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Number 7



South Dakota **medicine**

THE JOURNAL OF THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION



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5 QUESTIONS TO ASK YOURSELF BEFORE MEETING WITH AN ESTATE PLANNING ATTORNEY

JAKE KINNETZ *Associate Advisor*

Estate planning is an essential component of your financial plan because it can help secure your family's future, minimize estate taxes, and protect assets from going through probate. There are many factors to consider, and meeting with a licensed Estate Planning Attorney is vital to make sure your wishes will be carried out as effectively and efficiently as possible. But first, doing some homework will help you make the most effective use of your time.

Here are five questions you should think about before meeting with an Estate Planning Attorney:

1. Concerning your wealth after you pass, what is most important to you?

Is it creating or maintaining generational wealth, educational funding for future generations, charitable giving, or a little bit of all of these? It is important to set financial goals for after you are gone.

2. Who do you want to inherit your wealth?

Be specific about whom you want to be left with your assets and in what proportion. Determine the specific individuals and/or entities along with their amounts. Take time to legally identify and carefully consider the items on your personal statement of net worth and determine how you want these distributed upon your passing.

3. Do you have unique circumstances that need to be considered?

There is not a one-size-fits-all method to estate planning. There may be a familial disability that

requires additional attention, a previous marriage to plan around, or a farm within the family. Take time to carefully process what your unique situation is and what needs to be addressed.

4. If you have minor children, who would you want to take care of them? When would you want your children to inherit your wealth if that is your wish?

Age of majority in most states is 18. If you have children under the age of 18, it is important to name someone you trust to be their guardian and care for their needs if something happens to you. When your children reach age of majority, you also must consider whether you would like them to inherit the full share of their inheritance or certain percentages at different ages throughout their adult lives.

5. Who would you trust to make health and financial decisions on your behalf if you are unable to do so?

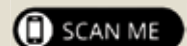
Often, this is your spouse or a trusted family member. If your spouse is unable to do so, consider a child or other individual you would trust to make these decisions if you are incapacitated.

Estate planning requires time, thought, and effort, but it is a critical piece to your financial plan. It ensures that your wealth will be distributed as you wish upon passing. It also helps minimize estate taxes. An Estate Planning Attorney will walk you through the legal process. Discussing the five questions above prior to meeting with your attorney can help maximize your time.



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Choose Optimism

Denise Hanisch, MD
President, South Dakota State Medical Association

Less than one week into my presidency, I attended the Annual AMA meeting in Chicago. It was an eye opening, non-stop, information overload experience that provided me with an inside view of the workings of the House of Delegates, a crash course in policy making, caucuses and reference committees. Issues such as Medicare reform, physician burnout, preauthorizations, and gun violence are continuously at the forefront. These topics seem to permeate every facet of our personal and professional lives and can be daunting when a physician feels alone in dealing with the day to day problems in their practices. It was enlightening to know that there is an organization that is fighting for physicians on a much larger scale to, hopefully, help and support every one of us. We do not have to agree on every resolution approved by the House of Delegates but it was reassuring to see that individual voices were heard.

I often have the feeling that my chosen career, the actual caring for patients component, is overshadowed by bureaucracy and administration. Physician burnout can be attributed to multiple factors but, I feel, that one of the factors is the sense that we have no voice in the “business” of medicine. Our autonomy and independence have been slowly degraded. Dr. James Madara, AMA Executive Vice President and CEO, spoke of the “duality” of physicians’ personalities. We are fiercely independent but also understand that the democratic process is valuable. Dr. Madara stated “Personal agency is valued, even when contrarian to the majority”. I was privileged to witness this first hand.

While listening to the opening remarks and talking, individually, to multiple physicians, I did feel hope that the “business” of medicine has the potential for improvement. True, it will take a multitude of small steps, but, just maybe, the small steps will take us in the right direction. Dr. Jack Resnick Jr. MD, Outgoing President of the AMA remarked, “We need to fix what is broken in medicine and, it is not the doctor”.

The SDSMA is part of the North Central Medical Conference, along with Iowa, Nebraska, Minnesota and North Dakota. I participated in providing a state report for our organization. While listening to the other state reports, I began to realize that we are, significantly, further ahead than other states in many areas. We are in our fifth year of the Health Leadership Institute whereas others are just starting their first year. We have a physician wellbeing program and others do not. We have successfully defeated PA scope of practice bills and other states have not been able to fight scope creep. Dr. Robert Allison and Barbara Smith, CEO of the SDSMA participated in a panel regarding PA scope of practice, and many people made a point to tell me that they did an incredible job. We need to be proud of these accomplishments.

In his inauguration speech, new AMA President, Dr. Jesse M. Ehrenfeld, MD, MPH, repeatedly encouraged physicians to “choose optimism” as a way to move forward. It may be difficult to be optimistic about the future of medicine, but, without optimism we will become irrelevant. Dr. Ehrenfeld closed his message with “Let us move forward with confidence and purpose. Let us speak with conviction. Let us hold firm to science and the ethics of our profession. Let us serve with honor, with courage and commitment. And let us always fight for a more inclusive, and more equitable tomorrow.”

Humanities Can Nurture Our Personal and Professional Lives

Jerome W. Freeman, MD, FACP

A young medical student and an old physician find themselves pondering the role of humanities in medical education. Both love the arts and instinctively believe that championing the humanities can help students become better clinicians. They also conjecture that the humanities can enhance personal well-being and satisfaction with the work of medicine, thereby protecting against burn-out and career ending frustration. The reflections that follow articulate this premise.

Near the beginning of Charles Dickens' famous novel, *David Copperfield* ponders if he'll be the hero of his own life. Probably all of us ask this question at the onset of our careers, hoping that we're making choices that will lead to success and fulfillment. For the medical student, choice of a specialty and subsequent matching to a residency and passing certification boards can loom as formidable hurdles. Yet, despite arduous sacrifices and successes, the data shows that many practicing physicians become fundamentally unhappy with their careers. Complaints are catalogued and many seek early retirement.

Like Dickens, the famed humanist and scholar Joseph Campbell also contemplated what it takes to become a hero. His extensive study of mythology and history led Campbell to understand that a unifying feature of history's heroes is having the wisdom and power to serve others.

Virtually all medical students sufficiently master the scientific and technical aspects of medicine to become board-certified and licensed. They attain the power and stature required to practice medicine. But wisdom is a different matter. Wisdom is complex and multi-faceted. It is much appreciated when evidenced but sometimes is discouragingly absent.

Wisdom is accumulated slowly through multiple sources including experience and observation. Temperament and motivation play a role. Exposure to the wide range of the humanities can be of great assistance in attaining wisdom. Literature, for instance, can portray crucial aspects of human behavior, good and bad. From fiction and memoirs, one can learn about human beliefs, aspirations, and shortcomings. History can reveal aspects of character, leadership, and failed endeavors. The visual arts can highlight human creativity and imagination. As diverse fields of endeavor, the humanities can provide crucial data about what it means to be human in a complex and changing world. A key question to ponder in this regard is whether the humanities should be viewed as a possibly useful but optional adjunct to medical education or whether they provide vital data that medical schools should champion.

The answer to this query may reside in one's relationship to the practice of medicine. If a physician perceives medicine to be a discrete and limited element of a life otherwise

filled with various pursuits and activities, the value of the humanities may appear optional. On the other hand, if a physician contemplates a career to be a life in medicine, that clinical perspective pervades consciousness and intent. Such a perspective is not meant to imply that medicine is, or should be, the sole interest of the individual. Most physicians have multiple other responsibilities to family, community and to adequate leisure time. But a life in medicine does suggest that the physician's perspective is necessarily shaped and colored by a knowledge of illness and commitment to healing. Such an individual is keenly aware of the value and fragility of life. The impacts of chronic illness and premature death are understood. Necessary ambiguity, ethical quandries, and the frustrations of sometimes lacking satisfactory interventions are wearily accepted. In all activities, both medical and social, a sense of both gravity and joy pervades.

For this type of life in medicine, the humanities can provide both vital information and sustenance. Artistic creativity, as in a beloved symphony or cherished poem, can energize and offer solace. The creativity and beauty of artists' work has intrinsic value that can enrich lives and should be savored. But elements of the humanities also offer crucial data, insights into the nature of the human condition with all its complexities.

Which brings us back to wisdom which is fostered by experience, learning and temperament. The humanities draw on the collective creativity of multiple generations. Sometimes subtly, in other instances overtly, the humanities can nurture curiosity and foster innovation. The humanities can assist the physician's effort to find joy and meaning in clinical work.

Being a physician is a grave responsibility. Personal burdens for the clinician and inherent risks to patients are unavoidable. Much can go wrong. Burnout and disillusionment are real possibilities. But medicine is also a privilege and opportunity that is virtually unparalleled. When the physician incorporates aspects of the humanities into both clinical and social life, a sense of balance and calm can be fostered. Difficult choices still need to be made and regrets are inevitable. But the humanities can bring a sustaining presence and perspective to one's personal life, as well as to one's career. Wisdom permits a quiet confidence that both recognizes that all will never be right with the world and acknowledges the noble work to be done to improve patients' lives. Such a perspective sounds a lot like Campbell's "wisdom and power to serve others". It sounds a lot like having the opportunity, as suggested by Dickens, to be the hero of one's own life.

