

Improving Podium and Poster Presentations & Creating Effective Figures and Visuals

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Overview

PART 1: EFFECTIVE PODIUM PRESENTATIONS

- Planning and Structure
- Slide design and visual principles
- Delivery and Q & A

PART 2: EFFECTIVE RESEARCH POSTER

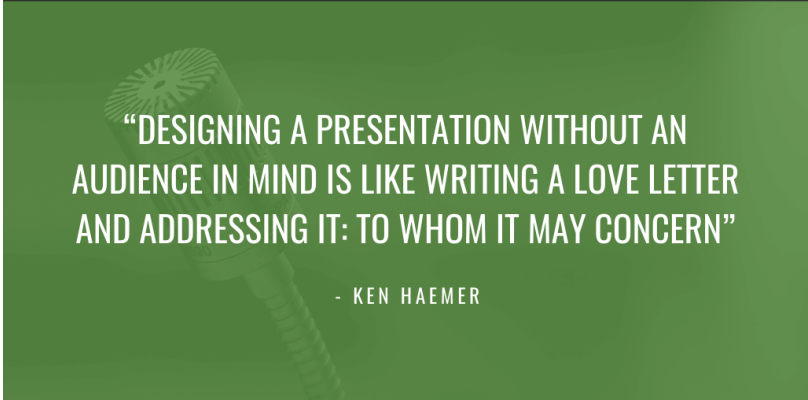
- Poster structure and layout
- Design and visual principles
- Delivery

Effective Podium Presentations

Plan your presentation BEFORE building it

Ask yourself BEFORE opening any software:

- Who is your audience? What do they already know?
- What is your single take-home message?
- Why should anyone in the room care?
- How much time do you have?
 - ~1 slide per minute



“DESIGNING A PRESENTATION WITHOUT AN AUDIENCE IN MIND IS LIKE WRITING A LOVE LETTER AND ADDRESSING IT: TO WHOM IT MAY CONCERN”

- KEN HAEMER

2. Oral Presentation Guidelines

+ 2.1 Duration

— 2.2 Slide Formatting Requirements

- PowerPoint (.ppt/.pptx), **16:9 widescreen**, landscape
- Minimum font size: **14–16 pt**
- High contrast color schemes
- Avoid excessive red text or lines
- Use visuals over text: diagrams, plots, simulations
- Disclosure slide is mandatory
- Final take home message slide is mandatory

Tip: Test your slides on a large screen before arrival.

<https://wcb2026.com/presenter-guidelines/>

Effective podium talks are structured

Methods:

- Be clear and concise
- Justify your choices
- Don't present step by step protocols

Conclusions:

- Directly answer research question
- State implications



Introduction:

- Why does this matter?
- What gap does your work address?
- Convince audience you know the field

Results:

- Let figures carry message
- Apply “10 Second Rule”
- Select appropriate graph types for your data

Effective podium talks are structured

Slide guidelines for research presentations

Section of Presentation	Number of Slides
Title	One slide
Acknowledgements	One slide (may be at beginning or end)
Background	One slide (a common error is to have several Background slides, limiting time available for Results, which is what the audience is most interested in)
Research questions/purpose	One slide
Methods	One to three slides (Slide 1: Study Design, Slide 2: Measures; Slide 3: Sample)
Results	Four to six slides (Slides 1–2: Key Variables with Means, SD, etc.). Slides 3–4: Descriptive Results (Simple Analyses). Slides 5–6: Hypothesis-Testing (Complex Analyses)
Conclusions	One to two slides (may include limitations of the study)
Future directions	One slide

Source: Zerwic et al, 2010

<https://pmc.ncbi.nlm.nih.gov/articles/PMC3003437/>

Note: Suggested guidelines for a 10-15 min talk, adjust for shorter talks

Effective podium talks are well-organized

- Simple, consistent slide background
- One main idea per slide
 - If your slide title states the finding (not just the topic), you're on the right track
- Use images and less text
 - Visuals trigger comprehension and memory far better than bullet points
 - High-resolution images and video only



Effective podium talks are legible

Fonts

T

Serif fonts are easier to read in print media.

