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Research interests

Sean Williams is a lecturer in Applied Statistics at the University of Bath. His research interests include sports injury prevention, training load monitoring, heart rate variability, and meta-analyses. He currently leads a project investigating traumatic sports injury rates in the UK, which is supported by the Scholarship Grant from the British Medical Association.

Research outputs

Coach Awareness, Knowledge and Practice in Relation to Growth and Maturation, and Training Load in Competitive, Young Gymnasts

Patel, T. S., McGregor, A., Fawcett, L., Bekker, S., Williams, S., Williams, K. & Cumming, S., 13 Nov 2020, (Acceptance date) In: International Journal of Sports Science & Coaching.

Training load and injury risk in elite Rugby Union: The largest investigation to date

West, S., Williams, S., Cazzola, D., Cross, M., Kemp, S. & Stokes, K., 21 Oct 2020, (Acceptance date) In: International Journal of Sports Medicine.

Salivary Immunoendocrine and Self-Report Monitoring Profiles Across an Elite-Level Professional Football Season

Springham, M., Williams, S., Waldron, M., McLellan, C. & Newton, R., 19 Oct 2020, (Acceptance date) In: Medicine & Science in Sports & Exercise.

Large Reductions in Match Play Physical Performance Variables Across a Professional Football Season with Control for Situational and Contextual Variables

Springham, M., Williams, S., Waldron, M., Burgess, D. & Newton, R., 15 Oct 2020, In: Frontiers in Sports And Active Living.

Trends in match injury risk in professional male rugby union: a 16-season review of 10851 match injuries in the English Premiership (2002-2019): The Professional Rugby Injury Surveillance Project

West, S., Starling, L., Kemp, S. P. T., Williams, S., Cross, M., Taylor, A., Brooks, J. & Stokes, K., 12 Oct 2020, In: British Journal of Sports Medicine.

Demarcating exercise intensity domains in freestyle swimming: is there an alternative to incremental step test and beats below HRMAX method?

Piatrikova, E., Sousa, A., Willsmer, N., Gonzalez, J. & Williams, S., 30 Sep 2020, In: Journal of Strength and Conditioning Research. 34, 9, p. 2575-2584 10 p.

Training Load, Injury Burden, and Team Success in Professional Rugby Union: Risk Versus Reward

West, S., Williams, S., Kemp, S. P. T., Eager, R., Cross, M. & Stokes, K., 30 Sep 2020, In: Journal of Athletic Training. 55, 9, p. 960-966 7 p.

The epidemiology of kicking injuries in professional Rugby Union: a 15-season prospective study

Lazarczuk, S., Love, T., Cross, M., Stokes, K., Williams, S., Taylor, A., Fuller, C. W., Brooks, J., Kemp, S. P. T. & Bezodis, N. E., 1 Sep 2020, In: Scandinavian Journal of Medicine and Science in Sports. 30, 9, p. 1739-1747 9 p.

Injuries in England and Wales Elite Men's Domestic Cricket: A nine season review from 2010 to 2018

Goggins, L., Peirce, N., Ranson, C., McGraig, S., Newman, D., Langley, B., Griffin, S., Young, M., McKay, C., Stokes, K. & Williams, S., Sep 2020, In: Journal of Science and Medicine in Sport. 23, 9, p. 836-840 5 p.

Negative association between injuries and team success in professional cricket: A 9-year prospective cohort analysis
Goggins, L., Peirce, N., Stokes, K. & Williams, S., 3 Aug 2020, In: Journal of Science and Medicine in Sport.

Injury and player availability in Women's International Pathway cricket from 2015 to 2019

Goggins, L., Warren, A., Smart, D., Dale, S., Peirce, N., McKay, C., Stokes, K. & Williams, S., 6 Jul 2020, In: International Journal of Sports Medicine.

Bowling loads and injury risk in male first class county cricket: Is 'differential load' an alternative to the acute-to-chronic workload ratio?

