of the wing-forward and a general curtailing of ‘colonial innovations’ to the laws of the game. These decades also witnessed decidedly mixed fortunes for the national game including the loss of all six test matches played by the All Blacks in 1949. While New Zealand had finally secured a seat on the International Rugby Board in 1948, the extent to which the New Zealand Rugby Football Union and its followers were confident in the state of their game at mid-century is debatable.
The challenge of Japan Rugby Football Union (JRFU):
The need for strengthening relationships with spectator.

Makoto Nakazawa¹, Naoko Yoshioka¹, Naoki Maeda², Yusuke Kuroda³ & Satoshi Iwamura⁴

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There are some issues to make the Rugby World Cup in Japan successful. One of issues is to develop fans in Japan. The success of the event depends on increasing the number of spectator at each venue, but also gaining some cooperation from every spectator is important. Based on social identity theory (Tajfel & Turner, 1986), this study examined relationships between the level of social identity to JRFU and the level of cooperation by the spectators for the success of the event management (by comparing spectator of Japan national team’s game(s) in rugby and soccer held in Japan).

The opinion box for event management was used to collect data of spectator for Japan vs Scotland game, which was held in Tokyo in June 2016. 3,000 brochures asking for cooperation for our data collection were distributed to the spectators at the entrance of the stadium. 445 spectators participated in our online survey. The individual comments were qualitatively classified and were classified into groups, which were used to compare with data gathered using the same methods from Japan national team’s soccer games in June 2016. The opinion box collected 368 comments from rugby and 165 comments from soccer.

The comparison results showed that rugby spectators tend to provide more negative comments, but alternative proposal was provided less frequently compared to soccer spectator. Such results were examined due to a couple of reasons. The organization identity between the spectator and organization is weaker in rugby; and, a history of spectator support is shorter in rugby than soccer, which resulted in weaker relationships between spectator and organization. The JRFU is now facing the challenge to connect well with each individual fan, in addition to keeping good relationships with companies owning and operating rugby teams and sponsoring companies through top-level of rugby games in Japan.
Intelligent Careers after Rugby: Getting Your Head in the Game

Subramaniam Ananthram¹ Marilyn Clarke² Stephen McKenna¹ & Julia Richardson¹

¹Curtin University, Australia
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The end of an elite athletic career is invariably a time of great challenge (Park et al, 2013) involving a significant threat to individual identity where individuals often struggle to adjust to life outside of their professional sport and particularly in sports with high social profiles such as rugby (Kenny, 2015). Yet careers in most sports, and particularly high-contact sports, are not sustainable, rarely extending beyond the age of 35 (Ryba, Ronkainen et al. 2015).

Drawing on a qualitative study of ex-professional rugby union players in New Zealand and AFL and rugby union players in Australia, this paper highlights the impact of ‘career capital’ on a players’ career experiences in the broader job marketplace. It connects careers in and out of rugby with ‘intelligent career theory’ with a particular focus on building self-career management capacity.

The paper identifies four key forms of career capital, namely: knowing why (understanding motivations to work in a particular field), knowing how (building skills and competencies), knowing who (developing heterogeneous networks) and knowing when (being aware of timelines). It demonstrates that while careers in rugby have limited sustainability and workability, long term career sustainability outside of sport can be enhanced by the development of specific forms of career capital. However, the paper will also highlight the challenges that former players encounter when trying to build their capital and ‘marketing’ it to decision makers during subsequent job search.
Coaching and Promoting Rugby in Regional Schools: Problems, Needs and Successes

Dave Robinson
University of the Sunshine Coast (Fraser Coast), Australia

Rugby union has long held winter sporting dominance in Queensland’s Greater Public Schools and other private schools in Queensland’s south-east corner. Outside of this area, however, the sport may be considered to have generally struggled to gain an enduring foothold in regional schools.

