



# Critically reviewing a paper

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- It is a critical step in being able to practice evidence-based medicine
- If you do not critique do you give equal weight to a newspaper article as to a scientific journal article?
- The peer review process is not perfect!
- Are all scientific articles 'good'?
- Are the conclusions appropriate to the results?
- Are the methods robust?
- Aims to identify both the strengths & limitations so can construct a logically approach on your evidence-based decision making?



# In practice, where do you get your evidence from?

Vet school notes

Text books

Friends

Colleagues

Pharmaceutical material

<https://www.msd-animal-health-hub.co.>

Google

- .
- .
- .

Research papers





# Finding the evidence

PubMed, Scopus

Veterinary journals

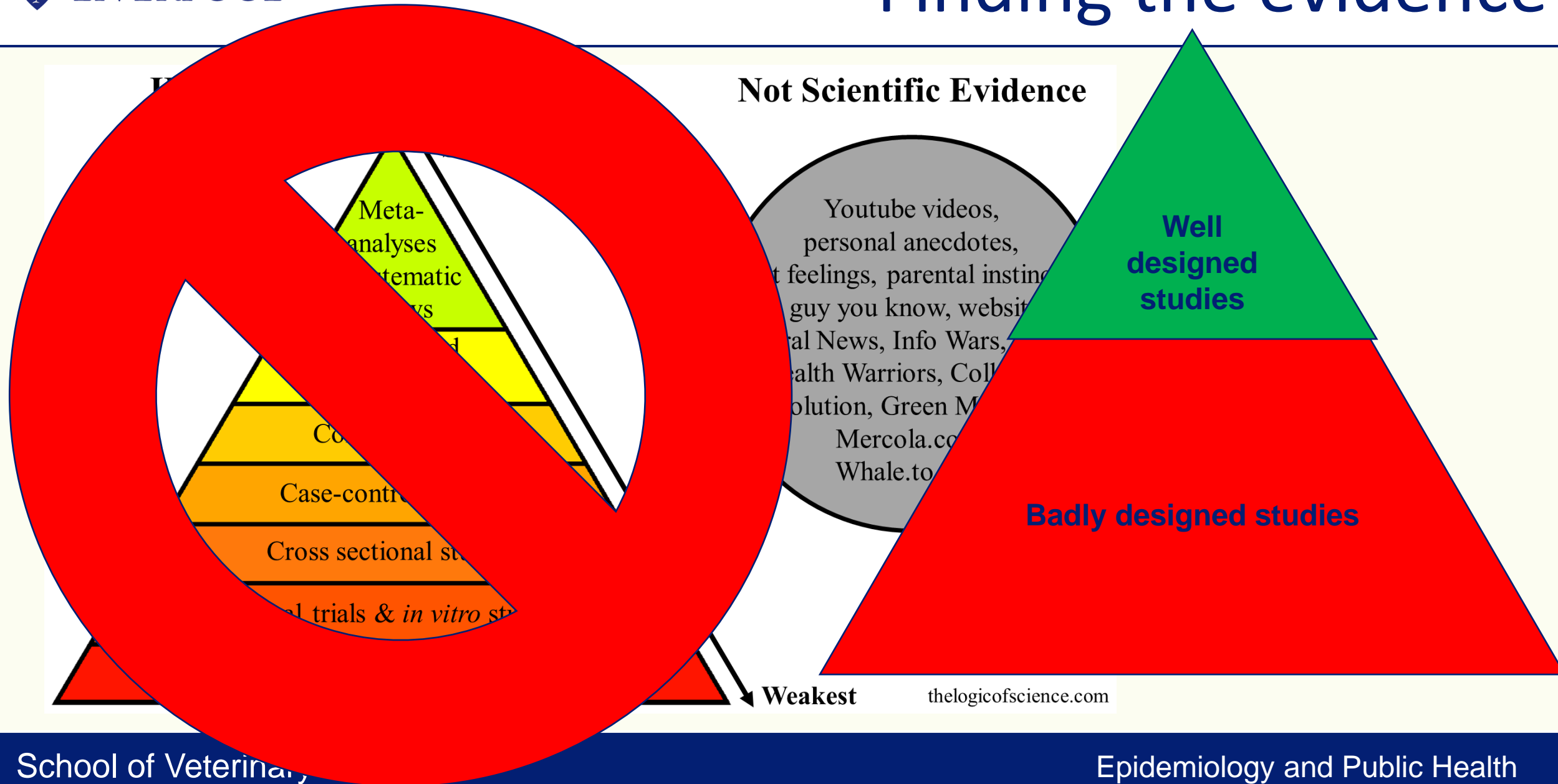
Look for GOOD systematic reviews  
(not as common in vet world)

