Reviewer Recommendation and Comments for Manuscript Number IJIE-15-316

Evaluating the ventilation unit for personal cooling system (PCS)

Original Submission
Natividad Martínez (Reviewer 1)

Back | Edit Review | Print | Submit Review To Journal Office

Recommendation: Major Revision **Overall Manuscript Rating (1-100):** 70

Manuscript Question(s):	**Scale**	**Rating**
Please rate on a scale of 1-3 whether the Highlights are a meaningful and accurate representation of the article. 1 = Meaningful; 2 = Not Meaningful; 3 = Not Provided. For more information, see www.elsevier.com/highlights.	[1-3]	2
Please rate on a scale of 1-3 whether the Graphical Abstract is a meaningful and an accurate representation of the article. 1 = Meaningful; 2 = Not Meaningful; 3 = Not Provided. For more information, see www.elsevier.com/graphicalabstracts.	[1-3]	N/A

Reviewer Blind Comments to Author:
Interesting article. I recommend to let the text being reviewed by a native speaker and to increase the accuracy in the description of methods in Material and methods section.
Title: In my opinion, using "Evaluation of" instead of "Evaluating" might be more suitable for the tile.
Abstract: The airflow and operation time of Unit A is missing. I recommend to include it for a complete overview of both systems.
Highlights: In my opinion it is necessary to point here to the better results of the Unit B such higher airflow rate, higher power.
Introduction:
Well-structured, however, I suggest to review the use of the English language.
These two statements can be confusing as they are written right now:
Previous studies reported that the cooling capacities of ACGs are lower than those of water- or ice cooled garments because of the low heat capacity of air (Epstein et al., 1986; Harrison and Belyavin, 1978; Nunneley, 1970; Shapiro et al., 1982; Shvartz, 1975). However, air vests have physiological benefits similar to water or ice vests (Epstein et al., 1986; Kissen et al., 1971; Shapiro et al., 1982).
Methods:
I suggest to name the section Material and methods as usual for this journal.
Section 2.1.: It is not clear if unit A and B are having the same fans. If they are not the same (as suggested in figure 1), could you please describe both separately in this section as you did with batteries?
Section 2.2.: In my opinion, you should better talk about air flow rate rather than about air volume as long as you express your measurements in liters/second (please, review throughout the whole test). I suggest to specify in the text as well that 4 AA batteries are connected. I suggest to clarify which unit was tested at each voltage. Did you compare unit A and B both at each different voltage? Or what do you mean by full-load operation? Each unit at the corresponding voltage included in table 1? In my opinion I is not clear enough.
Section 2.3: It is not mentioned which fan-battery-voltage configuration were used in this type of test (fan-on condition). Could you please define steady-state condition in your measurement (heat flux variation)? How long was the steady-state you considered and when was it reached?
A picture/figure showing where the fans were placed on the torso surface could be very helpful for a better interpretation of the results.
Results:
Section 3.1.: In the figure, volume flow is not correct, I suggest to name it Air flow rate (l/s). You could also estimate the total volume that was pushed throughout the whole operation time and compare it between units.
Section 3.2.: In my opinion I would avoid talking about approximation and I would provide exact heat loss in W/m2 for unit A and B separately with mean and standard deviation values. I would do it for fan-off and fan-on conditions. I suggest to summarize results in a table for a better interpretation of the results. Similar suggestion for the cooling power.
Discussion:
I suggest to keep nomenclature consistent throughout the text: it really facilitate s the reading of any manuscript i.e. he rechargeable NiMH and the rechargeable lithium battery. In my opinion, it is necessary to justify the reasons why you chose unit A for the comparison. Was it not possible to have one with more similar battery voltages and capacities? In my opinion, a reflection about how this difference in cooling power (68 vs 51 W) could affect heat stress and thermal comfort in humans would enrich the discussion.

Reviewer Confidential Comments to Editor:

For each question, please use the following scale to answer (place an x in the space provided):

1. Subject Matter
_x__ Within the scope of the journal
___ Not appropriate for the journal

2. Originality
___ Similar papers published by author(s)
___ Similar papers published by others
___ Unaware of similar papers

3. Ethics and Conflict of Interest Statements
The paper has appropriate statements in relation to the above according to the guide for authors at http://www.elsevier.com/wps/find/journaldescription.cws_home/505654/authorinstructions
__Yes
__No

4. General Assessment

	Excellent	Good	Fair	Poor
Originality	___	___	_x__	___
Technical Quality	___	___	__x_	___
Clarity of Presentation	___	___	__x_	___
Importance in Field	___	___	__x_	___

5. Title
_x__ Accurately reflects content
___ Needs revision (suggest alternative)

6. Language
___ Grammatically correct
__x_ Needs revision

7. Abstract
__x_ Clear and adequate
___ Should be rewritten
___ Should be condensed
___ Missing

8. Presentation
_x__ Good
___ Containing irrelevant material
___ Should be rearranged

9. Illustrations
___ Good
___ Fig(s) _____ may be omitted
_x__ Extra figures required
___ Quality inadequate

10. Tables
_x__ Good
___ Should be rearranged
___ Tables _____ may be omitted

11. Abbreviations, formulae, units
__x_ Conform to acceptable standards
___ Need revision
___ Should be explained
___ A notation list is necessary

12. References
_x__ Appropriate
___ Incorrect
___ Insufficient
___ Too extensive

13. Grading of paper
___ Excellent
_x__ Good
___ Weak

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