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EARLY LIFE TRAUMA IS ASSOCIATED WITH DECREASED PERIPHERAL LEVELS OF THYROID-HORMONE T3 IN HUMAN ADOLESCENTS

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Introduction: An adverse early life environment can induce changes on behavioral and metabolic responses later in life. In animal models it was recently demonstrated that the quality of maternal care, measured by high levels of pup licking and grooming (LG), is associated with an increased conversion of the T4 precursor to the more active T3. **Objectives:** We investigated if early exposure to childhood abuse is associated with thyroid-hormone levels later in life. Given the empirical evidence from animal models, we hypothesized that early adversity will be associated with a decreased peripheral conversion of T4 to T3. **Methods:** A sample of 131 adolescents (10-17 years) participated of this research and were assessed throughout a sociodemographic questionnaire and the Childhood Trauma Questionnaire (CTQ) physical abuse domain in order to verify early life stress. Weight and height were used to calculate BMI and sexual maturation stage was determined by a self-assessment, according to Tanner's criteria. Blood samples were collected between

07:00 and 10:00h after a fasting period of 10-12 hours to measure T3 and T4 levels. Regression analysis used to test our hypothesis and were performed adjusting for confounders such as pubertal status, gender, socioeconomic status and BMI. The study was approved by the Hospital de Clínicas de Porto Alegre Research Ethics Committee (project 08-

481). **Results and discussion:** Early life trauma is associated with reduced T3 levels in adolescents, when adjusted for potential confounders ($r^2=0.312$; $p<0.0001$). The final model to predict peripheral T4 levels was not significant ($r^2=0.087$; $p=0.340$). We extend findings from animal models that adverse early experience persistently impacts on the individual's responses to stress marked by an abnormal metabolism of thyroid hormones. Further studies are need to confirm such associations.