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CONE CONTRAST TEST FOR COLOUR VISION DEFICIENCY SCREENING AMONG TRAINED MILITARY AIRCREW AND FLYING-RELATED VOCATIONS

TEST DE CONTRASTE DE CONE POUR LE DÉPISTAGE DE DÉFICIENCE DE LA VISION EN COULEURS ENTRE LES AVIONS MILITAIRES FORMÉES ET LES VOCATIONS ASSOCIÉES AU VOL

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Introduction: The Cone Contrast Test (CCT) was implemented in 2016 to more accurately exclude colour vision deficiency in aircrew and flying-related vocations in the Republic of Singapore Air Force (RSAF). With the introduction of CCT, a new algorithm was created to guide the management of trained personnel affected by this change. We examined the RSAF Aeromedical Centre's database of trained personnel who had abnormal CCT scores to determine the effectiveness of the new algorithms in assessing for colour vision deficiency.

Methods: We retrospectively reviewed records of 143 trained personnel who underwent periodic medical examinations at the RSAF Aeromedical Centre from November 2016 to June 2018 and had abnormal CCT scores. Three subsets of CCT scores were defined: normal (CCT score ≥ 75 AND abnormal (CCT score ≤ 35 AND points difference between eyes); grossly abnormal (CCT score ≤ 15 points difference between eyes). Personnel with mildly abnormal CCT scores and passed the Farnsworth Lantern Test (FALANT) were graded CCT2 and returned to unrestricted aviation-related duties. Those who failed FALANT or had grossly abnormal CCT scores were deemed unfit and were seen by an Aviation Medical Specialist for further clinical and functional assessments.

Results: Of the 143 trained personnel who were found with abnormal CCT scores, 139 passed the FALANT and were deemed fit for aviation-related duties. Among the four personnel who failed FALANT, three personnel were able to return to unrestricted aviation-related duties following clinical and functional assessments, while one was deemed unfit.

Conclusions: CCT has been effective in identifying trained personnel who were previously deemed to have normal colour vision, to have varying degrees of colour deficiencies. The RSAF's Aeromedical Centre's algorithm for the management of trained personnel who previously passed colour vision testing but failed the recently introduced CCT has proved useful in managing the medical outcome through the utilisation of FALANT and functional assessments.