Rugby Codes Research Group

e-Magazine

Issue 7 (Sept) 2019

Hume, P.A. Editor.

We acknowledge the support of AUT Millennium and SPRINZ for hosting the publication of this e-Magazine.

RCRG website:
https://sprinz.aut.ac.nz/areas-of-expertise/interdisciplinary-research/rugby-codes

AUT SPORTS PERFORMANCE RESEARCH INSTITUTE NEW ZEALAND

AUT MILLENNIUM

Professor Patria Hume - e-Magazine Editor

Welcome to issue 7 of the Rugby Codes Research Group (RCRG) e-Magazine. The aim for the RCRG e-Magazine is to communicate advances in evidence-based knowledge and its practical application to the wider support network of rugby codes. In this issue we provide updates on work by members including publication details and poster content.

The Rugby **Codes** Research Group is an international network that has over 150 members from 10 countries who focus their research on performance improvement and injury reduction in the rugby codes (union, league, football, etc). The RCRG co-leaders work together to help achieve the aims of the RCRG:

- Professor Patria Hume (Founder of RCRG, AUT Professor Human Performance, Biomechanist, Kinanthropometrist, Injury prevention specialist, Injury epidemiologist)
- Dr Doug King (AUT SPRINZ Research Associate, Biomechanist, Kinanthropometrist, Injury Prevention specialist, Injury epidemiologist)
- Professor Lesley Ferkins (AUT staff, Sports Management specialist)
- Associate Professor Nic Gill (All Blacks Strength & Conditioning Coach, AUT Staff)
- Dr Matt Brughelli (AUT staff, Strength and conditioning specialist, Biomechanist)

We aim to provide the latest evidence-based knowledge from the literature informing best practice within the rugby codes taking a comprehensive account of all supporting factions.

The Rugby **Health** Research Group aims to revolutionise how we prevent, identify and treat injuries that occur through participation in the rugby codes through connecting researchers, clinicians, patients / whanau, funders, policy makers and media. This group is led by Professor Patria Hume (New Zealand), Dr Doug King (New Zealand) and Dr Karen Hind (United Kingdom).

The Rugby Codes Research Group (RCRG) celebrates 10 years of existence in 2019.

We look forward to your continued work to improve performance and reduce risk of injury in the rugby codes.

Mission

Holistic advancement of practice within the rugby codes via applied research.

Aims

• Bring together expertise that integrates areas of sport research (injury prevention, strength & conditioning, sport technology, coaching, psychology, physiology, performance analysis, leadership, management).
• Offer leading edge design and development solutions to rugby organisations, teams and players around the world.

Acknowledgement

Thanks are given to PhD student and RCRG research officer Josh McGeown <josh.mcgeown@aut.ac.nz> for collating information from contributors for this RCRG e-Magazine.

Irish Rugby Injury Surveillance (IRIS) Amateur Rugby project

PhD Studentship open for applications on the Irish Rugby Injury Surveillance (IRIS) project at University of Limerick, Ireland.

This studentship will involve the expansion of the existing Irish Rugby Injury Surveillance (IRIS) project for schools and women's domestic rugby in Ireland. The focus will be on the collection, tracking and tend analysis of injury patterns. Impact of warm-up and structured strength and conditioning sessions on injury incidence in the amateur domestic game will also be an objective of this research programme. The overall aim is to enhance the health and welfare of Rugby players across the domestic game in Ireland.

Supervisors: Dr Tom Comyns (Tom.Comyns@ul.ie) and Dr Ian Kenny (ian.kenny@ul.ie)
IRIS info: https://www.ul.ie/pess/content/welcome-irish-rugby-injury-surveillance

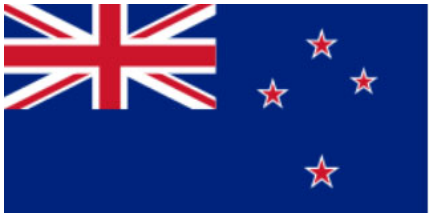
"IRIS is the first long-term Rugby Union specific injury surveillance research project within amateur Rugby Union in Ireland. The research records the incidence, type, nature and severity of both match and training injuries occurring across the amateur game in Ireland.

By monitoring this information, injury trends may emerge which will aid in the development and implementation of future evidence-based injury prevention strategies in order to minimise injury risk and enhance player welfare.

Rugby Union is a highly popular team sport with global participation rates increasing by ~20% (CIBS, 2011). With mass participation and rising competitiveness, the increasing prevalence and associated cost of Rugby-related injuries among both professional and amateur, adult and underage players, is of growing concern (Fuller et al., 2008; Freitag et al., 2015; O'Rourke et al., 2006; RFU, 2015). Such injury incidence have been shown to differ between playing levels in Rugby Union. A meta-analysis on injuries in senior men's professional Rugby Union found the overall incidence of injury in senior men's professional Rugby Union is approximately 81 per 1,000 player hours (Williams, 2013), which is three times greater than among underage players (26.7 per 1,000 hours, Freitag et al., 2015). Within the context of club and schools Rugby Union in Ireland, the incidence, type, nature and severity of injury is unknown, as are the quality of the surveillance systems in place at these levels of the game. Thus, a high quality injury surveillance and prevention programme is required.