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A Description and Analysis of Injury and Exercise in Collegiate Rodeo Athletes

Jacob James Miller, MD; Philip Solum, PA, PT, ATC ; and Lisa MacFadden, PhD

Abstract

Introduction: Rodeo constitutes an exciting sporting spectacle enjoyed worldwide by competitors of all ages. College rodeo encompasses nine core events: bull riding, saddle bronc riding, bareback riding, team roping, tie-down roping, breakaway roping, steer wrestling, goat tying, and barrel racing. There is little research on rodeo athletes regarding training habits, injuries during competition and/or practice, or effective injury prevention strategies. The objectives of this study were to 1) characterize the injury profile of collegiate rodeo athletes, 2) describe training practices, and 3) determine if demographic or training factors influence injury risk.

Methods: Demographic, injury, and training data from 71 National Intercollegiate Rodeo Association members was collected via a SurveyMonkey survey. Data was analyzed to determine any association with injury risk, utilizing an ANOVA test for continuous categories and chi-square test for categorical variables.

Results: Competing in “roughstock” events (bull riding, saddle bronc riding, and bareback riding) ($p < 0.0001$) and wearing protective equipment ($p = 0.0127$) were associated with increased injury risk. Injuries mirrored previous studies of contact sport athletes. Student-athletes spent most of their training in activities directly related to their event but also engaged in exercise not related to their event for a considerable amount of time each week.

Conclusion: Rodeo competitors constitute a versatile athletic cohort at high injury risk. These findings further define the injury profile of collegiate rodeo athletes and, for the first time, describe their training habits. This information will guide event preparation and rehabilitation of injured rodeo athletes.

Introduction

Rodeo is a lucrative and competitive sport rooted in ranching activities of the American West. At their own expense, athletes of all ages take part in local, regional, and national competitions organized by a wide range of governing bodies in the hope of winning prize money.^{1,2} Events within rodeo competitions are comprised of ranch-related activities requiring various skill sets, such as horse riding, roping cattle, and bull riding; depending upon the age of the athlete and the competition venue, these events may take many forms. College rodeo encompasses nine core events including bull riding, saddle bronc riding, bareback riding, steer wrestling, tie-down roping, team roping, breakaway roping, goat tying, and barrel racing.³

Rodeo athletes are subject to high injury risk due to the unpredictable nature of the horses and cattle involved, exposure to the elements, frequent prolonged travel, lack of organized, monitored, or prescribed training regimens, and minimal required protective equipment.⁴ Prior studies

have reported injury incidence among rodeo athletes to be as high as 32.2 injuries per 1,000 encounters, with the highest incidence noted in the “roughstock” events: bull riding, bareback riding, and saddle bronc riding.⁵ Among the “timed” events, steer wrestling is associated with the highest incidence of injury.⁵ Injuries can be extremely detrimental to rodeo athletes and may result in medical costs, decreased quality of life, time spent away from their chosen sport, and lost income.⁵

Recent research in sports medicine has focused upon exercise for injury prevention.^{6,8} Rössler et al. reported that exercise was generally beneficial for injury prevention in youth sports.⁷ Other studies have reported benefit from specific exercises to reduce the incidence of particular injuries.^{6,9} For example, Stojanovic et al. reported a decreased rate of ACL tears for female team sport athletes participating in agility and plyometric drills.¹⁰ Van Dyk, Behan, and Whiteley found that the Nordic hamstring exercise reduced hamstring injuries by 50% across a variety of sports.⁹ Exercise for injury

prevention continues to be a subject of frequent research as investigators attempt to quantify the optimal content and intensity of exercise for specific sports or athletic categories.

Despite the growing body of evidence about the importance of exercise for injury prevention, there is a paucity of literature on the relationship between exercise and injury in rodeo athletes. To our knowledge, a single study has looked at the relationship between exercise and injury prevention in rodeo athletes. This 2004 study by Sinclair and Ransone examined the relationship between metabolic equivalents (METs) and rate of injury and monetary winnings in professional rodeo athletes, concluding that METs had no impact upon either of these measures.¹¹

Strength and conditioning researchers have proposed programs to decrease injuries and improve performance in rodeo athletes in general, as well as specifically for steer wrestling, bull riding, tie-down roping, and goat tying; however, their efficacy has not been validated.¹²⁻¹⁶ Also, rodeo athletes' exercise and training habits have not been adequately described. It is currently unknown how much time is spent in exercise related to an athlete's chosen event and how much time is spent in exercise not directly related to rodeo competition, such as stretching, running, or weightlifting. By quantifying the amount of time spent doing a specific type of exercise, and comparing this to an athlete's injury profile, it may be possible to determine exercise regimens that decrease injury risk among rodeo athletes. Thus, the aim of this study was to further define the injury and exercise profiles of rodeo athletes (specifically collegiate rodeo athletes) and identify factors leading to decreased injury risk.

Materials and Methods

All study procedures were approved by the Sanford Health Institutional Review Board (IRB) (STUDY00001434). This descriptive, cross-sectional study looked at male and female collegiate rodeo athletes' access to sports medicine resources, social habits, exercise patterns, and injury profiles. Collegiate athletes were selected because of the team environment in which they practice and compete, increased organizational oversight by the collegiate governing body compared to other rodeo associations, ease of survey distribution, and the relatively homogeneous population in terms of financial and sports medicine resources.

Survey Design

This study used an online survey (in Survey Monkey) for data collection (Momentive, Inc., San Mateo, California). This online data collection utilizes Secure Sockets Layer

(SSL) technology to protect information using both server authentication and data encryption, ensuring that all data is safe, secure, and available only to the authorized investigators.¹⁷ In addition, this online system is hosted in a secure data center environment that uses a firewall, intrusion detection systems, and other advanced technology to prevent interference or access from outside intruders.

The survey was made available to college rodeo athletes that were members of the National Intercollegiate Rodeo Association (NIRA). At the 2018 College National Finals Rodeo, 35 collegiate rodeo coaches agreed to send the survey link to their athletes. The link was sent to the coaches by the study investigators via an IRB-approved email, and the coaches forwarded the survey link to their athletes during the fall semester of 2018 (from October 2018 through January 2019). The survey link was sent to the coaches at least monthly to encourage recruitment throughout the semester and maximize participation. The survey was completed once by each athlete that participated. Subjects were able to skip questions if they chose. The survey is included as a supplement to this manuscript at sdsma.org.

Patient and Public Involvement

Patients and/or the public were not involved in the planning or design of the study. In formulating the survey, the length of time for survey completion and the most convenient format for the study population of collegiate student-athletes were considered. A web-based survey requiring the least amount of time was deemed most appropriate. Rodeo coaches were responsible for sending subjects the survey link, which aided in recruitment. Subjects were asked to assess the burden of and time required for participating in the study prior to inclusion. Results of the study will be disseminated to rodeo coaches and the NIRA, who will choose how to communicate this information to collegiate rodeo athletes and other interested parties.

Survey Construction

Because no validated survey exists to assess injury and exercise practices in rodeo athletes, an original survey was created by the research team, based upon topics and content from previous studies of rodeo injury and training habits.^{5,11,18} The research team, which included individuals with rodeo training and competition experience, and Sanford Sports Science researchers not affiliated with the study reviewed survey readability and content. Following revisions, the survey was reviewed and completed by a collegiate rodeo coach, who provided feedback. The final survey consisted of

23 items and was designed to take approximately 20 minutes for each subject to complete. The survey was constructed to assess the rodeo athlete's exercise habits and injury patterns. The primary outcome of this study was to determine injury occurrence in the past year in subjects performing non-event-specific exercise. Secondary outcomes of the study were to quantify the incidence and type of injuries sustained in the last year. No personal identification information was included as part of the survey. The first question of the survey obtained informed consent from study subjects. If, based on their responses, an athlete did not meet inclusion criteria (member of the NIRA between the ages of 18 and 30 years who had competed at a NIRA-sanctioned rodeo or competition within the last year and could read and comprehend English), the survey terminated.

Participants were asked to provide basic demographic information including sex, age, height, weight, and tobacco/alcohol use history. Questions then focused on the rodeo event(s) in which the participants compete, whether any protective equipment is used, access to athletic training and sports medicine staff, and the number of rodeos in which they competed within the last year. Survey questions include a description of the number and type of injuries sustained in the last year and number of days the athlete was physically unable or ineligible to compete in rodeo due to injury. The participants were also asked how many hours they spend in event-specific exercise during the week defined as exercise directly related to event competition, including but not limited to riding bulls, broncs, or riding dummies, exercising or training horses, roping cattle or dummies, flanking and tying calves/goats, or other activities directly pertaining to competition. Athletes also were asked how many hours per week are spent in non-event-specific exercise, defined as exercise not directly related to competition including running, stretching on non-competition days, weight lifting, yoga/pilates, and other cross training exercises.

Statistical Analysis

Statistical analyses were conducted on the survey responses by the Sanford Research COMMAND Core to explore if any demographics or training factors influenced a student-athlete's risk for injury. An ANOVA test was utilized to determine the p-values of the categories of continuous variables using SAS software, Version 9.4 of the SAS System for Windows 7 (PROC GLM) (SAS Institute Inc., Cary, North Carolina). A Chi-Square test in SAS software, Version 9.4 of the SAS System for Windows 7 (PROC FREQ/CHISQ) was used for the categorical variables. The significant level

for alpha was set to p-value < 0.05.

