

# Help for Authors

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## Art Preparation

Here are some guidelines to help you submit better quality, more consistent art: first, a basic list of requirements; second, a series of bad and good examples to show what a difference following these few basic rules can make in the reproduction of your figures. We want to ensure that you will see the best possible reproduction of the figures in your published work.

### First, some basics....

Figures can be submitted as traditional art or digital art, in color or black and white.

1. Identify lanes, bars, and panels on the figure. Letters and locants must be the same size and style within each figure. Symbols, lines, and type must be of uniform size and density. *Avoid use of hairline rules or shades of gray in line art, because they do not reproduce well.*
2. Labels and symbols should be large enough to withstand reduction; the suggested minimum is 9 point type.
3. Always supply a scale bar with photomicrographs.

### Traditional Art

1. Traditional art can be original drawings, photographs, glossy laser prints, slides, or transparencies. Artwork should be prepared according to professional standards.
2. Photographs should not be cropped or otherwise marked on the front. On the back there should be a label to identify the figure and to indicate which edge is the top.
3. Photocopies of original art are not acceptable for print production. The more generations away from the original art, the poorer the reproduction.

### Digital Art

1. Photographs submitted as digital images should be in TIFF or EPS format and have a resolution of at least 300 dpi, or higher if they will be enlarged. Black-and-white digital images should be in grayscale mode and color images saved in CMYK, not index or RGB, color mode.
2. Digital line art can be generated in Adobe Illustrator and saved in EPS format. Line art scanned and saved as a bitmapped TIFF should have a resolution of 1200 dpi. Charts created in Powerpoint cannot be used as digital art, but must be output larger than finished size from a laser printer (not inkjet) on glossy paper.
3. Graphics downloaded from the Web are not acceptable for print. Web graphics, usually in GIF or JPEG format, have a resolution of only 72 dpi, nowhere near the 300 dpi needed for print.
4. Fonts required for a digital image should be included, or the text converted to graphics.
5. Avoid scanning and sending preprinted photographs (halftones.) An undesirable pattern called moiré may result.
6. When submitting figures via disk or CD-ROM, be sure to supply figures on media separate from the text of the article. Figures and text follow different production paths at the vendor.
7. When submitting digital art, always supply scannable hard-copy originals to be used to verify the integrity of the digital files.
8. For detailed information on submitting digital art, go to <http://cpc.cadmus.com/da>

*continued...*

☞ All figures used in this presentation are for representative purposes only.

## Halftone and line art.

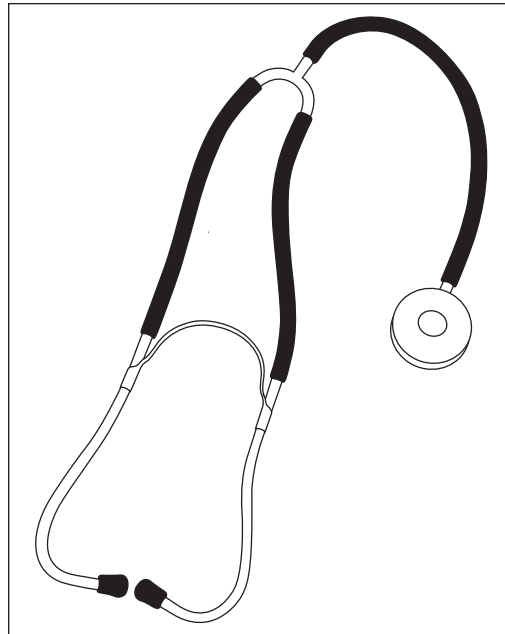
**Figure A** is a halftone photograph. It is an image composed of tiny dots whose variations in size create the illusion of variations in tone. The reproduction process called screening is done electronically, and is measured in lines per inch (lpi): 65 lpi is coarse and 133 lpi is fine. For best results, continuous-tone photos, not halftones, should be scanned at 300 dots per inch (dpi), produced in grayscale (for black and white) or CMYK mode, and saved as a TIFF.

**Figure B** is line art. This image requires sharp edges and high contrast between areas with and without ink. These require higher resolution than halftones to create the necessary sharpness. Scanning at 1200 dpi (produced as a bitmap and saved as a TIFF) ensures good quality. Better yet is a digital image created in Adobe Illustrator and saved in EPS format that is resolution independent.

