The catechol-O-methyltransferase (COMT) gene

The catechol-O-methyltransferase (COMT) gene catalyzes the methylation and inactivation of catecholamine neurotransmitters and consequently regulates dopamine signaling and degradation in the prefrontal cortex. Prior research has shown that methionine (Met) carriers excel on memory and attention tasks compared to valine (Val) homozygotes. However, the Val allele has been associated with an advantage in response to challenging or stressful situations where rapid disengagement of cortical circuits is optimal.

Conclusion

The results support the worrier/warrior hypothesis that Met carriers outperform both Val/Val genotypes. Under pressure, Met homozygotes show a dramatic decline in performance, heterozygotes show a moderate decline, and Val homozygotes perform only slightly worse.

References


Additive Performance Pressure Effects of Met

Results Summary: Met allele carriers are better able to adopt the optimal decision-making strategy and choose the increasing optimal option under low pressure conditions. Under pressure, Met has an additive effect, and Met allele carriers show a decline in performance.