**Short title:** Abbreviated version of manuscript title in 90 characters (with spaces) or less

# Original research

# Manuscript title

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# Summary

## Objective: State the objective(s) of the study.

**Materials and methods:** Summary of the materials and methods used.

**Results:** Highlight key results of the study.

**Implications:** State implications of the study. These should be consistent with the implications section of the manuscript. Total word count for summary (including headings) must not exceed 250 words.

**Keywords:** swine, up to 4 additional keywords listed here

The introduction section has no heading or sub-headings. The introduction provides context and justification for the research and how the work fills in gaps in the literature. The introduction should end with a clear statement of the objectives of the study and the hypothesis or research question. It should generally not exceed 2 or 3 paragraphs.

# Animal care and use

For animal experiments performed in research facilities or on commercial farms, include a statement indicating that the studies were reviewed and ap­proved by an institutional animal care and use committee or equivalent. For studies performed un­der field conditions, in which animals are not manipulated beyond what would be required for diagnostic purposes, it must be clear that housing was adequate and that the animals were humanely cared for. If the study is exempt from an­imal care and use approval (eg, use of di­agnostic records), authors need to clear­ly state the reasons in the manuscript.

# Materials and methods

## Sub-heading 1

Sub-headings may be used in this section but are not required. The materials and methods section must begin with an animal care and use statement. This section should include sufficient detail to enable the reader to repeat the study. This includes, as appropriate, a detailed description of the study design; date and location of study; condition, factors, or disease studied; sample population, including inclusion and exclusion criteria and treatment allocation; interventions or treatments and how and when they were applied; outcomes measured or observations made; and statistical analysis used with a statement on the level of significance used for hypothesis testing.

## Sub-heading 2

Sub-headings are meant to divide a primary part into secondary parts so there should be a minimum of 2 in a section where sub-headings are used.

# Results

## Sub-heading 1

Sub-headings may be used in this section but are not required. The results section should include a description of the major findings that are simply stated without discussion or conclusions. Data should be presented in the form of tables or figures when feasible and referenced parenthetically in the text. This section should explain or elaborate on the data presented in tables and figures but do not repeat numbers from the tables and figures in the text. Do not present the same data in both a table and a figure. Reporting the *P* value is preferred to the use of the terms significant and not significant to allow readers to decide what to reject.

## Sub-heading 2

Sub-headings are meant to divide a primary part into secondary parts so there should be a minimum of 2 in a section where sub-headings are used.

# Discussion

This section should have no sub-headings. The discussion should provide comments on or explanation of the results, but lengthy reiteration of the results should be avoided. Do not include *P* values, unless citing from other research, or present data that has not been presented in the Results section (ie, no new data). Do address the research question or hypothesis and compare the results with those reported in other studies. Provide explanation for unexpected results or results that differ from those previously reported. Discuss any limitations of the study, the generalizability of the results, and what further research may be needed. The discussion must be consistent with the data from the research and authors should limit speculation.

# Implications

Under the conditions of this study:

* Manuscript limited to 3 bullets, each with a max of 80 characters with spaces.
* No new information or concepts should be introduced in this section.
* Implications should not repeat the study context, objectives, or results.

# Acknowledgments

Authors should acknowledge specific colleagues, institutions, or agencies that have made substantial contributions to the work but do not qualify for authorship, and persons who have contributed their skills to the preparation of the manuscript. Individuals named in the acknowledgments must have given their permission to the authors and signed the Acknowledgment permissions form to be listed. Authors should also acknowledge sources of funding and support for the work presented in the manuscript.

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# References