

## Avoiding Inappropriate Image Editing

It is the aim of the AGA journals to put forth the highest quality research, including the highest quality scientific images. To that end, some edits to figure images are expected and can be appropriate to make. However, inappropriate edits differ in that they result in the **misrepresentation** of the image's data and overall accuracy. Scientific images (clinical images, radiographic images, micrographs, gels, etc.) submitted with your manuscript should be minimally processed to preserve the integrity of the image data. Submitted figures may be screened for inappropriate editing.

### Processing changes

Processing changes such as contrast or brightness adjustments should be applied equally to the entire image (linear) and related control images. Any nonlinear adjustments, such as curves, levels, or color settings, should be indicated in the figure legend.

1



Original image



✓ Appropriately edited image

Brightness was only slightly increased so that all elements of the image are clearly visible



✗ Inappropriately edited image

Brightness was significantly increased so that a substantial amount of the image disappears

2



Original image



✓ Appropriately edited image

Brightness was only slightly increased so that all elements of the image are clearly visible



✗ Inappropriately edited image

Brightness was increased on only one section, inappropriately enhancing the section

## Cropping

Cropping may be used for efficient image display or to de-identify patients but cannot misrepresent or alter the interpretation of the image by selectively eliminating relevant visual information.



✗ Original image

Patient ID is visible in the bottom left corner



✓ Appropriately edited image

Patient ID is cropped out but all relevant elements are still visible



✗ Inappropriately edited image

The interpretation of the image was altered by cropping out relevant visual information

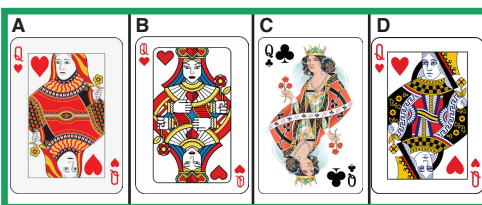
## Grouping of elements

Grouping of elements from different parts of a single image or from different images, as in a composite, should be clearly indicated by the addition of dividing lines, borders, and/or panel labels and indicated in the figure legend.



✗ Original image

Elements from different sources are displayed without panel labels or dividing lines



✓ Appropriately edited image

Elements from different sources are divided with both lines and panel labels



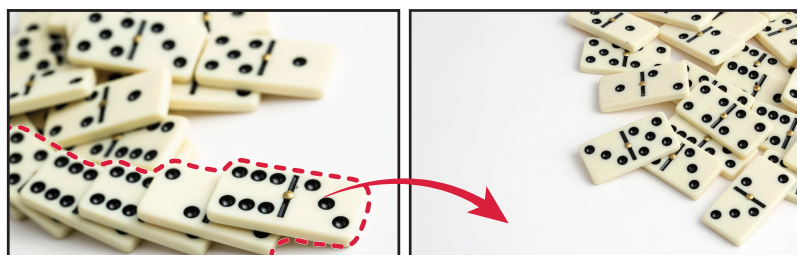
✗ Inappropriately edited image

Elements from different sources are not divided in any way

## Duplication and image handling

The following are inappropriate edits unless indicated in the figure legend: duplicating, removing, concealing, or adding elements of an image.

1



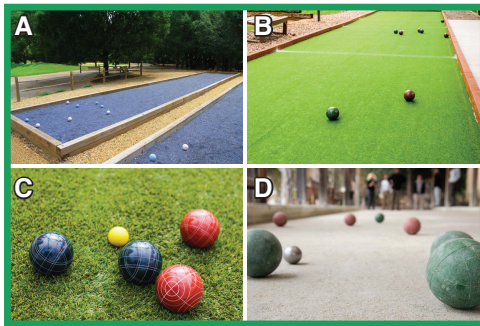
Original images



✗ Inappropriately edited image

An element or section from one image was pasted into another to appear as one image from one source

2 Inappropriately duplicating an image(s) within a figure, misrepresenting the figure



✓ Appropriate figure

Each panel of the figure contains a different image, no duplication

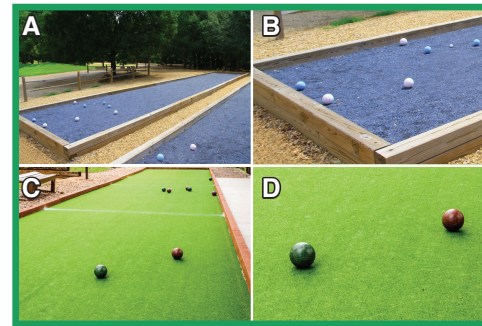
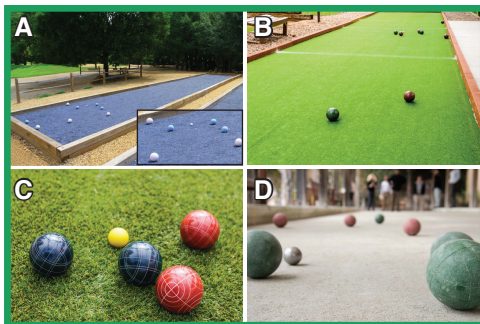