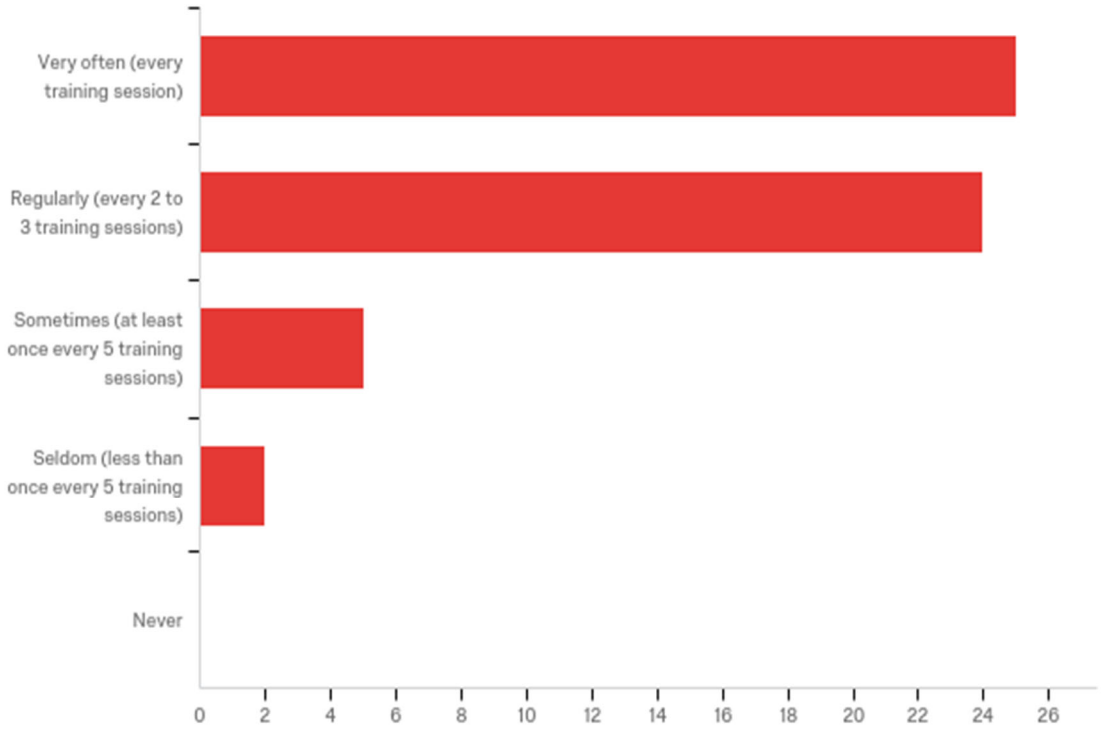
Initial findings from IRIS' 2017/18 first season of amateur (community) club surveillance showed an overall match time-loss injury incidence rate for males was 49.7/1,000 player hours, and for women was 46.2/1,000 player hours. What this means is that a single male player would have to play 15 matches to sustain one injury; 16 matches for women." https://www.ul.ie/pess/content/welcome-irish-rugby-injury-surveillance.

PhD student Koen Wintershoven - MSc, B.Ed



PhD Candidate, Te Huataki Waiora Faculty of Health, Sport, & Human Performance, University of Waikato Adams Centre for High Performance Mount Maunganui.

Having moved back to Aotearoa after a few years overseas in my home country of Belgium. Exhilarated with the prospect of furthering knowledge gained from prior Master thesis research, by applying it to a wider and deeper rugby union context. Exciting to be able to upskill in the vibrant S&C environment of the UoW Adams Centre for High Performance.



Current doctoral project

The application of small and large-sided games to rugby union: A match demands approach.

- The use of small and large-sided games in rugby union: A survey
- Rugby union small-sided games: A systematic literature review

Planned research projects

•Data collection for kinematic, physiological and physical variables on all levels of play in New Zealand small-sided and full games.

E-publication

Wintershoven, K., L. Valentin, R. Vaeyens, and D. Deprew, Analyse van trainingsvormen bij semiprofessionele voetballers (Analysis of training forms in semi-professional soccer players), Master thesis, in Faculty of Medicine and Health sciences. 2013, Ghent University: Ghent, Belgium. https://lib.ugent.be/nl/catalog/rug01:002061374

PhD student Mike Hopkinson MSc, FHEA

Research specialisation: Tackle injury mechanisms in rugby league.

Experience: 1st class degree in Sport & Exercise Science, Masters degree in Sport & Clinical Biomechanics. One year experience as a strength and conditioning coach, with specific rugby experience at Bradford Bulls RLFC. Currently a Graduate teaching assistant, PhD student at Leeds Beckett University and first team performance analyst at Harrogate RFC. I have experience with a vast variety of biomechanical equipment and software, including Bioware, Simi motion and Qualysis. Additionally, during my PhD I have gained advanced skills in Sportscode, Nacsport and R Software.

Research overview: Moving into my final year of my PhD studies, my project focuses on determining injury mechanisms in a rugby league tackle. I have worked closely with elite practitioners (coaches, performance analysts and referees) within rugby league to determine variables which are associated with a modern rugby league tackle scenario. From this, I am using videos of all Super league games of the 2017 and 2018 season and injury data from provided by the RFL to determine variables which are more likely to occur during an injurious tackle, than non-injurious. If new information is found from the study, potential rule changes or tackling strategies can be put in place to make the game and specifically the tackle scenario safer for players.

Postgraduate supervision: Currently 0, but I have supervised 1 undergraduate to completion and have taken another 3 this year.

Research publications: 1 conference paper (to be presented at ISPAS 2019 Budapest).

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CARNEGIE SCHOOL OF SPORT

Mike Hopkinson MSc, BSc (Hons), FHEA
PhD Student & Biomechanics Graduate Teaching Assistant
ISPAS Accredited Performance Analyst
Carnegie School of Sport
Cavendish Hall Room 103A, Leeds Beckett University, Carnegie Faculty, Headingley Campus, Leeds, LS6 3QS, United Kingdom

Dr Kim Hébert-Losier PT, PhD

Experience: Senior Lecturer and Biomechanics researcher at the University of Waikato Adams Centre for High, Tauranga. Completed and presented results from a 3D biomechanics project exploring the biomechanical determinants of placekicking success in professional Rugby Union players (manuscript under review) and contributed to work on jump-and-lift biomechanical factors in professional Rugby Union players.

