



UNIVERSITY OF
PORTSMOUTH

BREAST HEALTH NEWS

Research Group in Breast Health
University of Portsmouth
Issue 12 - January 2024

WELCOME TO THE 12TH EDITION OF THE RESEARCH GROUP IN BREAST HEALTH NEWSLETTER

The group, led by Professor Joanna Wakefield-Scurr is internationally renowned for conducting pioneering fundamental and applied research into this important aspect of women's health.

Our research group continue to raise awareness of breast and bra science with a recent appearance on ITV's This Morning. Joanna chatted to presenters Dermot O'Leary and Alison Hammond about the importance of bra fit, finding the right sports bra and the work we have done to help elite athletes, like the Lionesses.



EMPOWERING ELITE ATHLETES: BREAST HEALTH EDUCATION AND SPORTS BRA PRESCRIPTION

In a pioneering initiative, the Research Group in Breast Health is extending its impact, providing breast health education and sports bra prescriptions to elite sports organisations. Following successful collaborations with the Lionesses, Team GB, and Paralympics GB, our researchers are dedicated to not just advancing knowledge, but also shaping the future of sports bras based on the unique needs of elite athletes.

Our collaboration with England Netball ahead of the 2023 Netball World Cup in South Africa began with educational workshops and sports bra fittings, a first-time experience facilitated by Nike-KitLocker. Nat Metcalf, co-captain of the Vitality Roses, expressed the significance: "It's been really useful to have this education and learn about what is the right sort of sports bra for me." This initiative aligns with England Netball's NETBALLHer program, enhancing education on women's health.

The commitment extends to officials, as demonstrated in collaboration with UEFA Referees before the 2023 FIFA Women's World Cup. An online educational workshop, attended by over 100 referees worldwide, was complemented by individualised bra fittings and prescriptions during a visit to the UEFA Referee preparation camp in Geneva.

Acknowledging the importance of grassroots involvement, Nike and England Netball organised a complementary community event. Local Young players received educational workshops, personalised bra fit assessments, and sports bras, plus a unique opportunity to meet their sports idols.

These initiatives contribute to a broader research effort examining the impact of sports bra interventions on high-performing female athletes. The vision is to translate successes with elite organisations to benefit females at all levels, promoting empowerment and understanding in sports.

Stay tuned as we continue to lead advancements in breast health education and sports bra innovations globally.





COLLABORATIONS WITH THE RUGBY FOOTBALL UNION (RFU)

OUR RESEARCHERS HAVE INFORMED THE RFU'S FIRST BREAST HEALTH TOOLKIT FOR WOMEN AND GIRLS INVOLVED IN RUGBY

Following presentations to The World Rugby Science Network Event in 2022 and the Player Welfare and Laws Symposium in 2023, engagement in breast health initiatives in women's rugby has grown with the group. This was supported by an editorial in the British Journal of Sports Medicine calling for action to protect players' breast health.

In April 2023, Dr Nicola Brown took to the stage at the invitation of the Rugby Football Union (RFU) to discuss breast considerations in rugby at the Women and Girls Health Symposium. Dr Brown's presentation shed light on the overlooked impact of breast movement and breast injuries during rugby, revealing potential performance and participation implications.

Despite the significant role breast injuries play in performance, they are often under-reported and underestimated in rugby and most contact sports. Surprisingly, many athletes lack appropriate breast support, and the use of breast protective equipment is limited in contact sports.

Recognising the need for the change, the RFU in collaboration with Professor Joanna Wakefield-Scurr and Dr Nicola Brown, unveiled breast health and sports bra fitting guides in July 2023. These guides were integrated into the RFU's Women and Girls Health Welfare Toolkits, making a significant stride towards fostering education, awareness and better support for women and girls in the world of rugby.

CONSUMERS ARE UNABLE TO PERCEIVE CHANGES IN BREAST SUPPORT

Breast movement reduction is commonly used as a measure of sports bra support. Measured as a percentage, during exercise it compares three-dimensional breast range of motion (ROM) in a sports bra to when completing the same exercise but without a bra. Our research group has previously used breast movement reduction to help categorise sports bras into support levels (Norris et al., 2021). This variable can provide consumers with an objective measure of sports bra support. But, how does this relate to perceptions of support? Can wearers tell if a sports bra provides high or low support?

