



# Psychogenetics of Turner syndrome: an investigation of 28 subjects and respective controls using the Bender test and Piagetian scales

F.C.F. Ricardi<sup>1</sup>, L.L. Zaia<sup>2</sup>, I. Pellegrino-Rosa<sup>3</sup>, J.T. Rosa<sup>4</sup>,  
O.Z. Mantovani de Assis<sup>2</sup> and P.H. Saldanha<sup>1</sup>

<sup>1</sup>Departamento de Genética e Biologia Evolutiva, Instituto de Biociências, Universidade de São Paulo, São Paulo, SP, Brasil

<sup>2</sup>Laboratório de Psicologia Genética, Faculdade de Educação, Universidade Estadual de Campinas, Campinas, SP, Brasil

<sup>3</sup>Colegiado de Educação, Centro Universitário Fundação Santo André, Santo André, SP, Brasil

<sup>4</sup>Departamento de Psicologia Clínica, Instituto de Psicologia, Universidade de São Paulo, São Paulo, SP, Brasil

Corresponding author: F.C.F. Ricardi  
E-mail: fatimaricardi@uol.com.br

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**ABSTRACT.** Piagetian scales and the Bender visual motor gestalt test (BT) were applied to 28 subjects with universal 45,X Turner syndrome (TS), and their respective controls, in order to investigate their cognitive performance. Dermatoglyphics were also analyzed to obtain clues concerning embryological changes that may have appeared during development of the nervous system and could be associated with cognitive performance of TS patients. Dermatoglyphic pattern distribution was similar to that reported in previous studies of TS

individuals: ulnar loops in the digital patterns and finger ridge, a-b, and A<sup>2</sup>-d counts were more frequent, while arch and whorl patterns were less frequent compared to controls. However, we did not find higher frequencies of hypothenar pattern, maximum atd angle, and ulnarity index in our TS subjects, unlike other investigations. Furthermore, we found significant differences between TS and control T line index values. The BT scores were also lower in probands, as has been previously reported, revealing a neurocognitive deficit of visual motor perception in TS individuals, which could be due to an absence of, or deficiency in, cerebral hemispheric lateralization. However, TS subjects seemed to improve their performance on BT with age. Cognitive performance of the TS subjects was not significantly different from that of controls, confirming a previous study in which TS performance was found to be similar to that of the normal Brazilian population. There were significant correlations between BT scores and Piagetian scale levels with dermatoglyphic parameters. This association could be explained by changes in the common ectodermal origin of the epidermis and the central nervous system. TS subjects seem to succeed in compensating their spatial impairments in adapting their cognitive and social contacts. We concluded that genetic counseling should consider cognitive and psychosocial difficulties presented by TS subjects, providing appropriate treatment and orientation for them and their families.

**Key words:** Turner syndrome cognition; Bender test; Piagetian scales; Dermatoglyphics