Postgraduate supervision: Chief supervisor of doctoral candidate Francesco S. Sella studying how to maximise physical performance in female rugby athletes. Chief supervisor of doctoral candidate Christian Chavarro studying the injury incidence, aetiology, and prevention model in Rugby Union players.

Research publications:

Sella FS, McMaster DT, Beaven CM, Gill ND, **Hébert-Losier K** (2019) Match demands, anthropometric characteristics, and physical qualities of female rugby sevens athletes: A systematic review. *Journal of Strength and Conditioning Research.* Accepted 5 July 2019 – In Press. Manuscript number: JSCR-08-12641R1

Miles C, Mayo B, Beaven C, McMaster D, Sims S, **Hébert-Losier K,** Driller M (2019) Resistance training in the heat improves strength in professional rugby athletes. Science and Medicine in Football, 1-7. doi: 10.1080/24733938.2019.1566764

Smith TB, Hébert-Losier K, McClymont D (2018) An examination of the jump-and-lift factors influencing the time to reach peak catch height during a Rugby Union lineout. Journal of Sports Science. 36(10):1179-1185. doi: 10.1080/02640414.2017.1364401

Poster presentations:

Sella FS, Beaven CM, McMaster DT, **Hébert-Losier K**, Gill ND. The effects of heavy-sled sprint training on acceleration capacities in female rugby sevens athletes: A pilot study. Poster presented at the International Conference of Strength Training 2018 Conference, Perth, Australia, 30 November – 3 December, 2018

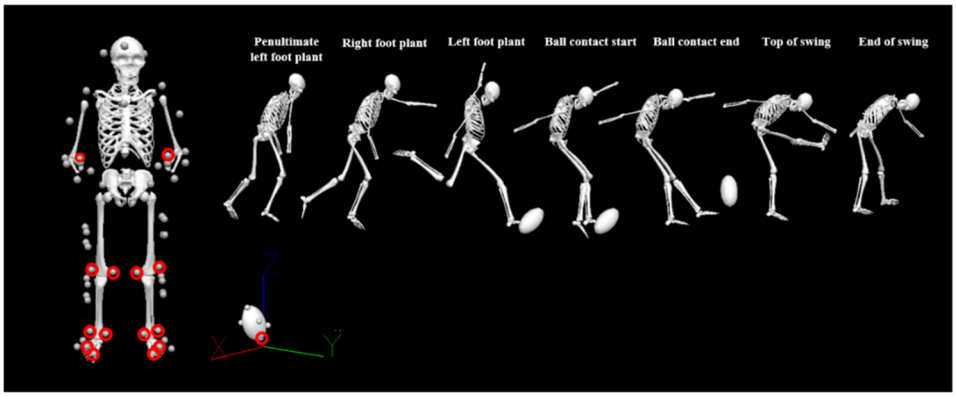
Hébert-Losier K, Beaven CM. Rugby placekicking mechanics to inform coaching strategies and enhance performance. Poster presentation at the World Congress of Biomechanics. Dublin, Ireland. 8 – 12 July, 2018.

Oral presentations:

Hébert-Losier K, Beaven CM, Lamb P**.** Self-organising map analysis of rugby placekicking biomechanics. *Oral presented at the International Society of Biomechanics in Sports. Auckland, New Zealand, 10 – 14 September, 2018*

Sella FS, Beaven CM, McMaster DT, **Hébert-Losier K**, Gill ND. The effects of heavy-sled sprint training on acceleration capabilities in female rugby sevens athletes: A pilot study. *Oral presented at the Sport & Exercise Science New Zealand 2018 Conference, Dunedin, New Zealand, 26 – 27 October, 2018*

Hébert-Losier K, Beaven CM**.** Biomechanics of successful versus unsuccessful place kicking in Rugby Union. *Oral presented at the Sport & Exercise Science New Zealand, Cambridge, New Zealand, 13 – 14 October, 2017*



Dr Daniel Travis McMaster MSc, FHEA

Experience: Research Fellow, University of Waikato Adams Centre for High Performance, University of Waikato
Assistant Strength & Conditioning Coach, All Blacks 7s / Black Ferns 7s, New Zealand Rugby Union

Research overview: Daniel's rugby research interests include performance technology, biomechanical profiling, injury prevention, force (rate, magnitude, direction and duration) generation, velocity development and load monitoring.

Research publications:

Miles, C., Mayo, B., Beaven, C., **McMaster, D**., Sims, S., Hebert-Losier, K., & Driller, M. (2019). Resistance training in the heat improves strength in professional rugby athletes. Science and Medicine in Football. doi:10.1080/24733938.2019.1566764Sella FS, **McMaster DT**, Beaven CM, Gill ND, Hébert-Losier K. Match demands, anthropometric characteristics, and physical qualities of female rugby sevens athletes: A systematic review. *The Journal of Strength and Conditioning Research.* Accepted for publication, July 2019.

Sella FS, **McMaster DT**, Serpiello FR, La Torre A. Match analysis in rugby union: Performance indicators of Rugby Championship and Super Rugby teams. *The Journal of Sports Medicine and Physical Fitness*, 59: 1306-1310, 2019.