Results

Surveys were sent out to thirty-five collegiate rodeo team coaches who sent the survey to their 1,091 athletes. A total of 71 eligible participants responded to the survey for a response rate of 6.5%. Subject demographics are summarized in Table 1.

Approximately 60% of respondents were female. Subjects were an average of 19.9 years old, had been NIRA members for an average of two years, and competed in an average of eight rodeos per year. The highest percentage of subjects competed in barrel racing, team roping, and breakaway roping (24%, 22%, and 20%, respectively); some subjects competed in multiple events. No bareback riders completed the survey. Participants had varying levels of success in college rodeo, ranging from no points earned in competition during the year to 1,000 points. Fifty-two percent of respondents reported having access to athletic training/sports medicine resources at their institution, 27% reported no access, and 21% were unsure. Regarding tobacco usage, 74% reported using no nicotine, approximately 15% used chewing tobacco, and 6.5% used e-cigarettes (Table 1). The majority of respondents consumed 2 or fewer alcoholic drinks per week; 35% used no alcohol, while nearly 8% reported having more than 14 drinks per week. The majority of student athletes (60%) used no protective equipment. The most common protective equipment utilized was gloves (17% of respondents), followed by protective vest (11.59%) and helmets (7.25%).

Seventeen athletes (24% of respondents) sustained at least one injury in competition during the previous 12 months that required them to miss one or more rodeos. Injuries sustained during competition resulting in time away from rodeo were significantly more frequent than those sustained during training (Figure 1A). Only two student-athletes reported sustaining injuries during training. The most common injury type during competition was a sprain, followed by concussion, nerve injury, strains, and joint dislocations (Figure 1B) to the lower back, knee, shoulder, hand, and groin/pelvic area (Figure 1C). The most common injuries during training were fractures followed by contusions, joint dislocations, and lacerations (Figure 1B) to the ankle, shoulder, knee and lower leg (Figure 1C).

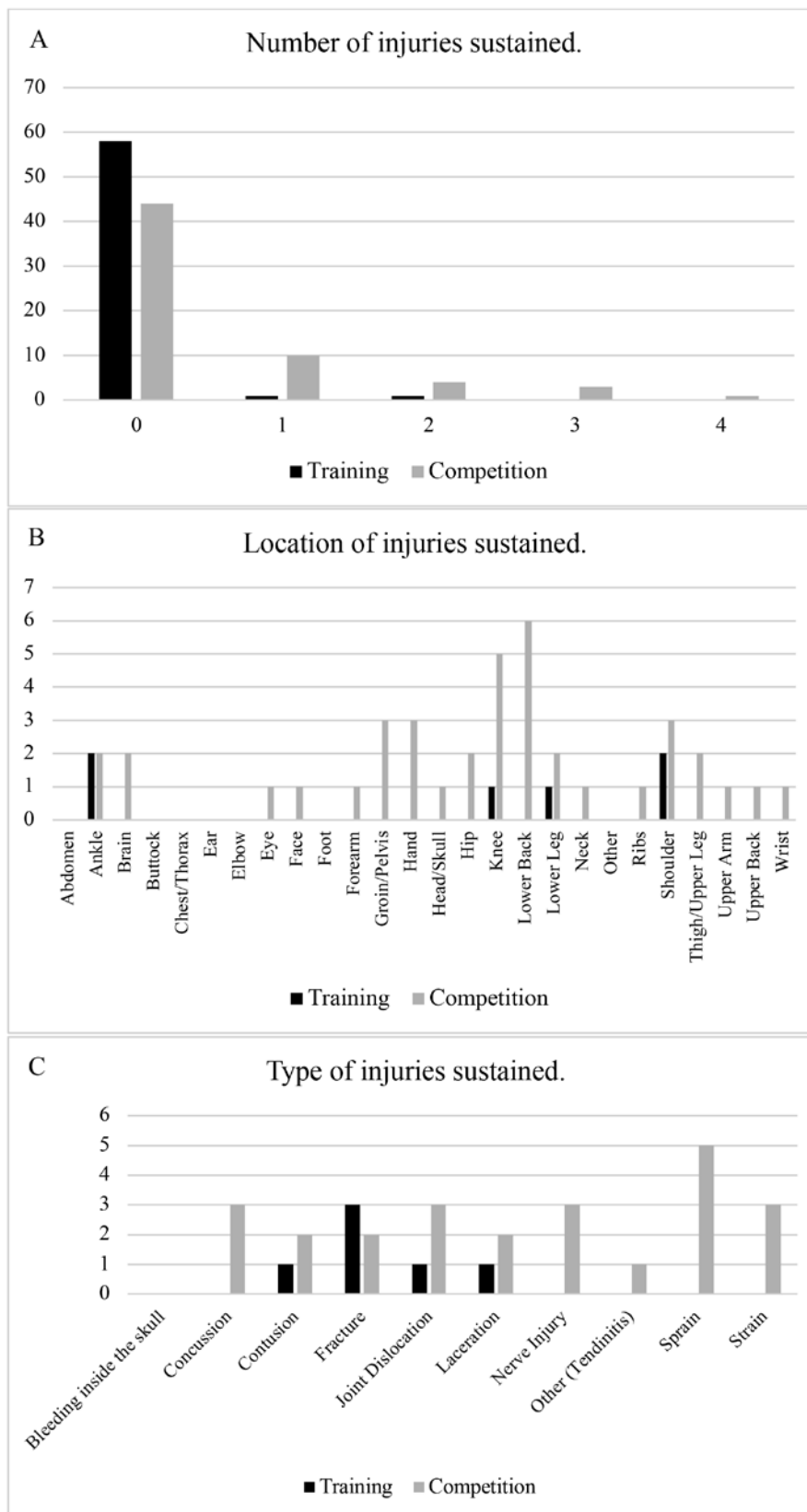
Student-athletes were asked to report how much time in hours was spent on training activities directly related to their event. The most time was spent in exercising/training a horse

Table 1. Subject demographics. Seventy-one eligible participants responded to the survey questions. More than half of the respondents were female and a majority of the respondents had access to athletic training and sports medicine resources. Means are reported $\pm$ standard deviation. Percentages are reported with (actual number of responses). Not all respondents answered all questions.

Age (n = 67)		19.9 $\pm$ 1.4 yrs
Gender (n = 63)	Male	39.7% (25)
	Female	60.3% (38)
Years in NIRA (n = 67)		2.0 $\pm$ 1.0 years
Rodeos competed in over last 12 months (n = 66)	0-5 rodeos	36.4% (24)
	6-10 rodeos	47.0% (31)
	10+ rodeos	16.7% (11)
Height (n = 63)		67.7 $\pm$ 3.6 in
Weight (n = 63)		156.4 $\pm$ 30.1 lbs
Average points earned (n = 46)		233.1 $\pm$ 288.6 points
Access to athletic training/sports medicine resources (n = 63)	Yes	52.4% (33)
	No	27.0% (17)
	Not sure	20.6% (13)
Nicotine usage* (n = 61)	None	74.2% (46)
	Cigarettes	4.8% (3)
	Cigars	1.6% (1)
	Dipping/chewing tobacco	14.5% (9)
	E-cigs	4.8% (3)
Alcohol usage (n = 63)	None	34.9% (22)
	1-2	23.8% (15)
	3-4	11.1% (7)
	5+	30.2% (19)
Competition events* (n = 63)	Bareback riding	0.0% (0)
	Barrel racing	24.2% (29)
	Breakaway roping	20.0% (24)
	Bull riding	3.3% (4)
	Goat tying	10.0% (12)
	Saddle bronc	4.17% (5)
	Steer wrestling	6.7% (8)
	Team roping	21.7% (26)
	Tie-down roping	10.0% (12)
Personal protective equipment* (n = 53)	None	44.9% (31)
	Wrist /hand tape	5.8% (4)
	Gloves	17.4% (12)
	Elbow tape	0.0% (0)
	Elbow brace	0.0% (0)
	Forearm pad	0.0% (0)
	Rib brace	0.0% (0)
	Knee brace	4.4% (3)
	Protective vest	11.6% (8)
	Helmet	7.3% (5)
	Mouthguard	4.4% (3)
	Shoulder brace (1), hip brace (1), ankle brace (1) Other	4.4% (3)

* Multiple responses from a single respondent.

Figure 1. A) Number of injuries sustained; B) location of injuries sustained; C) types of injuries sustained.