Having coached rugby and taught in various schools throughout regional Queensland over the past 25 years, the presenter has sourced several experienced regionally-based school rugby coaches to outline their experiences in coaching and promoting the sport in regional Queensland schools. The presenter conducted a similar study fourteen years ago and wished to see what has changed for regional school rugby coaches. This session will present their thoughts and opinions on current problems they face in promoting the sport in their respective schools and support they feel would be helpful from their governing bodies.

As well, this session will provide strategies and ideas these teacher-coaches have found successful in attracting and retaining players as well as promoting the sport in their regional contexts.
In New Zealand, sports books, particularly on rugby, have consistently featured prominently on best-seller lists. Despite their commercial success, however, they have had mixed reviews from the literati, sometimes being perceived as formulaic, ‘lowlbrow’ and offering little in the way of understanding New Zealand society (Jones, 1999). Others, however, assert that a close reading of sports books can afford insights into wider society (Robinson, 1999; Watson, 2015).

This paper investigates books written on the 1959, 1966, 1971 and 1977 British Lions tours and what they tell us about developments in rugby and its wider relationship with society at the time. The tour book represented an important sub-genre of sporting literature. The works of authors such as Terry McLean, J.B.G. Reason and Keith Quinn ranged widely over both sporting and social issues. The period under review was a transitional era in New Zealand’s sporting and cultural relationship with Britain. British teams became more competitive as their coaching became more sophisticated while rugby in New Zealand was increasingly beset by criticism over sporting contact with South Africa and a perceived culture of male chauvinism.
Too often in western societies, the printed word is automatically given more importance than oral traditions. Such bias can be compounded when historians based their research of indigenous cultures upon the writings of earlier writers. This presentation will begin by quickly contrasting various historians’ written narratives of an ancient game, “Nine Men’s Morris” with the oral traditions of the Gael to illustrate such bias. Next, an “oral traditions lens” of clan-based indigenous cultures will be compared to feudal-based cultures. Too much emphasis is often placed upon the outward symbols of indigenous cultures, with much less attention placed upon their more significant internal guiding values. Through this lens, new insights will be shared into both the accomplishments of Dr. Thomas Arnold at Rugby School and of the Carlisle Indians rugby football teams as examples. In a surprisingly similar manner, researching the 19th origins of women’s rugby must also rely upon oral traditions. The presentation will end by exploring the values of oral traditions to educational achievement, the interrelationships between rugby and society, and opportunities for rugby to expand in meaningful ways.
Public Health Agenda Influence on Rugby Union Sponsorship

Rachel J. Batty & Sarah Gee
Massey University

Public attitudes concerning sport, health and consumer products have begun to change. Tobacco, alcohol and gambling-related sponsorships have been embroiled in controversy and have faced widespread criticism due to their perceived advocacy of unhealthy behaviours. Latterly, sponsors, such as fast-food chains and soft-drink companies, have faced similar criticism from sport stakeholders. The criticism is increasingly attributed to the push of a public health agenda, in general, and a noted consideration of ways in which to counteract obesity, heart disease and diabetes in association with sport, in particular.

One particular sport attracting significant fast-food and soft-drink company sponsorship is rugby union. In New Zealand, the sport is acknowledged for its high participation rates, widespread media coverage, associated cultural significance and broad fan base. There is evidence that food and beverage companies, such as Coca-Cola, Pepsi, McDonalds and KFC are increasingly choosing to align themselves with the sport. However, media, consumer advocate and public health groups are challenging the appropriateness of such partnerships and calling for change.

This paper presents findings from a New Zealand based qualitative study which examined how a public health agenda may influence rugby organisations to seek or accept sponsorship from food and beverage companies. A purposeful sample of Provincial Rugby Union managers were asked to consider the impact of imposing restrictive sponsorship measures on the sport, in general, and the delivery of community and youth sport, in particular. Initial findings indicate that many provincial rugby unions are forced to secure sponsorships in order to fund required and desired activities. However, some organisations, especially those in less populated New Zealand regions, are not only finding it more difficult to secure ‘traditional’ sponsorships, but that criticism of, and impending restrictions on, fast-food and beverage companies, are having consequential impacts on sport provision.