**A. Halftone art**

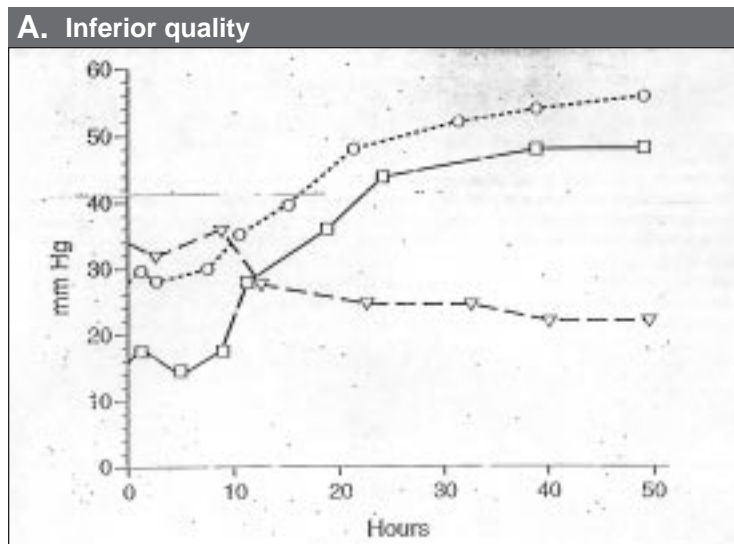


**B. Line art**

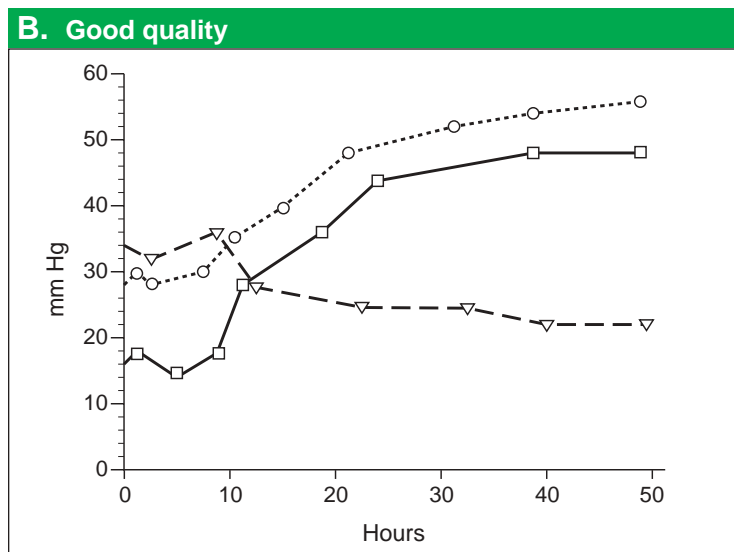


## Reproduction quality.

**Figure A** shows inferior quality. This resulted from using a photocopy (a multiple generation) of the original art. Notice the gray appearance, spots, broken lines.

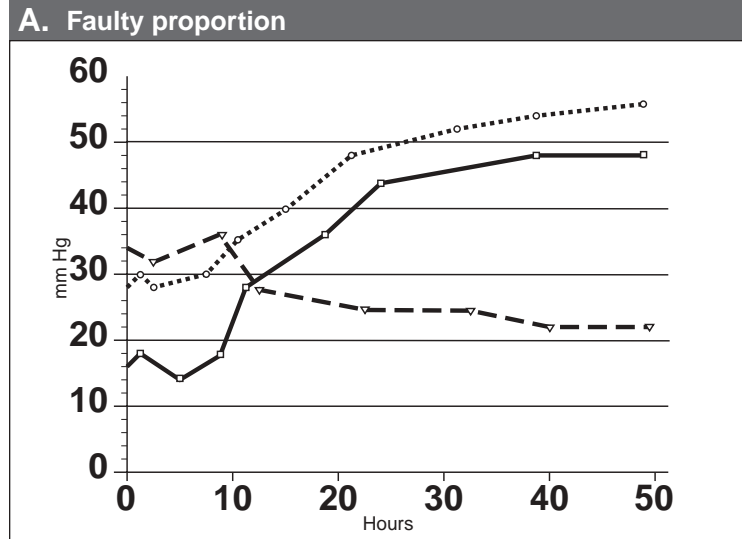


**Figure B** is an example of good quality. The original art was used in production. Sharp contrasts between areas with ink and without ink are possible; lines are solid. This can be achieved by using original, clean, camera-ready art or output from a laser printer (not inkjet), with resolution of 1200 dpi.