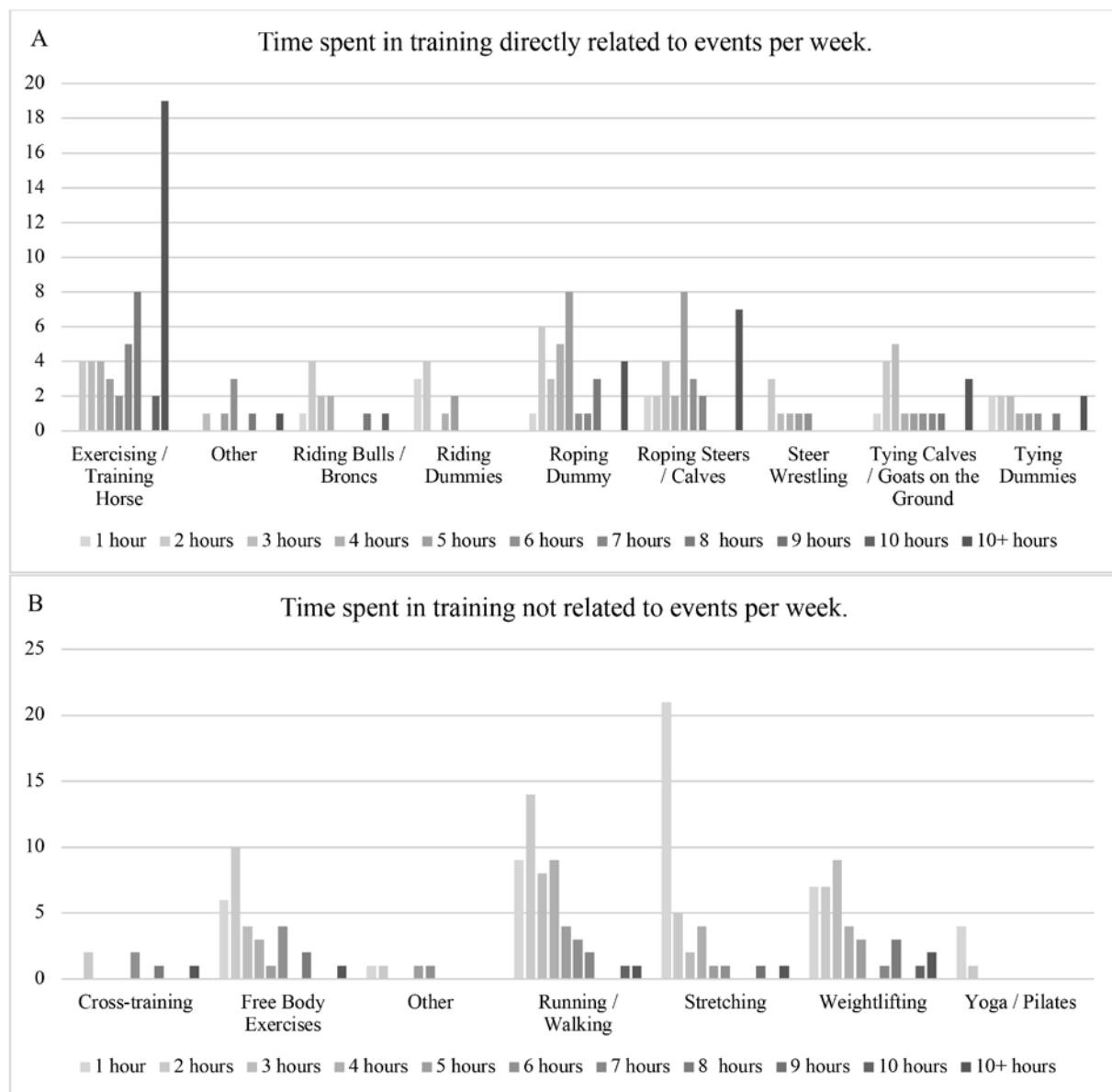
(Figure 2A). Approximately 91% of respondents described exercising/training a horse for an average of 7.7 hours per week with a large number of respondents spending 10+ hours a week in this activity. Roping steers/calves and roping the dummy was performed by 51% and 54% of respondents and comprised 5.8 and 5.1 hours per week, respectively. The least amount of time was spent in riding dummies, and the least number of respondents engaged in steer wrestling.

Respondents were also asked to describe time spent

in exercise not directly related to their rodeo events. Approximately 88% of subjects described walking/running for exercise for an average of 3.3 hours per week (Figure 2B). Weightlifting, stretching, and free-body exercises were also popular, comprising 64%, 62%, and 60% of student-athletes, respectively. Four subjects reported taking part in other activities including softball, basketball, and shoulder rehabilitation exercises for an average of 3.5 hours per week.

Statistical analyses were conducted to determine if an

Figure 2. A) Time spent in training directly related to events per week; B) Time spent in training not related to events per week.



association existed between the type of exercise performed and sustaining an injury. Responses from 58 completed surveys were utilized for this analysis, divided into uninjured subjects (n=41) and those sustaining at least one injury in the previous 12 months (n=17). Competing in a “timed” event and not using protective equipment were also associated with a significantly decreased risk for injury compared to athletes competing in “roughstock” events or using protective equipment (Table 2). No other demographic or training factors had a significant impact on injury risk. There was

also no significant difference between the type of injuries sustained and demographic or training factors. Demographic factors had no association with the type of injuries sustained (data not shown).

Discussion

There is limited data available on the relationship between injury and training for rodeo athletes. The objective of this work was to further define the injury and exercise profiles of rodeo athletes and explore the relationship of demographic

Table 2. Number of injuries in competition in the last 12 months as related to subject demographics. Statistically the only demographics strongly correlated to injuries were the use of protective equipment and the type/category of competition events (shaded).

Variable	Category	Number of injuries in competition		Overall	p(diff)
		None	One-four		
Total		n = 41	n = 17	n = 58	
Number of rodeos attended	0-4 events	4 (9.8%)	5 (29.4%)	9 (15.5%)	0.3076
	5-9 events	20 (48.8%)	7 (41.2%)	27 (46.6%)	
	10 events	10 (24.4%)	3 (17.6%)	13 (22.4%)	
	10+ events	7 (17.1%)	2 (11.8%)	9 (15.5%)	
Alcohol use	Do not drink	13 (31.7%)	6 (35.3%)	19 (32.8%)	0.9558
	1-4 drinks	15 (36.6%)	5 (29.4%)	20 (34.5%)	
	5-8 drinks	8 (19.5%)	4 (23.5%)	12 (20.7%)	
	9+ drinks	5 (12.2%)	2 (11.8%)	7 (12.1%)	
Tobacco used in the last 30 days	Yes	8 (19.5%)	4 (26.7%)	12 (21.4%)	0.5634
	No	33 (80.5%)	11 (73.3%)	44 (78.6%)	
Number of injuries in training	None	41 (100.0%)	15 (88.2%)	56 (96.6%)	0.0254
	1-2	0 (0.0%)	2 (11.8%)	2 (3.4%)	
Gender	Male	15 (36.6%)	9 (52.9%)	24 (41.4%)	0.2496
	Female	26 (63.4%)	8 (47.1%)	34 (58.6%)	
Training access	Yes	22 (53.7%)	7 (41.2%)	29 (50.0%)	0.3282
	No	9 (22.0%)	7 (41.2%)	16 (27.6%)	
	I don't know	10 (24.4%)	3 (17.6%)	13 (22.4%)	
Equipment	Yes	10 (28.6%)	11 (64.7%)	21 (40.4%)	0.0127
	None	25 (71.4%)	6 (35.3%)	31 (59.6%)	
Event type	Barrel racing	17 (41.5%)	6 (35.3%)	23 (39.7%)	0.0070
	Breakaway roping	1 (2.4%)	0 (0.0%)	1 (1.7%)	
	Bull riding	0 (0.0%)	4 (23.5%)	4 (6.9%)	
	Saddle bronc riding	1 (2.4%)	3 (17.6%)	4 (6.9%)	
	Steer wrestling	6 (14.6%)	2 (11.8%)	8 (13.8%)	
	Team roping	10 (24.4%)	2 (11.8%)	12 (20.7%)	
	Tie-down roping	6 (14.6%)	0 (0.0%)	6 (10.3%)	
Event group	Timed events	40 (97.6%)	10 (58.8%)	50 (86.2%)	<0.0001
	Rough stock events	1(2.4%)	7(41.2%)	8(13.8%)	

A photograph of an older couple hiking outdoors. The woman on the left is wearing glasses and a plaid shirt, laughing. The man on the right is wearing sunglasses, a plaid shirt, and a green backpack, also smiling. They are walking on a trail with a sunset background.

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and training factors to injury risk.

Demographic Data

In our study, 23% of respondents used tobacco in some form, slightly higher than the 17% reported among NCAA athletes in the most recent national survey.¹⁹ Thirty-five percent (35%) of rodeo athletes in our study reported not drinking alcohol compared to 23% of NCAA athletes at large. The majority of student-athletes were aware of access to athletic training staff or equipment; however, not all institutions provided this service. Because NIRA members do not identify their competition events on membership applications, it is not possible to determine if the study population is representative of the distribution of event competitors in the organization. There was a slightly higher percentage of females in the study population (60% vs. 45%) than in the general NIRA membership.²⁰ Our sample was representative of the breadth of skill levels among college rodeo athletes due to the wide range of points earned in competition.

Injury Incidence and Type

Significantly more injuries resulting in time away from rodeo occur during competition than during training. In their 2022 study, Watts et al reported significantly higher time loss injury rates during college rodeo competition than during practice; however, the total number of injuries was higher in practice.²¹ This pattern of increased injury incidence during competition has been noted in studies of high school and collegiate softball, baseball, basketball, and soccer, though this is not consistent for all sports or activity levels.²²⁻²⁶ A higher injury rate in competition may be attributable to several factors. The inherent unpredictability of livestock and their response to new environments create variations in behavior that can increase injury risk. Also, competitors (particularly males) may conceivably behave differently in competitive environments, increasing risk-taking behavior in hope of a better outcome.²⁷ The authors question if student-athletes become familiar with practice livestock, allowing them to take precautions in training that may negatively affect their performance in the competition arena.