Sans-serif fonts are more legible in projected media.

T

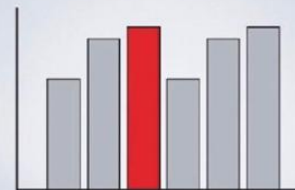
Don't let your
colors
distract from your
message....

Instead, use color to
communicate

Don't let your colors
overwhelm your data

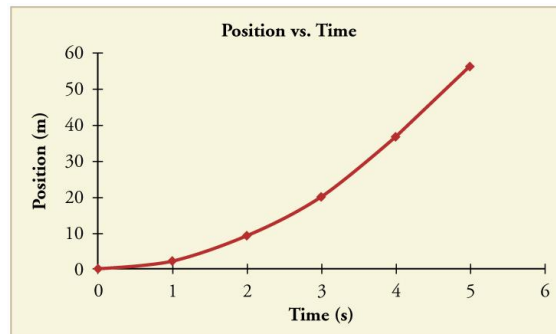


Instead, use color to
emphasize your data



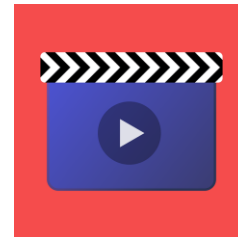
Tips to improve graphics in podium talks

- Minimalist figures that highlight a single takeaway per slide to support your spoken narrative
- One graphic per slide
 - Orient the audience to the graphics
- Build complex figures sequentially to make it easier for the audience
 - Axes → Data Points → Trend lines
- Consider scale and contrast
 - Increase line weights and font sizes so that presentation is legible in conference room



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Tips to improve videos in podium talks



- Optimize technical playback and quality
 - Preload slides for smoother playback
 - Embed instead of linking to avoid internet connectivity or linking issues
 - Use universally supported formats like .mp4 encoded with H.264 video and AAC audio for best compatibility
- Video clips should be between 15 and 45 seconds to maintain audience attention
 - Longer clips tend to replace presentation instead of enhancing it
- Only show relevant video
 - Trim or edit to dead air, errors, or anything irrelevant to your main narrative
 - Adjust brightness and audio of clips before adding to slide deck

Effective podium talks are delivered well

- **Before the talk**

- Practice out loud — many times. Time yourself.
- Rehearse with your lab group or advisor for feedback
- Prepare backup/extra slides to handle anticipated Q&A

- **During the talk**

- Speak to the audience — not to your slides or notes
- Vary your pace; pause for emphasis on key results
- Express genuine enthusiasm for your work

- **Q&A portion of talk**

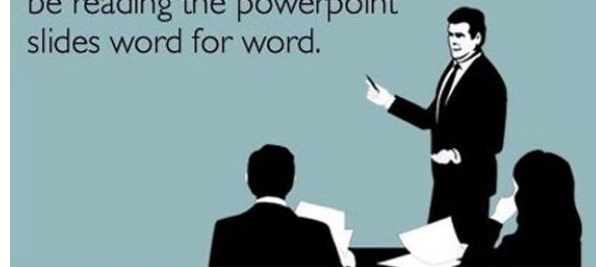
- You are the expert on your work — be confident
- "I don't know, but that's a great question" is a completely valid answer
- Stay open-minded to feedback



Avoid these pitfalls

- Reading slides word-for-word
- Cluttered slides with too much text or too many figures
- Video is difficult to see or hear
- Too many animations or distracting animations
- Not checking presentation in a speaker ready room or conference room in advance
- Impeding audience's line of sight of you and the presentation

For my presentation today, I'll be reading the powerpoint slides word for word.