Tysoe, A., Moore, I., Ranson, C., McGraig, S. & Williams, S., 30 Jun 2020, In: Journal of Science and Medicine in Sport. 23, 6, p. 569-573 5 p.

The day-to-day reliability of peak fat oxidation and FATMAX: Reliability of peak fat oxidation and FATMAX

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Monitoring the heart rate variability responses to training loads in competitive swimmers using a smartphone application and the Banister Impulse-Response model

Piatrikova, E., Willsmer, N., Altini, M., Jovanovic, M., Mitchell, L., Gonzalez, J., Sousa, A. & Williams, S., 7 Jun 2020, (Acceptance date) In: International Journal of Sports Physiology and Performance.

Prior Workload has Moderate Effects on High-Intensity Match Performance in Elite-Level Professional Football Players when Controlling for Situational and Contextual Variables

Springham, M., Williams, S., Waldron, M., Strudwick, A., McLellan, C. & Newton, R., 27 May 2020, (Acceptance date) In: Journal of Sports Sciences.

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Injuries are negatively associated with team performance in professional cricket

Goggins, L., Peirce, N., Griffin, S., Langley, B., Stokes, K., McKay, C. & Williams, S., 14 Mar 2020.

The Clinical Burden of Severe Sports Injuries in England and Wales

Davies, M. A. M., Lawrence, T., Edwards, A., Lecky, F., McKay, C., Stokes, K. & Williams, S., 14 Mar 2020.

Patterns of training volume and injury risk in elite rugby union: an analysis of 1.5 million hours of training exposure over eleven seasons

West, S., Williams, S., Kemp, S., Cross, M., McKay, C., Fuller, C. W., Taylor, A., Brooks, J. H. M. & Stokes, K., 1 Feb 2020, In: Journal of Sports Sciences. 38, 3, p. 238-247 10 p.

Injury Surveillance During Competitive Functional Fitness Racing Events

Williams, S., Hitchcock, J., Davies, L., Barnes, C., Williams, S. & Williams, A., 29 Jan 2020, In: International Journal of Exercise Science. 13, 6, p. 197-205 9 p.

Growing Pains: Maturity Associated Variation in Injury Risk in Academy Football

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Variability in exercise physiology: Can capturing intra-individual variation help better understand true inter-individual responses?

Chrzanowski-Smith, O., Piatrkova, E., Betts, J., Williams, S. & Gonzalez, J., 2020, In: European Journal of Sport Science. 20, 4, p. 452-460 10 p.

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Validity and reliability of the 3-minute all-out test in national and international competitive swimmers

Piatrkova, E., Sousa, A., Gonzalez, J. & Williams, S., 31 Oct 2019, In: International Journal of Sports Physiology and Performance. 13, 9, p. 1190-1198 9 p.

Time-related changes in Quality of Life in persons with lower limb amputation or spinal cord injury: Protocol for a systematic review

Young, M., McKay, C., Williams, S., Rouse, P. & Bilzon, J., 2 Aug 2019, In: Systematic Reviews. 8, 1, p. 1-6 6 p., 191.

Tackling Concussion in Professional Rugby Union: A Case-Control Study of Tackle-Based Risk Factors and Recommendations for Primary Prevention

Cross, M. J., Tucker, R., Raftery, M., Hester, B., Williams, S., Stokes, K. A., Ranson, C., Mathema, P. & Kemp, S., 31 Jul 2019, In: British Journal of Sports Medicine. 53, 16, p. 1021-1025 6 p.

Effects of consecutive domestic and international tournaments on heart rate variability in an elite rugby sevens team

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Athlete Monitoring in Rugby Union: Is Heterogeneity in Data Capture Holding Us Back?

West, S., Williams, S., Kemp, S. P. T., Cross, M. & Stokes, K., 27 Apr 2019, In: Sports. 7, 5, 98.