A 1990 study by Meyers et al examined injuries sustained during competition in 156 collegiate rodeo athletes over the course of 10 rodeos.¹⁸ Similar to our study, competing in a roughstock event was significantly associated with increased injury risk. Concussions and strains were common injury types in both studies. In the current study, 17 student-athletes reported 39 injured body areas within the last year,

while Meyers' study showed 138 injuries among 156 athletes, suggesting that injury occurrence may be underestimated by the medical team providing coverage at rodeos or that injury risk in the sport is decreasing. The locations and types of injuries sustained show a broad range similar to other studies of contact sports, revealing that the injury profile of rodeo athletes is not unique, aside from high incidence.²⁸⁻³⁰ Severe injuries (fractures, dislocations, and concussions) occurred both in practice and competition. Athletes using protective equipment were at higher risk for injury, which is logical considering roughstock competitors most commonly wear protective equipment and have the highest injury risk. The authors feel that competing in roughstock events is a confounding factor in this finding. In addition, subjects may be more likely to wear protective equipment if they are injured.

Athlete Training Habits

This study presents the first data on rodeo athlete training regimens. Subjects were asked to round up the time spent in each activity to the nearest hour, so the data is more reflective of activity training sessions per week than actual time. Not surprisingly, student-athletes had multiple training sessions each week in activities directly relating to their event, with horse exercising/training, roping a dummy, or roping steers or calves being the most common activity. The most common exercise not pertaining directly to an athlete's event was running/walking, followed by weightlifting, stretching, and free-body exercises. Our study reveals that college rodeo athletes comprise an active and versatile athletic cohort, complementing earlier work by Meyers et al. in which they concluded the aerobic capacity of collegiate rodeo athletes was comparable to those in other sports.³¹

There are skills common to most athletic pursuits; however, each rodeo event places unique physical demands upon the competitor. Future studies should examine training habits of larger groups of student-athletes in each event to determine if specific exercises decrease injury risk and maximize performance. Time lost from competition and training due to injury should also be investigated.

In conclusion, college rodeo athletes constitute a versatile athletic cohort at high injury risk. Limitations of this study include those that are common to survey studies: low response rate and incomplete surveys. The small percentage of respondents may limit the generalizability of the findings, despite the fact that our subject numbers compare favorably to previous studies of rodeo athletes.¹¹ Small sample size also made impractical the use of logistic regression analysis, which

may have revealed additional associations between exercise and injury occurrence.³² However, this study constitutes the first of its kind to collect data on the training habits of rodeo athletes and examine the relationship of training with injury risk. It also further defines the injury profile

of collegiate rodeo athletes. This information provides a solid foundation for further research and can be used to guide event preparation and rehabilitation of injured rodeo athletes.

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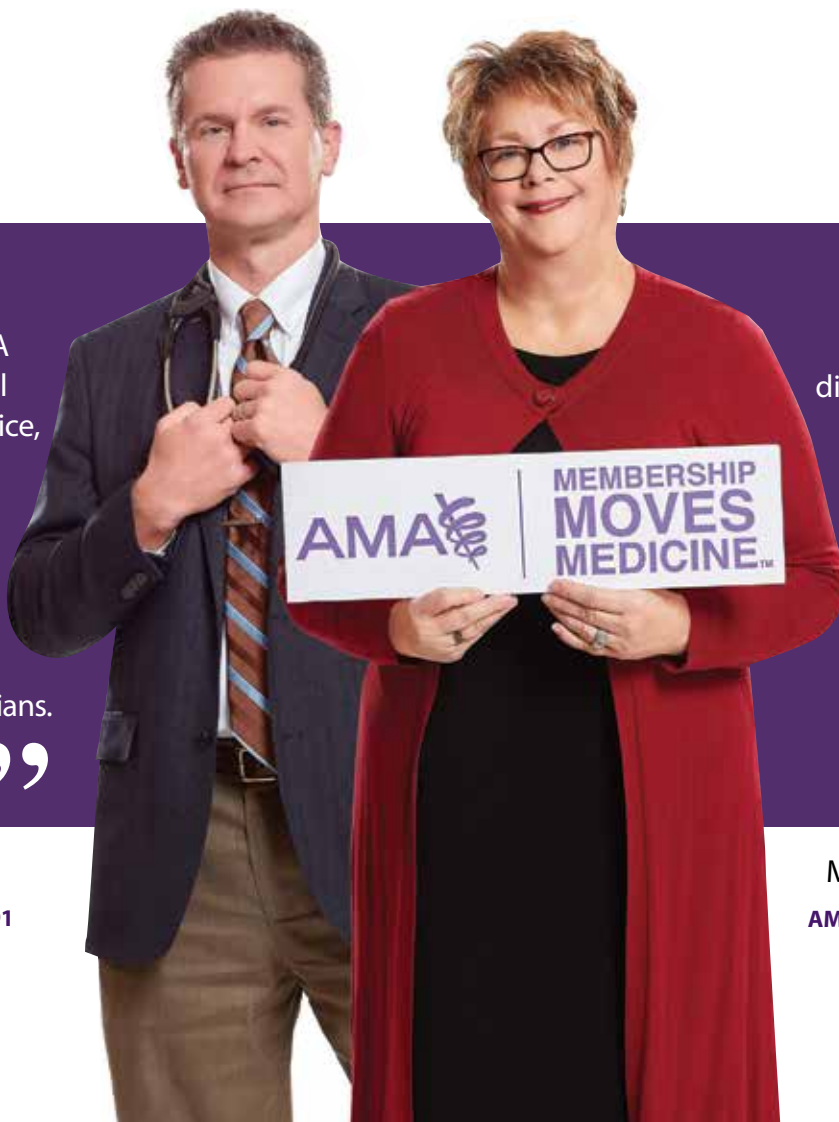
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CYP450 Genetic Polymorphisms: Generalized Tonic-Clonic Seizure after Intentional Fluoxetine and Melatonin Overdose

Sarah Campbell, DO; Hannah Otten, PMHNP; and Vivek Anand, MD

Abstract

Cytochrome P450 polymorphisms have gathered much attention regarding personalized psychopharmacological care. It is well documented that these drug metabolizing enzymes lead to interpatient variability in pharmacokinetic profiles. It appears that less functional genotype may increase of risk of higher side-effect burden. Here we highlight the importance of genetic polymorphisms to potentially predict a toxicity related phenotype after an intentional overdose. Genotyping may have a role in predicting serious side effects to help clinicians educate patients and their families, and implement more intensive monitoring and institute prophylactic treatment as needed.

Introduction

Fluoxetine is a selective serotonin reuptake inhibitor (SSRI) commonly used to treat depressive and anxiety disorders. It is a FDA approved treatment for adolescents with major depressive disorder and depressive episodes associated with bipolar disorder. It is a potent CYP2D6 inhibitor whose active metabolite is norfluoxetine. When taken in excess, the symptoms of fluoxetine toxicity are thought to be mild and most commonly include tachycardia, drowsiness, tremor, vomiting, and nausea.¹ The FDA label warns for fluoxetine to be used cautiously in patients with history of seizures or conditions that may potentially lower the seizure threshold.² The fluoxetine-related seizures are usually described in the setting of serotonin syndrome which accompanies mental status changes, autonomic instability, neuromuscular symptoms and gastrointestinal symptoms.³ Other circumstances that have led to seizures were in the setting of hyponatremia during treatment with SSRIs as a result of syndrome of inappropriate antidiuretic hormone secretion (SIADH).⁴ In placebo controlled trials for major depressive disorders, convulsions or reactions which could possibly have been seizures were reported in 0.1% of patients treated with fluoxetine compared to 0.2% of patients treated with placebo.² Additionally, no patients reported convulsions in trials for OCD or bulimia. Overall, clinical trials involving fluoxetine have reported 0.2% of 10,782 patients with convulsions. There have been reports of prolonged seizures in patients on fluoxetine who received ECT treatment.⁵ Contrary to lowered seizure threshold by fluoxetine, melatonin has evidence to significantly reduce seizures. Melatonin has also been found to be useful as an adjunctive agent in controlling seizure frequency.⁶ There is

also evidence indicating that baseline melatonin levels may be low in patients with uncontrolled epilepsy.¹ We report a case of a witnessed, generalized seizure occurring approximately 9 hours after intentional overdose on melatonin and fluoxetine in an adolescent with no previous seizure history or underlying medical history that would lower seizure threshold.