Effective Poster Presentations

Posters are also scientific communication

- Static, visual representation of a research project
- Why posters matter at ASB/WCB:
 - Standard format for presenting research — don't treat it as second-tier to a talk
 - Generates one-on-one conversations with other experts — often more valuable than a talk
 - Builds your professional network and invites targeted feedback

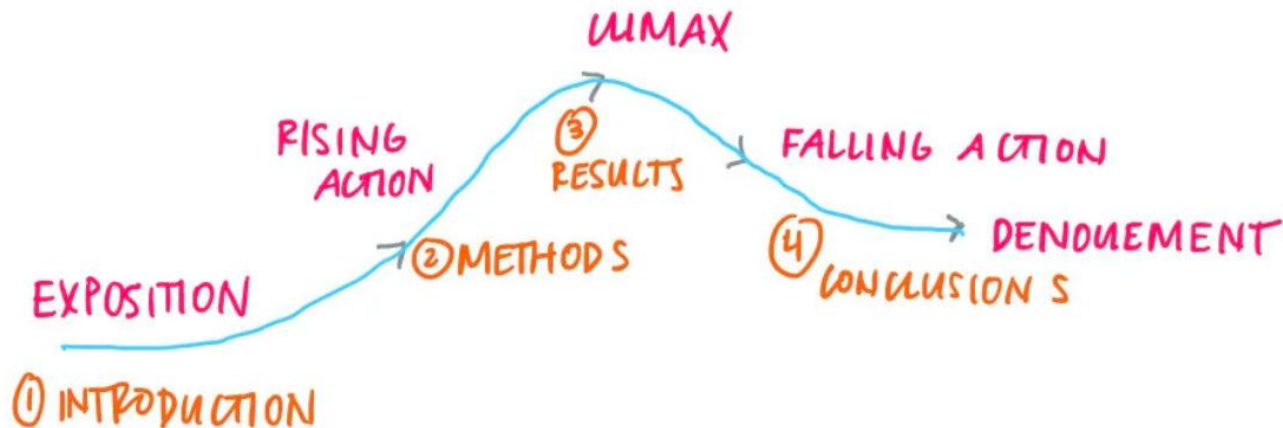


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A poster is storytelling applied to research

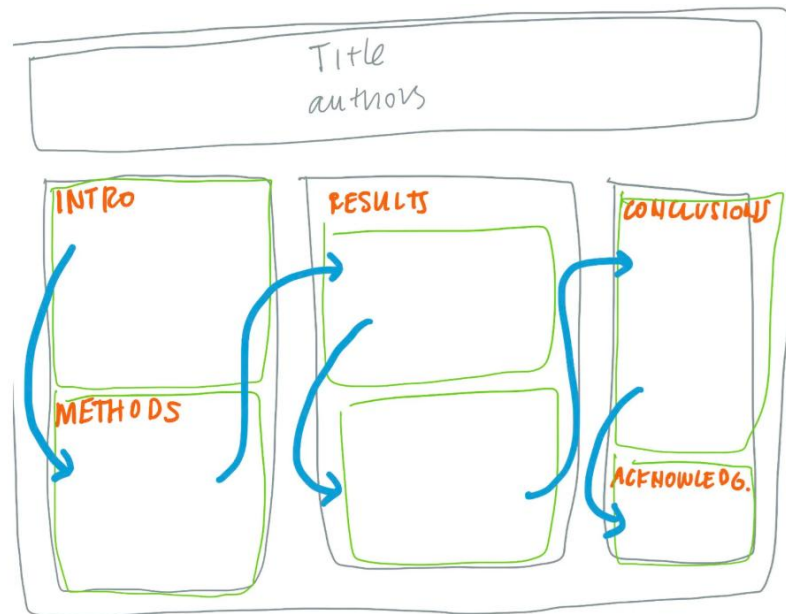
STORYTELLING ARC:

Source: <https://www.calliechappell.com/blog/scientific-poster>



Know your audience!
Use terms they can understand

Poster layout needs logical flow for storytelling



Source: <https://magazine.eacr.org/how-to-design-an-award-winning-conference-poster/>

Source: <https://www.calliechappell.com/blog/scientific-poster>

3. Poster Presentation Guidelines

— 3.1 Poster Size

Your poster dimensions can have a maximum width of 42 inches and a maximum height of 42 inches.

