

The Effect of Ashwagandha Herb on Psychological Anxiety and Elevated Cortisol Hormone in Athletes

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Abstract

This study aims to investigate the effect of Ashwagandha (*Withania somnifera*) on psychological anxiety levels and elevated cortisol hormone concentrations among athletes. Considering the growing prevalence of performance-related stress in sports, and the physiological impact of cortisol, this research explores a natural intervention to manage these challenges. A sample of 30 male athletes aged between 20 and 30 years was selected and divided equally into an experimental group and a control group. The experimental group received Ashwagandha supplementation (600 mg/day) for 8 weeks. Psychological anxiety levels were measured using the Taylor Manifest Anxiety Scale, and cortisol levels were assessed via blood serum analysis pre- and post-intervention. The results showed significant reductions in both psychological anxiety and cortisol levels in the experimental group compared to the control group. The findings support the potential of Ashwagandha as a natural anxiolytic and cortisol regulator for athletes under stress.

1. Introduction

Modern sports are increasingly demanding both physically and mentally. Athletes are subjected to high levels of stress, which can lead to psychological anxiety and increased secretion of cortisol, known as the "stress hormone." Chronic elevation of cortisol has been linked to decreased athletic performance, impaired recovery, and long-term health risks. Ashwagandha is a well-known adaptogenic herb with proven benefits in reducing anxiety and modulating stress responses. The aim of this study is to explore its effects specifically in the context of athletic stress.

2. Research Problem

Athletes are vulnerable to psychological anxiety due to competitive pressures and performance expectations. Such anxiety may elevate cortisol levels, leading to decreased focus and physiological imbalance. There is a need for safe, natural solutions that help athletes manage anxiety and hormonal imbalances effectively. Can Ashwagandha reduce anxiety and regulate cortisol among athletes?

3. Research Objectives

- To determine the effect of Ashwagandha on psychological anxiety in athletes.
- To assess the influence of Ashwagandha on cortisol levels.
- To compare pre- and post-intervention outcomes between experimental and control groups.

4. Hypotheses

1. There are statistically significant differences in psychological anxiety levels between the pre- and post-tests in the experimental group.
2. There are statistically significant differences in cortisol hormone levels between the pre- and post-tests in the experimental group.
3. There are statistically significant differences in psychological anxiety and cortisol levels between the experimental and control groups in the post-test.

5. Methodology

- Participants: 30 male athletes aged 20–30.
- Design: Experimental, with pre- and post-tests for two groups.
- **Groups:**
 - Experimental group: Received Ashwagandha (600 mg/day) for 8 weeks.
 - Control group: No supplementation.
- **Instruments:**
 - Taylor Manifest Anxiety Scale.
 - Laboratory cortisol test (ELISA method).
 - Data Analysis: Paired and independent t-tests using SPSS 26.

6. Results and Statistical Tables

Variable	Group	Pre-test Mean $\pm$ SD	Post-test Mean $\pm$ SD	t-value	Significance
Anxiety Score	Experimental	24.6 $\pm$ 3.8	16.2 $\pm$ 2.9	6.54	p < 0.01
Cortisol (ng/mL)	Experimental	19.8 $\pm$ 4.2	13.1 $\pm$ 3.6	5.87	p < 0.01
Anxiety Score	Control	25.1 $\pm$ 3.5	24.7 $\pm$ 3.4	0.52	NS
Cortisol (ng/mL)	Control	20.3 $\pm$ 4.1	20.0 $\pm$ 4.0	0.31	NS

7. Discussion

The findings confirm that Ashwagandha supplementation significantly reduces psychological anxiety and cortisol levels among athletes. The adaptogenic properties of the herb enhance the body's ability to cope with stress, which translates into improved mental state and hormonal balance. The control group did not show significant changes, highlighting the effectiveness of Ashwagandha as a direct intervention.

8. Conclusions

- Ashwagandha significantly reduces psychological anxiety among athletes.
- The herb effectively lowers cortisol levels associated with psychological stress.
- Incorporating Ashwagandha as a dietary supplement may improve athlete performance under pressure.

9. Recommendations

- Athletes experiencing high stress or anxiety may consider safe doses of Ashwagandha after consulting a healthcare provider.
- Further research should explore long-term effects and other physiological markers.
- Sports institutions could integrate natural supplements into mental health support programs.

10. References

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