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## Arkansas School Nurses' Opinions on How an Increase in Recess Time Has Affected Recess-Related Injuries

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## **Abstract**

Title: Arkansas School Nurses' Opinions on How an Increase in Recess Time Has Affected Recess-Related Injuries

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Arkansas passed Act 641 in April of 2019, which extended mandated recess time from 20 to 40 minutes per day in Arkansas public schools, and included recess as instructional time, making Arkansas the state with the most required recess time (Arkansas Unstructured Social Time in Schools Act, 2019). There is a standard consensus among developed countries that children and youth should accumulate a minimum of 60 minutes of moderate-to-vigorous physical activity (MVPA) every day (Parrish et al., 2013). Unfortunately, only about half of youth meet the current and evidence-based guidelines (Kohl & Cook, 2013). The opportunity for children and adolescents to be active has declined over time, and is likely due to a combination of factors including school policies, parental rules and environmental factors, such as a reduction in active travel, such as walking to and from school (Parrish et al., 2013).

Schools across the country play a huge role in the amount of physical activity their students get. They can provide many opportunities for young people to engage in physical activity and motivate children to stay active. In 1997, the Centers for Disease Control and Prevention (CDC) published research-based guidelines for school and community programs to promote lifelong physical activity among young people. These guidelines outline a comprehensive approach to promoting physical activity through schools with quality, daily physical education; classroom health education that complements physical education by

giving students the knowledge and self-management skills needed to maintain a physically active lifestyle; daily recess periods for elementary school students; and extracurricular physical activity programs, including intramural activities, physical activity clubs, and interscholastic sports. Even if a few of these initiatives were implemented in schools across the country, it could drastically impact the lives of students for the better (Burgeson et al., 2001).

Physical activity is extremely important and is a key determinant of health outcomes across the life span. A lack of activity increases the risk of heart disease, colon and breast cancer, diabetes mellitus, hypertension, osteoporosis, anxiety and depression, and other diseases (Kohl & Cook, 2013). In regards to cognitive and intellectual benefits, recess has been correlated with increased physical activity, improved memory and attention, reduction of disruptive behaviors in the classroom, and social and emotional development in students (Carlson et al., 2015; CDC, 2020a; Hillman et al., 2014). Additionally, recess provides an opportunity for students to practice appropriate social skills while engaging with their peers. Researchers agree that children learn valuable skills, such as negotiation, cooperation, sharing, problem solving, coping, perseverance, and self-control through play (Murray & Ramstetter, 2012).

The purpose of this research study was to gain insight and qualitative data from school nurses in order to see how the increase in recess time in the state of Arkansas has impacted recess-related injuries. Their feedback helped highlight any areas of recess that needed to be altered in order to keep the kids safe and healthy. This qualitative data was collected via interviews using predetermined open-ended questions over Zoom. I hypothesized that the increase in recess time was very beneficial to elementary school students in many different aspects, cognitively and physically, but it also created a longer time period for potential injuries to occur.

## **Introduction**

When examining recess, stakeholders should consider that 30% to 70% of school injuries occur during this part of the school day (Posner, 2000). Approximately 1,786,008 playground related injuries were treated in emergency rooms nationwide from 2001 to 2008 (O'Brian, 2009). Of those injured, 53% were children ages five to nine years old (O'Brian, 2009). The top four reported injuries were fractures (36%), contusions and abrasions (20%), lacerations (17%) and strains and sprains (12%). Monkey bars or playground gyms were associated with 36% of these injuries, while swings (or swing sets) and slides (or sliding boards) were associated with 28% and 21% of injuries, respectively. During that period, the U.S. Consumer Product Safety Commission (CPSC) reported 40 playground-related deaths and cited that approximately 1,180 playground injuries were due to falls (O'Brien, 2009).

There are several proactive strategies for minimizing recess injuries, the first is to gather baseline data. School staff should regularly track recess-injury data throughout the year so they can identify and prioritize areas requiring improvement (Linker & David, 2017). By doing so, certain areas can be addressed and used to identify seasonal injury rates due to weather and how staff can make the playground safer for kids during these times. Lastly, school staff can also use data collected to determine whether or not preventative strategies employed are successful (Linker & David, 2017).