Tavares, F., **McMaster, D.,** Healey, P., Smith, T., & Driller, M. W. (2018). A novel method to reduce the impact of countermovement jump monitoring In professional rugby athletes. Journal of Athletic Enhancement, 7(1). doi:10.4172/2324-9080.1000282

McMaster, D.T., Beaven, C.M., Mayo, B., Hebert-Losier, K., Gill, N. The efficacy of wrestling-style compression suits to improve isometric force and movement velocity in well-trained male rugby athletes. Frontiers in Physiology, 8, 2017. https://doi.org/10.3389/fphys.2017.00874

Presentations:

McMaster, DT., Mayo, B., Stebbing, T., Gill, NG., McNeill, C., Beaven, CM. Effect of drop jump training frequency on reactive strength in rugby athletes. International Conference of Strength Training, Perth: December, 2018.

Sella FS, **McMaster DT**, Mayo B, Hébert-Losier K, Gill ND, Beaven CM. The effects of heavy-sled sprint training on acceleration capabilities in female rugby sevens athletes: A pilot study. *International Conference on Strength Training*, Perth, Australia, December 2018.

McMaster, DT., Beaven, CM., Mayo, B., Gill, NG. Influence of a condensed competition schedule on mechanical fatigue in semi-professional rugby union players. World Congress of Biomechanics, Dublin: July 2018.

Francesco S. Sella, PhD candidate

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Research specialisation: Women's rugby, rugby sevens, strength and conditioning.

Experience:

Strength and conditioning coach in rugby sevens and rugby union (Black Ferns Sevens, Bay of Plenty Rugby Union).

Research overview:

His PhD project is investigating methods to maximise physical performance in female rugby athletes.

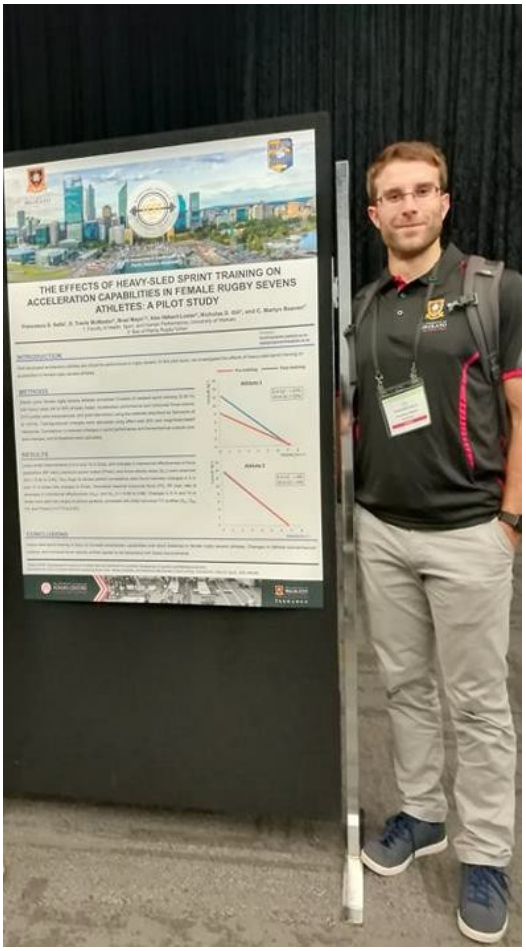
Postgraduate supervision:

One Masters thesis student to completion (Universitá degli Studi di Milano, Milano, Italy).

Research publications:

Sella FS, McMaster DT, Beaven CM, Gill ND, Hébert-Losier K. Match demands, anthropometric characteristics, and physical qualities of female rugby sevens athletes: A systematic review. The Journal of Strength and Conditioning Research. Accepted for publication, July 2019.

Sella FS, McMaster DT, Serpiello FR, La Torre A. Match analysis in rugby union: Performance indicators of Rugby Championship and Super Rugby teams. The Journal of Sports Medicine and Physical Fitness, 59: 1306-1310, 2019.



Francesco S. Sella
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University of Waikato Adams Centre for High Performance

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52 Miro St, Mount Maunganui, Tauranga, 3116

Professor Ralph Maddison: Rugby Fans in Training – New Zealand (RUFIT-NZ)

RUFIT-NZ is a randomised control trial designed to investigate the effectiveness and cost-effectiveness of a 12-week healthy lifestyle intervention for overweight men aged 30-65 years delivered by super rugby clubs in New Zealand. The study is being run through the University of Auckland with funding from the Health Research Council of New Zealand (HRC).

With increasing obesity, physical inactivity, and sedentary lifestyles in New Zealand, healthy lifestyle programmes that appeals to overweight and obese men, in particular Māori and Pacific men, are urgently needed. We are investigating the use of sport as a means of engaging this notoriously hard to reach population, middle-aged men in New Zealand.

The RUFIT-NZ programme was inspired by the Football Fans in Training (FFIT) programme that delivered a weight management and healthy lifestyle programme targeted at obese middle-aged men and delivered by staff at professional football clubs in Scotland, and has been adapted for the New Zealand environment, using the same philosophies but set within a professional rugby environment.

The RUFIT-NZ intervention comprises a two-hour session delivered each week for 12 weeks by the trainers and nutritionists from the rugby clubs. The first hour is an education session that covers topics including lifestyle behaviours, goal setting, nutrition, alcohol, sleep and behaviour change. The second hour is a tailored physical training session that progressively increase in difficulty over the 12 weeks. The trainers undergo a structured training programme on how to deliver RUFIT-NZ and are responsible for creating and delivering the exercise sessions using the rugby club facilities.

Eligible participants are randomised to either the intervention group or wait-listed control. The control group continues with their usual lifestyle but is offered the programme after 12 months.

We are currently working with the Blues, Pulse Energy Highlanders and the BNZ Crusaders and have randomised 200 men to date. The study will continue into 2020 with the final lot of wait-list controls expected to finish in 2021. Feedback to date has been overwhelmingly positive from the men, and the trainers - they are loving it!

