

Breast Health News

December 2014
Issue three

Welcome to the third edition of the Research Group in Breast Health newsletter from the University of Portsmouth. The group, led by Professor Joanna Scurr, is internationally renowned for conducting pioneering fundamental and applied research into this important aspect of women's health.

Breast science workshops are a success

The Research Group in Breast Health held their inaugural workshops on 'The Science of Breasts and Bras' on 1 April and 12 September 2014. The workshops, attended by industry experts, independent retailers and physiotherapists, were very well received and were a great opportunity to share knowledge and discuss current research and practice in the area. Opportunities were given for networking and attendees commented that the workshops were 'an excellent mix of interaction and presentation'.

The Research Group in Breast Health is in a unique position to be able to offer these exciting workshops and there is currently no other workshop available on the market which is able to provide such up-to-date and relevant information on the science behind breasts and bras. Please visit our website for more details on upcoming workshop opportunities, or email Dr Jenny White (jenny.white@port.ac.uk) for information on bespoke workshops for your company.

Meet the team

After nine years of research in the area of breast health, the research leadership of Joanna Scurr has been recognised with the award of the title 'Professor of Biomechanics'. This accolade was awarded by esteemed colleagues around the world and is testament to the quality and impact of the research produced by the Research Group in Breast Health (RGBH) and the international reputation that the group has developed.

We would also like to welcome Dr Joseph O'Halloran into the RGBH, who joined us from the University of Limerick and will be using his experience in biomechanical analysis of movement variability to investigate the coordination and synchronization of breast movement.

Research Group in Breast Health: Dr Chris Mills, Emma Burnett, Dr Jenny White, Dr Alex Milligan, Professor Joanna Scurr, Amy Loveridge, and Dr Debbie Risius. Not shown in photo: Dr Joseph O'Halloran, Dr Nikki Brown and Amanda Brasher

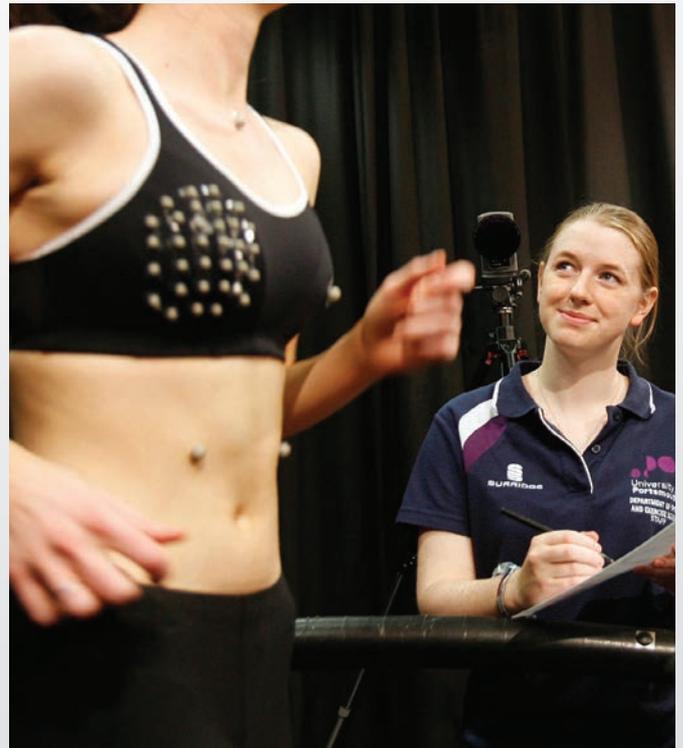


Almost one in five women are deterred from exercise by their breasts!

Participation in regular exercise has many health benefits. However, female participation in exercise starts to decline during adolescence with only 32 per cent of women in England currently meeting the physical activity guidelines. Time constraints, a lack of support from peers and family, and issues with confidence have all been previously reported as exercise deterrents but there has been little investigation into the influence of the breast on exercise participation.