Case Report

A 17-year-old male with a history of major depressive disorder ingested approximately 300 mg fluoxetine (15 tablets of fluoxetine 20 mg) and 300 mg melatonin (60 tablets of melatonin 5 mg) in a suicide attempt at approximately 3 a.m. About 9 hours after ingestion, while he was eating lunch at a local restaurant, he fell off his chair on the ground, face first, and started having a seizure. He had a generalized tonic clonic seizure based on documented observations from onlookers. He experienced loss of consciousness followed by muscle convulsions and a postictal state. The patient was reported to have experienced an abrupt loss of consciousness without any aura, followed by a generalized body stiffening without cyanosis. After the initial tonic phase, he was reported to have generalized clonic jerking followed by altered mental status. The seizure reportedly lasted for approximately 1 minute duration. The patient was reported to be quite fatigued and disoriented in time, surrounding environment, place and situation following the event. Emergency medical services transported the patient to a local emergency department (ED) where the patient continued to be somewhat confused and disoriented. The patient did not remember eating lunch earlier in the afternoon and stated his last memory was watching television the evening prior.



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During the ED examination, the patient's mental status improved, and he was alert and better oriented, but fatigued with slowed speech. In the ED, his vital signs were: blood pressure 154/86mm/Hg, oxygen saturation 96% room air, heart rate 95 bpm, temperature 36.2°C, respirations 28 breaths per minute. On physical examination, he was noted to be "non-toxic appearing with a dazed look and slow in speech response." The patient had normal extra-ocular movement with unremarkable sclerae. His lungs were clear to auscultation and abdomen was non-tender. The patient had an unremarkable, non-focal neurological exam without signs of serotonin syndrome (myoclonus, rigidity, brisk reflexes).

Serum chemistries showed sodium 144 mmol/L (133-145 mmol/L), potassium 3.8 mmol/L (3.5-5.1 mmol/L), chloride 105 mmol/L (98-109 mmol/L), anion gap 27 mEq/L (3-15 mmol/L), glucose 142 mg/dL (70-99 mg/dL), creatinine 0.9 mg/dL (0.6-1.2 mg/dL), BUN 7.0 mg/dL (7-25 mg/dL), ammonia 133 ug/dL (12-66 ug/dL), AST 36 U/L (13-39 U/L), ALT 28 U/L (5-25 U/L), and lactate 16.5 mmol/L (0.5-2.2 mmol/L). A urine drug screen was positive for cannabinoids, which was consistent with the patient reports of using Delta-8-tetrahydrocannabinol (Δ -8-THC). The patient had reported vaping Δ -8 tetrahydrocannabinol daily (approximately 2 mg per week).

A head CT was negative for bleed or acute abnormality. An electrocardiogram revealed normal sinus rhythm with a rate of 80 beats per minute and unremarkable QTc 0.455 msec.

In the ED, the patient received one liter of normal saline. Poison control was contacted and recommended monitoring the QTc and for symptoms of serotonin syndrome.⁷ The patient was deemed medically cleared after 3 hours in the ER and was transferred to our inpatient psychiatric facility for further treatment. While inpatient, approximately 31 hours after the initial overdose, the patient was found to have mild inducible ankle clonus, brisk ankle (3+) and knee deep tendon (3+) reflexes, bilateral hand tremor, restlessness, and no irritability. He was alert and oriented with a mild headache (visual analogue scale=2) but otherwise denied any other somatic symptoms. His vital signs were unremarkable and there was no evidence of muscular rigidity. The patient came to our psychiatric hospital from a local ED and it took four days for ED records to be transmitted. The patient had a repeat chemistry panel ordered at the hospital and all values had normalized. On the fourth day of his admission, and fifth day after overdose, fluoxetine and norfluoxetine values were collected. Fluoxetine and its metabolite levels were drawn on fifth day post overdose to guide medication management.

Serum fluoxetine and norfluoxetine levels at day five were found to be 580 ng/mL and 330 ng/mL respectively. Steady state concentrations of 40mg of fluoxetine (4-8 hours after dosing) range from 91-302 ng/mL, while norfluoxetine levels range from 72-258 ng/mL.

The patient underwent pharmacogenomic testing which revealed he had one functional and one reduced function allele for CYP2D6, with an overall enzyme function estimation to be significantly reduced. For CYP2C19, the patient had one normal function and one nonfunctional allele, with overall enzyme function estimated to be significantly reduced. The restlessness, tremulousness and "mental fog" resolved in two days. The brisk deep tendon reflexes and mild ankle clonus completely resolved within three days of admission. There was no further seizure activity during his psychiatric hospitalization which lasted 10 days. Fluoxetine was restarted at a smaller dose, due to prior effectiveness, on the patient's sixth day of admission. Fluoxetine was effective and helped patient achieve remission while the patient was taking it regularly; however, he became noncompliant which led to relapse, suicidal thoughts followed by medication stockpiling over time prior to overdosing.

The patient's other medications included a daily vitamin D3 2000 IU and omega-3 fatty acid 1 gram twice daily. The patient had no history of seizures prior to the post overdose event. He had a family history of a brother who had seizures during childhood. He denied any history of head trauma.

Discussion

SSRIs are a common class of medications used to treat various psychiatric disorders. Due to the nature of the conditions they treat, intentional overdoses on these medications do occur.⁸ Studies examining overdoses of SSRIs show that they are relatively safe, with the most concerning side effects being cardiotoxicity, neurotoxicity, and serotonin syndrome.⁹ When examining fluoxetine, an overdose is expected to present a mild course of symptoms including nausea, tachycardia, drowsiness, and vomiting.⁹ Compared to other SSRIs, the incidence of neurotoxicity and serotonin syndrome in a fluoxetine overdose is low. In a study of five different SSRIs taken in overdose, fluoxetine had the lowest incidence of inducing seizures (1%, vs. 2% for sertraline, paroxetine, and citalopram, and 4% for fluvoxamine).¹⁰ This is supported by case reports looking at the serum levels of fluoxetine and its active metabolite norfluoxetine after overdoses.^{11,12}

The patient discussed in this report had a witnessed seizure

followed by a post-ictal period. This convulsive episode was generalized tonic-clonic per description of the incident followed by an elevated lactate level, checked within two hours after the event. Evidence of the severity of this patient's overdose is supported by his elevated fluoxetine and norfluoxetine levels, which were substantially elevated even four days after ingestion. In our case, the patient co-ingested melatonin along with fluoxetine. Melatonin has been reported to be an anti-oxidant, anti-excitotoxic, and anti-inflammatory hormone, with antiepileptic and neuroprotective properties.^{1,13} Additionally, the patient was using high potency cannabinoid recreationally. Both melatonin and recreational use of Δ -8 tetrahydrocannabinol is unlikely to lower seizure threshold.¹³⁻¹⁵

The risk for serotonin syndrome in an isolated fluoxetine overdose is low and tends not to be serious.^{16,17} There were any no symptoms of serotonin syndrome present in the ED based on the documentation. During physical examination after 24 hours of ingestion, there was mild inducible clonus but no evidence of spontaneous clonus, brisk reflexes, hypertonia or autonomic instability. The mild brisk reflexes and inducible but brief (complete resolution within 3 days of admission) lasting ankle clonus during psychiatric hospitalization appeared to be related to anxiety disorder. Given elimination half-life of fluoxetine of about one to four days, while that of its metabolite norfluoxetine from 7 to 15 days, the brief lasting clonus did not appear to be related to fluoxetine overdose. The patient was discharged after psychiatric hospitalization at our tertiary care center with diagnoses of major depressive disorder, severe, recurrent, and generalized anxiety disorder.

Based on pharmacogenomic reports, the patient in this report had overall decreased function of his CYP2D6 and CYP2C19 enzymes, both of which are involved in the metabolism of fluoxetine. The major metabolic pathway of fluoxetine leading to the formation of its active metabolite, norfluoxetine, is mediated by CYP2D6. Additionally, CYP2C19 plays an important role in the *N*-demethylation of fluoxetine to norfluoxetine at high substrate concentrations as would be expected in our patient with medication overdose. Fluoxetine has a nonlinear pharmacokinetic profile as its clearance is not constant and depends upon CYP enzyme systems with fixed capacity. Therefore, fluoxetine should be used with caution in patients with reduced metabolic capability which in our patient was related to reduced CYP metabolic ability. According to a recent systematic review and meta-analysis, there is an indication that this

genotyping is associated with changes in drug levels.¹⁸ There is evidence that fluoxetine can reach toxic levels in those with cytochrome P-450 2D6 genetic deficiency resulting in impaired drug metabolism, substantiated by high levels of fluoxetine and norfluoxetine in autopsy tissue.¹⁹ Given that pharmacogenomics is a relatively new practice and there is often not a clinical reason to gather serum fluoxetine levels, there is limited data on the association between enzymatic polymorphisms and fluoxetine toxicity. Based on the above case report and existing literature, we propose utility of obtaining fluoxetine levels among individuals with reduced CYP function to predict dose related adverse effects and outcomes related to fluoxetine toxicity among patients with overdose.

Conclusion

We report a clinical course of an adolescent patient with witnessed seizure after an intentional fluoxetine and melatonin overdose. This case highlights that genetic polymorphisms causing slowed metabolism of fluoxetine can lower seizure threshold. Pharmacogenomic testing may have a role in identifying adolescents who may be at a higher risk of SSRI toxicity including seizures.

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Transient Complete Atrioventricular Block Associated With Herbal Supplement Use

Ugur Kucuk, MD; Melissa Pham, MS II; Mohummad Hassan Raza Raja; Muhammad Hamza Saad Shaukat, MD; and Richard Clark, MD

Abstract

Introduction: Increasing and easy availability of so-called natural/herbal supplements pose the unique challenge of identifying associated side effects, including arrhythmias in otherwise-healthy individuals.