Contact rufit@auckland.ac.nz for more information.

RUFIT-NZ on social media: Facebook, Twitter, LinkedIn

Mike Hopkinson – PhD Project Update

Descriptors and definitions for the rugby league tackle

Rugby league (RL) tackle research using video analysis has often used technical criteria from coaching cues (Gabbett, 2008) or rugby union tackle variables (Sperenza et al., 2017) The exception being King et al (2010) which described basic characteristics of the RL tackle event such as number of tacklers and tackle height of the first tackler. However, for most of this type of research content validity and relevance could be questioned (O'Donoghue, 2014). The aim of the study was to adopt a 5-stage process to determine tackle variables which are valid and reliable for RL research.

A 5-stage process has been undertaken based upon recommendations by O'Donoghue (2014). Stage 1 undertook a synthesis of literature and examine phases of the tackle, variables describing the tackle and descriptions of those variables within research. From this a draft variable list was developed. To achieve content validity and relevancy, stage 2 formed an expert group of practitioners to critique the draft and develop new phases, variables and descriptors if needed. Stage three refined the variable list based upon the practitioner consultation. Stage 4 established an expert group agreement on the refined variable list. Finally, stage 5 tested intra- and inter-reliability of the list using Kappa statistics (McHugh, 2012).

The agreed variable list comprised of 6 phases including defensive start point, pre-contact, initial contact, post-contact and play the ball phases. Within the phases 66 variables were determined. The intra- and inter-reliability testing resulted in at least moderate agreement (>0.7) within all phases.

Due to possessing both strong relevance to an RL tackle and demonstrating good levels of reliability, researchers can be confident that the variables within the created list are valid for research purposes (O'Donoghue, 2014). In addition, the rigorous 5 stage process of validating the content of the variable list should be used when determining different variables for research purposes. In doing so, researchers can be confident that they are valid in use and they can then be used consistently throughout different investigations.

Dr. Victor Lopez Jr – U.S. Rugby 7's North American *RISE* Rugby Project in Injury Surveillance

Director, Rugby Research and Injury Prevention Group, Inc, affiliated with Hospital for Special Surgery , NY, NY, USA

Rugby Research & Injury Prevention Group

Victor's group have been working hard to complete the team's efforts this past two years. Their group has attended 6 major sports medicine and science conferences around the globe over 2018-2019, promoting their efforts to understand the injury burden in U.S. Rugby-7s. This has been through the efforts of their collaborations with Auckland University of Technology, SPRINZ, Emerson Hospital in Connecticut, Missouri Orthopedic Institute, New York University and their generous sponsors the National Operating Committee on Standards for Athletic Equipment (www.nocsae.org), HSS Institute for Sports Medicine Research (https://www.hss.edu/). As well as individual private sponsors Paromed Podiatry/Orthotics AUS/NZ (https://www.paromed.com.au/), and Capital Investments NY/AUS/NZ.

Professional Conference Attendance over 2018/2019:

- ASICS Sports Medicine Australia **(2018 2-topics** Podium**, in Perth, AUS)**
- New Zealand Podiatry **in Auckland, NZ (2018 – Plenary Keynote)**
- Int'l Society of Biomechanics in Sports Annual Conference **– Auckland NZ (2018 3-topics), Oxford, Ohio USA (2019 2 topics)**
- USA Rugby National Development Summit**, Houston TX USA (2019 1-topic)**
- USA Rugby, Rugby Referee Society of NY**, NY (2019 1-topic)**
- American College Sports Medicine **(2018 5-topics, in Minneapolis, MN, USA, 4-Posters & Sp Med Podium Tutorial, 2019 3-topics, in Orlando Fl, USA)**
- Women in Sport and Exercise**, London, UK (2019 1-topic)**

Invited to Attend:

- ASICS Sports Medicine Australia **(2019 3-topics** Podiums **&** Symposium**)**
- **USA Rugby National Development Summit, Houston TX USA (2020 1-topic)**

Awards Shortlisted:

- **2019 ASICS SMA (Australia)- Judges Showcase (Clinical Sports Medicine plus Sports Injury Prevention) -**Lopez et al

Dr V Lopez Jr and Janet Gonzalez BS, Mr Daniel Rodgers, ATC, Anthony Connacher MS ATC, Jennifer Wales DPT (2022) (Left to Right)
Ms Gonzalez and Ms Wales were the 2018 RISERugby Co-National Study Coordinators.

2018 ***Penn Mutual Collegiate Rugby Championships****, Philadelphia, PA. J Powell MSATC, J Gonzalez, A Prewitt, MSATC, E Marcano MS ATC, D Rodgers MSATC, T Connacher MSATC, &* ***USA Rugby National Club 7-a-side Championships,*** *NY NY, M Adieb BS and L Tasovac (BS 2022).*

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2019 Women in Sport & Exercise Conference*: Dr Lopez, Professor Nicola Brown (chairperson), St Mary University and Ms Batool Quteishat, BS, MS (2019) (RRIPG Intern since 2016) Loughborough University. Hosted by St Mary's University, Twickenham, UK.*