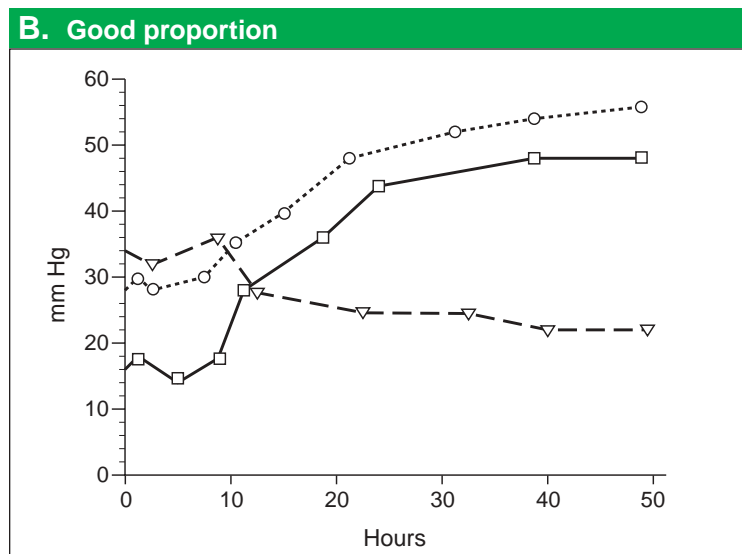


## Proportion of type and symbols.

**Figure A** is an example of faulty proportion. The labels are different sizes and weights, and the symbols are too small in proportion to the profiles on the body of the graph. This inconsistency within the figure will produce unsatisfactory results when the figure is reduced for printing. Also, notice the distraction created by the horizontal data lines.



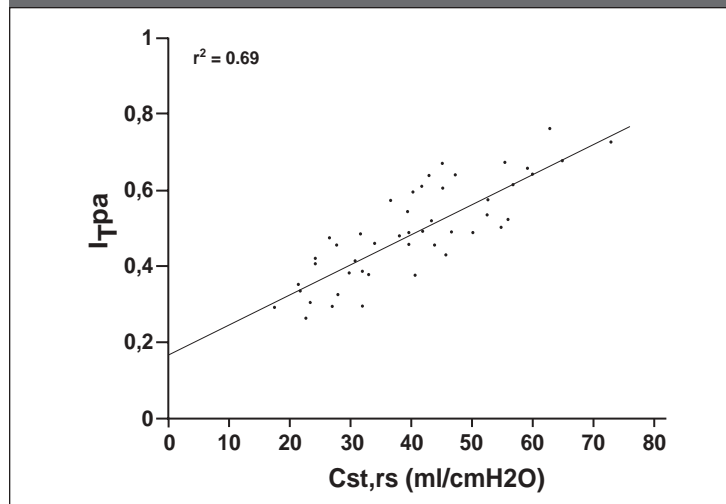
**Figure B** is the same graph, but the proportion has been corrected. All labels are the same size type, and the symbols have been enlarged to aid in reading and interpreting the data presented. When the size of type and symbols is consistent and not undersized, the ability to reduce the figure and to have an aesthetically pleasing result is ensured.



## Scale.

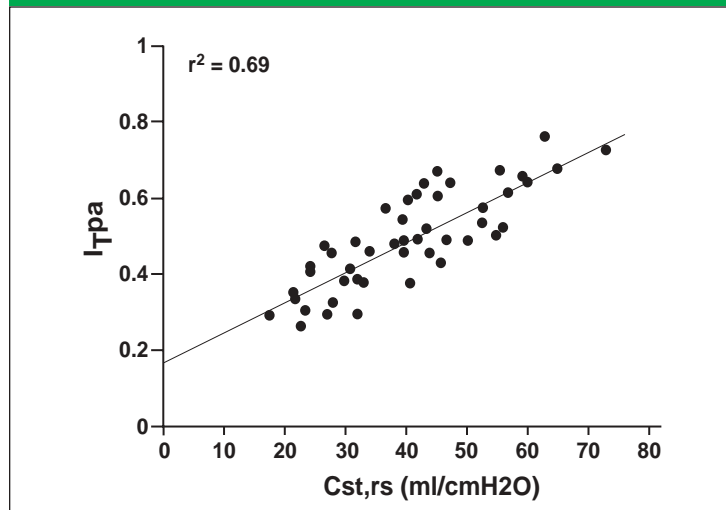
**Figure A** shows inferior scale. The same issues apply here as for proportion. The dots in the scatter diagram are too small. Their small size makes it difficult to interpret the figure. They are also a lighter weight than the lines and type, adding to the difficulty in reading the figure. The type is different sizes, and the decimals contain commas instead of decimal points.

