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Via Email Only

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Dear Authors and Editorial Staff,

I am CrossFit, Inc.'s General Counsel. Please accept this letter as our objections and concerns to the paper, [Likelihood of Injury and Medical Care Between CrossFit and Traditional Weightlifting Participants \(the "Paper"\)](#). The Paper was published May 7, 2019 in the Orthopaedic Journal of Sports Medicine and it requires immediate retraction because it is beset with scientific error, cites retracted studies that contained fabricated data and inaccurately cites other studies concerning our CrossFit® brand.

The paper twice cites the National Strength and Conditioning Association's ("NSCA") paper, "CrossFit-based high-intensity power training improves maximal aerobic fitness and body composition" (citation #17). The NSCA, however, [retracted](#) this publication in 2017 following CrossFit Inc.'s lawsuit and a Federal Court order sanctioning the NSCA for extensive discovery misconduct relating to the NSCA's efforts to harm CrossFit, Inc. Further, the litigation with the NSCA demonstrated that the NSCA publication's data and Institutional Review Board approval were both fabricated. Even more, before the retraction, the NSCA publication was also subject to an erratum admitting the injury data was fabricated. Adding to the confusion and harm to CrossFit, Inc., the "Google Scholar" hyperlink to the NSCA publication in the Paper does *not* reference the retraction or erratum, but the "Medline" and "ISI" hyperlinks do. The Paper's authors, therefore, cannot credibly claim they were unaware of the erratum and retraction. In sum, the Paper's citations to the retracted NSCA publication—especially without reference to the erratum or retraction—is unethical.

Another problem requiring immediate attention is the authors' miscitation. The authors allege that, "[s]ome experts claim that combining this muscle fatigue with the complex movements associated with Olympic weightlifting leads to an increased rate of injury among CrossFit participants compared with their general weightlifting counterparts." The sole citation supposedly supporting this allegation is #9, another NSCA publication titled ["The nature and prevalence of injury during CrossFit training."](#) The Paper blatantly misrepresents the findings in this NSCA publication as well because it does not support the authors' claim of an increased injury rate in CrossFit training relative to weightlifting. Instead, it concluded that, "*[i]njury rates with CrossFit training are similar to that reported in the literature for sports such as Olympic weight-lifting, power-lifting and gymnastics and lower than competitive contact sports such as rugby union and rugby league.*" (emphasis added.)

Even if these two errors were corrected, the Paper's central effort would remain unsound. The Paper claims to assess injuries that occurred during "traditional weightlifting" over the preceding two years. And yet the questionnaire suggests that some subjects did not train during part of this two-year-period. It asks, "[h]ow long have you weight lifted for?" Four of the five possible responses were less than two years. Please see a screenshot of this question below:

How long have you weight lifted for?

- Less than 3 months
- Between 3 and 6 months
- Between 6 months and 1 year
- Between 1 year and 2 years
- Longer than 2 years

In order to make a fair comparison, the authors would either need to disclose the data corresponding to this question and then control for training experience over the past two years. Or, they would have to exclude all subjects who had not trained consistently for the past two years. The authors admit to doing neither; indeed, they do not mention, nor control for, varying exposure levels.

Please consider the implications of including subjects with less than three months of experience in a study on injuries over the previous two years. Some subjects did not engage in weight training during significant parts of the period in which the Paper claims to be assessing injuries. Subjects who trained for 3-18 months are less likely to have incurred injuries than people who have trained for the full time period assessed. One cannot legitimately compare injuries sustained by subjects who just started training with those sustained by subjects who trained for the whole two years. This is why scientists normally calculate rates per 1000 hours of exposure.

If there is any variance in average time training over the past two years per group, as is nearly inevitable, the injury rate comparison is invalid, since the authors have not controlled for exposure. This failure alone would disqualify the Paper.

The Paper suffers from other fatal and disqualifying errors, namely, the authors admit they failed to properly define the term most central to their paper, "injury." They concede: *"Participants were instructed to self-determine whether an event should be considered an injury; no defined qualifiers were provided to participants ... In our study, injury was not defined in a comparable manner due to the subjective nature of injury and subsequent pain; if a participant recalled an injury within the past 2 years, we deemed this significant enough to be included ..."* (emphasis added.)

Their failure to define this critical term was not due to a lack of alternatives. [Other researchers](#) have defined the term injury, for example, as, *"any muscle, tendon, bone, joint, or ligament injury sustained while doing CrossFit that resulted in your consultation with a*



*physician, or health care provider, AND caused you to stop or reduce your usual physical activity, your typical participation in CrossFit, or caused you to have surgery.”*

Indeed, within exercise science, there are many possible definitions of injury. And therein lies the problem. Different groups and individuals define injury differently. And if there is any inter-group variance in what constitutes an injury, then the study is comparing the incomparable. For example, the NSCA has [claimed](#) that muscular soreness constitutes an injury. Among CrossFit affiliates, [some consider](#) torn calluses to be an injury. Others do not.

The subjects may have counted scraped shins, torn calluses, and sore muscles as injuries. We have no way of knowing what the subjects’ alleged injuries were, nor if they were legitimately injuries, or mere sore muscles and bruised egos. Nor can we compare this Paper to any other research, since that would require consistent, or at the very least delineated terminology and definitions. Indeed, this is a self-admitted flaw that alone invalidates the entirety of the Paper. To quote the authors themselves, “... *the study used a broad definition of injury and, as such, injury numbers may have been over- or underreported attributable to participants not classifying an injury correctly due to lack of a proper definition.*” (emphasis added.)

Injury is not the only term the authors failed to properly define. They defined “traditional weightlifting” as “any action that involves the participant using free weights consistently.” Nonetheless, they acknowledge that, “many CrossFit participants may fall into our definition of traditional weightlifting.” Additionally, they fail to define what makes “traditional weightlifting” traditional. There are no programming or movement selection parameters. Yet they made the respondents choose one of two overlapping categories. This is akin to trying to contrast conservatives with citizens who voted for the 2016 Republican presidential candidate. How can one reasonably contrast two categories that substantially overlap?

Finally, the authors did not properly define what constituted engaging in CrossFit® brand training, either. They state that subjects in the CrossFit group, “self-identified as practicing a CrossFit routine.” This would include people self-identifying as CrossFit practitioners who work out at commercial gyms alone, without supervision. As the authors admit, “[f]urthermore, in the study by Weisenthal et al, injury rate was significantly decreased when a trainer was involved ( $P = .028$ ). The use of a trainer was not investigated in our study ... Perhaps a CrossFit trainer would be able to identify any alteration in form and, thus, protect the athlete from injury.”

Therefore even if the Paper properly cited sources and defined its terms, its central findings would have little relevance for licensed CrossFit® affiliate gyms and their classes, which are always led by CrossFit, Inc. credentialed trainers.



For all the reasons stated herein, an immediate retraction of the Paper is required. We look forward to your anticipated cooperation and please contact us if you have any questions.

Sincerely,

DocuSigned by:  
*Marshall Brenner*  
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Marshall S. Brenner  
General Counsel  
CrossFit, Inc.