<https://bestbetsforvets.org/>

If you find a paper, don't just read the abstract you need to critique it



# Finding the evidence



# The 4 Elements of Critique

- Understanding the purpose & problem & determining if the design & methodology are consistent with the study purpose
- Is the methodology applied properly?
- Are the outcomes & conclusions believable & supported by the findings
- Overall quality, strengths & limitations, contributions to knowledge & suggestions for improvement in the study

# Help! How do I do it?

<https://www.bmj.com/about-bmj/resources-readers/publications/how-read-paper>

For example in assessing methodological quality you need to ask?

Was the study original?

Whom is the study about?

Was the design sensible?

Was systematic bias avoided?

Was assessment blind?

Were preliminary stats questions addressed?



# What am I looking for?

1. Clear statement of purpose
2. Clear link between purpose and problem statement/
3. Literature review/Introduction
4. Theoretical framework
5. Congruence of purpose, design, and method
6. Appropriate sampling procedures (size & type)
7. Statistical procedures appropriate
8. Adequate reliability & validity checks to accept findings and generalise to appropriate populations
9. Significance of study for veterinary world is discussed

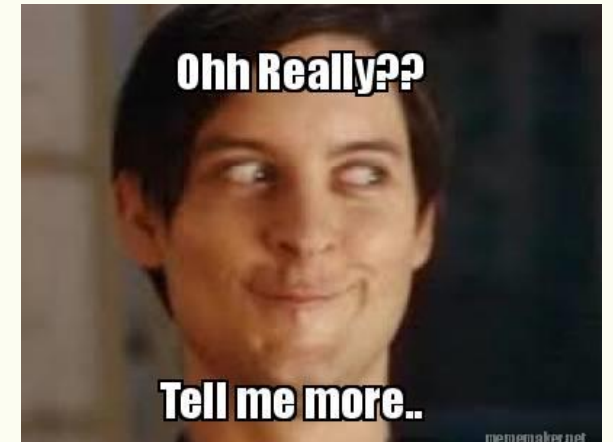






# Why is the study needed? What is it's purpose?

- Is the study problem and purpose clearly articulated?
- Are reasons for conducting the study stated?
- Is the study's potential contribution to veterinary knowledge stated?
- Are the research objectives or research questions or hypotheses stated clearly and researchable (answerable through the collection of empirical data)?
- Introduction needs to spark interest!