— 3.2 Poster Content Requirements

Required components:

- Poster Number
- Poster title
- Authors and affiliations
- Research question / problem statement
- Methods (experiment setup, simulation workflows, computational models)
- Results (plots, heatmaps, contour maps, model outputs)
- Conclusions & relevance
- Contact information

<https://wcb2026.com/presenter-guidelines/>

Does your poster pass “The Audience Test?”

- Audience Test: The audience should be able to read your poster from 3-5 feet away
 - Ensure figure axes, tick marks, and legends can be read without squinting
- Focus on clarity over complexity
 - Layout should be consistent, clean, and high-contrast
 - Poster should contain a max of 800 words
 - Title should be short and interesting



Effective posters can be read 3 – 5 feet away

Poster Section	Font Size (points)	Font Style
Title	50-120 pt	Its best to pick 1 or 2 font styles to use in a poster. Sans-serif letterform (typeface without serifs) is recommended because it is easy for an audience to read. Recommended poster fonts include: Arial , <u>Avenir</u> , Century Gothic, Gill Sans, Helvetica , Johnston, Montserrat, Open Sans, <u>Roboto</u> , San Francisco, Verdana.
Authors & Institutions	40-80 pt	
Abstract	24-30 pt	
Introduction	24-30 pt	
Materials & Methods	24-30 pt	
Results	24-30 pt	
Discussion	24-30 pt	
References	16-24 pt	
Acknowledgements	16-24 pt	
Figure & Table Caption	20-30 pt	

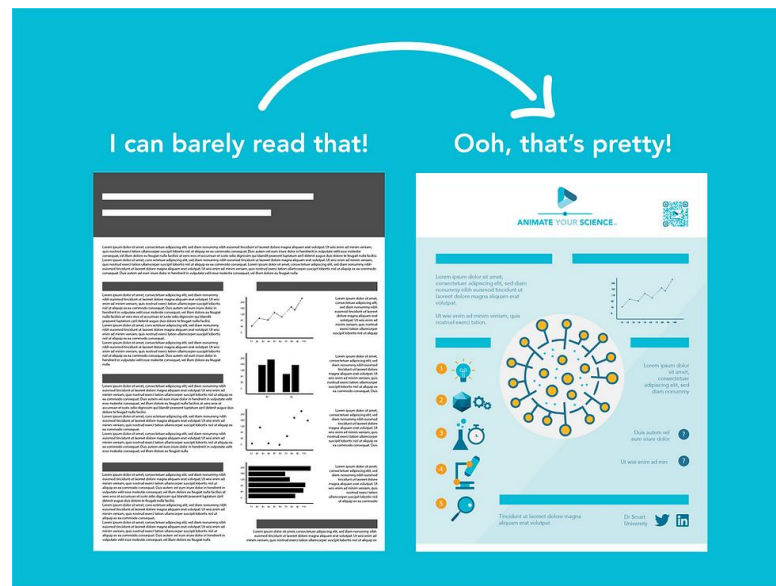
Use **bold** or ALL CAPS for section headings

Use bullets instead of sentences/paragraphs

Source: <https://ohiostate.pressbooks.pub/scientificposterguide/chapter/scientific-posters/>

Effective posters can be read 3 – 5 feet away

- Consider which information can be best conveyed visually
 - Use 4 - 5 key visuals (charts, tables, graphs, photos, or images)
 - Include visuals based data that directly addresses research question or key findings of the story
- Minimize text
 - What can you say to complement the poster?
- Include white space

