

Letter to the editor-in-chief

Title: Response to “Microdosing: A conceptual framework for use as programming strategy for resistance training in team sports”

Short title (running head): Response to Cuthbert et al. (2023)

1. Introduction

This letter was written in response to the article “Microdosing: A conceptual framework for use as programming strategy for resistance training in team sports”, recently published in the *Strength and Conditioning Journal* (4). The article proposes a framework for implementing microdosing of resistance training across several training and competitive contexts and presents a comprehensive proposal that adds valuable insights for practitioners. The proposal aggregates several fields of sports theory into a relevant practical approach.

In the article (4), the approach to microdosing previously presented by others (1) is criticized. This is commendable, as healthy science presupposes free speech, disagreement, and debate. Together, these papers (1, 4) provide readers with a broader set of perspectives on the topic of microdosing. Regardless, some points may benefit from further clarification; hence, the current letter addressed to the editor-in-chief. As discussed elsewhere, terminology from other scientific fields is often adopted in sports, but this should be done coherently (6) to avoid miscommunication. The aim of this letter relies exclusively on the definition of microdosing.

2. Microdosing as distributed practice rebranded

The term “microdosing” has a well-established scientific application (2, 7, 8, 10). Although the specific quantification of microdosing may vary across fields, it is usually reported as a dose ranging from 1 to 10% of a minimum effective or “typical” dose (2, 7, 8, 10). Therefore, conceptually, microdosing is a small part of a dose, but the specific operational definition may vary according to the field. Applying this concept to exercise, microdosing would be expected to produce smaller effects than usual doses or loads, and potentially fewer side-effects (*e.g.*, tiredness). However, it is recognized that the current

definition of microdosing in sports departs substantially from pre-existing scientific definitions (1, 4). The value behind microdosing/distributed practice proposals was not previously questioned (1), and the proposal for expanding potential applications (4) is commendable. The disagreement concerns the term “microdosing”, *i.e.*, the terminology. A given dose is not “micro” just because it is more distributed and less concentrated, if the weekly dose is the same (1). This aligns with the proposal that “*microdosing has been clearly defined as ‘the division of total volume within a microcycle, across frequent, short duration, repeated bouts’ (18) (p. 2)*” (4), and sustains the opinion (1) that microdosing has been used in sports as a rebranding of distributed practice (5, 9).

Currently, there seems to be no rationale for why microdosing is more than (or different from) distributed practice. A systematic review with meta-analysis synthesized the evidence on the topic and tried unifying the terminology (3). However, even if practitioners and researchers have used the term before, until now, it has not been clearly differentiated from distributed practice. Creating different names for similar things may bring confusion to scientific and professional fields. If microdosing – used as an overarching concept (4) – is to represent more than distributed practice, that should be made more explicit and clear. Preferably, however, microdosing should be used similarly to its already well-established scientific meaning (7, 8, 10), although the specific percentage of a dose it represents is debatable.

3. Microdosing should not be equated with the minimum effective dose

In attempting to propose an alternative definition of microdosing (one that more closely resembled the scientific definitions used in other fields), we had previously drafted the possibility of considering the minimum effective dose when establishing the microdosing (1). However, this presents a limited view, as microdosing does not need to

be limited to the threshold of a minimum effective dose (4). Microdosing may encompass a continuum of doses (within certain boundaries), some surpassing the minimum effective dose threshold. There may even be multiple minimum effective doses, *e.g.*, one for improving performance and another for maintaining performance. Regardless, this shows that microdosing should be referred to dosing and not to practice concentration or distribution.

4. Microdosing in the context of training load

Training load expresses the dose and how it challenges an organism; it is a core concept in sports (6). Moreover, training load is inextricably related to quantification, as different loads may result in very distinct responses (6). Microdosing is a well-established concept in the scientific literature (2, 7, 8, 10), consisting of a small percentage of a “typical” dose. Therefore, in sports, we should adopt the existing definition and establish the quantitative threshold for a dose to be considered “micro” (1). However, for the purposes of distributing stimuli across the week, sports have the well-established term “distributed practice”.

5. Concluding remarks

Microdosing in sports is being applied with a very different meaning than in other sciences (1, 4) (*e.g.*, pharmacology) and may represent a rebranding of distributed practice. Moreover, the current application of microdosing in sports departs from the quantitative nature of training load as it avoids establishing a threshold for what should be considered “micro”. In addition, focusing the concept of microdosing on resistance training (4) is limiting, as other training dimensions could benefit from this concept (1). To reiterate, despite the call to attention regarding this terminological issue, the

applications that have been proposed are interesting and relevant for practitioners. While this is an informed opinion, it should be recognized that words are polysemic and dynamic, *i.e.*, their meanings change over time and may differ across fields (*e.g.*, “emergence” in the complex systems literature *vs.* medical practice).

References

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