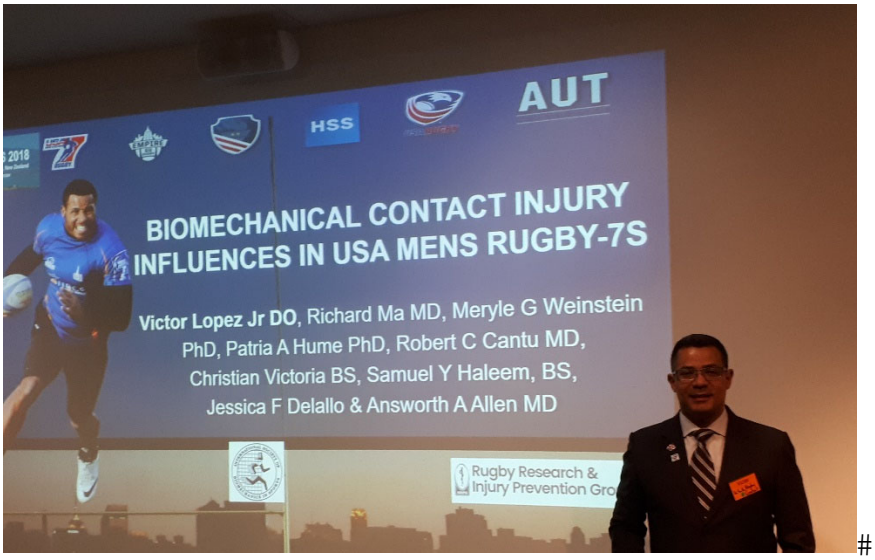
2019 ***USA Rugby National Club 7-a-side Championships*** *Kansas City, Missouri, a National candidate event representative of all U.S. Competitive Regions****, Team:*** ***(Day 1-above)*** *Dr Lopez with Residents and students of University of Missouri-Kansas City, Dr Alex Metoxen, Dr Dan Chernoff, Dr Paul Cowan (Tourney Medical Director), Mr Ross Young (CEO USA Rugby), Dr Chizitam Ibezim, Alex Garcia MSATC & Meagan Batusic MSATC.* ***(Day 2-below)*** *Dr Lopez with UM-KC, Dr Som Singh, Dr Lopez, Dr A Metoxen, Dr S Bonanni and Dr C Ibezim.*

2019 ***American College Sports Medicine****: Dr. Lopez, Dr. A Jansen van Rensburg-Univ Pretoria, Dr M Schwellnus--Univ Pretoria, Dr C Kipps-Univ College London, Dr Lopez, Dr C Janse van Rensburg-Univ Pretoria, colleague and Dr P Viviers Stellenbosch University in attendance.*

2019 ***American College Sports Medicine****: Dr. Lopez, Dr. Richard Ma, MD (Co-Director, RRIPG), & Mr Christian Victoria, MPH, (RRIPG Asst. Director) in attendance.*

2019 ***Intl Society of Biomechanics in Sport****: Dr. Lopez, Dr. Jaqueline Alderton, University of Western Australia (AUS) and Dr Helen Bayne, University of Pretoria (S Afr). Hosted by Miami University, Oxford OH, USA.*

2019 ***USA Rugby National Development Summit****: Dr. Lopez, and Dr. Richard Ma, MD (Co-Director, RRIPG) presented on our Rugby-7s North American National study.*



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2018 Int'l Society of Biomechanics in Sport: *With Dr. Lopez and Dr. Richard Ma, MD (Co-Director, RRIPG). Hosted by Auckland University of Technology, NZ.*

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2018 ***Eastern Athletic Training Association and National ATA****: Represented by Adjunct Professor Erica Marcano, MS ATC CSCS (RRIPG Regional Coordinator).*

2018 ***RRIPG/Hospital for Special Surgery, Summer Lecture Series:*** *Dr Lopez and interns: Dyese Drigo (BS 2020), Lilianna Tasovec (BS 2022) Steven Santiago (BS 2021), Janet Gonzalez (ATC 2020), Daniel Rodgers MSATC, Fady Gries DO, Mariana Adieb BS, Jennnifer Wales DPT (2022), Anthony Connacher MSATC, Tara Condon MSATC and Christian Victoria MPH (RRIPG Asst. Director).*

2019 ***RRIPG/Hospital for Special Surgery, Summer Lecture Series:*** *Dr Lopez (center) and interns: Freedom Salas (BS 2022), Isabella Cipillone (BS 2020), Kalli Segel (BS 2020), Aishwarya Srindhar DPT, Fady Gries DO, Samuel Y Haleem PTA, Lilianna Tasovec (BS 2022).*

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2019 ***RRIPG/Hospital for Special Surgery, Summer Lecture Series****: Christian Victoria MPH (RRIPG Asst.Director), Dr Lopez, Samuel Y Haleem PTA (RRIPG Lead Intern), Kalli Segel (BS 2020), Ruth Ogbemudia (RRIPG HS-intern), Jordan Genece BS (RRIPG Asst. National Study Coordinator).*

Northeast Rugby Olympic Development Academy

Dr. Lopez, Former Director of Medical Services for the Northeast Rugby Olympic Development Academy (2014-2019), and their skilled staff, are fortunate to convey that we have graduated many players to the Men's and Women's National Team. To play on the World Rugby HSBC Sevens Series, the Americas Rugby Cup Championship, who successfully competed in the first US hosted World Rugby - Rugby World Cup in Sevens, July 20, 22, 2018, San Francisco, CA, USA. The USA Rugby Sevens men and women's teams are ranked 2nd in the World after the 2019 HSBC Sevens Circuit, only behind the NZ All-Blacks. They are now getting ready to compete for the World Rugby - Rugby World Cup in Fifteens, September 20- Nov 2, 2019. I would like to thank all the players that contributed in the competitions, clinics and combines; as well as all the dedicated staff for all the events, to develop the American playing population, it was my honor to be involved and wish the current players the best of luck in this upcoming Rugby-7s developmental cycle. Wishing the teams in the RWC the best of luck! Go USA!