To date, there has been little empirical research examining the impact of public health policy on sport funding, or the relationship between funding, provision and the viability of sport in smaller communities. This research intends to broaden discussion about public health policy, the adverse impact of particular fast-food products on health and well-being, and the acceptability and effect of fast-food brands and their manufacturers being associated with rugby union via sponsorship relationships.
When injuries occur in rugby union the initial response is often how can we alter the rules, better condition the players, or alter technique to prevent injury? However, another approach might be to examine the culture surrounding the sport and question how players, coaches and management respond to injury. Premature return to competition from injury has been identified as a preventable cause of injury. The purpose of the pilot study was to describe professional rugby players’ experiences with the management of injuries and their return to play. Using a sample of convenience, 10 (6 backs, 4 forwards; mean 11.3 playing seasons) retired professional players were interviewed. Participants were asked about their injury history, how their injuries were managed, how decisions regarding their return to play were made, and the impact of rugby related injuries on their present health. Interviews were transcribed and analysed using a constructivist grounded theory approach to help understand players’ experiences within the culture of professional sport.

The main themes that emerged were that pressures within the team, the team environment and the players themselves often meant that injuries were poorly managed. Decisions regarding readiness to return to play were often left to the player, with the ‘rugby culture’ and attitude to injury meaning players often felt pressured to return early, or play on through injury. Howe (2004) suggests that coaches, players and medical staff can get caught up in a ‘sporting fog’ that leads to the normalisation of pain and injury and reinforces a risk culture. This study argues that the health and wellbeing of rugby players could be enhanced with more objective return to play assessments to supplement current decision making mechanisms, and to provide some separation from a risk culture.
Overseas Rugby World Cup Fans’ Constraints Analysis

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"A comparative study between the potential constraints on 2011 NZ and 2015 England fans"

The Rugby World Cup (RWC) is a major world sports event, and many fans travel to the host countries. For example, 140,000 fans travelled to the RWC 2011 New Zealand and 450,000 fans travelled to the RWC 2015 hosted by England. Accurate identification of the constraint factors that impact potential fans is important for the marketing activities of National or Regional Rugby Organizations and Destination Management Organizations. This study examined constraints factors as they impacted on potential RWC fans. First, we developed the RWC fan constraints scale from previous leisure constraints studies (Crawford et al., 1987; Welki and Zlatoper, 1999; Trail et al., 2007; Pritchard et al., 2009; Kim and Trail 2010; Nishio, 2013, Nishio et al., 2016). Then we compared the constraints factors impacting New Zealand in 2011 and England in 2015. Potential fans are people who have considered watching the RWC 2011 in New Zealand or the RWC 2015 England. From the total sample of Japan Rugby Football club members (N=648 in 2011 and N=2053 in 2015), we collected potential fans for the RWC 2011 (N=117) and the RWC 2015 (N=570). First, using factor analysis (Promax Rotation with Maximum Likelihood), we developed the Rugby World Cup Fan Constraints Scales (1. Companions, 2. Cost, 3. Different Culture, 4. Security and 5. Alternative Leisure). Second, we compared five factor scores using the independent t-test. Three factors proved to be significantly different between 2011 and 2015. Cost and Security shows significant differences between 2011 and 2015. For marketing managers of sports organizations or of travel companies, potential fans are new customers as well as repeaters. The results show the practical implications for international marketing managers with regard to the Rugby World Cup.
New Zealand Rugby Response and Strategy to Manage and Treat Concussions in Rugby Union

