

Validation and comparison of IITC with SDR tail cuff systems to measure systolic blood pressure with experimental rats.
 Janine J Vickers, Yi Zhang, Sharon L H Ong, Kate McKenzie, Judith A Whitworth
 The High Blood Pressure Research Unit,
 The John Curtin School of Medical Research,
 The Australian National University, Canberra, Australia.

Introduction

- The ability to accurately and ethically measure blood pressure is of prime importance in blood pressure research.
- We have previously demonstrated that the SDR tail cuff system (Densha Biomedical, Houston, TX, USA) gives a similar reading to verified blood pressure (SBP) in our laboratory system which is considered gold standard.

Aim

- To validate the IITC (Colson Systems, Woodland, CA, USA) against the SDR tail cuff system in measurement of systolic blood pressure (SBP) using non-invasive devices (non-invasive blood pressure (NIBP)) and show similar results only.
- To determine the effects of these different systems on animal welfare.

Methods

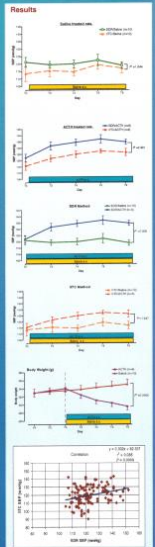
Experimental Animals

- 20 Male Sprague Dawley rats (body weights 300-350g).

Experimental Protocol

- Randomised order for a sleep or awake animal in the laboratory.
- Acclimatised to both types of tail cuff equipment over 10 days.
- SBP measured daily to tail cuff on all rats using automatic systems or manually directly to the rat.
- Flow in selected tail cuff methods to identify all inclusion or exclusion (10 animals) that undertaken with 10 minutes of recording.

Results



Comparative Observations

Parameter	IITC system	SDR system
Accuracy	High	High
Stability	Low	High
Animal welfare	Low	High
Operator time	High	Low
Cost	High	Low
Reliability	Low	High
Reproducibility	Low	High
Animal stress	High	Low
Animal health	Low	High
Animal comfort	Low	High
Animal safety	Low	High
Animal well-being	Low	High
Animal care	Low	High
Animal health	Low	High
Animal welfare	Low	High
Animal safety	Low	High
Animal well-being	Low	High
Animal care	Low	High

Discussion

- The IITC validated system made it very difficult to identify awake rats. One of the advantages of automatic recording and storage of data from the animal is that it can be used for long-term monitoring of the system.
- One rat in the IITC system showed some unusual behaviour (shaking of the rat in the photo frame). Comparison of operator operations with the Hamiltonian graphs behind the eyes could be due to stress. These results are being investigated and will be published in the near future.

Conclusion

- The present study suggests the IITC system gives accurate readings in tail cuff blood pressure measurement.
- Individual data points from the two systems show wide spread with no correlation.
- The IITC system did not provide animals enough to sleep in the tail cuff system. This indicates that a single SDR value from IITC tail cuff may be used to predict the corresponding value of the SDR SBP, the confidence limits available only with SDR prediction value.
- The SDR system appeared less stressful to the rats, more stable in the method, and more sensitive to changes in SBP.

References

1. Vickers JJ, Zhang Y, Ong SH, McKenzie K, Whitworth J. (2014) Validation and comparison of IITC with SDR tail cuff systems to measure systolic blood pressure with experimental rats. *Journal of Hypertension* 32(11):2153-2161.
2. Vickers JJ, Zhang Y, Ong SH, McKenzie K, Whitworth J. (2014) Validation and comparison of IITC with SDR tail cuff systems to measure systolic blood pressure with experimental rats. *Journal of Hypertension* 32(11):2153-2161.
3. Vickers JJ, Zhang Y, Ong SH, McKenzie K, Whitworth J. (2014) Validation and comparison of IITC with SDR tail cuff systems to measure systolic blood pressure with experimental rats. *Journal of Hypertension* 32(11):2153-2161.

Conference poster production using PowerPoint

Summary

- Paper sizes and ANU requirements
- Elements of your poster
- Content requirements
- Design principles and recommendations
- PP Tools
- Printing

Size

- Check conference specifications for required size
- Standard size - 90cm x 120cm: [Paper sizes](#)
- Portrait or landscape
- Print at ANU Printing Service ql.anu.edu.au/i201
 - printing@anu.edu.au