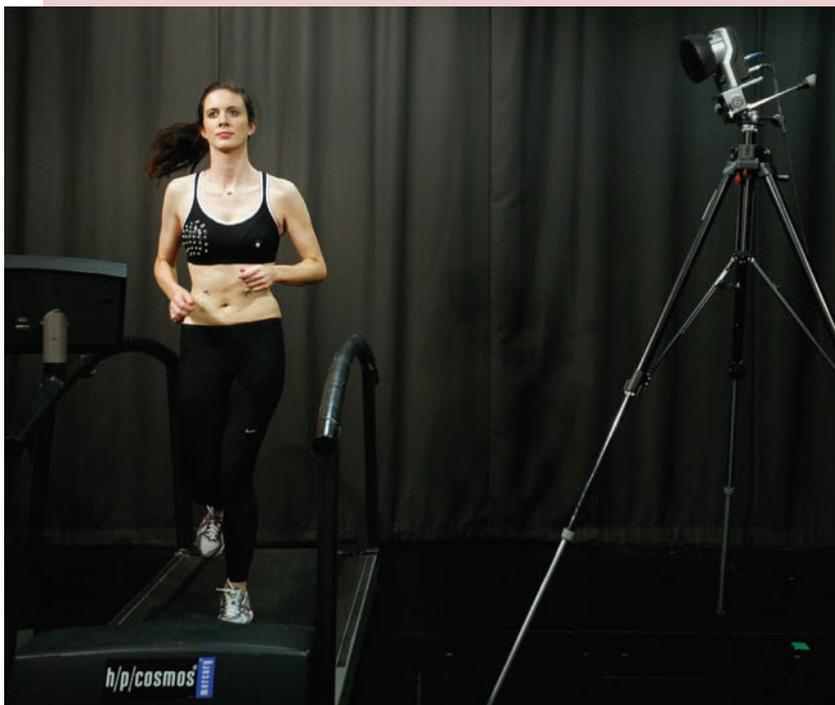
In a survey of 249 women conducted by RGBH member Emma Burnett, 17 per cent reported that their breasts affected their exercise behaviour. Overall, the breast was the fourth largest barrier to exercise, behind energy/motivation (first), time constraints (second), and health (third). Problems finding the right sports bra, and embarrassment caused by breast movement during exercise were the most commonly reported breast-related barriers to exercise. Interestingly there were no differences in levels of breast pain, or exercise participation, between large and small-breasted women suggesting that women of all breast sizes experience similar barriers to exercise.

Burnett, E., White, J. L., & Scurr, J. C. (2014). The influence of the breast on physical activity participation in females. *Journal of Physical Activity & Health*.



17 per cent of women are deterred from exercise by their breasts

Improve your running efficiency by wearing a good bra



Sports bras have been shown to reduce muscle activity during running

Lower body muscle activity during running has been extensively researched, but considerably less attention has been given to upper body muscle activity.

For females the weight and motion of the breast against the torso may influence the activity of the underlying upper body muscles during running. In this RGBH study, ten women ran two 5 km trials, once in an everyday bra and once in a sports bra while muscle activity was recorded. Results showed that chest and shoulder muscle activity was significantly reduced in the sports bra condition. Reductions in muscle activity can lead to reductions in energy cost and a more efficient running technique. The findings of this study suggest that wearing a good sports bra not only reduces potentially painful breast motion but also reduces muscle tension in the upper body during running which may lead to reduced energy costs and a more efficient running style.

Milligan, A., Mills, C., & Scurr, J. C. (2014). The effect of breast support on upper body muscle activity during 5 km treadmill running. *Human Movement Science*, 38, 74–83.

What do mature women need from a bra?

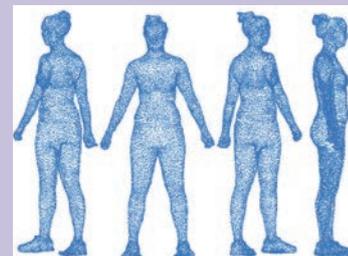
There are many products available which aim to mask the outward signs of increasing age. One such example is the bra which is designed to lift and shape the breasts into a more youthful position. It is therefore surprising that bras are typically designed and marketed using younger women, with little regard for the requirements or preferences of the more mature market.

Dr Debbie Risius from the RGBH asked 208 women aged 45 to 65 years to tell us how they felt about their breasts and their bra preferences and requirements. Results showed that 80 per cent of women experienced a significant change in their breasts with ageing, with only 7 per cent of women feeling proud of their breasts. Breast sagging, changes in size and loss of firmness were the key breast-related factors that women associated with ageing. Over 50 per cent of women would not wear the same bra now as they had in their twenties, suggesting a change in bra preferences with age. Developing age-specific bras may help improve the effectiveness of breast support for the mature breast and also lead to more positive breast perceptions and overall self-image among mature women.

Risius, D., Thelwell, R., Wagstaff, C. R. D., & Scurr, J. C. (2014). The influence of ageing on bra preferences and self-perception of breasts among mature women. *European Journal of Ageing*, 11, 233-240.

RGBH expand their research capabilities

As a scientific research group we are continually conducting exciting new research in a variety of different topic areas.



At the University of Portsmouth we are fortunate to have world-class research facilities that are continually expanding. In the last 12 months we have been able to add a further three cameras to our motion capture system, allowing us to collect more detailed human motion data than ever before.

We also have two additional high-speed video cameras in our laboratories meaning we can now collect 3D video data at speeds of up to 1,000 frames per second. Perhaps the most exciting development within our research capabilities is our new 3D body scanner. This scanner allows us to take highly detailed breast and body scans which we can use to investigate the influence of the breast on factors such as anatomical proportions, garment fit or posture.