Dr. Danielle Salmon, Joe Harawira & Dr. Ian Murphy
NZ Rugby

Concussions in rugby have recently been documented as the most common match injury (RFU Report, 2016), with an overall incidence rate of 4.73 concussions per 1000 player match hours (Gardner et al., 2014). These injuries are currently one of the most prominent medical concerns in contact/collision sports at all ages and levels of competition due to increased susceptibility of concussed players to future injuries and potential for long-term health problems (Benson et al., 2013, Lisman et al., 2012) including memory problems, depression, and cognitive impairments (Alexander et al., 2015; Gouttebarge et al., 2016; Hume et al., 2016). To address injuries in general and concerns around concussions NZR and ACC have included the education of coaches, referees and health care providers on the treatment and identification of concussions into a revised version of RugbySmart. While no individual module in the RugbySmart will addresses concussions specifically the management of concussions will be woven into the content of each of these individual initiatives, as highlighted by the following:

Players Education: Will focus on educating players about identifying symptoms and the graduated return to play (GRTP) guidelines following a concussion. It will focus on the 4 R’s (Recognise, Remove, Recover and Return) around concussions.

Health Provider Engagement: To ensure health care providers (HPC) are adequately resourced to manage players who come into their care following a concussion. Baseline neurocognitive testing of players will be conducted so that HCP have symptoms scores to assist with their clinical diagnosis and return to play decisions.

First Aid in Rugby: To ensure that at every rugby game in NZ there is someone who has received first aid training.

Coach and Referee: The Blue Card initiative allows the referee to issue a blue card to a player who, in the opinion of the referee, may have been concussed. This player will then be removed from play and must seek medical clearance before returning to play.
Global mega-events like the Rugby World Cup are unique moments, separate from daily life, that offer people the chance to unite through a sense of being part of something larger than themselves and sharing an experience that matters deeply. Such events can evoke a wide range of emotions including joy, sadness, anger and even hate. From the angry hacking of a referee’s Wikipedia page in 2007 to vibrant celebrations in 2011 and 2015, rugby takes fans on a collective rollercoaster ride of highs and lows. In stark contrast, those who describe themselves as ambivalent or even ‘haters’ find rugby’s dominance in New Zealand culture alienating and isolating.

In this presentation, I discuss the wide range of emotions experienced and expressed by New Zealanders during the 2007, 2011 and 2015 Rugby World Cups. Grounded in a cultural studies theoretical commitment to opening up the practice of representation to consider who is silenced or included, I explore the Cup’s effects on a small nation, for which rugby and the men’s national rugby team, the All Blacks, have long been understood as the key markers of national identity. My research takes a bottom up-approach, highlighting the experiences of ordinary New Zealanders, rather than the more common top-down research that focuses on the views of those with more power to influence the ‘national’ story, such as politicians, journalists, advertising executives, rugby officials and elite rugby players. Drawing from extensive fieldwork, interviews, the results of three anonymous surveys and a lifetime of following the sport, as well as analysis of online public comments, I attempt to bring to life the power of a major sporting event to illuminate New Zealanders' relationships with rugby, the nation and each other.
The effective governance of any organisation must pay regard to its future health and well-being, its history, culture and wider role in society. In addition, governance requires understanding of the environment, as it is, and as it may be in the future. As such, effective governance requires an all-embracing systems perspective. However, there has been a relative paucity of published research in the sport sector on governance informed by the notions of systems thinking, or viewed through the conceptual lenses provided by systems methodologies.

This paper draws on three cases of New Zealand rugby organisations – the New Zealand Rugby Union, the Wellington Rugby Football Union, and the Wellington Sevens organisation – to demonstrate the value and systemic insights that arise from systems approaches and the development of a systems perspective.