Rugby 7s Magazine, February 13, 2018, Barbados, WI.

https://www.youtube.com/watch?v=94QzA-xrRQM#

DR. VICTOR LOPEZ WINS RUGBY 7s INJURY PREVENTION AWARD: Conducted Dec. 9, 2018 - 3:00PM. Released Feb 13, 2018-12:00PM -- Dr Lopez was fortunate to be interviewed on the eve of winning down under from the ASICS Sports Medicine Australia (SMA) Conference -the **BEST NEW INVESTIGATOR IN SPORTS INJURY PREVENTION**, with his work on U.S. Rugby-7s. As the sport grows in North America, stakeholders are still challenged with the expansion of the sport globally. Trying to understand the true injury burden in the sport in the U.S. will be injury preventive. Do emerging markets have the same injury rates as established rugby Nations?

Dr Victor Lopez Jr., Executive Director of the Rugby Research and Injury Prevention Group & Director of Medical Services, Northeast Rugby Olympic Development Academy, while down at the Rugby Barbados World 7s with his Elite Women's Squad Northeast Rugby Olympic Development Academy, discusses with **Rugby 7s Magazine Editor/Producer, Mr. Dustin Rosen**, his opinions on the importance of his award and injury surveillance on US Rugby by levels of play, to aid in the injury prevention model for translation of player welfare. He thanks all the teams, players and administrators/tournament directors who have helped him and tirelessly promote the sport for the love of it!

Thanks to the multiple tournament directors across all the USAR Territorial Unions and North American RAN 1 (formerly the North American Caribbean Rugby Association) and team officers for their tireless efforts of promoting rugby in the U.S. and executing the events for the development of players, teams and enjoyment of all.

The RRIPG THANK, Dr. Answorth A. Allen, concussion expert Dr. Robert C Cantu, and Professor Patria Hume, & Sponsors Hospital for Special Surgery a US Olympic Committee Medical Treatment Center and the National Operating Committee on Standards for Athletic Equipment, including United World Sports and USA Rugby for attendance at their events.
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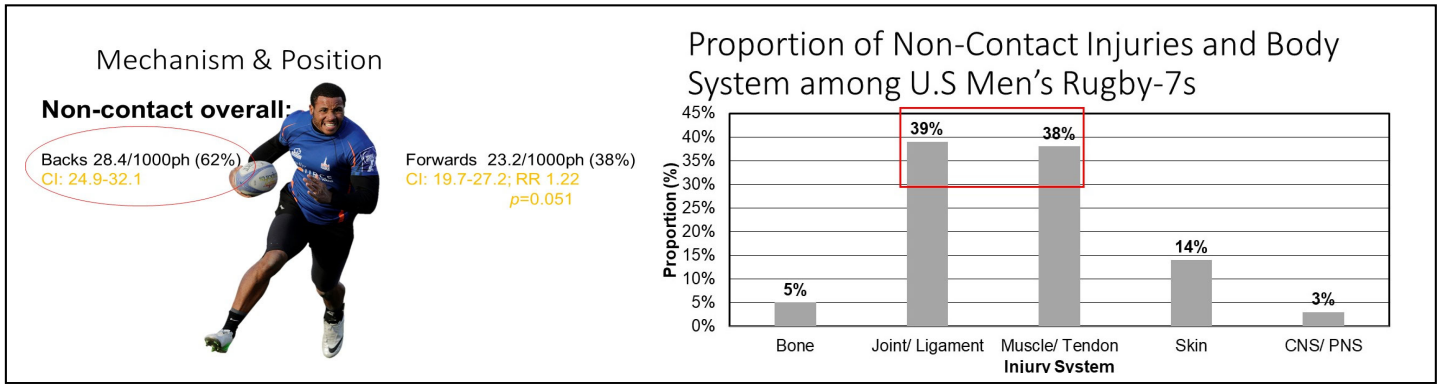
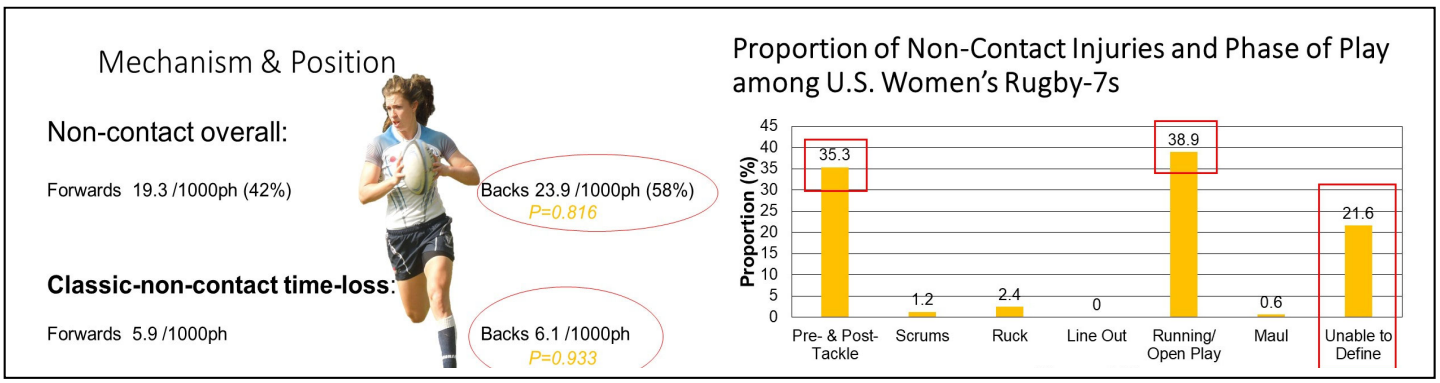
Lopez V, Jr., Victoria C, Ma R, Weinstein MG, Hume PA, Haleem SY, Mettry MT, Quteishat B, Allen AA. (2019) **"THE PREVALENCE AND CAUSE OF NON-CONTACT INJURY MECHANISMS IN U.S. MEN'S RUGBY-7S,"** ISBS Proceedings Archive: Vol. 37 : Iss. 1 , Article 44. Full paper available at: https://commons.nmu.edu/isbs/vol37/iss1/44