To investigate the relationship between measured support and the perception of support in sports bras, breast movement data was collected using motion sensors whilst 120, 34D participants ran on a treadmill in a combined total of 55 sports bras. The participants also rated perceived breast support from 0 (no support) to 10 (maximum support) in each bra. These ratings were correlated to breast movement reduction, to determine the strength of the relationship between perceived and measured support. We were surprised to see that the relationship between perceived and measured support was weak! The strongest relationship was seen in the vertical direction (albeit a moderate relationship). This suggests that wearers are more likely to detect changes in breast support from their vertical (up/down) breast movement but that they are unable to perceive the support that a sports bra provides overall. This highlights that objective measures of breast support, plus clear product signposting are important to ensure the consumer does not purchase an inappropriate level of support for their activity. Norris et al., (2021). How the characteristics of sports bras affect their performance. *Ergonomics*, 64(3), 410–425. <https://doi.org/10.1080/00140139.2020.1829090>





BREAST CANCER AWARENESS MONTH: WHAT ARE WE DOING TO PROTECT OUR ATHLETES' BREAST HEALTH?

Professor Joanna Wakefield-Scurr was honoured to be asked by the British Association of Sport and Exercise Science (BASES) to undertake a webinar during breast cancer awareness month (October). The goal of the webinar was to stimulate thought and discussion on the crucial question 'What are we doing to protect our athlete's breast health?'. There are a number of breast health considerations that active women might face; for example, breast cancer, affecting more than 1.8 million women worldwide. As well as excessive breast movement linked to breast pain, potential premature sagging and skin damage. Finally, active women may experience breast injuries during contact sports, or frictional related breast injuries caused by rubbing and chaffing of garments.

The unique aspect of the webinar covered what can be done to help active women be 'breast healthy' and combat the issues highlighted. There are a number of great resources that exist to offer breast (and bra) advice to active women, including Breast Cancer Care resources on Being Breast Aware.

Appropriate breast support in sport can be effective at reducing breast movement, breast pain, stretching on the supporting structures of the breast, encouraging and enabling participation and even potentially improving performance. Our Research Group offer resources on bra fitting, sports bra guides and general breast and bra education (www.treasureyourchest.org), which are freely available on our website (www.port.ac.uk/breastresearch). Making use of these resources will help us to normalise the conversation about breasts and bras for active women and girls.

BRA RESEARCH WITH THE BRITISH ARMY PRESENTED AT INTERNATIONAL CONFERENCE

IMPORTANT WORK CONTINUES TO SUPPORT BRITISH ARMY RECRUITS GOING THROUGH BASIC TRAINING

Over the past three years the research group have been working on a project with British Army basic training recruits, in collaboration with HQ Army Recruiting & Initial Training Command, investigating sports bra requirements for this occupational group. This September Dr Jenny Burbage, Dr Gemma Milligan and Emily Paines presented on the first two parts of the project at the International Congress on Soldiers' Physical Performance (ICSPP) in London. The conference brought together medical, military and scientific experts from across the globe to exchange ideas and present new data to deliver human advantage within future warfare.

Dr's Burbage and Milligan presented the first part of the project, which evaluated the current sports bra fitting and issue service within British Army basic training, and presented a job task analysis identifying basic training activities that place the highest demands on the breasts of female recruits. Emily Paines then presented the second part of the project, a laboratory-based study that simulated military tasks identified as being demanding on the breast. This study explored the suitability of the issued sports bras and provided recommendations for sports bra characteristics required for short-duration tasks.



This conference was a fantastic networking opportunity, and a chance to share the hard work that has been going on over the past three years. We are now looking forward to finishing the final stage of this project, which has been investigating the suitability of the issued sports bras for long-duration wear during basic training. The final results will be presented in the coming year...watch this space!