Another strategy is to zone the recess space. This is a relatively low cost and easy way to increase physical activity and reduce injuries during recess time. The idea of zoning, or playground mapping, is to divide the outdoor recess space into a variety of zones, with each zone dedicated to a specific type of activity (Linker & David, 2017). For example, keeping fixed playground equipment spaces separates other children who are jumping rope or throwing a

football from one another. This allows children to use playground structures without the fear of being hit by a jump rope or ball and reduces the likelihood of student collisions (Linker & David, 2017).

The final preventative strategy is the active supervision of the students at recess by teachers and faculty. This starts with teachers being properly trained by the school district or administration, given that recess is one of the most dangerous parts of the day (Posner, 2000). During recess, school staff should move throughout their zone(s), watching and listening for opportunities to positively engage with students. By doing so, supervisors can reinforce zone boundaries and appropriate recess behaviors (Linker & David, 2017).

School injuries represent a relatively common problem in elementary schools. When injuries occur, it is the school nurses who are responsible for assessing the injuries that arise. Not only do they triage injuries, but they can also help prevent injury. School nurses believe they could play a pivotal role in playground injury prevention through the collection and analysis of injury data, communication to administrators about the need for comprehensive planning of the play environment, and becoming active members of playground safety committees to prevent student injury (Hudson, 2008).

The purpose of this research study was to gain insight from school nurses to see how the increase in recess time in the state of Arkansas has impacted recess-related injuries. The qualitative data collected and findings from school nurses can help curtail child injuries and ensure a safe and injury-free school environment during recess (Al-Hajj, 2020). The data could also potentially identify any areas of recess that need to be addressed to keep the students happy and healthy. It was hypothesized that the increase in recess time has been very beneficial to

elementary school students in many different aspects, but it created a longer time period for potential injuries to occur within.

It is important to note that during the 2019-2020 and 2020-2021 academic school years, schools were greatly impacted by the COVID-19 pandemic. There were a lot of uncertainties in the spring of 2020, which led to many schools shutting down. During the 2020-21 school year, a large share of students opted to enroll in established, full-time virtual schools (Blagg & Gross, 2021). This led to a decrease in in-person district enrollment. Historically, younger students have been less likely to enroll in fully virtual schools. According to 2019–20 NCES enrollment data, students in grades K–5 made up only 22% of total virtual enrollment. In a study of eight states, including the state of Arkansas, virtual school enrollment in grades K–5 jumped by 112%, while virtual school enrollment in grades 6 and above increased by only 23% due to the pandemic (Blagg & Gross, 2021). This altered rates of recess-related injuries and the role of Arkansas school nurses.

### **Experimental Methods**

I recruited school nurses by researching directories of elementary schools in the state of Arkansas. From there, the nurses' contact information was obtained and used to contact them via email. The email sent explained who I was, the purpose of my research, and how their information would be kept confidential. Once receiving a reply from the nurses, I asked them how long they had been a school nurse and their availability. This question was important to my research because I needed school nurses who had experience of at least three years. The chosen time period of three years was to ensure that the nurses had experience dealing with recess-related injuries before and after the state of Arkansas passed the Arkansas Unstructured Social Time in Schools Act in 2019. There were no exclusion criteria based on race or gender. The

exclusion criteria for this study were nurses who have only worked for their elementary school two years or less. In total, I interviewed five elementary school nurses. Interviews with the participants took place via Zoom. Before starting the interview, clear language was used to explain the process and how the privacy and confidentiality of the participant's interview answers and interview footage will be maintained. Informed consent from each individual will be gained.

I conducted interviews with the nurses in order to collect qualitative data. All information was kept confidential to the extent allowed by applicable State and Federal law and University of Arkansas policy. Only I, the Principal Researcher, had access to contact information. Electronic information was de-identified by removing names and any school information. Electronic data files with transcribed interviews were stored in an online storage system called Box.

The experimental protocol was as follows. The participants joined the Zoom at the predetermined time. Informed consent from each nurse was gained before the start of the interview. Before asking any official questions, I identified myself clearly to the person being interviewed and explained to them my role and the reason they were being interviewed. For the rest of the interview, I asked participants pre-determined open-ended questions about nurses' opinions on recess-related injuries.

From the virtual interviews, qualitative data was collected and analyzed in order to interpret common patterns and themes of school nurses' answers. The qualitative data collected was important in distinguishing if injuries were more common, less common, or about the same since the increase in required recess time. Thematic analysis was used, which is a method for identifying, analyzing, and reporting patterns (themes) within data. It minimally organizes and describes [the] data set in (rich) detail. However, the data analysis often goes further than this,

and interprets various aspects of the research topic as well (Boyatzis, 1998). The feedback from participants could also be vital in identifying critiques to recess, if any, stated by the nurses.

