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# **Paternal Physical Activity: An Important Target to Improve Father and Child Health**

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**Abstract (100 – 150 words)**

Although the transition to fatherhood can be a joyful and fulfilling process for many men, becoming a father often exposes men to a series of new challenges and responsibilities that can negatively affect their wellbeing. As such, effective strategies that foster positive physical and mental health in fathers are required. Given the established links between physical activity and optimal health, offsetting the substantial decline in men's' physical activity that typically occurs during early fatherhood may be one such strategy. In this commentary, we discuss the potential mediating role of physical activity on a series of important outcomes including: i) paternal mental health, ii) child health outcomes, and iii) the quality of the father-child relationship. In doing so, we also present the argument that high-quality research studies testing physical activity interventions that meaningfully engage fathers are urgently required.

The transition to fatherhood has been described as a transformative process for many men.<sup>1</sup> While joyful and fulfilling in many ways, becoming a father introduces a host of new challenges and responsibilities that can negatively affect men's physical, psychological and social-emotional wellbeing.<sup>2</sup> For these reasons, fatherhood is now recognised as an important social determinant of men's health.<sup>3</sup>

In his review of paternal mental health concerns,<sup>4</sup> Fisher provides an important and timely synthesis of the existing literature and a summary of the many research gaps that remain. In addition, the review provides a series of recommendations that will advance the field toward a greater understanding which mechanisms can best be targeted to promote optimal health in men during this life stage. Importantly, the review also discusses how paternal mental health has a flow-on effect on the physical and mental wellbeing of children.

From the evidence provided, it is clear that effective strategies that promote mental health in men during the transition to fatherhood are required. In this commentary, we will highlight the important contribution that physical activity can make toward this goal. We will also present recent evidence suggesting that paternal physical activity behaviour has a critical, but understudied role in: i) optimising child health and ii) fostering the father-child relationship.

### **The impact of fatherhood on physical activity**

Physical activity has a well-established role in promoting mental health and attenuating the effects of mental illness.<sup>5-7</sup> Despite this, physical inactivity is common amongst parents,<sup>8</sup> who face multiple barriers including new family responsibilities, guilt, lack of social support, work commitments and scheduling constraints.<sup>9</sup> Although these barriers affect both mothers and fathers, fathers appear to experience a greater decrease in physical activity, which is likely due to sex differences in pre-child levels of voluntary, leisure-time physical activity.<sup>10</sup>

For example, a prospective analysis of 638 young adults over two years identified that men who had their first child during the study lost 5 hours of physical activity per week.<sup>11</sup> This was significantly more than the decrease observed in men without children over the two years (-1.5 hours per week). In contrast, the authors did not detect a significant difference in physical activity change between women who did or did not have children during the study.

Compared to men without children, recent systematic reviews show that fathers engage in significantly fewer minutes of moderate-to-vigorous physical activity per week, are less likely to meet physical activity guidelines and are less likely to continue with leisure time sports.<sup>12, 13</sup> These decreases in physical activity are concerning for a number of reasons. First, as physical activity has a powerful protective effect against many physical and mental health conditions,<sup>5, 14, 15</sup> the effect of fatherhood on men's mental health may be partially mediated through the negative impact of fatherhood on physical activity. In addition, reduced physical activity levels contribute to increases in body mass index, which are commonly observed in men with young children.<sup>16</sup> Indeed, research shows that fathers are more likely than mothers to be overweight or obese,<sup>17</sup> placing them at further risk of additional health concerns.<sup>18, 19</sup>

### **Father's influence on their children's health**

In addition to affecting men's physical and mental health, physical inactivity in fathers may have flow-on effects for their children's wellbeing. Within the family, fathers often assume the role of 'physical activity' leaders and are generally responsible for engaging children in leisure-time physical activity.<sup>20</sup> Paternal parenting styles and behaviours are also independently associated with obesity-risk in pre-schoolers, independent of maternal influences,<sup>21, 22</sup> and physical inactivity contributes to increases in paternal weight status, which appears to be a stronger determinant of child obesity-risk than maternal weight. In a

longitudinal study of 3285 Australian families, children with an obese father were ~14 times more likely to become obese teenagers, even if the mother was a healthy weight.<sup>17</sup> In contrast, children with an obese mother but a healthy weight father were not at significantly increased risk of becoming obese.