If you would like to get in contact with the team about this exciting area of research please email: Dr Jenny Burbage jenny.burbage@port.ac.uk

BREAKING THE TABOOB: REAL PEOPLE, REAL PROBLEMS

THE RESEARCH GROUP SHOWCASE BREAST AND BRA SCIENCE AT RESEARCH AND INNOVATION EVENT

In September, our Research Group presented at the Research and Innovation Showcase Event hosted by the School of Sport, Health and Exercise Science, at the University of Portsmouth. With over 120 delegates including academics, practitioners and industry partners from Japan, Australia, Norway, USA and Canada in attendance. Our research group were awarded the opening showcase slot to highlight the breadth and depth of our research and innovation activities. Our presentation "Breaking the Taboo" saw members of the group take to the stage to demonstrate their exciting work; areas included:

- **Dr Jenny Burbage – Body armour and female police officers**
- **Professor Joanna Wakefield-Scurr – Treasure Your Chest**
- **Dr Jacqueline Rix – Breast changes across the menstrual cycle**
- **Dr Nichola Renwick – Perceptions of breast pain and support**
- **Emily Paines – Breast support for British Army recruits**
- **Lewis Clarke – Breast support and golf performance**
- **Dr Chris Mills – Virtual product design**
- **Melissa Jones – Education and bra prescription for elite athletes**
- **Dr Tim Exell – Breast asymmetry**
- **Brogan Jones – The Bra Testing Unit**
- **Dr Edward St. John – Breast surgery implications**

Our research group also ran a live exhibit at the event to demonstrate some of the cutting-edge technology and methods we use within our research. This included our electromagnetic motion sensor system that we use to measure breast biomechanics, and our 3D body scanner, which enables us to capture breast volume and shape measurements. Delegates visited the exhibit and met with the team to hear more about the future of breast and bra science.

If you are interested in investigating an area of breast or bra science, you are welcome to get in touch to discuss how we could help. Please contact us at breastresearch@port.ac.uk

WORKSHOPS FOR ALL

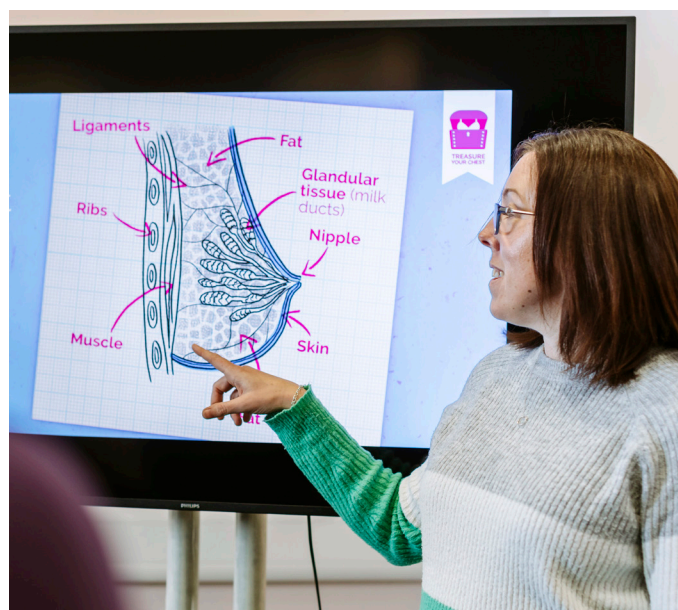
We are committed to raising awareness and improving knowledge on breasts and bras through education. For the last three years our **Science Behind Breasts and Bras** online workshop has been hugely popular. We have welcomed delegates from all over the world, ranging from bra manufacturers and sports apparel brands, to healthcare professionals and students, to learn more about this important area of women's health.

If you are interested in learning more about breast and bra science, you can join our online workshop. Scheduled bi-annually, this 3 hour workshop offers delegates the chance to develop their knowledge and understanding of the Science Behind Breasts and Bras.

The **Science Behind Breasts and Bras** workshop presents the latest research on:

- **Breasts**
- **Breast biomechanics**
- **Sports bras**
- **Bra fitting and education**

This online option offers plenty of Q&A opportunities between sessions with our experts. To register your interest please follow this link: <https://goo.gl/wN5co7>



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