The paper not only demonstrates how systems concepts make a clearer distinction between the systemic requirements of governance, management and operations and of the systemic requirements for effective organisation, but provides insight on how, for example, systemic role conflict and role overload, has been and can be identified and addressed in the New Zealand case organisations.
Do the world's best influence on-field performance?
Estimating the impact of New Zealand rugby coaches on non-native international teams

Sam Richardson,
Massey University, New Zealand

New Zealand is generally regarded as the best rugby nation in the world. Rugby is the country’s national sport, and is deeply ingrained in New Zealand culture. New Zealand players are highly sought after by overseas clubs, many of whom migrate and play for their adopted countries. Over twenty New Zealand-born players represented their adopted nations in the 2015 Rugby World Cup (Schofield, 2015). New Zealand has a long history of exporting its coaching expertise to the rest of the world. New Zealand coaches are highly sought after - not because there are more of them than from any other country, but because they are considered better coaches (Schofield, 2015; Wilson, 2013). There are only a limited number of opportunities to coach at the elite level in New Zealand, so many coaches look offshore to enhance their prospects of future employment. Growing numbers of New Zealand coaches are coaching at the elite club level around the world, including in the UK, Europe and South Africa (Wilson, 2013). Numbers of New Zealanders coaching international sides have also been growing in recent years, culminating with seven New Zealand-born head coaches helming nations other than New Zealand in the 2015 Rugby World Cup (Schofield, 2015).

This paper seeks to quantify the impact that New Zealand coaches have when coaching overseas at the international level. A model is built with economic- and rugby-specific predictors of a country's World Rugby ranking points in the spirit of previous research into performance in other sports. Results from this analysis show that New Zealand coaches have (statistically significantly) increased the international performance (via an increase in ranking points) of overseas countries that they have coached.
NZ Rugby’s leadership of anti-homophobia and inclusion policies in New Zealand sport

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Homophobia is a strong and pervading factor in sport (Denison & Kitchen, 2015). Of the 9,494 respondents in the international Out in the Fields report, over 80% reported that homophobic abuse was common in sport (Denison & Kitchen, 2015). In New Zealand, an inclusion steering group has been formed under the leadership of NZ Rugby in response to these findings. This group is made up of representatives from six National Sport Organisations (NSOs), the NZOC and one representative from Sport NZ. Under the leadership of NZ Rugby, the group is working to develop anti-homophobia policies under the broader theme of inclusion.

The purpose of this research is twofold:

1. To examine NZ Rugby-led process of developing anti-homophobia policies;
2. To investigate the process of delivering such policies to the sport within NZ.

Members of the inclusion policy steering group were interviewed over a two month period in March and April 2016. Two senior personnel from the NZ Olympic Commission and Sport New Zealand were also interviewed. Interviews took between 30 and 50 minutes.

Using social identity theories, the following themes were identified in the preliminary analysis: the lack of background knowledge and experience in this area; the reasons for considering anti-homophobia policies and joining the steering group; the policies’ scope (broader inclusion or specific anti-homophobia?); the positioning of the policy in an organisation: player welfare, community; the intended processes for developing and actioning policy; the anticipated response from regional and local sport bodies; and the experience of working collaboratively in the steering group.

The themes will be discussed from a critical theoretical perspective, in conjunction with NZ Rugby’s focus on leadership, education, and programme development in this area. Areas of future research will be identified.
Rugby strength and conditioning: Fronting up to contemporary issues in practice

