



## The Development of Physical Aggression

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*(Published online December 2002)*

*(2<sup>nd</sup> revised edition January 2012)*

### **Topic**

[Aggression](#)

### **Introduction**

Physical violence exhibited by adolescents and young adults is a major concern in all modern societies. Indeed, the risk of being arrested and found guilty of criminal behaviour is higher during late adolescence and early adulthood than at any other point in life. Over the past 40 years, hundreds of studies have attempted to shed more light on how playful children become violent juvenile delinquents. Poor parental supervision, family break-up, negative peer influences and poverty have all been shown to be associated with violent juvenile delinquency.<sup>1,2</sup> Males account for the majority of arrests made for violent crimes. The principal explanation for violent behaviour has long been the following: “aggressive and violent behaviours are learned responses to frustration, they can also be learned as instruments for achieving goals, and the learning occurs by observing models of such behaviour. Such models may be observed in the family, among peers, elsewhere in the neighbourhood, through the mass media, or in violent pornography.”<sup>3</sup>

### **Recent Research Results**

Although most research on aggression tend to focus on adolescents and adults, longitudinal studies using large random samples of new born started to follow the development of physical aggression from infancy approximately 15 years ago. These studies have now shown that most children start to use physical aggression between the end of the first and second year after birth.<sup>4,5</sup> However, there are major differences in the frequency of physical aggression among infants as well as among toddlers.<sup>6,7,8,9</sup> A majority of children make occasional use of physical aggression, a minority use physical aggression much less often than the majority, while another minority make much more frequent use of physical aggression than the majority. Preschool children who are referred to clinics for behaviour problems are generally referred for physically aggressive behaviours.<sup>9</sup>

Available data on the development of physical aggression during the preschool years have shown that the frequency of physical aggression use increases during the first 30 to 42 months after birth and then decreases steadily.<sup>6-8</sup> Fewer girls than boys reach the

highest frequency levels, and girls tend to reduce the frequency of their aggression earlier in life.<sup>10</sup> Further, longitudinal studies up to adolescence show that preschool is a sensitive period for learning to regulate physical aggression. Indeed, the minority of elementary school children (5% to 10%) who continue to show high levels of physical aggression remain at greatest risk of engaging in physically violent behaviour during adolescence.<sup>11,12</sup>

Interestingly, while the frequency of physical aggression was found to decrease from the third or fourth year after birth, the frequency of indirect aggression (making disparaging remarks about another person behind his or her back) increases substantially from 4 to 7 years of age, and girls tended to use this form of aggression more frequently than did boys.<sup>13,14</sup>

The main risk factors for women to have children with serious physical aggression problems are the following: a low education level, a history of behaviour problems, first delivery at a young age, smoking during pregnancy, and low income.<sup>6-8,15,16</sup> Study of large samples of twins also points to genetic effects.<sup>17</sup>

### **Conclusions**

Contrary to traditional belief, children do not need to observe models of physical aggression to initiate the use of physical aggression. In 1972, Donald Hebb, a father of modern psychology, wrote that children did not need to learn how to have a temper tantrum.<sup>18</sup> In his 1979 book on social development, Robert Cairns reminded human development students that the most aggressive animals were those that had been isolated from the time they were born.<sup>19</sup> Indeed, like other animals, human infants spontaneously use physical aggression when strongly driven to achieve their goals, for example when they are angry or when they strongly desire an object in the possession of someone else.<sup>20</sup> Thus, the studies on the frequency of physical aggressions during the early childhood years indicate that children do not need to learn to use physical aggression from their environment; they rather learn not to use physical aggression. This learning occurs through various forms of interactions with their environment, such as being hurt in an attempt to aggress someone and being reprimanded by adults, but also through play-fighting<sup>21</sup> and indirect aggression.<sup>14</sup>

Although recent research on the development of aggression during early childhood has substantially increased our understanding of the life-span development of aggression, we still have not adequately elucidated the mechanisms that explain why some infants are more physically aggressive than others, why some engage in very little physical aggression, why girls tend to engage in physical aggression less often than boys, why most children learn alternatives to physical aggression before they enter school while a minority do not.

### **Service and Policy Implications**

The research summarized above has important implications for the prevention of physical aggression. First, early childhood is probably the best window of opportunity for helping children at risk of becoming chronic physical aggressors because most children learn

alternatives to physical aggression during that period. To achieve this aim we probably need intensive support to high-risk families starting during pregnancy.<sup>22</sup> Second, since most humans have used physical aggression during early childhood, most are at risk of using it again if they find themselves in a situation where they do not see a satisfactory alternative. This would explain why many violent crimes are committed by individuals who do not have a history of chronic physical aggression, and why so many conflicts among families, ethnic groups, religious groups, socioeconomic classes and nations lead to physical aggression. Thus, we need policies that reduce to their minimum the situations which create conflicts among citizens of all ages.

