3 Essential steps for better data visualizations

1. **Use the right kind of plot for your data**

   - **Picture**: Define features in image and in legend
   - **Line Graph**: Use for data with one continuous variable
   - **Scatter Plot**: Use for XY coordinate data; indicate best fit line
   - **Bar Chart**: Use for categorical data; vertical orientation preferred
   - **Proportional Chart**: Parts of a whole; best with only a few groups
   - **Box & Whisker Plot**: Useful to highlight population differences, identify possible outliers
   - **Contour Plot**: Useful for multi-dimensional data; very effective with color

2. **Figures should elucidate information, not obfuscate**

   - **Do not manipulate figure to (de)emphasize observations**
   - **Do not arbitrarily exclude data or change analysis plan post-hoc**
   - **Use the same scale for similar data sets**
   - **Graph style should reflect experiment design**
Apply principles of **effective formatting**

**Neatness**  Image is clean and sharp, invites attention

**Readability**  Eye can discern important information easily, quickly

**Font**  Text is large enough to be read, placed well and limited

**Size**  Graph is sized appropriately for anticipated reduction during printing

**Aesthetics**  Balanced graphs, good use of white space, eyes drawn to most important features

**Use of color**  Distinguishes important content, pleasing to eye

**Consistency**  Similar graphs have same stylistic scheme (line width, font type and size, labeling, scales, etc.)

*Not this:*

*This!*

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**Can I use trendy infographics?**

Excellent tool for distilling information to simple image

Tart cherry **supplemented diet**

40% fewer mice with colon tumors, but only for those fed a healthy diet

Use for public presentations, but not professional journals

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**What software is recommended?**

Avoid Excel for data charts; too difficult to achieve needed consistency

Recommend GraphPad Prism

[www.graphpad.com](http://www.graphpad.com)

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**Complete PDF of presentation available**

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