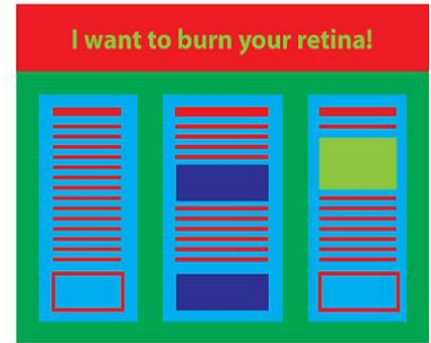
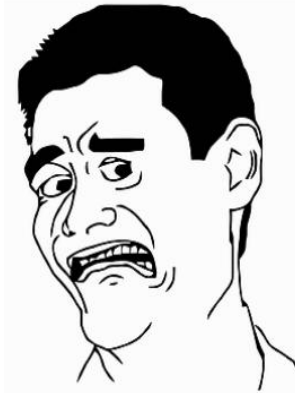


Source: <https://www.animateyour.science/post/best-examples-of-scientific-posters>

Keep graphics simple!

- Remove unnecessary gridlines, background shading, and borders in figures
- Consider color palette and accessibility for color blindness
- Use 2 – 3 primary colors and one bold “accent” color to highlight most important data

Kill me now!



Source: <https://magazine.eacr.org/how-to-design-an-award-winning-conference-poster/>

Tips for images, schematics, and diagrams

- Vector formats like SVG, PDF, and EPS are ideal for diagrams and schematics (scale without compromising resolution)
- Include high resolution photos to avoid pixelation (at least 300 dpi)
- Do NOT copy and paste small graphics from papers or presentations or other sources
 - They will appear blurry in the poster



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Tips for images, schematics, and diagrams

- Use descriptive captions for graphics

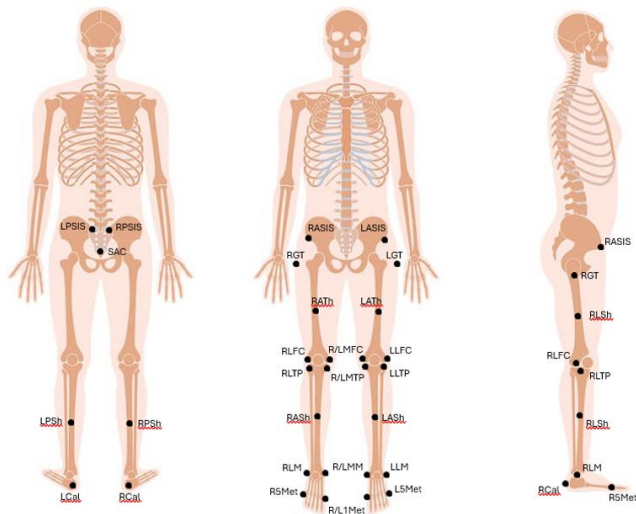


Figure 1. Marker placement for study

Markers placed on the lower body to capture motion during countermovement jump



Does your poster meet the “Golden Ratio?”

- **Golden Ratio:** ideal spatial proportion for visually balanced, highly readable, and professional posters
- Graphic elements: ~40 – 45% total poster space
- Text: ~ 20 – 25% total poster space
- White & Negative space: ~30 – 40% total poster space



- **Too much text**
- **Not enough white space!**

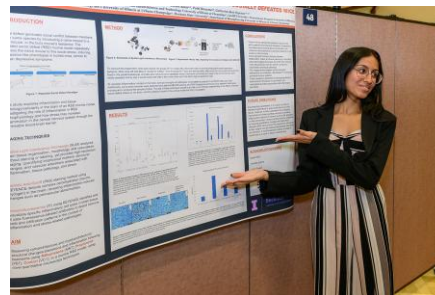
Effective posters are delivered well

- **Before the poster session:**

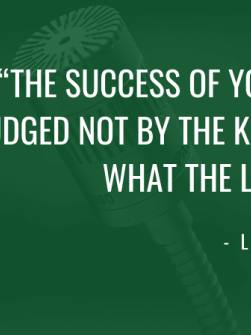
- Prepare a 2–3 minute overview of your project
- Practice with your advisor and research group
- Know your results deeply — expect expert-level questions