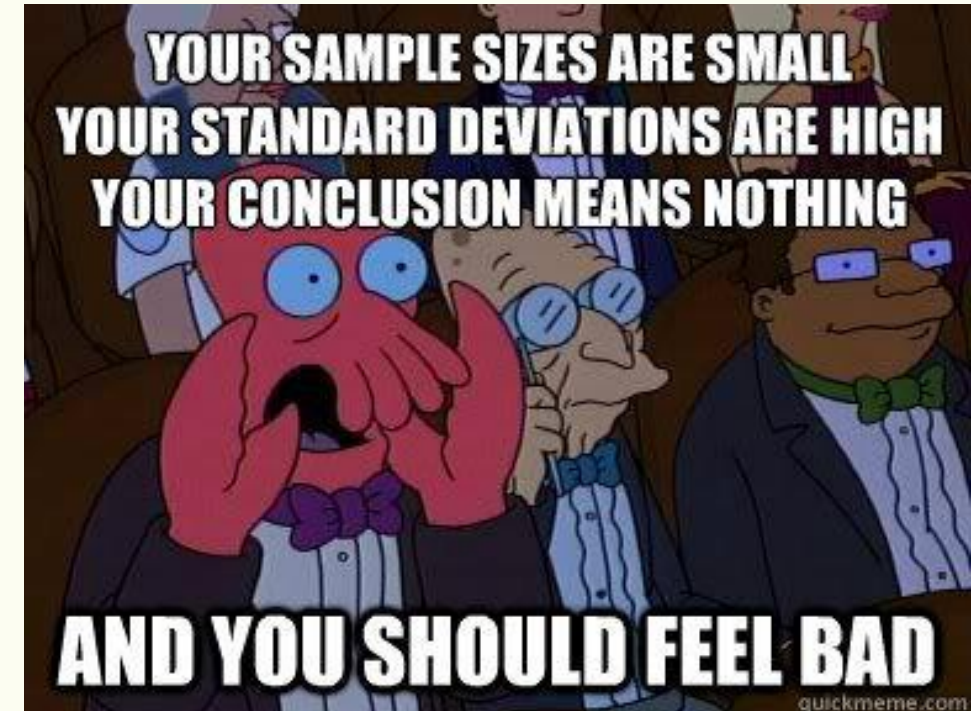


# Literature Review /Background Knowledge

- Does the introduction provide evidence that the researcher has read the classic and current literature and placed the research question in the proper context?
- Does the introduction identify knowledge gaps, suggest how the current study can fill these, and points out contradictions in the current knowledge base?
- Does the researcher summarise the introduction, provide rationale for the current study and show how this study will extend previous research?

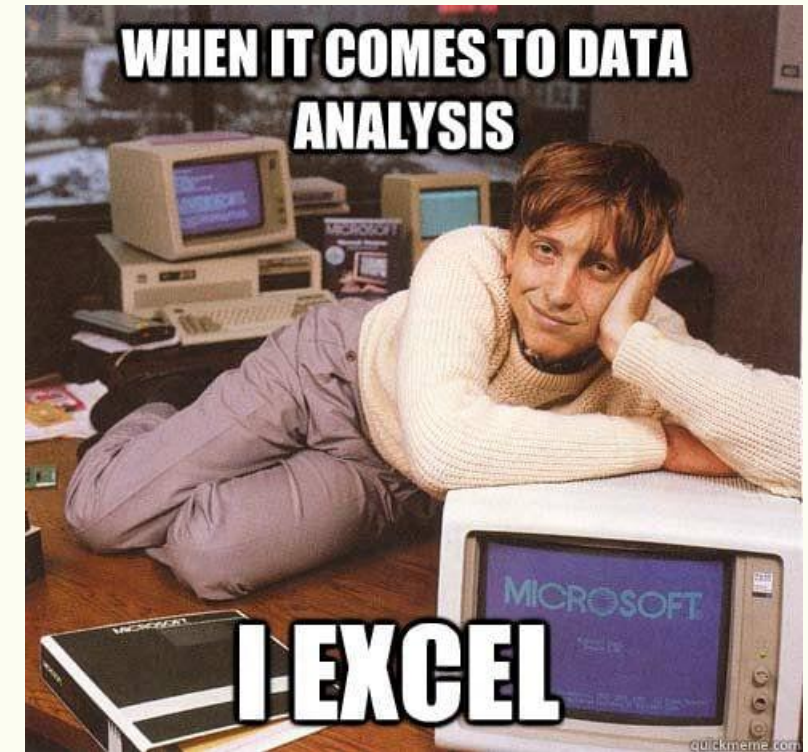


- Is the study design specified?
- Is the design appropriate and capable of answering the research question?
- How does the design control for extraneous variables?
- How do they aim to control for bias?
- Are the demographic characteristics of the sample described?
- Is the sample representative?
- Are inclusion and exclusion criteria identified?
- Is the sample size appropriate to meet assumptions of statistical tests?



