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The development of children's inhibition: Does parenting matter?

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ABSTRACT

Whereas a large body of research has investigated the maturation of inhibition in relation to the prefrontal cortex, far less research has been devoted to environmental factors that could contribute to inhibition improvement. The aim of the current study was to test whether and to what extent parenting matters for inhibition development from 2 to 8 years of age. Data were collected from 421 families, with 348 mother–child dyads and 342 father–child dyads participating. Children's inhibition capacities and parenting behaviors were assessed in a three-wave longitudinal data collection. The main analyses examined the impact of parenting on the development of children's inhibition capacities. They were conducted using a multilevel modeling (MLM) framework. The results lead to the conclusion that both mothers and fathers contribute through their child-rearing behavior to their children's executive functioning, even when controlling for age-related improvement (maturation) and important covariates such as gender, verbal IQ, and place of enrollment. More significant relations between children's inhibition development and parenting were displayed for mothers than for fathers. More precisely, parenting behaviors that involve higher monitoring, lower discipline, inconsistency and negative controlling, and a positive parenting style are associated with good development of inhibition capacities in children.

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Introduction

Inhibition is a core component of executive functioning (EF), which refers to cognitive abilities involved in the control and coordination of processes in the service of goal-directed actions (Miller & Cohen, 2001). Inhibition refers to the ability to "control one's attention, behavior, thoughts, and/or emotions to override a strong internal predisposition or external lure, and instead do what's more appropriate or needed" (Diamond, 2013, p. 137). The development of inhibition throughout the preschool years is critical because it has been related to later social and academic development (Diamond, 2013). Moreover, in view of the rapid increase in inhibition from 2 to 5 years of age, it is particularly interesting to investigate its development during the preschool period (Brooks, Hanauer, Padowska, & Rosman, 2003; Garon, Bryson, & Smith, 2008).

A large body of research has investigated the maturation of EF in relation to the prefrontal cortex, one of the slowest developing areas of the brain (Garon et al., 2008). Myelination of this prefrontal cortex has been associated with age-related improvements in children's EF (Hammond, Müller, Carpendale, Bibok, & Liebermann-Finestone, 2012). Far less research has been devoted to environmental factors that could contribute to EF development and consequently explain individual differences in children's EF capacities (Matte-Gagné & Bernier, 2011). Because the family is the main developmental setting during the preschool period, parenting behaviors should be viewed as good candidates for influencing the developmental growth of EF. The aim of the current study, therefore, was to test whether and to what extent parenting matters for EF development from 2 to 8 years of age.

Parenting and the development of EF

Parenting has mainly been appraised in terms of two key dimensions: support and negative control (Aunola & Nurmi, 2005; Smetana & Daddis, 2002). Support encompasses the affective nature of the parent–child relationship and refers to a variety of related behaviors, including warmth, acceptance, involvement, autonomy, monitoring, and the establishment of guidelines. Negative control encompasses parents' efforts to control their children's behavior by means of coercion, inconsistent and harsh discipline, or punishment. Through supportive parenting, parents aim to enhance their children's cognitive development, for example, by explaining the rules the children need to follow. Supportive parenting is also thought to enhance children's social development by engaging them to be active participants in the interaction and by giving them responsibilities. Supportive parenting has been mainly related to positive outcomes for children (Bailey, Hill, Oesterle, & Hawkins, 2009; Boeldt et al., 2012; Hipwell et al., 2008; Rohner, 1986), whereas negative control has been repeatedly associated with negative outcomes (Bailey et al., 2009; Barnett, Shanahan, Deng, Haskett, & Cox, 2010; Lansford et al., 2011).

The models and research efforts that have been put forward and described with regard to parents' effect on EF growth have tended to consider the effect of supportive rather than negative controlling parenting. First, parenting has been thought to influence both emotional regulation and cognitive abilities as two key elements of EF definition (Diamond, 2013; Miller & Cohen, 2001). For its effect on the emotional side, Hughes and Ensor (2009) proposed the *global imitation model*, which emphasizes the positive effect of a calm and positive parental response to children's negative emotion on "effortful control," a key component in children's emotional regulation closely related to EF (Valiente, Lemery-Chalfant, & Reiser, 2007). The longitudinal association between negative emotional reactivity during infancy and EF at 4 years of age has recently been documented (Ursache, Blair, Stifter, & Voegtline, 2013). In this research, high emotional reactivity combined with high emotional regulation measured at 15 months of age was associated with better EF at 4 years of age. Moreover, children characterized by both emotional reactivity and regulation had primary caregivers who exhibited a higher level of positive parenting than those of other types of children. Thus, parental support is also viewed as having a buffer effect against affective overarousal in children. In the absence of overarousal, it is contended that children are better able to focus their attention and regulate their behavior (Dierckx et al., 2011; Feldman, 2003). For its effect on cognitive abilities, Hughes and Ensor (2009) suggested the *scaffolding model*, which refers to parents' ability to provide information and assistance in a manner that supports their children's attention, memory, and language abilities (Landry, Miller-Loncar,