

# If Your Bottom Could Talk: A Local Audit Of Comfort Cushions To Improve Confidence With Prescription

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## Introduction

This piece of work was generated from the prescriber's desire to know if the cushion which they were selecting for a range of entry level users, did indeed offer the benefits which they assumed. A local audit was carried out on four commonly prescribed cushions, with a repeatable methodology to guide future adjustments to the range. Pressure mapping was presented as an informative and accessible tool.

## Methodology

A total of 9 subjects volunteered to assist with data capture. The following methodology was developed and trialled:

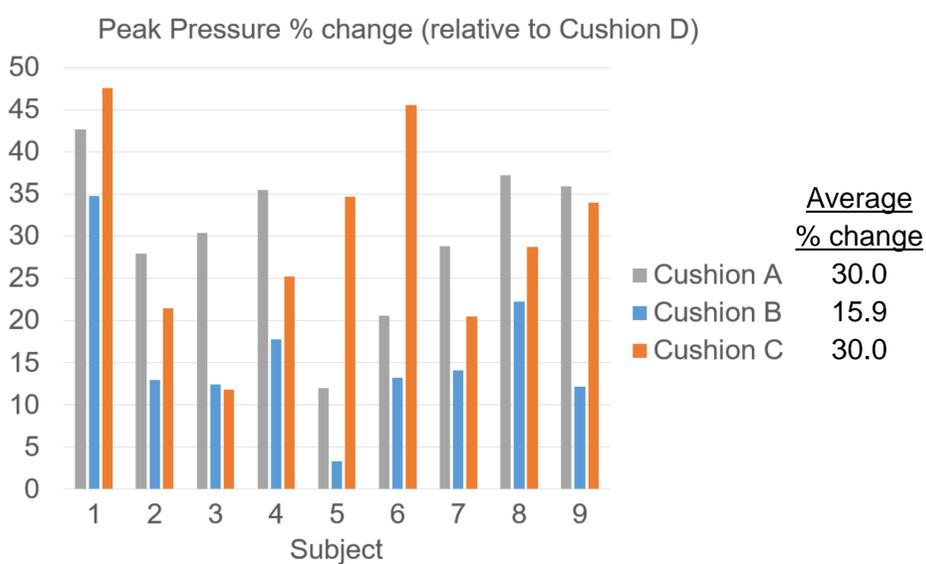
- Record height, weight and basic seating dimensions
- Choose suitable width cushion
- Set up on seating simulator: width and depth, 0 degrees of tilt, 10 degrees of recline with standard flat foam backrest cushion. Armrest and footplate height adjusted
- Tekscan pressure mat with CONFORMat Clinical Ver 7.60
  - 3 minutes settling time
  - Capture 200 frames
- Repeated for four cushions
- Anecdotal comments collected (subject blinded to cushion selection)

Cushion A	3.5" contoured style; RX39 Polyurethane & blue visco foam with additional visco insert
Cushion B	3" sandwich style; CM60 Polyurethane & pink visco foam
Cushion C	3" sandwich style with gel inlaid; CM60 Polyurethane & pink visco
Cushion D	2" Polyurethane foam

Prescriber's (n=9) invited to take part in a short survey on pressure relieving properties of the comfort cushion range and rank them

## Results: Peak Pressure

Results presented are from a movie average of frames 2 – 199 Presented as a percentage change from Cushion D, which recorded the highest peak pressure for all subjects:



Two clear trends, with Cushion A and C showing the most pressure relieving properties. Compared with survey results, asking prescribers to rank in order of least (1) to most pressure relieving (4):

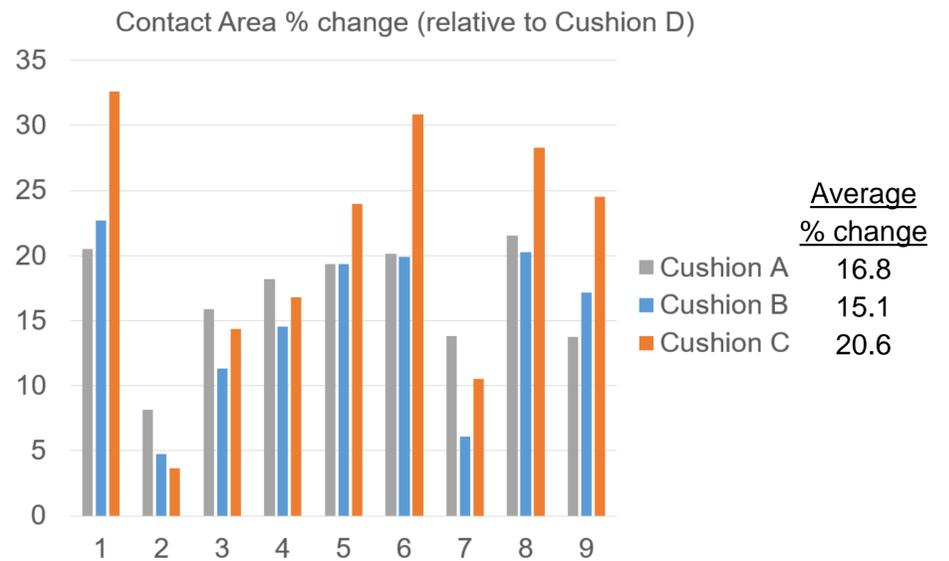
Cushion A	4	Cushion C
Cushion C	3	Cushion A
Cushion B	2	Cushion B
Cushion D	1	Cushion D

Survey (9)	2
Subjects (9)	5

7
3

## Results: Contact Area

Presented as a percentage change from Cushion D, which recorded the lowest contact area for all subjects:



Less well defined trends, however, Cushion A and C continued to show the most pressure relieving properties. Compared with survey results, ranking in order of least (1) to most pressure relieving (4):

Cushion A	4	Cushion C
Cushion C	3	Cushion A
Cushion B	2	Cushion B
Cushion D	1	Cushion D

Survey (9)	2
Subjects (9)	3

7
3

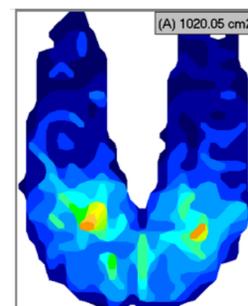
## Discussion

Both cushion A and C demonstrated the most pressure relieving properties, which aligned with the prescriber's view of the comfort cushion range. As the interface pressure was captured on a seating simulator; repeated results were captured on a medium active wheelchair with slung canvas and tension adjustable backrest for Subject 8, to show a 'real life' scenario. This shows peak pressures are reduced and contact areas increased when mapped in the wheelchair (Cushion D shown as an example below) and highlights limitations with this study which are listed below.

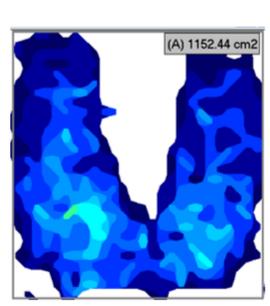
### Cushion D:

Peak pressure ↓ 47.7%  
Contact area ↑ 12.7%

when comparing the controlled environment for this study with a standard wheelchair set-up



Seating simulator



Wheelchair

## Limitations

- Only presenting interface pressure – many other factors feed into clinical decision making for cushion selection
- Low number of participants
- Reduced technology available: limited pressure mat size, outdated software for presenting additional variables
- Limited cushion selection from stock range (17-19" widths only)
- Seating simulator not representative of wheelchair set-up

## Acknowledgements

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