Case Presentation: A 25-year-old female patient presented to the emergency department with fatigue and lightheadedness. The electrocardiogram showed complete AV block with a junctional escape rhythm at 55 beats per minute with QT prolongation (542ms). One week ago, she started to use a herbal medication (Muscle Eze Advanced) for muscle cramps after workouts. Extensive cardiac testing, including complete blood count, complete metabolic panel, TSH, transthoracic echocardiography, urine drug analysis, Lyme antibody were negative. Normal sinus rhythm was restored spontaneously within 1 day of discontinuing the herbal medication. PR and corrected QT intervals returned to baseline over the next two weeks.

Conclusion: Muscle Eze Advanced consists of seven ingredients, including *Melissa officinalis* and *Valeriana officinalis* that have negative chronotropic, negative dromotropic and QT prolonging effects. Recognizing the association between certain over-the-counter supplements and brady-arrhythmias may circumvent need for permanent pacemakers – an important consideration especially in the young.

Introduction

Over-the-counter (OTC) herbal supplements are widely used by individuals for many medical problems despite lack of efficiency and safety data. Here we present a 25-year-old patient who had intermittent complete AV block secondary to herbal supplement.

Case Report

A 25-year-old female patient with a past medical history of first-degree atrioventricular (AV) block (Figure 1, Baseline), anxiety and depression, presented to the emergency department with fatigue and lightheadedness. Her medications consist of sertraline 400 mg once a day and zolpidem as needed. One week ago, she started to use a herbal medication (Muscle Eze Advanced) for muscle cramps after workouts. Her vitals were stable. The electrocardiogram (EKG) showed complete AV block with a junctional escape rhythm at 55 beats per minute with QT prolongation (542ms) (Figure 1, Day 0). The patient was admitted to the cardiovascular unit, herbal supplement discontinued, and followed without a temporary pacemaker. Extensive cardiac testing, including complete

blood count, complete metabolic panel, TSH, transthoracic echocardiography, urine drug analysis, Lyme antibody were negative. Next day, one to one AV conduction was achieved with a very long PR interval (400ms) and corrected QT of 530 ms (Figure 1, Day 1). PR interval gradually decreased and the patient was discharged at day two with sinus rhythm at 73 beats, first degree AV block (PR 240 milliseconds) and corrected QT of 525 ms (Figure 1, Day 2). Within two weeks, PR and corrected QT intervals returned to baseline (Figure 1, Day 7 and 14).

Discussion

The global herbal supplement market is a multi-billion dollar industry. It is expected to grow 3.3% during the next five years and reach \$7.3 billion in 2026. According to Centers for Disease Control and Prevention data, 42.5% of adults between 20-39 years old use herbal supplements. The number of individuals who use herbal supplements increases with age and reaches 74.3% at 60 years old and over.¹ With the increasing use of herbal supplements, complications related to them are increasing as well. In PubMed, there are more

Figure 1. Baseline, presenting and follow up electrocardiograms.

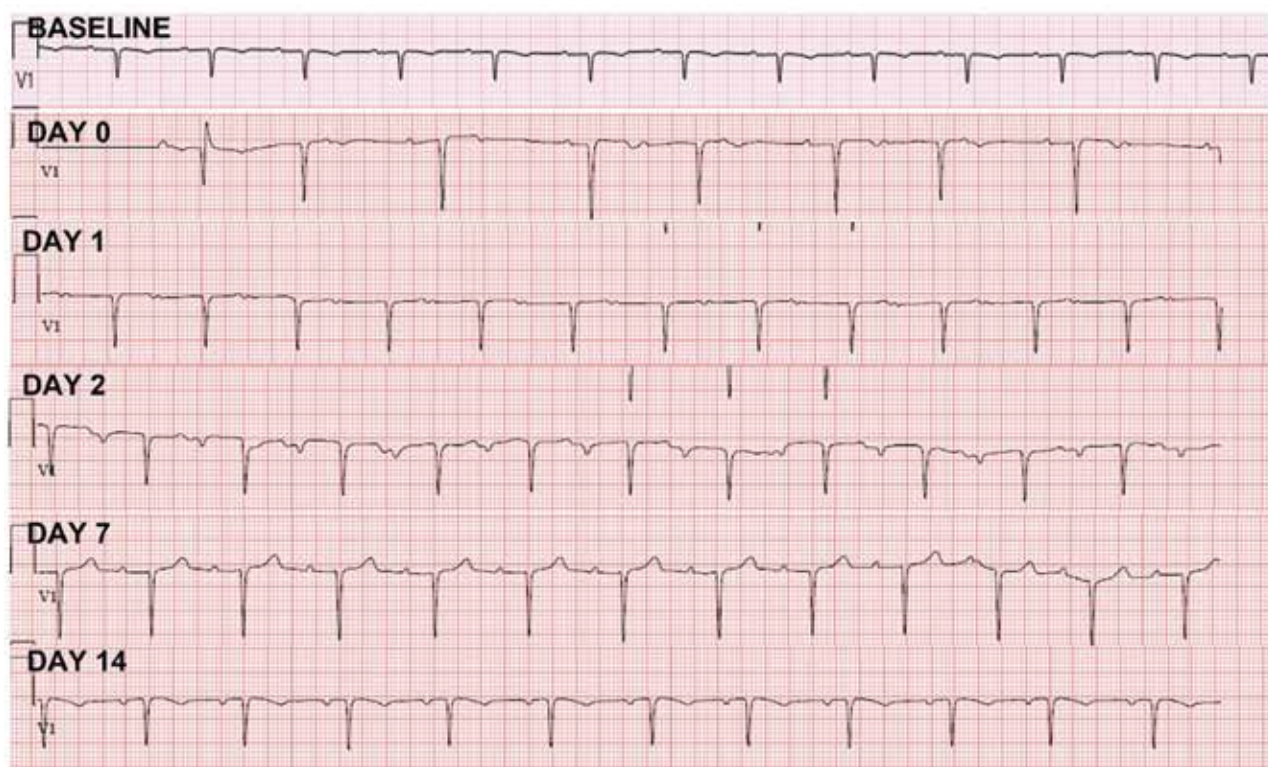


Table 1. Muscle Eze Advanced ingredients.

Ingredients	Amount
Calcium (as calcium lactate pentahydrate)	75 mg
Magnesium (as magnesium citrate tribasic)	150 mg
Lemon balm extract (herb; <i>Melissa officinalis</i>)	150 mg
Malic acid	100 mg
Passion flower extract (aerial parts; <i>Passiflora incarnata</i>)	60 mg
Hops extract 10:1 (flower; <i>Humulus lupulus</i>)	60 mg
Valerian extract [standardized to 0.8% valeric acid (root; <i>Valeriana officinalis</i>)]	30 mg

than 4,000 articles regarding dietary and herbal supplements.

Muscle Eze Advanced consists of seven ingredients (Table 1). Based on previous animal studies, *Melissa officinalis* and *Valeriana officinalis* have negative chronotropic, negative dromotropic, and QT prolonging effects. *Melissa officinalis* (lemon balm) is a plant from the mint family. Animal studies showed that *Melissa officinalis* prolongs PR, cQT intervals, and QRS duration with sodium channel and potassium (iK1) blockage.² *Valeriana officinalis* is a perennial flowering plant native to Europe and Asia. In animal studies, it interacts with multiple cardiac ion channels. *Valeriana officinalis*

inhibit Na current (I Na), L-type calcium current (I Ca-L), and transient outward potassium current (I_{to}). The total effect is dose-dependent bradycardia and QT prolongation.³ While it is difficult to provide an exhaustive list, other herbs associated with cardiotoxicity include *Aconitum carmichaeli*, *Aconitum kusnezoffii*, *Lycopodium serratum*, *Glycyrrhiza glabra* and *Convallaria majalis*.⁴

As Wiliam Osler said over one century ago, “One of the first duties of the physician is to educate the masses, not to take medicine.” We can modify this quote as; “One of the first duties of the physician is to educate the masses

not to take medicine and herbal supplements. Many OTC herbal supplements have active ingredients with possible adverse cardiac effects. Like *Melissa officinalis* and *Valeriana officinalis*, many herbal supplements lack human studies. All individuals, especially heart disease patients, should consult their physicians before starting a herbal supplement.

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Educating Children Through the Art of Storytelling Using a Medically-Informed Children's Book

Mykayla L. Vollmer, MD; Paul Thompson, PhD; and Michelle Schimelpfenig, DO

Abstract

Introduction: The purpose of this study is to demonstrate how children learn about a health topic from an interactive reading session. Due to the large number of children with allergies, the specific topic chosen for this research study was peanut allergies. The goal of the project was to assess how students learn from a children's book.

Methods: For the purposes of the research project, Vollmer wrote, illustrated, and published the children's book "A Party Without Peanuts: How Food Allergies Affect Friends". The children's book was then read in a group setting in third-grade classrooms and a question-and-answer session was held. The students were assessed through both pre- and post-read surveys to evaluate knowledge gained during the session. Specific topics discussed include allergies, anaphylaxis, preventative measures, and treatments.

