

THE IMPACT OF DIFFERENT BREAST SUPPORT GARMENTS ON LARGER BREASTED WOMEN WITH NON-SPECIFIC BACK PAIN



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Introduction

The traditional alphabet bra size measurement system was initially only established for cup sizes A-D¹, but with 40% of British females measuring a D cup or above² it is argued that the same level of fit and support is not achieved in larger sizes. Failure to support the breasts can lead to many physiological conditions including back and breast pain³. This study identifies the initial and short-term (4 weeks) changes in patient reported outcome measures (PROMS) and biomechanics in larger breasted women with non-specific back pain (NSBP) when wearing different breast-support garments.

Methods

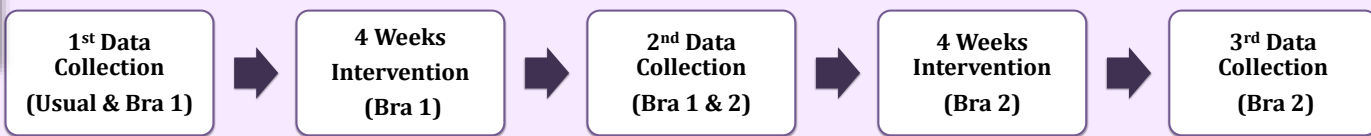


Fig. 1: PF bra (top) & Optifit bra (bottom)

- **20 participants** (Age: 32.1 ± 9.4 years, BMI $29.2 + 4.2$ kg/m²) with NSBP and a UK cup size D+ (range 36DD – 32K) screened using an adapted version of the Red Flags Screening Form⁴.
- Assessment of 3 different bras: **Usual**, **Professionally-Fitted (PF)** & **Optifit®** bra (fig 1).
- **Outcome Measures:** Bra fit assessment³, self-reported pain, and standing posture using 3D movement analysis (Qualisys, SE) (Fig 2)



Fig 2: Movement laboratory, AHRU, UCLan.



Results

- **Bra fit assessment pass rate:** **Usual (0%)**, **PF (10%)** & **Optifit (95%)**.
- **NPRS:** Clinically important and significant reductions in back stiffness following **Optifit (33.3%, p=0.01)** intervention (fig 3).
- **Body Chart Analysis:** Significant increase in prevalence of pain following **PF (p=0.04)** intervention at Cervical region (fig 4). Near significant reductions at Thoracic and Lumbosacral Regions following **Optifit (p=0.06)**.
- **SF-MPQ-2:** Significant reductions following **Optifit** in **Continuous pain (p=0.003)**, **Intermittent pain (p=0.046)** and **Total pain (p=0.004)** (Table 1).
- **Posture:** Significant change only in upright posture following 4 weeks **Optifit (p=0.00)** (fig 5).
- **NDI:** clinically important and significant reductions in self-reported neck disability following **Optifit** intervention (**31%, p=0.00**).

NPRS Scale	PF	Optifit
Pain	0%	7% ↓
Stiffness	7% ↑	33% ↓**
Discomfort	10% ↓	12% ↓

Table 1: NPRS % Change in score following interventions (**Clinically & Statistically significant)

NDI	PF	Optifit
% Change in score	9% ↑	31% ↓**

Table 2: NDI % Change in score following interventions (**Clinically & Statistically significant)

SF-MPQ-2 Subscales	PF	Optifit
Continuous	13.5% ↑	36% ↓*
Intermittent	19.8% ↓	45% ↓*
Neuropathic	25.6% ↑	20% ↓
Affective	160% ↑	39% ↓
Total	25.6% ↑	37% ↓*

Table 3: SF-MPQ - % Changes in subscale and total scores following interventions (*Statistically significant)

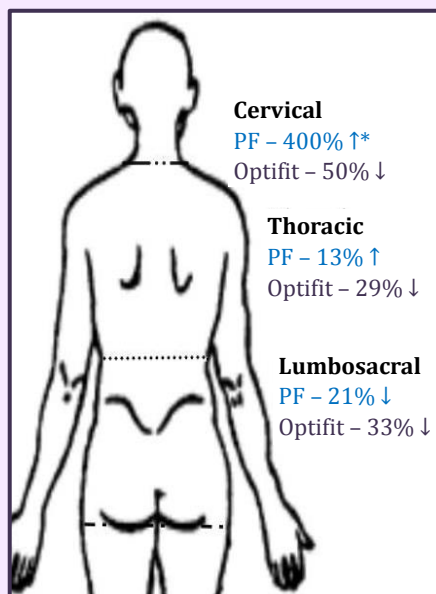


Fig 3: Body Chart Pain Location Analysis: % changes in prevalence of pain by location amongst participants (**Statistically significant)

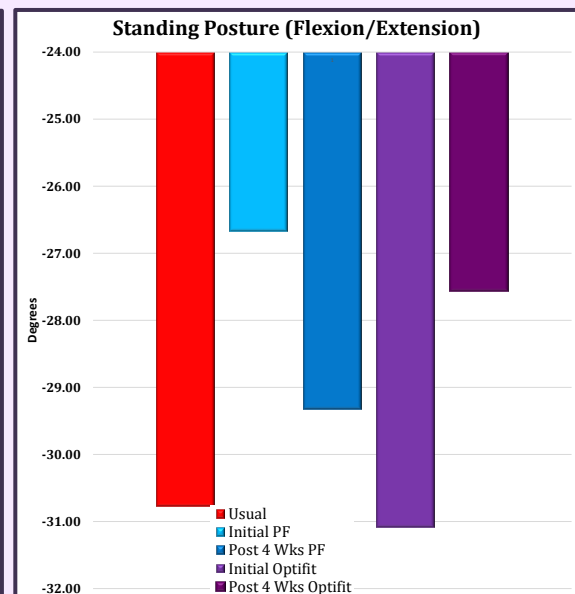


Fig 4: Changes in standing posture following intervention when considering the thorax relative to the pelvis

Discussion

The PF bra was almost as poorly fitted as the usual bra, even though it was “professionally-fitted” - Is there a need to establish a more accurate bra measurement & fitting method for a large breasted population? Larger breasted women with NSBP appear to show some significant and clinically important improvements when wearing Optifit bra, even after only 4 weeks

Future Recommendations

- **Optifit bra may potentially be a suitable alternative to the fashion industry standard professionally fitted bra?**
- **Correctly fitting breast-support garments may contribute to better clinical management of NSBP in larger breasted women**

References

[1] Pechter, E.A. 1998, Plastic and Reconstructive Surgery, vol. 102, no. 4, pp. 1259-1265. [2]North American Spine Society, Stiff neck, aching back? Think its stress? Could be your bra! [online]. [3] McGhee, D.E. & Steele, J.R. 2010, Journal of Science and Medicine in Sport, vol. 13, no. 6, pp. 568-572 [4] Greenhalgh, S & Selfe, J. 2010. Red Flags II: A Guide to Identifying Serious Pathology.