Tania Cassidy & Phil Handcock
University of Otago, Dunedin, New Zealand

The role of the strength and conditioning coach (SCC) has existed for well over 50 years in the U.S.A., largely due to a lengthy history of professional and elite collegiate sport. However, strength and conditioning coaches are relatively new to rugby union, with this role really only emerging with the 1995 professionalisation of the sport. While the development of rugby strength and conditioning has generally paralleled the growth of the professional sport, the ‘landscape’ of the sport has changed in many unanticipated ways. For example, professional rugby now involves extended seasons, virtually year round training, earlier strength and conditioning engagement for youth, single sport athletes, concerns about training workloads, extended careers, heightened concerns over athlete health and wellbeing, financial pressures, and constant access to a plethora of contradictory conditioning information. Directly, and indirectly, the work of rugby SCCs is affected by challenges associated with the changing landscape, with some of the challenges clashing with ‘rugby culture’. In this paper we make a case for the benefits of rugby SCCs employing critical reflection as a means of engaging more with some of the moral, ethical and societal issues likely to be intertwined with their practice (Handcock & Cassidy, 2014; Kuklick & Garity, 2015; Mills & Garity, 2016). We argue that a better understanding of pedagogically informed reflective practice will contribute to the professional development and effectiveness of rugby strength and conditioning coaches.
Rugby union in Fiji is central to the vaka i taukei (indigenous way of life). The passion afforded to rugby, and the conviction that rugby provides a space for hegemonic masculine expression and aspirational social and economic achievement, means many Fijian men see rugby as a livelihood possibility, striving towards the ‘rugby dream’. With many indigenous Fijians living below the poverty line, more in the rural areas (although more condensed, and visible in the urban/peri-urban areas), and the fact rugby in Fiji is not bound by class, meaning even the poorest can participate, further incentive for viewing rugby as a livelihoods option can be seen. Building on recent work undertaken by Kanemasu and Molnar (2014) who investigated the ways athletes experience life after rugby – ‘being an Ex’, this exploratory study aimed to understand this livelihood choice better by asking broadly: What is the potential development impact of rugby-generated remittances for iTaukei, indigenous Fijians families and what are some of the challenges athletes and/or their families face ensuring any gains make a difference in the longer term? More specifically we ask:

i. Do remittances contribute to growing capitals and what types of capitals are being grown?

ii. Do remittances contribute to creating choices and opportunities and what types of choices and opportunities are being created - now and in the longer term?

iii. What are some of the challenges athletes and families face when using rugby as means of livelihoods creation which influences any sustained impact?

Fieldwork findings will be presented
What is the purpose? Rugby coaching in New Zealand secondary schools.

Blake Bennet
Canterbury University & Sport Canterbury

This presentation outlines the results of a recently completed Doctoral thesis examining "Sheihin and Power: The historical and Sociocultural Influences on Rugby Coach Pedagogy in Japanese and New Zealand Secondary Schools”. This research investigated the historical and sociocultural factors influencing coaches in secondary school rugby in Japan and New Zealand. Interviews with Japanese participants revealed that a Seishin ideology strongly underpinned rugby coaching practices. This ideology was aimed at forging players’ Kokoro (mind/spirit) and bodies in a process of Ningen Keisei (character development). Conversely, New Zealand data revealed a strong focus on developing technique and skills. On the basis of these findings, New Zealand coaches and educators may need to consider the purpose of rugby in schools if no clear educative intent is evident. Future research could examine the implications of leaving these objectives unarticulated in secondary school contexts.
"Barbed-wire Boks":
The Long Shadow of the 1981 Springbok Tour of New Zealand

Sebastian Potgieter
Otago University

In 1981, during the height of apartheid, the South African national rugby team, the Springboks, toured to New Zealand, breaking South African rugby’s 16 year hiatus from New Zealand soil. In South Africa the tour was expected to reopen the doors to international competition for the Springboks after an anti-apartheid sporting boycott had forced the sport into relative isolation during the 1970s. In the face of much international condemnation the Springboks toured to New Zealand in 1981 and were met with large and often violent demonstrations as those who opposed the tour attempted to scuttle it. For the duration of the tour New Zealand was plunged into a divisive state of chaos as police and protestors clashed outside heavily fortified rugby stadiums. In South Africa those bleary-eyed rugby fans who braved the early morning hours to watch the historic live broadcasts of the matches were greeted with extraordinary scenes: rugby fields being combed for glass shards, fishhooks, and nails scattered by anti-tour protestors; a pitch invasion at Hamilton forcing the cancellation of the Springboks’ match against Waikato; and the infamous third test, dubbed the ‘flour-bomb’ test, in Auckland. While the events were a rude awakening to white South Africans on the hostilities abroad towards the apartheid regime, the country’s racist policies remained unyielding. However, the tour had repercussions for South African rugby and reflected how desperate establishment rugby had become to stave off total isolation. While the tour is often mentioned in work on the sporting boycott-era, it is rarely assigned the significance it deserves. Using hitherto untapped archival material this paper concerns an in depth discussion on the 1981 tour, what it revealed about South African rugby at the time, and in particular how the tour had a large hand in bringing about South African rugby’s total isolation in the 1980s.
Changing the paradigm: More than just a player!