Women's Rugby Injury Surveillance Project: Season Report 2017/18

Williams, S., Kemp, S. P. T., Stokes, K., West, S., Wojek, K., Fairweather, C., Porter, R. & Henderson, L., Apr 2019

Association of Daily Workload, Wellness, Injury and Illness during Tours in International Cricketers

Ahmun, R., McGraig, S., Tallent, J., Williams, S. & Gabbett, T., 1 Mar 2019, In: International Journal of Sports Physiology and Performance. 14, 3, p. 369-377 9 p.

The epidemiology of concussion in professional rugby union in Ireland

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Redden, J., Stokes, K. & Williams, S., 31 Dec 2018, In: Journal of Sports Science and Medicine. 17, 4, p. 539-546 8 p.

Injury risk-workload associations in NCAA American college football

Sampson, J. A., Murray, A., Williams, S., Halseth, T., Hanisch, J., Golden, G. & Fullagar, H., 1 Dec 2018, In: Journal of Science and Medicine in Sport. 21, 12, p. 1215-1220 6 p.

The physical characteristics of specific phases of play during rugby union match-play

Read, D., Jones, B., Williams, S., Phibbs, P., Darrall-Jones, J. D., Roe, G., Weakley, J., Rock, A. & Till, K., 1 Nov 2018, In: International Journal of Sports Physiology and Performance. 13, 10, p. 1331-1336 6 p.

Modelling the HRV response to training loads in elite rugby Sevens players

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The peak duration-specific locomotor demands and concurrent collision frequencies of European Super League rugby

Weaving, D., Sawczuk, T., Williams, S., Scott, T., Till, K., Beggs, C., Johnston, R. & Jones, B., 2018, In: Journal of Sports Sciences. 37, 3, p. 322-330 9 p.

Heart Rate Variability is a Moderating Factor in the Workload-Injury Relationship of Competitive CrossFit Athletes

Williams, S., Booton, T., Watson, M., Rowland, D. & Altini, M., 1 Dec 2017, In: Journal of Sports Science and Medicine. 16, 4, p. 443-449

Optimal Pullout Resistance Is Achieved When Bone Screws Are Inserted At 65 To 75% Of The Stripping Torque

Fletcher, J., MacLeod, A., Polak-Kraśna, K., Williams, S., Whitehouse, M., Gill, H. & Preatoni, E., 17 Nov 2017, (Acceptance date). 1 p.

How much rugby is too much? A seven-season prospective cohort study of match exposure and injury risk in professional Rugby Union players

Williams, S., Trewartha, G., Kemp, S., Brooks, J. H. M., Fuller, C. W., Taylor, A. E., Cross, M., Shaddick, G. & Stokes, K., 1 Nov 2017, In: Sports Medicine. 47, 11, p. 2395-2402 8 p.

Response

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The influence of playing experience and position on injury risk in NCAA division I college football players

McCunn, R., Fullagar, H., Williams, S., Halseth, T., Sampson, J. & Murray, A., 1 Nov 2017, In: International Journal of Sports Physiology and Performance. 12, 10, p. 1297-1304 8 p.

High Volume Image Guided Injections with or without steroid for mid-portion Achilles Tendinopathy: A Pilot Study

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Energy balance components in persons with paraplegia: daily variation and appropriate measurement duration

Nightingale, T., Williams, S., Thompson, D. & Bilzon, J., 26 Sep 2017, In: International Journal of Behavioral Nutrition and Physical Activity. 14, 1, 132.

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Rates and risk factors of injury in CrossFit: A prospective cohort study

Moran, S., Booker, H., Staines, J. & Williams, S., 1 Sep 2017, In: Journal of Sports Medicine and Physical Fitness. 57, 9, p. 1147-1153

Subsequent injuries and early recurrent diagnoses in elite Rugby Union players

Williams, S., Trewartha, G., Kemp, S. P. T., Cross, M., Brooks, J. H. M., Fuller, C. W., Taylor, A. E. & Stokes, K., 1 Sep 2017, In: International Journal of Sports Medicine. 38, 10, p. 791-798

The Effect of Clinical Pilates on Functional Movement in Recreational Runners

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The effect of tackling technique on the biomechanical loading experienced by Rugby Union players

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Reducing musculoskeletal injury and concussion risk in schoolboy rugby players with a pre-activity movement control exercise programme: a cluster randomised controlled trial

Hislop, M. D., Stokes, K. A., Williams, S., McKay, C. D., England, M. E., Kemp, S. P. T. & Trewartha, G., 19 Jul 2017, In: British Journal of Sports Medicine. 51, 15, p. 1140-1146 7 p., 097434.