## REFERENCES

1. McCord J, Widom CS, Crowell NA, eds. *Juvenile crime, juvenile justice*. Washington, DC: National Academy Press; 2001.
2. Lipsey MW, Derzon JH. Predictors of violent or serious delinquency in adolescence and early adulthood: a synthesis of longitudinal research. In: Loeber R, Farrington DP, eds. *Serious and violent juvenile offenders: risk factors and successful interventions*. Thousand Oaks, CA: Sage Publications; 1998:86-105.
3. Reiss AJ Jr, Roth JA, eds. National Research Council (U.S.). *Panel on the Understanding and Control of Violent Behavior. Understanding and preventing violence*. Vol 1. Washington, DC: National Academy Press; 1993:7.
4. Tremblay RE, Japel C, Pérusse D, McDuff P, Boivin M, Zoccolillo M, Montplaisir J. The search for the age of “onset” of physical aggression: Rousseau and Bandura revisited. *Criminal Behavior and Mental Health* 1999;9(1):8-23.
5. Alink LRA, Mesman J, Van Zeijl J, Stolk MN, Juffer F, Koot HM, Bakermans-Kranenburg MJ, Van IJzendoorn MH. The early childhood aggression curve: Development of physical aggression in 10-to50-month-old children. *Child Development* 2006;77(4):954-966.
6. Côté S, Vaillancourt T, Leblanc JC, Nagin DS, Tremblay RE. The development of physical aggression from toddlerhood to pre-adolescence: A nation wide longitudinal study of Canadian children. *Journal of Abnormal Child Psychology* 2006 ;34(1):68-82.
7. NICHD Early Child Care Research Network (2004). Trajectories of physical aggression from toddlerhood to middle school: predictors, correlates, and outcomes. *SRCD Monographs* 69(4, 278): 1-146.
8. Tremblay RE, Nagin DS, Séguin JR, Zoccolillo M, Zelazo PD, Boivin M, Pérusse D, Japel C. Physical aggression during early childhood: Trajectories and predictors. *Pediatrics* 2004;114(1):e43-e50.
9. Keenan K, Wakschlag LS. More than the terrible twos: The nature and severity of behavior problems in clinic-referred preschool children. *Journal of Abnormal Child Psychology* 2000;28(1):33-46.
10. Côté SM. Sex differences in physical and indirect aggression: A developmental perspective. *European Journal of Criminal Policy and Research* 2007;13(3-4):183-200.

11. Broidy LM, Nagin DS, Tremblay RE, Brame B, Dodge K, Fergusson D, Horwood J, Loeber R, Laird R, Lynam D, Moffitt T, Bates JE, Pettit GS, Vitaro F. Developmental trajectories of childhood disruptive behaviors and adolescent delinquency: a six-site, cross-national study. *Developmental Psychology* 2003;39(2):222-245.
12. Nagin D, Tremblay RE. Trajectories of boys' physical aggression, opposition, and hyperactivity on the path to physically violent and nonviolent juvenile delinquency. *Child Development* 1999;70(5):1181-1196.
13. Côté SM, Vaillancourt T, Barker ED, Nagin DS, Tremblay RE. The joint development of physical and indirect aggression: Predictors of continuity and change during childhood. *Developmental Psychopathology* 2007;19(1):37-55.
14. Brendgen M. Development of indirect aggression before school entry. Tremblay RE, topic ed. In: Tremblay RE, Boivin M, Peters RDeV, eds. *Encyclopedia on Early Childhood Development* [online]. Montreal, Quebec: Centre of Excellence for Early Childhood Development and Strategic Knowledge Cluster on Early Child Development; 2012:1-5. Available at: <http://www.child-encyclopedia.com/documents/BrendgenANGxp1.pdf> . Accessed February 1<sup>st</sup>, 2012.
15. Nagin DS, Tremblay RE. Parental and early childhood predictors of persistent physical aggression in boys from kindergarten to high school. *Archives of General Psychiatry* 2001;58(4):389-394.
16. Keenan K, Shaw DS. The development of aggression in toddlers: a study of low-income families. *Journal of Abnormal Child Psychology* 1994;22(1):53-77.
17. Dionne G, Tremblay RE, Boivin M, Laplante D, Pérusse D. Physical aggression and expressive vocabulary in 19 month-old twins. *Developmental Psychology* 2003;39(2):261-273. Hebb DO. A textbook of psychology. 3rd ed. Philadelphia, PA: Saunders; 1972. Cairns RB. Social development: the origins and plasticity of interchanges. San Francisco, CA: WH Freeman & Co; 1979.
18. Lewis M, Alessandri SM, Sullivan MW. Violation of expectancy, loss of control, and anger expressions in young infants. *Developmental Psychology* 1990;26(5):745-751.
19. Côté SM, Boivin M, Daniel DS, Japel C, Xu Q, Zoccolillo M, Junger M, Tremblay RE. The role of maternal education and nonmaternal care services in the prevention of children's physical aggression problems. *Archives of General Psychiatry* 2007;64(11):1305-1312.
20. Olds D, Henderson CR, Cole R, Eckenrode J, Kitzman H, Luckey D, Pettitt L, Sidora K, Morris P, Powers J. Long-term effects of nurse home visitation on children's criminal and antisocial behavior: Fifteen-year follow-up of a randomized controlled trial. *JAMA-Journal of the American Medical Association* 1998;280(14):1238-1244.
21. Pellis SM, Pellis VC. Play-fighting during early childhood and its role in preventing later chronic aggression. Tremblay RE, topic ed. In: Tremblay RE, Boivin M, Peters RDeV, eds. *Encyclopedia on Early Childhood Development* [online]. Montreal, Quebec: Centre of Excellence for Early Childhood Development and Strategic Knowledge Cluster on Early Child Development;

- 2012:1-4. Available at: <http://www.child-encyclopedia.com/documents/PellisANGxp1.pdf>. Accessed January 23, 2012.
22. Schweinhart L, Xiang Z. Evidence that the High/Scope Perry Preschool Program prevents adult crime. Paper presented at: The 2003 American Society of Criminology Conference. November, 2003; Denver, CO.

To cite this document:

Tremblay RE. The development of physical aggression. Tremblay RE, topic ed. In: Tremblay RE, Boivin M, Peters RDeV, eds. *Encyclopedia on Early Childhood Development* [online]. Montreal, Quebec: Centre of Excellence for Early Childhood Development and Strategic Knowledge Cluster on Early Child Development; 2012:1-5. Available at: <http://www.child-encyclopedia.com/documents/TremblayANGxp3.pdf>. Accessed [insert date].

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