**A. Inferior scale**



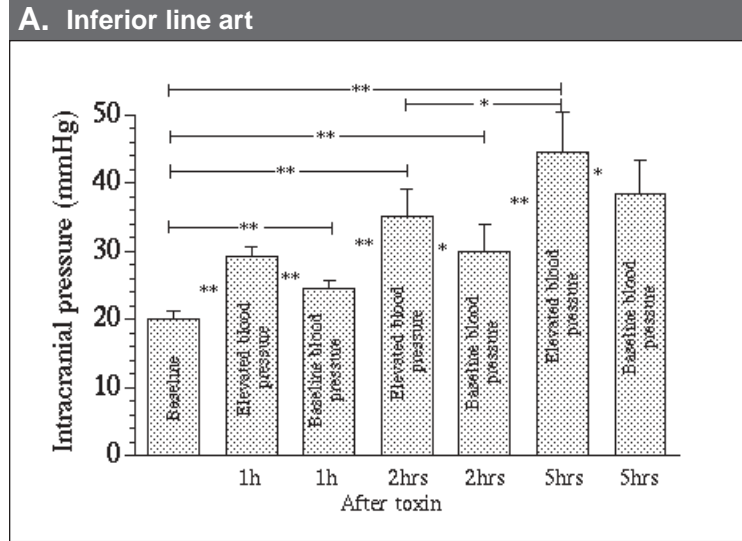
**Figure B** shows excellent scale. The weight and size of the dots have been increased, all type is sized consistently, and decimal points are used. The figure is now much easier to read.

**B. Good scale**

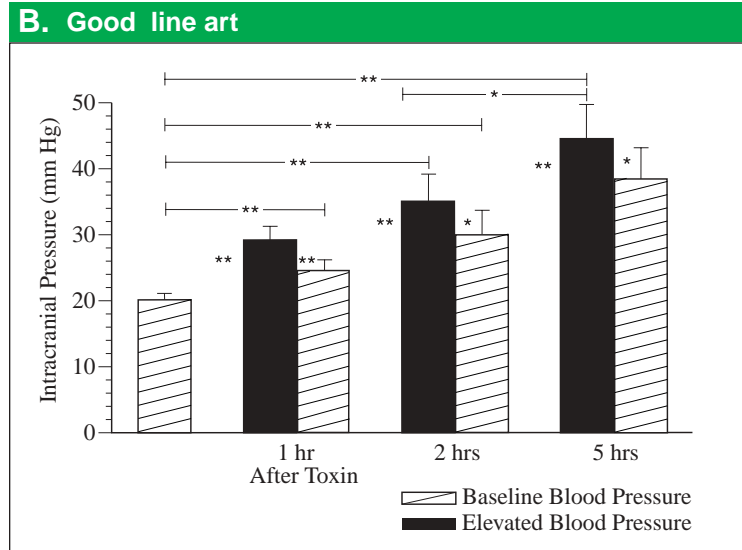


## Shading.

**Figure A** is an example of inferior line art. Not only are the labels different sizes, making satisfactory reduction difficult, but the shading used to define the bars makes it difficult to read the type and hard to differentiate one set of results from another. Further, Figure A demonstrates 72 dpi resolution. Type appears “pixilated” and the demarcation between black and white will not be print quality.