Size of bottom margin



Example not to scale

Portrait comparison



A3 | 420x35mm

Portrait comparison



A2 | 594x37.5mm

Portrait comparison



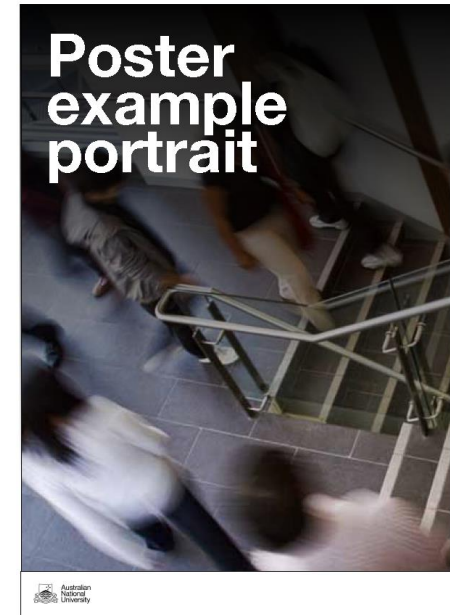
A1 | 841x40mm

Portrait comparison

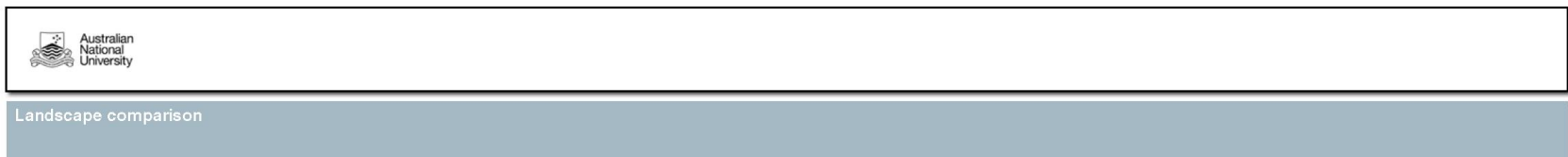
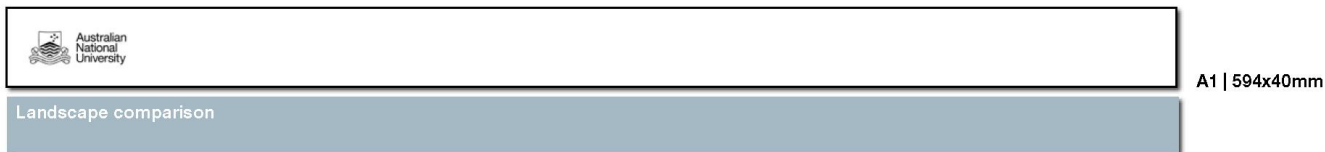


A0 | 1189x45mm

Size of bottom margin



Example not to scale



ANU Requirements

- Margin at bottom of the poster (see above)
- Font
 - a clear font is Arial
 - no requirement to use it
 - ensure the typeface you use is readable
- ANU logo within margin
 - exact positioning required
 - Logo must be requested
- Submit the accepted conference poster
 - openresearch.anu.edu.au

Usage of the ANU logo

- Logo only provided if the poster is
 - to be presented outside the ANU
 - at a conference or similar event
- Supervisor must endorse logo use via email
- Following details are required
 - where the presentation will be held
 - size of the poster i.e. A0, A1, A2, A3
 - portrait or landscape
- For more information and for logo:
 - ql.anu.edu.au/7yy0

Elements - some

- Title
- Author list
 - often a research group
- Address
 - Dept name
 - School
 - College
 - The Australian National University, Canberra ACT
- Primary author email address
- ORCID QR code ql.anu.edu.au/sk11
- Incorporate Creative Commons licence creativecommons.org.au
- Explanation of research and images
- References

Content

- Content order visually clear
- Sections might include
 - Introduction
 - Aim / Background
 - Methods and Results
 - Summary (Conclusion)
- Prepare text and images before placing in poster
 - can be edited once placed

Design 1

- Correct information is the most important requirement
 - but design helps to get the message across
- Columns – are usually measured in even amounts
 - 2 or 3 or 4 equal widths
 - Space (gutters) between columns
- If uneven widths are required
 - try to create a balance
 - 2 columns of equal width and 1 wider column
 - example: col 1 = 24 cm, col 2 = 24 cm, col 3 = 35 cm
 - allow for gutters between columns and margins

Design 2

■ Images

- size within an image program before placing

■ Font size

- title
 - 50 – 80 points (72 points = 2.54 cms or 1 old inch)
- headings
 - 24 - 30 points
- text
 - 20 to 24 points

■ Lining up

- secret of the design is to
 - make sure that elements are lined up with each other
 - not placed randomly

Design 3

■ Backgrounds

- don't let backgrounds interfere with readability

■ ANU Colours

- ANU College of Medicine, Biology & Environment — Turquoise
 - Turquoise for monitor display — R0 G124 B146
 - ANU Deep Gold — R108 G77 B35
 - Charcoal — R51 G51 B51
 - Platinum — R172 G192 B198

Tools to Help

- The following assists with layout
 - calculator to work out measurements
 - PowerPoint ruler
 - grids
 - guides
 - snap to other objects
 - tip: draw boxes
 - size accurately
 - ‘align’ to assist in measuring up the page
 - position the guides against them
 - delete when page is structured

Tools 1

- **Guides (toggle Alt+F9 to show or hide)**
 - set in the vertical and horizontal centres
 - drag to move
 - control+drag generates a new guide
 - drag off slide to remove
- **Ruler**
 - zero point set in vertical and horizontal centres
 - not moveable
- **Grid (toggle Shift+F9 to show or hide)**
 - right click background for menu option > Grid and Guides
 - choose display and snap options
 - alt key overrides snap options
- **Snap to objects**
 - useful for lining up objects

Tools 2

■ Align settings

- Select objects > Drawing tools > Format > Align
 - align objects
 - distribute objects evenly

■ Background

1. Design tab > Background styles > Format background
2. Choose solid or gradient or insert a picture
 - can use Transparency with a picture

Approximate printing costs

- ANU Printer
 - Format must be PDF
 - Unlaminated \$66.00
 - Laminated \$90.00
 - Cloth \$85.00

Backups

- Backup regularly

- file name with a running version number

- poster_conf_1.pptx, poster_conf_2.pptx, poster_conf_3.pptx

Time Keeping

- Posters are time consuming to get right
 - text
 - layout
 - not to mention printing
 - at least 2 days notice to print
 - better to give preliminary booking of 1 or 2 weeks
- Give yourself time!



Summary

Prepare text

Prepare images

Build poster structure

Add text and graphics

Book the Printer

Print