Author’s response to reviews

Title: Independent Association of Resting Energy Expenditure with Blood Pressure: Confirmation in Populations of the African Diaspora

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Dr Tim Shipley
Editor-in-Chief
BMC Cardiovascular Disorders
Re-BCAR-D-17-00170 manuscript edits
Dear Dr Shipley

We thank you for the opportunity to resubmit our manuscript titled: Independent Association of Resting Energy Expenditure with Blood Pressure: Confirmation in Populations of the African Diaspora” (BCAR-D-17-00170). We have addressed all of the reviewer’s comments and feel our manuscript is much improved. We look forward to hearing from you.

Yours faithfully,

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1) In the abstract, line 24: the sentence "while body mass index other measures of adiposity were either null and negative" is not clear and should be improved

We have changed the abstract to more clearly describe the study main findings.

Results line 10 "and" is repeated: insert comma.
We have inserted a comma before the word “and”.

Mean age should be added in the results section
This is a good suggestion, and we have added age to the results section.
Results, line 48-51: change "drink" and "drinking" with alcohol consumption (and, if available, report about Daily Unit)

We have changed “drink/drinking” to alcohol consumption and added the average daily unit.

The mean values of BP reported are normal: how many patients had BP over the threshold for hypertension? if the majority of patients studied had normal BP, how REE would increase in a clinically relevant way the BP? Authors should discuss this point.

Men from the US and South Africa presented with increased SBP (>120mmHg), with 16% of South African men and 24% of US men presenting with hypertension (Table 3). As discussed, we propose that higher REE may be associated with increased BP through higher circulating catecholamine levels. There is a body of research providing support for increased circulating levels of catecholamine’s to higher in hypertensive patients. Secondly, sympathetic activity, known to elevate REE, has been found to be higher in patients diagnosed with metabolic syndrome/obesity. We have discussed this in the results section.

In results, line 48 and 52, the p-value of the Chi square test should be added to better clarify difference among men and women

We have added the p-value to the chi-square analyses.

In the methods section a statystical paragraph should be added

We have added a statistics section to the methods.

In the discussion the author report the role of catecholamines as a possible mechanism. Have the catecholamines been evaluated in their study? if not, maybe they can report about the correlation of BP and HR in their population and discuss it.

The catecholamine’s were not measured in our study. We have however, added the resting pulse values to table 1, added the partial correlation coefficients to table 4, and re-run our multiple regression models to include resting pulse. In the correlational analysis, and among men, there was no significant relationship between REE and pulse, while among women REE was positively correlated with resting pulse (r=0.2234). The addition of resting pulse to the multiple regression analysis did not alter the regressions coefficients much except for the p-value for the
relationship between DBP and REE is now 0.056 for both model 1 and 2 respectively. We have included these new results in the results section, tables 1, 4 and 5 and added to the discussion.

In the first lines (20-44) of the discussion, when talking about the role of hormones and cytokines that increase the cardiovascular risk, also inflation markers should be cited. Many studies and metanalysis have showed its relation with CV events at follow-up (see for example Assessing Risk in Patients with Stable Coronary Disease: When Should We Intensify Care and Follow-Up? Results from a Meta-Analysis of Observational Studies of the COURAGE and FAME Era. Scientifica (Cairo). 2016;2016:3769152. PMID: 27239372), and its relations with high pressure and obesity (see for example Adipocytokines, C-reactive protein, and cardiovascular disease: a population-based prospective study. PLoS One. 2015 Jun 2;10(6):e0128987. doi: 10.1371/journal.pone.0128987. eCollection 2015. PubMed PMID: 26035431)

This is an excellent suggestion. We have subsequently explored the relationship between CRP and REE/SBP/DBP in our cohort. Among men, CRP was not significantly associated with either REE/SBP or DBP in either the correlational nor regression analysis. Among women, CRP was significantly correlated with REE (r=0.188, p=0.0193), but was not a significantly covariate in multiple regression analysis models. We have added both references to the discussion.

In Table 1, 2 and 3 a column with the p-value of the Chi square test or of the Fisher’s exact test should be added to better clarify difference among populations groups.

We have added the p-values to the tables, denoted by: *=p<0.05 and **=p<0.01 compared to US for tables 1 and 2. For table 3 we present the overall Chi-square statistic.