

# SOCIAL AND PSYCHOBIOLOGICAL REGULATION OF THE HUMAN CHILD'S HYPOTHALAMUS-PITUITARY-AXIS: AN ONTOGENETIC PERSPECTIVE

Davide Ponzi

Dr. Frederick vom Saal, Dissertation Supervisor

## ABSTRACT

On the basis of life history theory, the delayed reproductive maturity represented by an extended period of childhood and juvenility in humans is predicted to be important for learning cultural, social, and ecological skills that help prepare the child for the adult socio-competitive environment. During this developmental period, boys and girls show behavioral sex differences in play and social interactions. The hypothalamic-pituitary-adrenocortical (HPA) axis, with its products cortisol and dehydroepiandrosterone (DHEA), seems to play a pivotal role mediating the relationships between the social environment and an individual's life history strategies. Yet the processes that underlie the biological embedding of social information remain unclear in humans. Using a multidisciplinary approach spanning from cultural and cognitive anthropology to human ethology, this work illustrates that children with low maternal bond show higher cortisol reactivity to a mild social stressor and that cortisol reactivity is inversely correlated to non verbal behaviors representing levels of relaxation. It was also demonstrated that in the population under study children social network is sex segregated and that boys tend to have higher clustered friendship ties than girls. Finally, it was investigated the relationship between hormones reactivity in response to a competitive challenge and its relation with coalitionary and kinship relationships.