Comment on: "Equity in physical activity: a misguided goal."

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As three self-identified 'equity advocates' [1] we read 'Equity in Physical Activity: A Misguided Goal' with great interest. Nuzzo argues equity in physical activity promotion is misguided and, therefore, interventions should aim to 'increase physical activity in groups that are most sedentary and/or at greatest health risk to a level that is as high as is feasible and possible, irrespective of how that new level compares with other groups' (p.1). Here, we demonstrate that the influence of social inequalities means achieving Nuzzo's goal actually relies upon equitable intervention. Far from misguided, equity is fundamentally misconstrued in Nuzzo's commentary. We begin by clarifying the central tenets of equity and then respond to Nuzzo's three key claims that equity approaches are: (1) aimed at achieving equal physical activity levels across demographic groups, (2) characterised by flawed underlying assumptions, and (3) bettered by more objective and less politically-motivated goals.

Equity is not about ensuring everyone is equal. Rather, an equity agenda emphasises health is strongly influenced by social factors: health outcomes largely follow a social gradient, evidenced by a linear relationship between socioeconomic privilege and health [2]. Equity advocates consider health inequalities deriving from relative privilege to be unjust and thus aim to ensure everybody, irrespective of social position, can expect to benefit from social conditions that seek to support, promote and maximise health and wellbeing. Consequently, equity advocates recognise the limits of promoting health primarily through physical activity [3, 4] because of the significant influence of social factors on health and strategies of individual behaviour change being ineffective without more fundamental changes to the structures, values and processes of societies at large [5, 6]. Equitable physical activity intervention thus begins by identifying and supporting those who face relative social disadvantage to overcome barriers to participation.

With regards to Nuzzo's claims, first, he asserts physical activity initiatives designed to address inequities 'seek to create equal levels of physical activity across demographic groups' and this is 'meant to be taken literally' (p.1). This is false. We are unaware of any initiatives operating according to this logic, nor does Nuzzo provide examples. As indicated above, rather than ensuring everyone is equally physically active, health promotion seeks to support people to meet *minimum levels* of physical activity recommended for health [7]. Like Nuzzo, equity advocates highlight decisions should be made to maximise effect. Unlike Nuzzo, who relies on hypothetical examples, equity advocates use epidemiological evidence and sociocultural studies to guide targeting of resources to groups tending to fall below the minimum physical activity guidelines for health. As such, intervention success is assessed against compliance with set levels of - not uniformity in - physical activity. Said differently, Nuzzo's claim that uniformity in activity levels between groups is equity advocates' metric of success not only misses the point of health recommendations but also misrepresents the goals of equity advocates.

Secondly, Nuzzo argues underlying assumptions of equity-based initiatives are flawed using interrelated claims that individuals belong to more than one demographic group, differences in physical activity are not solely attributable to (limited) opportunity, and causal relationships between initiatives and changes in activity are unknowable. We agree with aspects of these premises, yet Nuzzo's ensuing arguments are spurious and contradict his call to focus on sedentary/at-risk groups. For one, any number of reasons can be explored for why people are physically (in)active; (in)activity is multi-causal and complex [8]. This leads Nuzzo to posit activity is ultimately reducible to individual differences because group differences can be "explained away" through stepwise introduction of demographic variables to show people fit in different, and sometimes contradictory, groups. However, not all variables are equal in effect, nor are people's 'values, interests, choices, motivations, attitudes, and biology' (p.6) formed in isolation of their social position/characteristics. Nuzzo's argument fails to engage with significant and longstanding social science research that addresses how different aspects of identity

inform one another and contribute to the experience of (dis)advantage with cumulative effects [9, 10]. This work establishes the need to fine-tune categorisation for targeted intervention by factoring for multiple demographic variables rather than discounting them. Ultimately Nuzzo's argument is self-defeating: if group-based differences do not exist/are irrelevant, then how and why does he propose to identify and target the most sedentary and/or at risk groups? Next, Nuzzo argues the multi-causal nature of inactivity means there is insufficient evidence that absence of opportunity causes inactivity. In much the same way that Ronald A. Fisher disputed smoking causes cancer [11], Nuzzo argues the absence of control groups makes the effects of physical activity interventions unknowable, asserting if activity levels increase during an intervention 'it cannot be stated that this increase was due exclusively, or in any part, to the initiative' (p. 5). The primary goal of interventions is not establishing complete causal certainty (an immense challenge with or without control groups, especially given aforementioned multi-causality), but rather increasing physical activity in relatively inactive population groups. Evaluation, however complex, is essential for intervention improvement, yet the challenge of causal proof is not sound justification for arguing against promoting equity.

