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discussion of flawed logic and inappropriate use of evidence

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Editorial:

Critique of “The Physical Activity Myth” paper: discussion of flawed logic and inappropriate use of evidence

Word Count: 808 + References

Introduction

We read the recent Editorial “It is time to bust the myth of physical inactivity and obesity: you cannot outrun a bad diet” [1] with interest. While discussion about prevention and treatment of obesity is vital, we feel this piece did not make a positive contribution to ongoing scientific debate.

We understand the Editorial was written to be provocative, but are concerned about the potential damage of misleading and extreme opinions on issues of public health. We believe there are serious flaws in the interpretation, understanding, and reasoning that should not go unchecked.

We highlight 4 points to demonstrate these flaws, rebut the assertions of the authors, and show why the debate on PA and obesity should disregard the Editorial.

Major flaws in the “Physical Activity Myth” paper

1. Title: “the myth of physical inactivity and obesity”

What myth are the authors referring to? This should be outlined, explaining whether this is authors’ opinion, or can be evidenced in some way. Further, much of the content is unrelated to this title. It is imperative that a title reflects the content of a piece of scientific work whether it is opinion or empirical evidence.

In paragraph 4 the authors say, “[Coca Cola] associate their products with sport, suggesting it is ok to consume their drinks as long as you exercise”. This is the closest the authors get to presenting any “myth”. Even then it is merely author opinion on soft drink consumption and exercise. It is clear the Editorial should have either included relevant discussion of a myth or the title should have been very different.

2. Paragraph 1: “However, physical activity does not promote weight loss”

This is not supported by any citation or reference; further it is not reflective of current evidence. We advise the authors to consult the PA Guidelines Report (page G4-1 to G4-37), [2] which refers to peer-reviewed evidence (prospective cohorts and randomized trials) for “modest weight-loss” of around 1-3% bodyweight [2]. We readily acknowledge here that diet appears to have a greater effect.

The authors could have stated that evidence for weight loss is equivocal (especially for the magnitude of effect) and there is debate amongst experts. Or that a combination of diet and

exercise appears most effective at long term (12 months) follow-up [3]. By failing to do this the authors are misrepresenting the evidence.

3. Paragraph 2 “In the past 30 years, as obesity has rocketed, there has been little change in physical activity levels in the Western population [citation 2]”

The cited reference does not support this claim, or present any evidence for the statement [4]. It says a “labour-saving culture was fully in place by the 1960s-70s” but presents no evidence and cites a book without page or chapter numbers [5]. The authors have therefore incorrectly interpreted a highly dubious source.

We refer the authors to evidence of decreasing MET expenditure in the US and the UK during the specified time-frame (i.e. last 30 years) [6]. This directly contradicts the un-evidenced statement of the authors.

The authors then say, “This places the blame for our expanding waistlines directly on the type and amount of calories consumed.” The evidence presented does not allow causation to be ascribed. Confusingly, the authors also contradict their own argument here, as they infer that if physical activity was changing then it could also have an effect on obesity.

4. Paragraph 5: “...for every excess 150 calories of sugar (say, one can of cola), there was an 11-fold increase in the prevalence of type 2 diabetes, in comparison to an identical 150 calories obtained from fat or protein. And this was independent of the person’s weight and [PA] level; this study fulfils the Bradford Hill Criteria for causation [citation 5]”

In relation to the interpretation, this evidence fails to fulfil Bradford-Hill criteria number 8: Experiment where “the strongest support for the causation hypothesis may be revealed” [7]. The presented evidence is repeat-cross sectional, and so presumably does not fulfil the experimental criteria [8]. In relation to the claim that effects were independent of PA, examination of the cited paper reveals that the PA variable was dichotomous and inactivity incorrectly classified [8]. The findings should be interpreted accordingly.

The cited paper includes this conclusion; “any of the findings we observe here are meant to be exploratory in nature, helping us to detect broad population patterns that deserve further testing through prospective longitudinal cohort studies in international settings, which are only now coming underway” [8]. It is clear the authors felt this was an early and ongoing line of enquiry, rather than the conclusive evidence of causation suggested by Malhotra et al.

Conclusion

Whether or not PA is ultimately shown to have a role in the fight against obesity, we have highlighted why the ongoing debate should treat the “physical activity myth” paper as scientifically unsound.

****This Editorial is based on “An Open Letter: 12 Reasons why the “Physical Activity Myth” paper should not have been published” that can be read in full here [insert link to web appendix]***

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