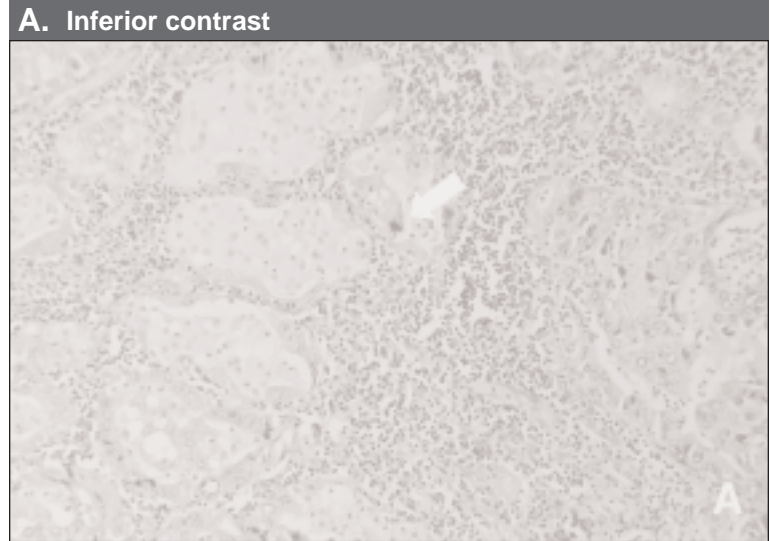


**Figure B** is a fine example of line art. The bars are either filled with solid black or are hatched. Using patterns instead of shading (without type) facilitates the clear presentation of data. The resolution represented here is 1200 dpi for scanned bitmapped images.

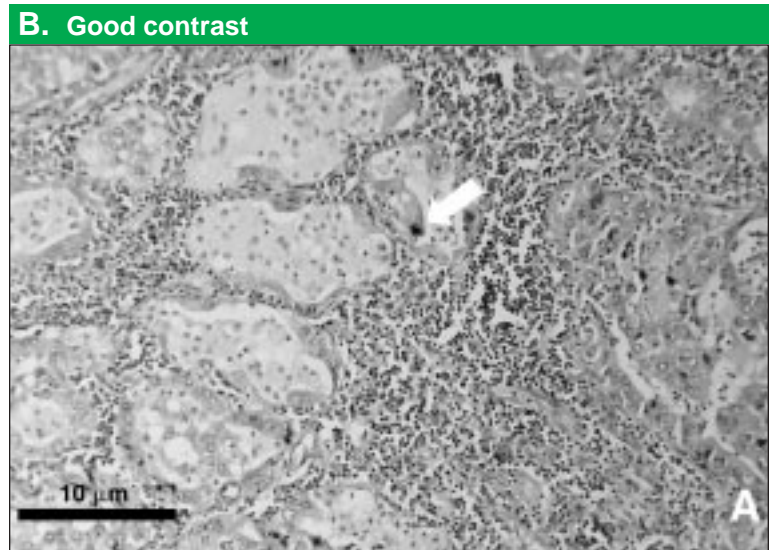


## Contrast.

**Figure A** demonstrates inferior reproduction of a micrograph. Tonal contrast is low, and much detail is lost. The scale bar is missing.

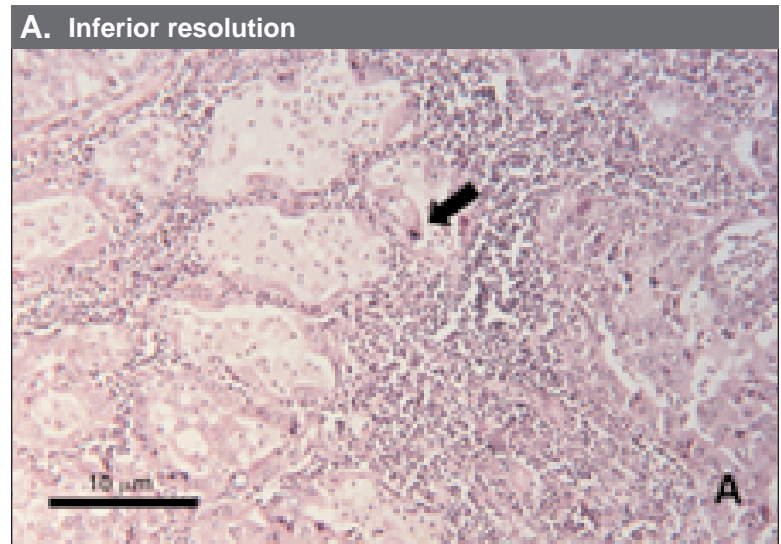


**Figure B** demonstrates good reproduction of a micrograph. The contrasts are high, and the fine details are discernible. A scale bar has been supplied.



## Resolution.

**Figure A** shows inferior resolution for the size of the image—too few dots/pixels per inch makes it look “pixilated.” This is an example of a figure reproduced at 72 dpi, in a GIF or JPEG format.



**Figure B** shows proper resolution for printing—at least 300 dots per inch.

