

Abstract ISENC:

Does REDs exist?

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Practitioners and researchers care about athlete's health and performance. The female athletes triad (FAT) and later relative energy deficiency in sport (REDs) were models developed to help understand, treat and prevent health and performance issues in athletes and many researchers and practitioners should be complimented on their efforts to get a better understanding of the issues and their etiology.

REDs is a model that describes how inadequate energy intake (low energy availability or LEA), for the demands of training, by athletes, results in a wide range of symptoms. In sports practice athletes are being diagnosed with "REDs" or "REDs syndrome" and it is being communicated that REDs is "well-established", even though it is a relatively young term (less than 10 years and notoriously difficult to investigate and underfunded).

LEA cannot be accurately measured in a practical settings (with errors of 300-600kcal being common) and thus directly diagnosing LEA is not possible. Indirect diagnosis or identification of risk through the assessment of symptoms is also problematic because the symptoms can be caused (also independently) by many other factors (we identify 8 categories). Diagnosing REDs will therefore likely result in a significant overdiagnosis of LEA.

In this talk we discuss the outcomes of many discussion between a number of scientists and practitioners. It will become clear that the symptoms presented in the REDs model are generic, the link between LEA and these symptoms supported by limited evidence, and complicated by the fact that these generic symptoms can be caused by many other factors not considered in the model. All these factors will act as confounders in studies, if not carefully controlled for. Most studies in this field are observational, very few can establish a cause-and-effect relationship and of the experimental studies the vast majority investigated by definition adaptive LEA, not problematic LEA. The number of narrative reviews far exceeds the number of experimental studies that specifically investigated long term (problematic) LEA in athletes.

We propose a more practical and holistic approach, interdisciplinary in nature, that systematically investigates a much wider range of potential causes of symptoms. A toolbox, a number of tools, and clearly defined areas of expertise should help to provide a much more complete picture of the pathology and its origin. From a nutrition point of view, malnutrition needs to be on the radar and LEA is only one aspect of that. Low energy and low carbohydrate are difficult to distinguish and effects can be independent of each other; low micronutrient intakes can also result in symptoms. In addition, excessive training and exercise stress will have effects that are far beyond the calories that are expended. Symptoms described in the REDs model overlap with symptoms of poor sleep, infections, various psychiatric conditions and could also be explained by the allostatic model.

In any case, a more holistic and less unidimensional approach will ultimately provide more robust support for the athlete's health and performance.