Glenn Fyall
University of Canterbury

Given recent events and moral dilemmas confronting rugby in this country, this presentation looks to deconstruct and critique current coaching practice and the assumptions and characteristics that underpin it. Considering recent research findings outlining the role that rugby plays, or may not play, in the development of young people (Bennett, 2016), this presentation looks to explore alternative visions in rugby coaching and outline the associated benefits. Using concepts of educational theory, the presentation will deconstruct traditional perspectives of coaching and explain why these are so difficult to change. Furthermore, the presentation will explicate humanistic understandings of the coaching process and consider the role that this plays in developing not only better players, but better people.
Quantifying and Comparing the Physical Characteristics of Sub-Elite Level University Age Rugby Players from New Zealand and Japan

Marrin Haggie¹, N Saga² & Frans van der Merwe¹
¹Waikato Institute of Technology, ²Teikyo University

Objectives: To quantify and compare the physical characteristics of sub-elite university age rugby players from New Zealand and Japan.

Methods: Fifty-seven athletes from New Zealand (n=28) and Japan (n=29) were assessed using a battery of standardised testing protocols to determine individual physical characteristics. Athletes were measured for height, weight, body composition (sum of 8 skinfolds), flexibility (sit and reach), muscular strength (predicted 1RM back-squat and bench-press), muscular power (counter movimiento jump and bench-throw), muscular endurance (60s pull-ups and push-ups), speed (10,20 and 40m sprint), change of direction speed (505 agility test), aerobic capacity (multi-stage shuttle run test) and repeated sprint ability (repeated sprint ability test).

Results: The differences between the New Zealand and Japanese athletes are minimal. However, the New Zealand athletes tested significantly better (p < 0.05) than the Japanese athletes for flexibility (27.81 ± 7.27cm vs 13.15 ± 6.65cm) and 10m sprint speed (1.76 ± 0.08s vs 1.81 ± 0.08s). Japanese athletes tested significantly better (p < 0.05) than their New Zealand counterparts for counter movement jump (72.91 ± 6.69cm vs 59.68 ± 7.77cm), bench-throw (1215.38 ± 218.14w vs 825.9 ± 209.45w), 60s push-up endurance (65.63 ± 16.68 vs 53.63 ± 12.87) and repeated sprint ability test difference (0.49 ± 0.3s vs 0.25 ± 0.07s). No significant differences were evident for all other measured variables.

Conclusion: The physical characteristics of New Zealand and Japanese sub-elite university age rugby players are similar. However, the New Zealand athletes showcase superior 10m sprint speed and hamstring and lower back flexibility. The Japanese athletes showcased superior lower body power, upper body power, muscular endurance and repeated sprint abilities.
The Hip, the Pelvis and the Lumbar Spine – one Kinetic complex in Relation to injury prevention in male and female Rugby Players

Mike Harnett¹, Darryl Cochrane² & Scott Pinfold¹
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We will be discussing the Principles of Injury prevention and Sports performance enhancement as it relates to the kinetic complex of the hip, the pelvis and the lumbar spine. There is a strong movement relationship between the hips the pelvis and the lumbar spine. They are connected with bony articulations, accessory ligaments that cross the boundaries of each joint as well as the largest muscle groups found in the human body. Maximising movement efficiency relies on the relationship in this kinetic complex. Maximising movement efficiency will improve rugby performance with power, speed and endurance which are important in all aspects of rugby.

An evidence-based approach to identifying and managing dysfunction in this kinetic complex is presented. Included will be assessment of squat technique, hazards to avoid and interfering movement patterns that decrease physical performance. Presentation will include our research showing increased jump height efficiency as well as how to increase stability through the spine.
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