Figure 1: A) Image of a bocce court. B) Zoomed in view of panel A. C) A different bocce court. D) Zoomed in view of panel C

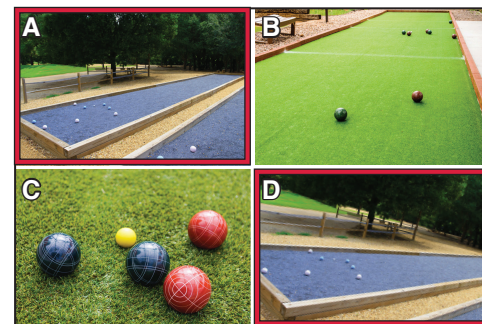
✓ Appropriate figure

While panels B and D are duplications of A and C, it is indicated in the figure legend



✓ Appropriate figure

Panel A uses a duplicated and zoomed in version of the image within the same panel to show more detail



✗ Inappropriately edited figure

The image in panel A has been duplicated and also used in panel D to appear as though it's from a different source

3 Inappropriately duplicating an image(s) across multiple figures

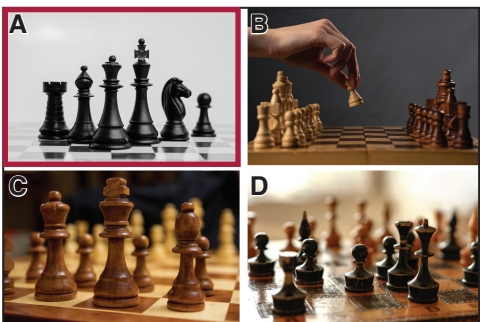


Figure 1

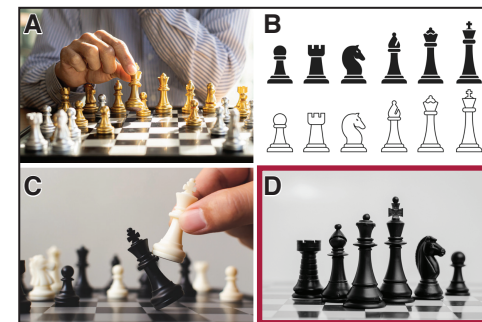


Figure 2

✗ Inappropriately edited images

The image in panel A of Figure 1 was duplicated and also used in panel D of Figure 2

## Background elements

Minor edits can be made to the background for image clarity. However, it is inappropriate to remove an element that is considered the background that may contain important information.



Original image



✓ Appropriately edited image

Some of the shadows in the background of the right corner objects was removed for clarity



✗ Inappropriately edited image

A section of the image was removed that was more substantial than the 'background' which can mislead readers regarding study results

## Checklist to avoid inappropriate image editing

- ✓ Make any adjustments to the *entire* image
- ✓ Leave plenty of space around your image to avoid cropping or misrepresenting important information
- ✓ Unless described in the figure legend, no elements within a figure or among figures should be:
  - Duplicated
  - Removed
  - Concealed
  - Added
  - Moved
  - Selectively enhanced
- ✓ Use dividing lines, borders, and/or panel labels when grouping elements from an image or images together
- ✓ Leave images as minimally processed as possible, including backgrounds. Image processing should aim to enhance clarity of study results for readers, but not obscure any findings
- ✓ Indicate changes, adjustments, and/or combining of separate image sources in the figure legend

## Process

AGA journal staff may screen images at random during the submission process and will review images that editors, reviewers, or readers suspect have been inappropriately edited. If inappropriate image handling is suspected, the staff and editors will initiate an investigation with the authors and possibly their institutions.

## Sanctions

Should inappropriate image editing be verified before or after publication of an article, one of the below sanctions will be applied, based on the severity of the infraction. The editor-in-chief and board of editors will determine, on a case-by-case basis, the severity of the infraction and corresponding sanction. Sanctions will be applied to individual authors depending on their type of involvement with the article, as provided at the time of submission on the title page.

- A letter of explanation from the journal editors to the authors where there appears to be a genuine misunderstanding of principles.
- A letter of reprimand from the journal editors as to future conduct.
- A formal letter from the journal editors to the author's institution or employer.
- Rejection or withdrawal of manuscript acceptance.
- Publication of a correction or editorial.
- Retraction of the published article.
- Refusal to accept submissions from the author for a range of one-to-five years. For particularly egregious cases or series of cases, a life-time ban may be considered

AGA reserves the right, on a case-by-case basis, to report particularly egregious cases to relevant funding bodies. This policy was developed in accordance with the guidelines set forth by Committee on Publishing Ethics.

## Contact information

If you have any additional questions or concerns, please contact the appropriate journal:

*Gastro*: [gastro@gastro.org](mailto:gastro@gastro.org)

*CGH*: [cgh@gastro.org](mailto:cgh@gastro.org)

*CMGH*: [cmgh@gastro.org](mailto:cmgh@gastro.org)

*TIGE*: [tige@gastro.org](mailto:tige@gastro.org)

*GHA*: [ghadvances@gastro.org](mailto:ghadvances@gastro.org)

## Additional resources

<https://scienceintegritydigest.com/how-to-guides/>