**Timeline**

Task	Deadline
Proposal submitted to the College of Education and Health Professions	July 29, 2021
IRB approval	Sept 2021
I will begin to recruit participants	Nov 2021
I will perform the data collection	Dec 2021
I will have analyzed the qualitative results	Dec 2021
I will have prepared a manuscript for review by my academic mentor	Dec 2021
I will present the results and defend my thesis before the COEHP Honors college	Dec 10, 2021

**Student Involvement**

I was a part of all aspects of the research process. First, I was the one recruiting the nurses from the state of Arkansas. The initial idea for this research project was a combination of my research mentor Dr. Erin K. Hickey Howie’s ideas along with mine, in order to come up with a research project that would combine my future career in the medical field and passion for children: recess related injuries. This project was of high value to my field of study for several different reasons. My future goal is to be a Physician Assistant and hearing how the nurses interact with students informed me how I should one day interact with pediatric patients and their parents. I was also interested in this topic because it incorporated the importance of appropriate and preventative medical care, since I am wanting to attend Physician Assistant school after I graduate.



## **Results**

I interviewed five nurses from the Northwest Arkansas area. Two out of the five nurses worked for the same school district, another two worked for separate school districts, and the fifth worked for a charter school that had four different locations in the Northwest Arkansas area. On average, the five elementary schools contain 300 students. Two out of the five nurses had been a school nurse for eleven years (since 2010), two had been a school nurse for four years (since 2017), and the final nurse had been at her respective school since 2019, so a relatively new school nurse. Their overall opinion on recess was that it provided many health benefits, positive correlations between test scores and recess, and less reports of disruptive behavior with more recess time. They agreed that recess helped to promote a healthy lifestyle and gave kids a much needed break from technology. Finally, one nurse stated that recess was an “important time to develop social skills.”

Before ACT 641 was passed, most schools only had a 20-minute recess period every day. The pros and cons of a 20-minute recess period addressed by the interviewed school nurses were as follows. Pros for a shorter recess time: more instructional time and more time for lunch. It also helped facilitate transition periods between classes. One nurse reported that a con for a shorter recess period included that “kids need that extra time for activity. Recess is important because the kids need an outlet for physical activity and it helps with socialization skills.”

Before and during the spring of 2019, when the shorter recess period was in effect, four out of five of the school nurses stated that they treated recess-related injuries daily. All five of the nurses stated that they typically treated minor injuries including: minor abrasions, bruises, blisters, sprains, head injuries, and a few fractures. When ACT 641 was put into effect for the entirety of the fall 2019 semester, all five nurses stated that their positive opinions on recess did

not change. One shared that she was “relieved when the kids got more time and even with the increase in time for more injuries to occur, the benefits of physical activity far outweighed the injuries kids could get.” When other teachers at the same school were asked their opinion, they agreed that the increase in recess time from 20 to 40 minutes helped and that it needed to be increased.

At the start of the COVID-19 pandemic in 2020, the structure of the 40-minute recess time was greatly affected and varied among schools. One out of the five nurses reported that kids were required to wear masks outdoors. All of the nurses reported that playgrounds were divided into sections and kids were only allowed to play with others from their classroom. Equipment couldn't be shared and kids were not allowed to run freely around the playground. One nurse stated that “this caused kids to be more reserved during their physical activity time.” COVID-19 affected school nurses drastically and with the pandemic came new protocols and procedures. New protocols put in place for nurses were to keep assessment time under three minutes, observe the six-foot rule, try not to look in kids' mouths during assessments, and required masks in the school building. This made it hard for nurses to express empathy for the kids they were treating, so one nurse said she “had to overcompensate in order to make sure kids felt heard.” However, the biggest effect on school nurses during the pandemic didn't come from injuries during recess, it came from the addition of contact tracing.

School nurses became in charge of contact tracing, which “took up a lot of extra time.” Every single nurse mentioned the increased stress level during that year due to the extra COVID-19 related duties assigned to them. For example, one nurse was the point of contact for 1500 scholars, so that “required a lot of extra time on top of teaching and taking care of students' daily health needs.” Another nurse stated that to try and compensate for the tracking, the state sent out

a sheet stating that classroom teachers could take care of certain minor injuries in their classrooms instead of school nurses. She also stated that “tracking took up so much time that [she] didn’t get to interact with students as much as [she] did pre-pandemic.” So, due to the fact that minor injuries weren’t being seen by the school nurse, particular injury education wasn’t given by the nurse as much as she had done pre-pandemic.