Thirdly, Nuzzo advocates for a less politically-driven goal, an argument challenged elsewhere [12]. For us, Nuzzo's argument ignores that equity-based physical activity interventions are a matter of ethical research and implementation practice as a mechanism to prevent reproduction of the 'inequality paradox' [13] i.e., the occurrence of intervention-generated inequalities. Exacerbation of inequality has been shown to have detrimental health effects at the population level [14] and therefore reproduction of the inequality paradox is counter-productive and unjust. This does not mean overall increases in absolute physical activity participation rates are unimportant, but increases must be qualified by understanding *who* is benefiting. If groups already faring well in meeting physical activity guidelines benefit disproportionately from any given intervention it will lead to population increases in some health measures. However, is such an intervention as effective

and beneficial as it could be? We argue no. Quite simply, physical activity interventions not contributing to reducing inequalities *as well as* increasing population level physical activity are not well-designed precisely because they are incapable of achieving Nuzzo's own goal, let alone those of equity advocates.

If - as Nuzzo argues - politics should be eschewed because we can/should rely on objectivity and pragmatism to resolve inequalities in health risks, then decades of scientific evidence on the social determinants of health [2, 15] would have long ago established redistributive justice and equitable intervention as the norm. Instead such evidence is largely ignored or reframed for political reasons [16]. Addressing the uneven distribution of disadvantage, illness and health risk often relies upon pursuit of social justice. Far from diminishing the scientific credibility of equity advocates, political engagement makes achieving Nuzzo's own goal possible. Arguing differences in physical activity rates between groups have 'little or nothing to do' with social justice issues but instead can 'be explained by different motivations for exercise and different attitudes toward health' (p.6), despite all the evidence to the contrary [17-21], is a far more legitimate cause for questioning scientific credibility.

Finally, we see Nuzzo's commentary as impetus for the physical activity research community to continue engaging with equity in more critical, substantive and robust ways. Commentaries by Nuzzo and others [22] indicate equity advocates must more clearly articulate what it means to integrate equity in physical activity research and interventions. We need to extend our dialogues with colleagues and critics to show how the goals of increasing physical activity, enhancing population health *and* promoting equity offer fruitful common ground - as was our explicit focus elsewhere [3]. Overall, Nuzzo's arguments are attributable to being unfamiliar with equity conceptually, thus looking through the wrong end of the proverbial equity lens: equity approaches do not begin with groups but outcomes (e.g., measures of health). Nuzzo's misperception is evidenced by his assertion 'inequities will always exist' (p.5). Rather, *variations* in activity levels will always exist - equity

advocates do not see variation as problematic unless it is an outcome of disadvantage. Rather, *inequities* (social factors that create, perpetuate and exacerbate inequalities) are avoidable through adequate attention being paid - in policy and intervention design – to social determinants of health. One way to address this is appropriately targeting research attention and resources to the very groups that Nuzzo claims we should focus on: those who are disproportionately burdened by health risks and illness. Inequities will always exist if we remain ignorant of their significance or, like Nuzzo, can justify injustice to ourselves.

Compliance with Ethical Standards

Funding Oli Williams was supported to write this letter by the UK National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care East Midlands. At the time of writing, Stephanie Coen held a Postdoctoral Fellowship from the Canadian Institutes of Health Research (CIHR). No sources of funding were used to assist Kass Gibson in the preparation of this letter. The views expressed in this letter are those of the authors and not necessarily those of the National Health Service, NIHR, or the Department of Health and Social Care.

Conflicts of Interest Oli Williams, Stephanie Coen and Kass Gibson declare that they have no conflicts of interest relevant to the content of this letter.

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