

## Association Between Serum Bdnf and Cortisol Levels in Drug-naive Patients with Depression Treated with Yoga Therapy or Antidepressants

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**Introduction:** Depression is known to be associated with low serum Brain-Derived Neurotrophic Factor (BDNF) and elevated levels of cortisol. Yoga has been shown to be associated with significant antidepressant effect as well as increase in serum BDNF levels and reduction in serum cortisol levels in these patients.

**Aims and Objectives:** We examined the association between serum cortisol and BDNF levels in patients with depression who were on treatment with antidepressants, yoga therapy, and both in combination.

**Methods:** Fifty-one consenting drug-naive outpatients (29 males) aged between 18-55 years, diagnosed with Major Depression received antidepressant medication alone (n=15), yoga therapy with (n=18), or without (n=18) concurrent antidepressants. Subjects in the yoga groups practiced a specific Yoga module for three months. Depression was assessed using the Hamilton Depression Rating Scale (HDRS). Serum BDNF & cortisol levels were obtained before and after three months using sandwich ELISA method. The group differences were analyzed using one-way ANOVA. Correlations between Serum BDNF & cortisol levels were analyzed using Pearson's correlation.

**Results:** Significant negative correlations were observed between baseline BDNF & cortisol levels in the Yoga+Medication group ( $r=0.569^*$ ;  $P=0.01$ ), and between change in BDNF and cortisol level in the Yoga alone group ( $r=0.582^*$ ;  $P=0.01$ ). No other significant correlations were found.

**Conclusion:** There is a significant association between serum cortisol and BDNF levels in patients with depression who underwent Yoga with or without antidepressants. This suggests that Yoga may have stress reduction and neuroplastic effects alone or in combination with medications in depressed patients.