Effect of number of sprints in a SIT session on change in VO₂max: A meta-analysis

Vollaard, N. B. J., Metcalfe, R. S. & Williams, S., 1 Jun 2017, In: Medicine & Science in Sports & Exercise. 49, 6, p. 1147-1156 10 p.

Monitoring what matters: A systematic process for selecting training load measures

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Biomechanical loads in rugby union tackling are affected by tackle direction and impact shoulder

Seminati, E., Cazzola, D., Trewartha, G., Williams, S. & Preatoni, E., 3 Apr 2017, (Acceptance date) *Proceedings of the 35th International Conference on Biomechanics in Sports (2017) Cologne, Germany, June 13-18, 2017*. Vol. 1. p. 540 - 543 4 p.

A downward head posture leads to higher cervical spine loading during head-first impacts in simulated rugby tackles

Seminati, E., Preatoni, E., Trewartha, G., Stokes, K., Williams, S. & Cazzola, D., 15 Mar 2017, (Acceptance date) In: British Journal of Sports Medicine. 51, 4, p. 385-386

Tackle direction and dominant side affect upper body loading during rugby tackles

Seminati, E., Cazzola, D., Preatoni, E., Williams, S., Stokes, K. & Trewartha, G., 15 Mar 2017, (Acceptance date) In: British Journal of Sports Medicine. 51, 4, p. 386

How much rugby is too much? A seven-season prospective cohort study of match exposure and injury risk in professional Rugby Union players

Williams, S., Trewartha, G., Kemp, S., Brooks, J., Fuller, C. W., Taylor, A., Cross, M., Shaddick, G. & Stokes, K., 1 Feb 2017, In: British Journal of Sports Medicine. 51, 4, 1 p., 410.

Better way to determine the acute: chronic workload ratio?

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Establishing and validating an osteoporotic model using juvenile bovine tibiae

Fletcher, J., Williams, S., Whitehouse, M., Gill, H. & Preatoni, E., 2017, (Acceptance date). 1 p.

Establishing optimum screw tightening to maximise pullout force in fracture fixation

Fletcher, J., Williams, S., Whitehouse, M., Gill, H. & Preatoni, E., 2017, (Acceptance date). 1 p.

Reducing ethical and financial costs in biomechanical research: is juvenile bovine bone the answer?

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Time loss injuries compromise team success in Elite Rugby Union: a 7-year prospective study

Williams, S., Trewartha, G., Kemp, S. P. T., Brooks, J. H. M., Fuller, C. W., Taylor, A. E., Cross, M. J. & Stokes, K. A., 17 May 2016, In: British Journal of Sports Medicine. 50, 11, p. 651-656 5 p.

The influence of in-season training loads on injury risk in professional rugby union

Cross, M. J., Williams, S., Trewartha, G., Kemp, S. P. T. & Stokes, K. A., 1 Apr 2016, In: International Journal of Sports Physiology and Performance. 11, 3, p. 350-355 6 p.

Impact Tech Labs - Consultancy: Smart Armour project

Trewartha, G., Stokes, K., Preatoni, E., Cazzola, D. & Williams, S., 31 Jan 2016, University of Bath. 95 p.

The efficacy of a movement control exercise programme to reduce injuries in youth rugby: a cluster randomised controlled trial

Hislop, M. D., Stokes, K. A., Williams, S., McKay, C. D., England, M., Kemp, S. P. T. & Trewartha, G., 19 Jan 2016, In: BMJ Open Sport & Exercise Medicine. 2, 1, e000043.