Aside from the health benefits, shared physical activity experiences also make an important contribution towards fostering the father-child relationship. Sociological research has described the father-child bond as an ‘activation relationship’ that is fostered through co-physical activity and stimulating, vigorous and unpredictable physical play.<sup>23, 24</sup> In an interesting qualitative study, both fathers and adult daughters identified joint participation in sporting activities as the single most important turning point in the positive development of their relationship during childhood.<sup>25</sup> As such, paternal physical activity has great relevance for children’s wellbeing, as a positive father-child bond is linked to a diverse array of positive physical, social-emotional, educational and psychological outcomes for children.<sup>26</sup>

### **Physical activity interventions targeting fathers**

Although fatherhood presents men with a series of barriers to physical activity, the transition to fatherhood may actually be an opportune time to target fathers in behavioural interventions. Indeed, new fathers who successfully maintain pre-child physical activity levels report being motivated by several parent-specific facilitators including enjoyment from time spent being active with children (co-physical activity), the importance of becoming a physically active role model, and the perceived benefits of physical activity for the health of their family.<sup>9</sup> As such, capitalising on these newfound motivations may be a fruitful strategy to engage fathers in programs that can offset the substantive decline in physical activity typically observed during early fatherhood.<sup>27, 28</sup>

However, very few physical activity interventions have engaged fathers.<sup>29, 30</sup> Moreover, men are generally underrepresented in interventions from many health behaviour fields including physical activity<sup>29, 31</sup>, nutrition<sup>32</sup> and weight management.<sup>33, 34</sup> While fathers play a critical role in shaping their children's health and wellbeing, most child health behaviour studies have predominantly targeted mothers. In a systematic review of 213 randomized controlled trials that targeted children's physical activity, healthy eating or sedentary behaviour, only two (1%) studies reported the use of specific strategies to engage fathers.<sup>30</sup> Where data were available, fathers were underrepresented in all studies regardless of the target behaviour, child age group, program setting or mode of delivery. In studies where parent participation was limited to one per family, fathers represented only 6% of parents. Despite this, only four studies (2%) acknowledged that a lack of fathers was a potential limitation.<sup>30</sup> This presents a strong rationale to target and meaningfully involve fathers in future research.

Evidence suggests that participants are more likely to engage with behaviour change interventions that are socio-culturally targeted to suit their unique preferences and values.<sup>28</sup> However, many men and fathers believe that personal or family-based physical activity programs are pitched towards females and mothers.<sup>30, 35</sup> Of note, the only physical activity intervention that has specifically targeted fathers to date is the *Healthy Dads, Healthy Kids* (HDHK) program, which was conducted by our research group.<sup>36, 37</sup> During the program, fathers with children aged 5-12 years were recruited and educated about the important contribution they can make to their children's health. The fathers are also given the knowledge, skills and motivation to role model positive health behaviours for their family. Recognising the core role of physical activity as a father-child engagement mechanism, the program includes weekly physical activity sessions where fathers and their children participate in rough and tumble play, fundamental movement skill development and fitness-

based games. Co-physical activity is also emphasised through a series of fun home-based tasks and challenges.

At post-test in both pilot- and community-level RCTs of the HDHK program, significant intervention effects were observed for objectively measured physical activity and a range of other health outcomes including weight status and dietary variables in both fathers and children.<sup>36, 37</sup> In both trials, all recruitment targets were met and program attendance, retention and satisfaction metrics were high, providing evidence of the potential for socio-culturally targeted interventions to engaging dads in health research and meaningfully improve family physical activity habits.

## **Summary**

The transition to fatherhood may be a time of considerable emotional upheaval for men and effective strategies are needed to support them during this life stage. Fisher's review of paternal mental health concerns provides a much needed summary of the evidence to date and an important reminder of the work that is left to do.<sup>4</sup> Given the significant role that physical activity plays in: i) maintaining optimal mental health in fathers, ii) fostering positive father-child bonding, and iii) shaping child health and wellbeing, research studies that meaningfully engage fathers in both personal and family-based physical activity interventions are urgently required.

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