



Fidget spinners: Purported benefits, adverse effects and accepted alternatives

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Purpose of review

In the span of a few months, fidget spinners have caught the eyes of millions of children, parents, educators and paediatricians. Fidget spinners, hand-held toys designed to spin freely in your grasp, have become a source of entertainment for consumers of all ages. Despite a lack of scientific evidence, toy marketers have advertised the benefits of fidget spinners for children with attention-deficit/hyperactivity disorder and other disorders (e.g. autism, anxiety, sensory issues). Parents are incentivized by these purported benefits to purchase fidget spinners to improve their child's concentration and decrease stress.

Recent findings

While fidget spinners are a new phenomenon, existing therapy toys (e.g. sensory putty) have been used by occupational therapists for similar reasons, with comparably little research supporting these claims. The purpose of this review is to explore literature regarding sensory toys and examine educator/professional-reported concerns and medical adverse effects of using fidget spinners.

Summary

Due to a recent surge in popularity, fidget spinners and other self-regulatory occupational therapy toys have yet to be subjected to rigorous scientific research. Thus, their alleged benefits remain scientifically unfounded. Paediatricians should be aware of potential choking hazards with this new fad, and inform parents that peer-reviewed studies do not support the beneficial claims.

Keywords

attention-deficit/hyperactivity disorder, anxiety, fidget spinner, self-regulatory occupational therapy toys

INTRODUCTION

Self-regulation and occupational therapy tools are often used in school settings. Commonly promoted by professionals, these toys calm students, enhance concentration, decrease anxiety and strengthen fine-motor muscles of the hand. Some examples of these tools include stress balls and therapy putty. Recently, one widely advertised self-regulation toy has captured the attention of children worldwide. In the past 3 months, tens of millions of fidget spinners – small devices that can be rotated between a user's fingers – have been sold in the United States alone [1]. Fidget spinners are purported to decrease stress and help children attend to daily tasks. Many parents believe in the alleged benefits of using this toy in the classroom, despite limited supporting evidence. In this review, we highlight the modest amount of research that exists about the role of fidget spinners in academic settings and the potential benefits and hazards to better inform paediatricians.

POTENTIAL BENEFITS

Fidget spinners are advertised to increase concentration and attention to academic tasks. Past research suggests that hyperactive movements, such as fidgeting, improve performance on attention tasks in children with attention-deficit/hyperactivity disorder (ADHD) [2]. Children with ADHD have demonstrated a greater capacity to remain attentive while moving in their seats than sitting still, but this discrepancy was not observed in their neurotypical peers [3]. Furthermore, a 2016 study found

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KEY POINTS

- Paediatricians should address the risks of children playing with fidget spinners with an emphasis on safety and potential choking hazards.
- Fidget spinners, although a fun new toy, have not been proven to increase attention or decrease anxiety and have in fact been banned in many educational settings.

that intense movement, analysed by an ankle monitor, was associated with better cognitive control in children with ADHD. The authors conclude that limiting movement in children with ADHD might hinder cognitive task performance [4¹¹]. Other research has examined the use of stress balls, another self-regulation toy, in classrooms. Children who used stress balls experienced fewer distractions in the classroom, and children self-reported improved performance in school [5].

In light of the potential for an improved academic experience, studies have examined the neural correlates of fidgeting and cognitive control/attention. Physical activity, even as small as fidgeting with your hands, releases dopamine and norepinephrine, which in turn increases attention and sharpens focus, similar to the psychopharmacological mechanism of ADHD medications [6]. It is thought that fidgeting improves performance due to stimulation of the primary motor cortex and somatosensory cortex of the brain, which are responsible for integrating tactile information from the hands [7].

Notably, the benefits of self-regulating toys are not limited to improved concentration. Such toys can be used for children with autism to incentivize the completion of daily tasks, improve social bonding efforts or decrease repetitive behaviours [8]. Fidget spinners may facilitate social interactions and conversations among like-minded children and may be used to decrease stress during medical procedures [9]. Other anecdotal reports suggest an improvement in hand-eye coordination and balancing skills, while parenting blogs claim that fidget spinners increase creativity and reduce cognitive fatigue [10]. Still other parenting websites claim that fidget spinners decrease childhood electronic use, offering an alternative to video games as a reward system. Moreover, self-help websites report that fidget spinners decrease nail-biting, nail-picking and other habits [10].

ADVERSE CONSEQUENCES

Despite the potential benefits of fidget spinners, widespread use of these devices also opens the door

to potentially adverse effects. Many physicians and educators argue that fidget spinners do not improve the focus of children with or without ADHD and may have a reductive effect on concentration in school. According to Scott Kollins, PhD, a clinical psychologist and professor at Duke University, the reason for the popularity of fidget spinners is because parents want to believe that there is a simple device to help their child focus [11]. Some of the biggest critics of fidget spinners have been teachers who report them to be a major distraction in the classroom. Although teachers concede that some students may benefit from using them in the classroom, others maintain that fidget spinners are often misused and function as a form of entertainment rather than a therapy device [12]. Fidget spinners are different from other sensory toys, such as sensory putty, rubber bands and squeeze balls, because they make a whirring noise when used and are visually distracting to other students, often inciting the opposite effect of their intended purpose [12,13]. Consequently, many teachers in the United States are in favour of banning fidget spinners from the classroom altogether [14,15].

Fidget spinners may also be the cause of social conflicts among peers. Disagreements over possession and physical control of the device may occur [16]. Although most toys are routinely banned from school settings, many schools still allow fidget spinners for students with sensory issues [10]. This exception may lead to jealousy and segregation of students using fidget spinners in the classroom. In addition to minimally improving attention (if at all), increasing disruption in the classroom and providing a potential source of social conflict, fidget spinners can also cause physical harm when used improperly. Unlike other self-regulatory toys, fidget spinners are not subject to national safety regulations, as many are bought directly from international sources, such as China [17]. The toys are often packaged without warning labels or parental advisory. In one case, a child suffered a stress injury from playing with a fidget spinner for 8 h straight. Another child fell while playing with a fidget spinner and suffered a chin laceration [8].

Fidget spinners can also present a choking hazard for young children. In two separate reported incidents, children aged 5 and 10 years required immediate medical care and hospitalization due to choking on fidget spinner parts. In response to these two incidents, the Consumer Product Safety Commission (CPSC) released a statement that advises parents to keep fidget spinners away from

small children, and cautions older children to avoid putting the toys in their mouths [18]. In May of 2017, German customs at Frankfurt airport seized 35 metric tons of fidget spinners, claiming they were a potential choking hazard [19]. Furthermore, in an effort to maintain consumer interest, fidget spinner designs are changing to include more moving parts, which may add to the choking hazard risk. As choking remains a leading cause of injury and death in small children, paediatricians must play an active role in informing parents and older children of the choking hazards of these unregulated toys [20].

CONCLUSION

It is critical that paediatricians counsel parents about the choking and injury hazards of fidget spinner toys. As the benefits of fidget spinner use have yet to be substantiated, their potential for auditory and visual distraction may outweigh their purported educational merits. Unlike fidget spinners, other self-regulatory devices have been used successfully in the academic setting. Therefore, parents should be encouraged to consult their child's school-based intervention team in order to develop an individualized treatment strategy.

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The authors confirm that this paper has not been published in its current form or a substantially similar form (in print or electronically, including on a website), that it has not been accepted for publication elsewhere and that it is not under consideration by another publication.

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- of special interest
- of outstanding interest

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