Should I wear a sports bra for swimming?

Swimming is one of the most popular exercises in England, with over 2.9 million people swimming at least once week. The benefits of wearing a sports bra have been demonstrated for a variety of land-based activities, but we wanted to investigate whether the same benefits were observed during water-based activity, particularly for larger-breasted women.

In this study, led by Dr Chris Mills from the RGBH, six large-breasted women swam breast stroke and front crawl in three different breast support conditions while breast and body movement was recorded. Results demonstrated that more breast movement occurred during front crawl than during breaststroke swimming and that the most movement occurred in the sideward direction during swimming. Overall breast movement was less during swimming than during land-based activities due to the partial support provided by the water. The swimsuit was ineffective at controlling breast movement during either swimming stroke, but the sports bra was effective for both. Aspects of sports bra design could therefore inform the development of swimsuits that are better able to control breast motion during swimming. Women who experience high levels of exercise-induced breast pain may wish to consider swimming as an alternative to land-based exercise due to the reduced level of breast motion that was observed in this study.

Mills, C., Lomax, M., Ayres, B., & Scurr, J. C. (2014). The movement of the trunk and breast during front crawl and breaststroke swimming. *Journal of Sports Sciences*, (September), 1-10.



Swimsuits offer ineffective breast support for female swimmers

Making an impact

Members of the Research Group in Breast Health regularly attend events and publish their findings to make an impact on women's breast health.

Recent events

7–9 April 2014: The University of Portsmouth hosted the BASES (British Association of Sport and Exercise Sciences) student conference and RGBH presented on the effects of soft tissue motion.

May 2014: Dr Debbie Risius was shortlisted for the Wellcome Trust Science Writing Prize for her article titled: Can a sports bra win you a gold medal?

6–11 July 2014: Dr Jenny White presented on support implications for the female athlete during vertical jumping at the World Congress in Biomechanics in Boston.

11 July 2014: Dr Nikki Brown was awarded the Experienced Researcher Highly Commended prize at St Mary's University for her work investigating breast pain experienced by female London marathon runners.

12–16 July 2014: Professor Joanna Scurr and Dr Alex Milligan presented on the acute changes in breast position following bra removal and the performance of a bra during running at the International Society of Biomechanics in Sport conference in East Tennessee.

20 July 2014: RGBH run the Southsea Race for Life and raise £150 for Cancer Research UK.

10–12 August 2014: Professor Joanna Scurr and Dr Alex Milligan present on the science of bras (bridging the gap between science and industry) at the MODA fashion apparel exhibition.

Additional publications in 2014

Milligan, A., Mills, C., & Scurr, J. C. (2014). Within-participant variance in multiplanar breast kinematics during five kilometre treadmill running. *Journal of Applied Biomechanics*.

Mills, C., Loveridge, A., Milligan, A., Risius, D., & Scurr, J. C. (2014). Is torso soft tissue motion really an artefact within breast biomechanics research? *Journal of Biomechanics*, 47(11), 2606–2610.

Mills, C., Risius, D., & Scurr, J. C. (2014). Breast motion asymmetry during running. *Journal of Sports Sciences*.

Risius, D., Milligan, A., Mills, C., & Scurr, J. C. (2014). Multiplanar breast kinematics during different exercise modalities. *European Journal of Sport Science*. doi:10.1080/17461391.2014.928914

Risius, D., Thelwell, R., Wagstaff, C. R. D., & Scurr, J. C. (2014). The influence of ageing on bra preferences and self-perception of breasts among mature women. *European Journal of Ageing*, 11, 233–240.

Scurr, J. C., Hedger, W., Morris, P., & Brown, N. (2014). The prevalence, severity, and impact of breast pain in the general population. *The Breast Journal*, 20(5), 508–513.

How we can help you

Workshops

We offer one-day breast science workshops that can be tailored to meet your objectives, covering topics such as breast biomechanics, bra support requirements, bra fit, breast movement, and the importance of breast support.

Product testing

Due to the huge demand for our product testing, we are now able to offer off-the-shelf bra testing packages at highly competitive rates, offering clients very quick results. For more information, please email Professor Joanna Scurr at joanna.scurr@port.ac.uk.

Research projects

Are you involved in the design, manufacture, retail or marketing of bras or sports bras, or breast healthcare? Would you like to improve your service or products? If so, please contact us using the details below to discuss how we could help.

How you can help us

Recruitment

We are always looking for women to take part in our research. If you would like to be involved, please contact us using the details below.

Find out more

For more information including videos and news, visit our website.

T: 023 9284 5161

E: breastresearch@port.ac.uk

W: www.port.ac.uk/breastresearch

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