ABSTRACT: The aim of this study was to prospectively report non-contact injury incidence and causes in U.S. men's Rugby-7s players (n=446) over 2010-2015, using the Rugby Injury Survey & Evaluation (RISE) methodology. Non-contact injuries (time-loss 25%; medical attention 75%) had higher rates among backs (62%; 28.4/1000ph) than forwards (38%; 23.2/1000ph; RR:1.22; p=0.05). Non-contact injuries resulted in an average of 48.7days (d) absence from sport (classic non-contact 48.1d; other non-contact 77.0d). Acute injuries (85%) were most common during attempts to elude a tackle (31%) and in running/open play (48% overall; from 35% in 2010, 41% in 2011, 52% in 2012, 43% in 2013, 46% in 2014, 70% in 2015). Most non-contact injuries (44%) occurred during the first two tournament matches. These results provide much needed data on Rugby-7s, impacting emerging countries.



Ma R, **Lopez V, Jr.,** Victoria C, Weinstein MG, Hume PA, Haleem SY, Quteishat B, Gries F, Allen AA. (2019) "**THE INCIDENCE AND NATURE OF NON-CONTACT INJURIES IN U.S. WOMEN'S RUGBY-7S**," ISBS Proceedings Archive: Vol. 37 : Iss. 1 , Article 46. Full paper available at: https://commons.nmu.edu/isbs/vol37/iss1/46

ABSTRACT: The aim of this study was to prospectively determine non-contact injury incidence and mechanisms among U.S. amateur women's Rugby-7s. Non-contact injuries occurred frequently among the U.S. women population (26.5/1000ph; 29% of all injuries; n=167). The incidence of non-contact injuries occurred at similar rates among backs (58%, 23.9/1000ph, CI:19.1-29.6) and forwards (42%, 19.3/1000ph, CI:14.4-25.3; RR:1.04, p=0.816). Non-contact injuries resulted in 58.4 mean days absence from play. This study demonstrates a greater proportion of match injuries among U.S. amateur women Rugby-7 participants were related to non-contact mechanism when compared to International women participants. Therefore, U.S. women Rugby-7 players would benefit from prevention programs to minimize non-contact injury risks.



Expand your thinking… what do you think of this?

Altered brain microstructure in association with repetitive subconcussive head impacts and the potential protective effect of jugular vein compression: a longitudinal study of female soccer athletes

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ABSTRACT

Purpose To (1) quantify white matter (WM) alterations in female high school athletes during a soccer season and characterise the potential for normalisation during the off-season rest period, (2) determine the association between WM alterations and exposure to repetitive subconcussive head impacts, and (3) evaluate the efficacy of a jugular vein compression collar to prevent WM alterations associated with head impact exposure.

Methods Diffusion tensor imaging (DTI) data were prospectively collected from high school female soccer participants (14–18 years) at up to three time points over 9 months. Head impacts were monitored using accelerometers during all practices and games. Participants were assigned to a collar (n=24) or non-collar group (n=22). The Tract-Based Spatial Statistics approach was used in the analysis of within-group longitudinal change and between-group comparisons.

Results DTI analyses revealed significant pre-season to post-season WM changes in the non-collar group in mean diffusivity (2.83%±2.46%), axial diffusivity (2.58%±2.34%) and radial diffusivity (3.52%±2.60%), but there was no significant change in the collar group despite similar head impact exposure. Significant correlation was found between head impact exposure and pre-season to post-season DTI changes in the non-collar group. WM changes in the non-collar group partially resolved at 3 months off-season follow-up.

Discussion Microstructural changes in WM occurred during a season of female high school soccer among athletes who did not wear the collar device. In comparison, there were no changes in players who wore the collar, suggesting a potential prophylactic effect of the collar device in preventing changes associated with repetitive head impacts. In those without collar use, the microstructural changes showed a reversal towards normal over time in the off-season follow-up period.

INTRODUCTION

increased sTBI rates,[3] symptoms[4] and protracted recoveries[5] relative to males with similar head impact exposure.[6] The risk of long-term morbidity associated with these injuries[7] has encouraged research on the cumulative effects of repetitive subconcussive impacts (SCIs) throughout a player's career.[8]

SCIs are impacts that do not result in the clinical manifestations of a concussion[8] and a single SCI may not have serious implications; however, when aggregated over an athlete's career, they may have deleterious cognitive effects.[9 10] Neuroimaging provides objective biomarkers of white matter (WM) structural changes at acure, semi-acute or chronic stages in athletes during a season of repetitive head impacts.[11–18] WM integrity can be altered by either concussive impacts or SCI,[11–18] and longitudinal changes in WM microstructure are also evident in athletes exposed to a full season of SCI.[12 15 19 20]

A specialised neck collar has been developed to apply mild bilateral jugular vein compression that diverts flow to the vertebral veins, promoting cerebral engorgement[21] and potentially reducing intracranial energy absorption.[22 23] This is postulated to dampen the effects of SCI on WM integrity. This specialised collar has been shown to preserve WM integrity in previous neuroimaging studies involving season-long usage in male football and hockey athletes,[10 24] but the collar has not been investigated in females nor in collision sports where players do not wear helmets.

There has been no prospective longitudinal study of female high school soccer players and their WM responses over a season of soccer with repetitive subconcussive head impacts. In the present study, we recruited female high school soccer athletes who underwent diffusion tensor imaging (DTI) at up to three time points: pre-soccer season, post-soccer season and 3 months post-soccer season. We aimed

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