- **During the presentation:**

- Give people time to look at the poster before you begin talking
- Adapt your depth to each visitor — expert in area vs. expert outside of area



Key Takeaways and Resources

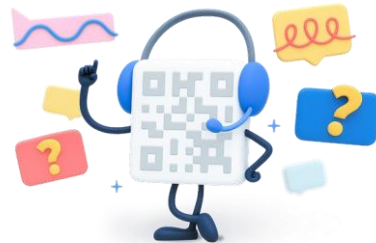
A faint, light green illustration of a microscope is visible in the background of the dark green box, positioned diagonally from the top left towards the bottom right.

“THE SUCCESS OF YOUR PRESENTATION WILL BE
JUDGED NOT BY THE KNOWLEDGE YOU SEND BUT BY
WHAT THE LISTENER RECEIVES”

- LILY WALTERS

Key principles for both presentation types

1. Invest **TIME** in the process
2. Know your **AUDIENCE**
3. **PLAN** your presentation before you create it
4. Let **IDEAS** drive your product — not the template
5. Create good **VISUALS** — images over text
6. **REHEARSE** your presentation
7. Consider opportunities for audience follow-up



Additional Resources: Podium Talks

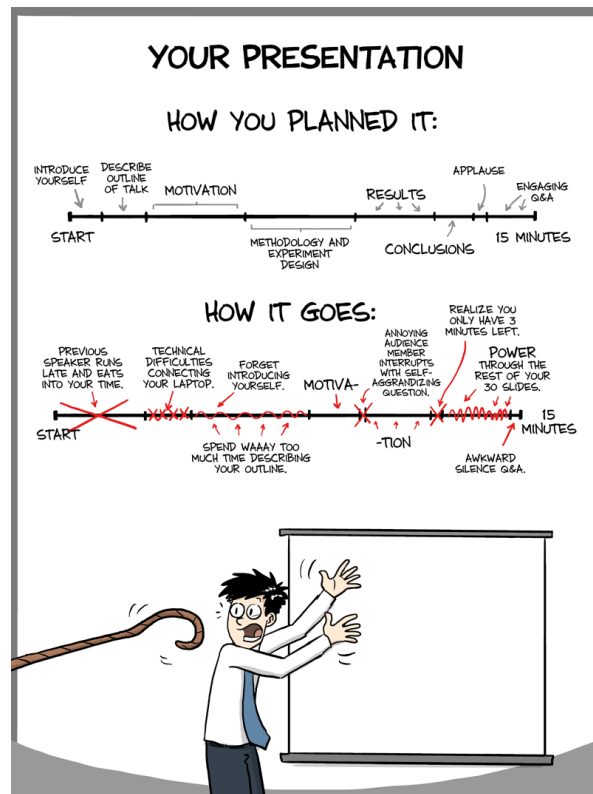
- [Creating a 10- 15 minute scientific presentation, Northwestern University, Collaborative Learning and Integrated Mentoring in the Biosciences](#)
- [Naegle, K \(2021\): Ten simple rules for effective presentation slides, PLOS Computational Biology](#)
- [Phillips, DJP \(2014\): How to Avoid Death by PowerPoint \(TedTalk\)](#)
- [Zerwic et al \(2010\): Tips for better visual elements in posters and podium presentations, Educ Health, 23\(2\): 267](#)



Additional Resources: Poster Talks

- [Callie R. Chappell: How to make a scientific poster](#)
- [Oregon State University, Oregon Sea Grant Posters](#)
- [UC Davis: Summary of general poster development and design tips](#)
- [University of Texas: Undergraduate Research Poster Guide](#)
- [Zerwic et al \(2010\): Tips for better visual elements in posters and podium presentations, Educ Health, 23\(2\): 267](#)

Good luck with your presentations!



Additional questions?

Email: odle@hope.edu

<https://phdcomics.com/comics.php?f=1553>