The influence of an artificial playing surface on injury risk and perceptions of muscle soreness in elite Rugby Union

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Association between injuries and team success in elite rugby union

Williams, S., Trewartha, G., Kemp, S. P. T., Brooks, J., Fuller, C. W., Taylor, A. & Stokes, K., 2015, (Unpublished).

Patellar Tendinopathy And Potential Risk Factors: An International Database Of Cases And Controls

Morton, S., Williams, S., Valle, X., Cueli, D., Malliaras, P. & Morrissey, D., 2015.

Previous Injury and Match Load as Risk Factors for Injury in Professional Rugby Union Players: Application of a Frailty Model for Recurrent Events

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A meta-analysis of injuries in senior men's professional rugby union

Williams, S., Trewartha, G., Kemp, S. & Stokes, K., Oct 2013, In: Sports Medicine. 43, 10, p. 1043-1055 13 p.

A review of football injuries on third and fourth generation artificial turfs compared with natural turf

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Kinesio taping in treatment and prevention of sports injuries: A meta-analysis of the evidence for its effectiveness

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Projects

AGE UK Joining Forces Programme Portfolio Evaluation

Arnold, R., Francombe-Webb, J. & Williams, S.

Age UK

1/09/17 → 31/03/20

An Investigation into the Training and Playing Schedules of Developing Rugby Union Players and the Relationship to Injury Risk and Development

Stokes, K. & Williams, S.

Rugby Football Union

1/07/16 → 30/06/20

Community Rugby Injury Surveillance Project 2017-2021: Community, Schools & Universities

Stokes, K., McKay, C., Williams, S. & Roberts, S.

Rugby Football Union

1/06/17 → 31/05/21

Consultancy Smart Armour – Impact Tech Labs

Preatoni, E., Cazzola, D., Stokes, K., Williams, S. & Trewartha, G.

16/12/15 → 28/02/16

Does variability in biological maturation and training load impact injury in youth gymnasts?

Cumming, S. & Williams, S.

30/03/18 → 29/04/21

England Rugby Injury and Training Audit

Stokes, K., Trewartha, G. & Williams, S.

Rugby Football Union

1/06/11 → 31/08/23

England Rugby Injury and Training Audit

Stokes, K., McKay, C. & Williams, S.

Rugby Football Union

1/10/19 → 31/08/23

Global Mobility Scheme - Sports Injury Prevention

Williams, S., Trewartha, G. & Stokes, K.

1/06/15 → 1/09/15

Global Research Scholarship Scheme - Injury Prevention in Sport (Dr James Brown)

Stokes, K., Trewartha, G., Williams, S. & McKay, C.

1/08/15 → 1/02/16

Injury Risk in Schools Rugby Union

Stokes, K., McKay, C. & Williams, S.

Rugby Football Union

1/12/16 → 30/06/21

Injury epidemiology and injury prevention in English cricket

Williams, S., McKay, C. & Stokes, K.

30/10/17 → 30/10/20

Match and Injury Analysis in Youth Rugby

Stokes, K., McKay, C. & Williams, S.

Rugby Football Union

1/03/16 → 30/06/21

Spinal Cord Injury Surveillance in Rugby

Stokes, K., McKay, C. & Williams, S.

RFU Injured Players Foundation

1/09/17 → 30/04/21

The contribution of in-game fatigue and use of replacements to injury risk in professional rugby union

Stokes, K. & Williams, S.

World Rugby Limited

22/10/20 → 31/03/21

The scholarship grant for Research Comparing Risks of injury and mechanisms of injury across sport in children and adults

Williams, S., McKay, C. & Stokes, K.
British Medical Association (BMA)
1/01/18 → 28/02/21

Training Load and injury in academy football players

Williams, S. & Cumming, S.
3/10/18 → 1/10/21