# Data Collection and Analysis

- Are data collection methods appropriate?
- Is data collection valid and reliable?
- Are adaptations to data collection described?
- Are data analysis procedures described?
- Are the statistical techniques appropriate?
- Do the statistical tests answer the research questions and specify level of significance?



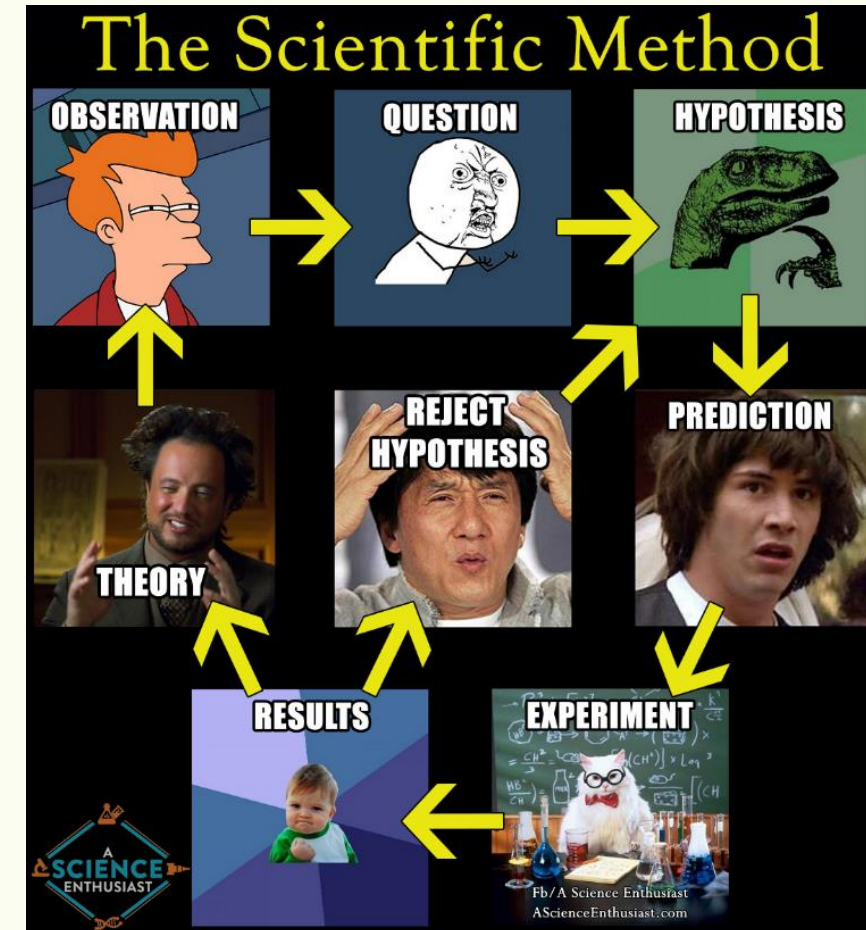


- Are the findings presented clearly, correctly, and related to the theoretical framework?
- Is there a clear statement of whether or not the data support the hypotheses or answer each research question?
- Are tables and graphs clearly labeled, easy to comprehend and congruent with results presented in text form?
- Are findings presented in an unbiased manner?