When nurses did treat kids it was mostly for minor recess-related injuries, as they did before the pandemic. So there was not an increase in the severity of injuries during the pandemic. These injuries included minor abrasions, bruises, blisters, sprains, and head injuries such as concussions. Four out of the five nurses interviewed stated that there was a decrease in recess-related injury rates during the 2020-2021 academic school year (during the COVID-19 pandemic) compared to previous school years pre-pandemic. One nurse stated that “there was a noticeable difference.” She would see anywhere from 15 to 30 kids a day pre-pandemic, and during the pandemic she would see 3-15 students.

Currently, in the fall of the 2021-2022 academic school year all of the nurses stated that recess was back to normal, meaning the playground was not sectioned off, kids were free to move about the playground, and masks were optional in schools. Nurses reported that they were “back to seeing recess-related injuries daily.” Again, the most common injuries treated were minor recess-related injuries. With the less restricted recess time, three out of the five nurses interviewed stated that recess-related injuries have increased compared to the 2020-2021 school year, similar to pre-pandemic.

Looking at recess overall, all of the nurses stated that the required 40-minute recess time “should not be changed,” the only changes nurses stated had to do with equipment or the playing surface of their own playgrounds in order to keep kids safe. For example, one nurse stated that

their playground has mulch “which results in splinters and as the year goes on it gets packed down.” In order to keep kids safe, she recommends “more of a rubber track-like surface.” Two out of the five nurses stated that they would remove GaGa Ball Pits because there were high injury rates around this piece of equipment. This is an octagonal court in which players use a bouncy or foam ball to play GaGa Ball. As stated by one nurse “GaGa is similar to dodgeball in an enclosed space. It is a high traffic area where a lot of injuries occur such as sprained fingers, bumped heads, and twisted ankles.” Another nurse, when asked if she had any ideas on how to keep kids safe stated that “kids, in fact, need to take more risks. Recess is a time for kids to take risks during physical activities in order to learn about their bodies, and with that comes self-confidence.” She stated that “there is going to be increased injury rates with increased physical activity time, but the benefits of recess far outweigh the risk of injury.”

## **Discussion**

Before ACT 641 was passed in 2019, recess-related injuries were treated daily. Then when ACT 641 was put into effect, it was put into place a few months before the COVID-19 pandemic struck the entire United States. This pandemic drastically affected students, teachers, and school nurses all over the country. Even though there was a 20-minute increase in required recess time, the rates of recess-related injuries decreased during the pandemic. This decrease can be attributed to several different factors including the uncertainty of the pandemic, a larger enrollment in virtual school, and mask mandates. Due to the uncertainty of how the COVID-19 virus spread, playgrounds were sectioned off and kids were only allowed to play with peers in their class. Since they were limited to certain sections, this decreased the amount of collision injuries that comes with a more populated recess. Also, due to the unknowns, kids, parents, and teachers were uneasy about peers playing with each other, so that also contributed to the low rate

of injury during the 2020-2021 academic school year. One nurse stated that it seemed like kids were more reserved during their physical activity time. All of the nurses I interviewed also stated that their schools offered virtual options for students during the pandemic. This affected the rate of students that attended class in-person, thus the rate of recess-related injuries would be decreased due to the decreased number of students physically on the playground. Finally, one nurse stated that, even with the increase in recess time, the mask mandates put in place suppressed the amount of injuries during the 2020 school year because students didn't really want to run around with a mask on since it made it harder to breathe.

Currently, for the 2021-2022 school year, all of the recess restrictions and mask mandates have been lifted in the five schools involved in this study located in the Northwest Arkansas area. Due to the return of "normal" protocols, there has been an increase in recess-related injuries compared to pandemic time. Recess-related injuries are now seen daily, as they were pre-pandemic. One nurse stated that she currently observes kids wanting to play with friends during recess time and after school since the fear of the COVID-19 pandemic has decreased. Also, recess-related injury rates have increased because now there are not as many virtual students compared to last year. There are more students in the classroom thus more students running around and accidentally bumping into each other, as well as equipment during the 40-minute required recess time.

