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Overtraining, exercise, and adrenal insufficiency

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Abstract

Running, or any aerobic training in moderation, has a positive effect on health. There is a point of diminishing returns, where chronic stress from overtraining, which is common in runners, may be linked to problems in the adrenal gland. Overtraining Syndrome (OS) has been linked with adrenal insufficiency. There is a direct link between stress and the adrenal glands, and the physical stress of overtraining may cause the hormones produced in these glands to become depleted. Overtraining Syndrome (OS) has been described as chronic fatigue, burnout and staleness, where an imbalance between training/competition, versus recovery occurs. Training alone is seldom the primary cause. In most cases, the total amount of stress on the athlete exceeds their capacity to cope. A triggering stressful event, along with the chronic overtraining, pushes the athlete to start developing symptoms of overtraining syndrome, which is far worse than classic overtraining. Overtraining can be a part of healthy training, if only done for a short period of time. Chronic overtraining is what leads to serious health problems, including adrenal insufficiency.

Severe overtraining over an extended period can result in adrenal depletion. An Addison-Type overtraining syndrome, where the adrenal glands are no longer able to maintain proper hormone levels and athletic performance is severely compromised has been described by researchers. The purpose of this review is to describe the relationship between overtraining, chronic fatigue, and adrenal insufficiency and to address the overlap in these conditions, as well as examine critical research on the relationship between the dysfunction of the adrenal axis in over trained and stressed athletes.