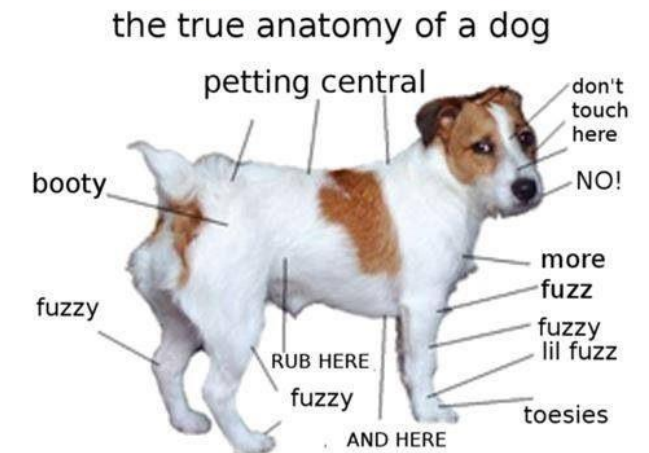
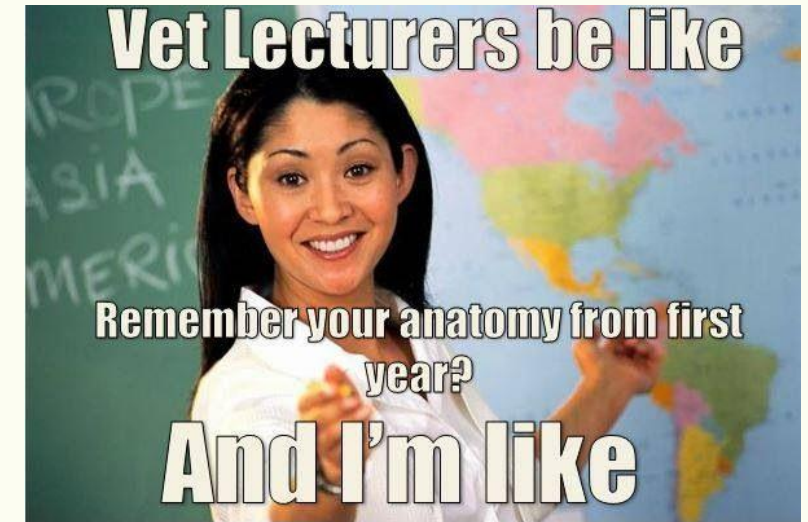




- Are alternative explanations offered?
- Does the researcher discuss both clinical and statistical significance of findings?
- Does the researcher over generalize the findings beyond the appropriate population?
- Are limitations of the study discussed?
- Does the researcher identify important implications of the study for practice, education, or research?
- How do the findings of the study advance veterinary knowledge?
- Do new research questions emerge from the study?



- What are the major strengths of the study?
- What are the major limitations of the study?
- Was the study described in sufficient detail to facilitate a replication study?
- What are the major knowledge contributions of this study?
- What suggestions might enhance the study and correct the limitations?



# Dragon's Den Paper Critique

- 5 groups, one paper each
- 10 min presentation (all must be involved)
- NB critique don't just summarise
- Panel of dragons will ask questions and score




CHRISTMAS 2013: RESEARCH

**The survival time of chocolates on hospital wards: covert observational study**

 OPEN ACCESS


CHRISTMAS 2014: GOING TO EXTREMES

**The Darwin Awards: sex differences in idiotic behaviour**

 OPEN ACCESS

CHRISTMAS 2011: SURGERY

**Orthopaedic surgeons: as strong as an ox and almost twice as clever? Multicentre prospective comparative study**

 OPEN ACCESS

CHRISTMAS 2015: PROFESSIONAL CONSIDERATIONS

**Black medicine: an observational study of doctors' coffee purchasing patterns at work**

CHRISTMAS 2011: DEATH'S DOMINION

**Is 27 really a dangerous age for famous musicians? Retrospective cohort study**

 OPEN ACCESS

# Dragon's Den Paper Critique

## Group 1 – Chocolate

- Eleanor Edmonds
- Oluchi Idaboh
- Simon Thomas
- Lottie Baker
- Abbie Kittow

## Group 2 – Orthopaedic Surgeons

- Jemima Thompson
- Roshan Hall
- Lauren Jervis
- Will Henson

## Group 3 – Coffee

- Natasha Atkin
- Deep Shergill
- Maariya Tofique
- Kenda Ediedin
- Millie Roberts

## Group 4 – The 27 Club

- Isobel Day
- Mon Aung
- KeyIn Crilly-Jones
- Aseel Jared



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