Effect of ShotBlocker® on Pediatric Pain Perception
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PICO STATEMENT

❖ The purpose of this literature review is to answer the question:
❖ Among children aged 3 to 17 years of age, is the ShotBlocker® distraction device more effective in relieving the pain experienced during intramuscular (IM) injections as compared to conventional pain relief distractions techniques?

BACKGROUND AND SIGNIFICANCE

❖ Intramuscular (IM) injections for immunizations and medication administration are common pain causing procedure among pediatric patients.
❖ The pediatric immunization schedule consist of upwards of 20 IM injection in addition to now yearly COVID-19 and Flu shots.[2]
❖ Negative experiences from IM injections can affect health outcomes into adulthood.[3]
❖ To address pain experienced during IM injections, the ShotBlocker® device was created by a pediatrician.
❖ When pressed firmly against the skin at the injection site, ShotBlocker® temporarily blocks central nervous system responses and saturates the sensory nerves distracting the child from the pain signals caused by the injection.[1]

SEARCH METHODS

❖ Database: PubMed, Google Scholar
❖ Search criteria: (Pediatrics) AND (ShotBlocker®) AND (Intramuscular injections)
❖ Inclusion criteria: English language only, between 2017 and 2022, peer-reviewed articles, randomized controlled studies
❖ Four articles met the inclusion criteria, date range was expanded to include one more article
❖ Five articles were included in the literature review

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SHOTBLOCKER AND BUZZY BEE

Figure 1: ShotBlocker® (Left) and Buzzy Bee (Right)

EVIDENCE REVIEW TABLE

AUTHOR (YEAR)	SAMPLE N	RESULTS	LEVEL/ QUALITY RATING
Sivri Bilgen et al., (2019)	N= 100	The children in the Buzzy group had significantly less pain than the ShotBlocker® and the control ($p<0.001$).	Level II/A
Yilmaz et al., (2019)	N= 120	Pain and fear scores were significantly less in the group that used Buzzy ShotBlocker® ($p<0.05$).	Level II/A
Canbulat Sahiner et al., (2018)	N= 60	Children in the control had the highest level of pain followed by the Buzzy and ShotBlocker® ($p = .008$, $p = .007$, and $p > .001$, respectively).	Level II/A
Zengin et al., (2022)	N= 168	The Palm Stimulator was more effective than the ShotBlocker® ($p<0.001$).	Level II/A
Drago et al., (2009)	N= 185	Perceived pain scores were lower in the ShotBlocker® group compared to the control ($p<0.001$).	Level II/A

IMPLICATIONS FOR NURSING PRACTICE

❖ Nurses are in a unique position to encourage the use of distraction devices like the ShotBlocker® during needle-related procedures.
❖ Nurses are the key to quality pain management through the nursing process of assessment, monitoring and evaluating pain management effectiveness.[6]
❖ The ShotBlocker® device is a perfect example of how a multi-disciplinary team can approach to the management of pediatric pain.

THE ROLE OF THE CNL

❖ High volumes of pediatric patients account for the volume in ED with a lack of consistent innovation pain relief measures.[9]
❖ The CNL serves as a team manager, system analyst, outcome manager and advocate.[7]
❖ As an advocate, the CNL assist in pairing nonpharmacologic devices like the ShotBlocker® with pharmacological interventions for improved quality of care during IM injections.[7]

DISCUSSION AND CONCLUSION

❖ Both the ShotBlocker® and Buzzy Bee were effective at lowering the pain levels experienced during IM injections with the Buzzy Bee being more effective compared to the ShotBlocker®.
❖ While this review found that the ShotBlocker® distraction device was less effective than the Buzzy, both devices remain effective methods to relieve the pain experienced during IM injections.
❖ The use of non-pharmacologic approaches to mitigate pain and anxiety will lead to enhanced patient cooperation and family satisfaction.
❖ Consider a combination of nonpharmacologic and pharmacologic interventions when addressing the management of pediatric pain.

REFERENCES