The qualitative study I conducted aligned with research data that has been previously found. Research has shown that recess has been correlated with increased physical activity, improved memory and attention, reduction of disruptive behaviors in the classroom, and social and emotional development in students (Carlson et al., 2015; CDC, 2020a; Hillman et al., 2014). All of these positive outcomes of recess were stated by all five school nurses when asked what

their overall opinion on recess and its effects. There have been limited experiments on this topic; however, the nurses I interviewed observe the benefits of recess every day when working with students in their respective elementary schools. This further supports the idea that recess is beneficial to students from a health and school-related standpoint.

The study I conducted also helped to prove one of the proactive strategies for minimizing recess injuries, which was zoning. This was inadvertently put in place during the COVID-19 pandemic. Research previously has shown that zoning allows children to use playground structures without the fear of being hit by a jump rope or ball and reduces the likelihood of student collisions (Linker & David, 2017). All five school nurses reported that playgrounds were sectioned off during the pandemic in order to decrease the spread of the virus between classrooms. Due to this protocol, the rate of recess-related injuries decreased, even though the required recess time increased, proving that zoning of the recess space reduces the likelihood of student collisions, thus the rates of recess-related injuries. Zoning was a feasible strategy inadvertently put in place in order to reduce the spread of the virus and reduce recess-related injuries. This strategy is economically feasible and requires little time and energy to plan.

The limitations of this study include the unexpected occurrence of the COVID-19 pandemic and the small sample size of nurses included. Like stated previously, the implementation of ACT 641 had not been in effect very long before the COVID-19 pandemic swept across the US. This altered the way schools and recess looked for teachers, kids, and school nurses. The pandemic also altered the findings of this study. The purpose of this study was to see how the increase in required recess time affected recess-related injury. If I was to do this study again, I would change the time frame of the years studied. Instead of looking from 2019-2021, I would collect data from school nurses at least a year prior to ACT 641 being put in

place, from 2018- spring of 2020, in order to hone in on the effects that the increase in recess time made on recess-related injuries. I collected a lot of information in regards to COVID-19 and on how the pandemic affected recess-related injuries, not necessarily how the increase in required recess time affected injury rates due to unforeseen circumstances.

I would also recommend an increase in the sample size of nurses interviewed. All of the nurses I interviewed were from schools in the Northwest Arkansas area. I would have liked to interview nurses from all over the state of Arkansas in order to get a better idea of how ACT 641 affected elementary schools from different districts. I would also have liked to recruit a greater number of school nurses to interview. This would have helped to solidify qualitative data collected during the interviews. Most of the information provided by the five school nurses matched up, but a larger sample size provides more accurate mean values and helps to identify outliers that could skew the data.

If I were to do a follow-up study to my current research, I would look specifically at how COVID-19 protocols affected recess-related injuries. COVID-19 became an important aspect and huge part of my study, as it drastically affected the results of my research and the lives of the students and nurses involved. It would be interesting to see percentages of just how much COVID-19 affected recess-related injuries due to the fear of COVID-19 virus, playground zoning, and mask mandates.

The practical implications of my study help school nurses be better prepared for recess-related injuries. I would tell nurses to be aware of my original hypothesis that with the implementation of ACT 641 comes more time for injury rates to occur. This was hard to see with COVID-19 protocols put in place, but now that those stricter protocols have been lifted, it is important to be aware of this fact. Nurses can also use the current findings to help calm parents

of injured children. All parents dislike the idea of their child getting hurt. With that being said, school nurses can educate parents that although a longer recess period, and decreased COVID-19 protocols, could provide a greater opportunity for injury, the fear of injury should not stop children from free play because the benefits of recess far outweigh the risk of injury.

ACT 641, Arkansas Unstructured Social Time in Schools extended mandated recess time from 20 to 40 minutes per day in 2019. This was a change welcomed by teachers and school nurses alike. Many school nurses saw this as a positive because recess helps to promote a healthy lifestyle and has many school-related benefits. During 2020, the COVID-19 pandemic hit, with it came new protocols and new roles taken on by school nurses. There was a decrease in recess-related injury rates during the 2020-2021 academic school year, even though there was an increase in required recess time. This decrease could be due to a number of factors including the restrictions of the pandemic, a larger enrollment in virtual classes, and mask mandates within schools. Currently, during the 2021-2022 school year, “normal” protocols have been reinstated, which has led to an increase in recess-related injuries compared to pandemic time, resembling pre-pandemic injury rates. Although the past years have varied greatly, school nurses have continued to do the best they can to keep their students happy and healthy. Nurses can take the findings from this study to educate others and be better prepared to treat recess-related injuries.



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