

Facts:

- Currently the UK average breast size is recorded at 36C.
- The average breast weighs 200-300 grams
- Exercise causes bounce.
- Bounce increases the chance of premature sagging of the breast by stretching the Cooper's ligament.
- Size doesn't matter
- Sort of exercise doesn't matter

The Science

Dr Joanna Scurr, Department of Sport and Exercise Science, University of Portsmouth carried out a scientific study into the differing effects of wearing sports bras on three dimensional breast movement during physical exercise. Dr Scurr and her team physically tested 56 women, ranging from A to G cup with no surgical implants. Subjects were asked to take part in treadmill running tests, to monitor levels of bounce with and without the support of a sports bra. To expand upon previous studies and results similar in practice Dr Scurr widened the testing boundaries: by monitoring women on the running machine at up to 20km/per/hr and women with breasts as large as a G cup. During testing subjects had reflective markers attached to the nipple and the collarbone on both sides of their body. Three-dimensional movement of these markers was tracked using 4 calibrated Infrared cameras positioned around a treadmill. The test began at 5 kph and increased by 1 kph until the subject was performing at their maximum speed. This was repeated with the subject wearing a normal bra (brand leaders most popular everyday bra) and up to 9 Shock Absorber sports bras (depending on cup size). Results showed that during treadmill running breast movement occurs in three dimensions, from the front it follows a figure-of-eight pattern (see figure 1).

Figure 1. shows a comparison of breast movement viewed from the front in a Shock Absorber sports bra (on the left) and without a bra (on the right). The body (collarbone reference markers) is moving to the same extent, however without a bra breast movement is dramatically increased. The pattern of breast movement is also different in the no bra condition, no longer following a figure-of-eight pattern, but instead following more of a pendulous motion. Without a bra a woman's breast moves on average 9cm while running.

Figure 1. Example trace of nipple and collarbone markers compared across sports bra condition and no bra condition for G cup subject.

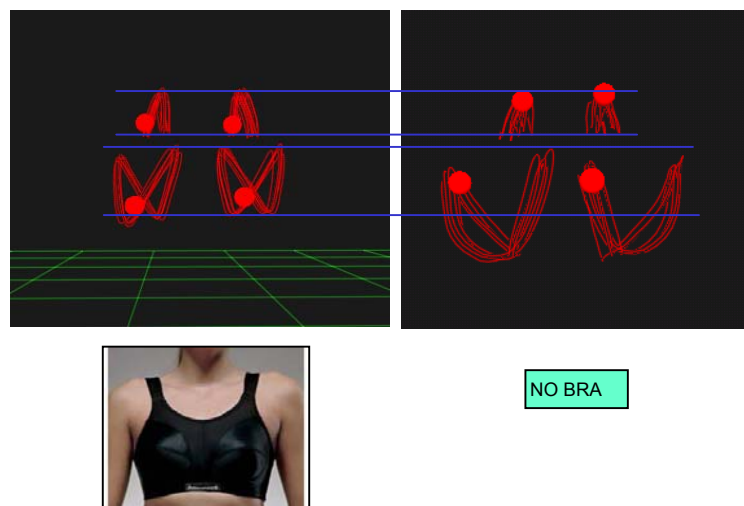


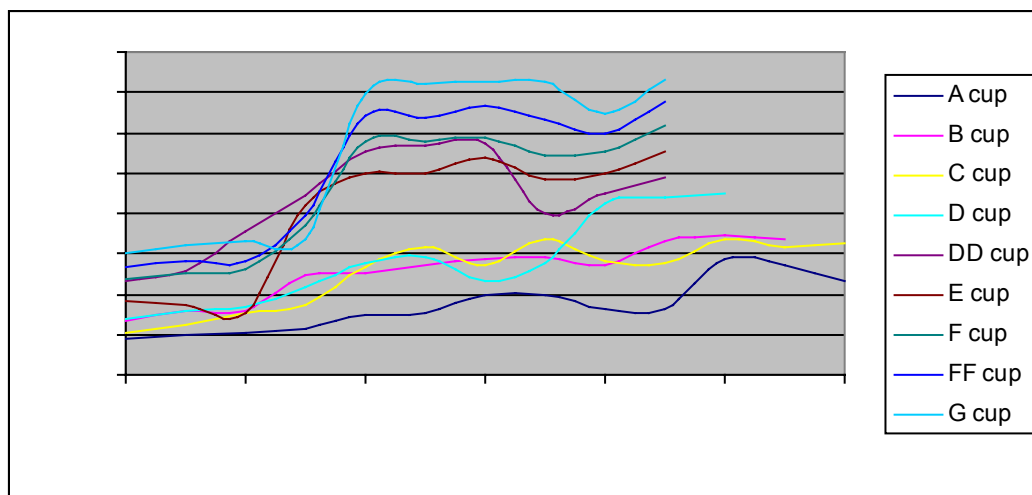
Table 1: 3D breast movement (in cm) without a bra during three levels of activity.

	A Cup	B cup	C cup	D cup	DD cup	E cup	F cup	FF cup	G cup	Average
Gentle activity (walking at 5 - 6 kph)	1.89cm	2.92cm	2.27cm	2.97cm	4.88cm	3.58cm	4.87cm*	5.49cm*	6.22cm	3.9cm
High activity (jogging at 7 - 9 kph)	2.45cm	4.39cm	3.95cm	4.37cm	9.04cm	7.16cm	8.06cm*	8.00cm*	9.07cm	6.28cm
Extreme activity (Max running speed >9kph)	4.03cm	5.98cm	6.06cm	6.82cm	10.10cm	10.25cm	11.53cm*	12.82cm*	14.14cm	9.08cm

* Interpolated data.

Without a bra the breast is capable of moving from 1.89 cm during gentle activity to 14.14 cm during extreme activity. On average the breast moves 9.08 cm during running.

Figure 2: 3D breast movement (in cm) during treadmill running with no bra, for all cup sizes (cup sizes F and FF are interpolated).



It should also be noted that the percentage bounce reduction in a Shock Absorber bra was just as significant in the A cups (59%) as it was in the DD cup sizes (63%) during extreme activity. This suggests that Shock Absorber sports bras are equally as effective for all cup sizes.

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