Results: There was a total of 65 pre- and post-read surveys matched in data analysis. There was a significant increase from a pre-read score of 5.38 (76.92%) to a post-read score of 6.38 (91.21%) for the overall survey with a mean difference of 1.0 ($p < 0.0001$, 95% CI 0.68-1.31). In addition, each individual question was assessed and it was found that 4 of the 7 questions demonstrated a significant change in percent of students who answered correctly following the reading.

Conclusion: The overall findings of the study demonstrated that through interactive reading sessions students significantly increased their scores between pre- and post-read questionnaires. This study serves to encourage the use of children's books as an educational tool for young learners.

Introduction

Food allergies in children are common, with estimations suggesting that as many as 8% of children in the U.S. are affected by allergies.¹ The most common food allergens overall are nuts, milk, eggs, wheat, sesame, and fish.² In children, the most common food allergy was found to be peanuts, with a prevalence of 25% (95% CI: 23.3-27.1) among the participants reported with allergies.¹ These foods are very common and are a part of the everyday diet for many. The immune response to allergens is complex. When exposed, the most common reaction in those with food allergies is a type 1 hypersensitivity reaction which involves development of IgE against the allergen and cross-linking to mast cells.³ This response results in the immune system developing an inflammatory response mediated by T cells and eosinophils. Common symptoms of allergic reactions include itching, urticaria, angioedema, bronchospasm, nausea, vomiting, or diarrhea. Severe reactions can potentially lead to anaphylaxis or anaphylactic shock. The most severe symptoms of this

can result in collapse of cardiovascular and/or respiratory systems.⁴ Despite significant research on food allergies in children, the mainstay for treatment remains to be allergen avoidance.⁵ When exposed to an allergen the results can be serious and life-threatening, potentially requiring intramuscular epinephrine for treatment as well as other medical interventions.⁴

While students may be able to avoid food allergens at home with ease, the risk of exposure rises in outside environments such as restaurants, classrooms, and events. Studies have demonstrated that approximately 20% of allergic reactions occur in the school setting.⁶ As most allergy incidents tend to happen outside of the home, recent studies outline potential ways to reduce the risk of anaphylaxis and allergic reactions through education of school personnel and parents/guardians.^{7,8} There is limited research on the best methods to avoid allergen exposure, though, it is generally recommended to increase cleaning standards, avoid food-sharing, using pre-packaged foods, and limit access to high-allergen-risk foods

in classrooms.⁹ Even more concerning is that one study, which assessed cases from over 48 school districts in the United States, found that 24% of the students who required epinephrine for a food allergy at school were unaware of the allergy prior to the exposure.¹⁰ These studies raise concern for current education standards.

There is a need to increase awareness of allergic reaction symptoms, recognition of anaphylaxis, and treatment of food allergies in school-aged children. While there are several studies which assess school standards for preparedness and prevention of allergic reactions, there are few studies which focus on teaching children about allergic reactions and how to recognize symptoms. With this consideration in mind, the topic of food allergies and furthering education in schools was specifically chosen for this study due to its relevance for students and their peers. The diagnosis of a food allergy can have a significant impact on the life of a child and parent. Recent systematic reviews demonstrated that families with children diagnosed with food allergies experienced higher levels of stress and anxiety surrounding health.^{11,12} The stress of a food allergen diagnosis may place extra burden on patients' mental health in addition to the health safety risks associated with the allergy. These studies not only highlight the need to both educate and raise awareness on the topic of allergies, but also present the need to normalize allergies among children.

Prior studies have demonstrated the importance of teaching elementary school students about health and well-being. One study, which took place in China, demonstrated that when there are formal health-education interventions in place, young students were more apt to choose healthy habits, such as increasing the proportion of vegetables they eat each week.¹³ Similar studies have outlined the need to teach health literacy in elementary students in order to facilitate the healthy habits which are built in early adolescence.¹⁴ With such limited data on how to implement health-intervention education, there is a great need to study other methods. Past studies have shown children's books to be an engaging and unique way to educate children, allowing them to apply fictional information to real-life scenarios.^{15,16} Currently, there are no known studies which specifically look at the education of children on food allergies.

The goal of this study was to assess an educational approach using a children's book to increase awareness on food allergies, anaphylaxis, preventative measures, and treatment of allergic reactions. Specifically, the study focuses on elementary-age students in the third grade. Secondary aims

of the study include normalizing food allergies and teaching peers how they can support their friends with allergies. As outlined, there is great need to educate children on this medically-relevant topic. This study examines the use of a medically-informative children's book to assess its function as an education tool in classrooms to teach children about allergies. Children were assessed before and after an interactive reading sessions with the hypothesis that they would be able to learn from the children's book about food allergies and apply knowledge to pre- and post-read surveys.

Methods

For the purpose of the study, Vollmer wrote, illustrated, and published *A Party Without Peanuts: How Food Allergies Affect Friends*.¹⁷ The children's book was written to discuss the following topics: food allergies, anaphylaxis, symptoms of allergies, epinephrine injection pens, and how to prevent allergic reactions. The goal of the storybook was to educate children about food allergies with potential to be used as an educational tool in elementary school classrooms. The book was evaluated by a board-certified pediatrician, study coauthor Michelle Schimelpfenig, DO, to ensure that the information about allergies was presented correctly. The study was designed to include a pre-read survey, interactive reading session, question-and-answer session following the reading, and a post-read survey.

Approval for human subject research was obtained by the University of South Dakota's Institutional Review Board. After administration permission was obtained, third-grade teachers were contacted to request for a reading session to be held in their classroom. Four different classrooms from suburban communities in the state of South Dakota were surveyed. Parental consent forms were sent to parents by their student's teacher via email to be filled out and returned if they desired for their child to participate in the reading session and surveys. Contact information was provided to parents if they had any further questions. Not all children in the classrooms participated in the study and completed the surveys. Children who were not participating in the pre- and post-read surveys remained in the classroom for the reading of the book. The study was held during a regular classroom day, as this was the standard environment in which children would be most likely exposed to the educational material. Four third-grade classrooms with a total of 127 students opted to participate in the study. Of the 127 students, 65 students both returned consent forms and participated in the pre-read survey, reading session, and post-read survey. Third-grade classrooms were specifically chosen for the study

because students were beginning to read more complex books at this grade level.

All children with parental permission were given a 7-question pre-read survey. This survey was titled Pediatric Education Assessment and kNowledge Utilization Tool (PEANUT). The students were instructed to not write any identifiable data on the surveys. Following completion of the pre-read survey, the reading session was held in which the book was read out loud to the students. Students were then encouraged to engage in a question-and-answer session about the book, which was completely voluntary. If the answer to a question was unknown, this was reported to the children. Immediately following the question-and-answer session, students were given the post-read survey. The pre- and post-read surveys were identical. The PEANUT surveys were paired through collection methods at the completion of the surveys.

The PEANUT survey was designed to assess knowledge gained through the interactive reading session. The survey consisted of questions in several formats (i.e. multiple choice, true-or-false, and select-all-which-may-apply). Survey questions were written in a language appropriate for third-grade students and this was confirmed through a local educator's input. Questions were scored on the basis that students must answer the entirety of the question correctly in order for a point to be received. If a question was left blank, the answer was not awarded a point. The maximum points which could be scored on the survey was seven and the minimum was zero. Students were instructed before taking both surveys that if they do not understand a question they

may take their "best guess" or leave it blank. Students were aware that at any point in time they could drop out of the study and not complete their surveys at no penalty to them. All data collected was completely anonymous and never shared with parents, teachers, or administrators. Students were not graded or rewarded based on survey results.

Results

There was a total of 65 pre- and post-read PEANUT surveys matched in data analysis. The questions for the survey are presented in Table 1. A paired t-test was used to analyze the data comparing the overall score differences before and after the reading session. As seen in Figure 1, there was a significant increase from a pre-read score of 5.38 (76.9%) to a post-read score of 6.38 (91.2%) for the overall survey with a mean difference of 1.0 ($p < 0.0001$, 95% CI 0.68-1.31).

In addition to comparing the overall results of the study, each question in the survey was assessed on an individual basis. Due to the non-parametric nature of these results, the responses for individual questions on the survey were next examined using Wilcoxon signed-rank test. Table 2 highlights the percent score differences between pre-read and post-read surveys as well as their corresponding p-value following data analysis. Figure 2 graphically demonstrates the increase in score per question. Based on the data, items 2, 3, 6, and 7 were found to be significantly different between pre- and post-read surveys; however, items number 1, 4, and 5 did not show significant differences. The topics of these questions are outlined in Table 1.

Table 1. Pre- and post-read survey given to students.

Pre- and post-read PEANUT survey question answers		
	Question	Correct answer
Item 1	What does it mean if someone is allergic to food? Circle one.	B. They cannot eat the food.
Item 2	What are signs someone is having an allergic reaction? Circle all that apply.	Red rash, swollen lips, trouble breathing
Item 3	T or F: If your friend has a peanut allergy, you should bring peanuts to school to share with her.	FALSE
Item 4	T or F: Eating something you are allergic to could cause anaphylaxis.	TRUE
Item 5	T or F: People with food allergies can still have "yummy" food!	TRUE
Item 6	What causes allergies?	C. Our immune system
Item 7	Which of these is a medicine for allergic reaction? Circle one.	Epinephrine



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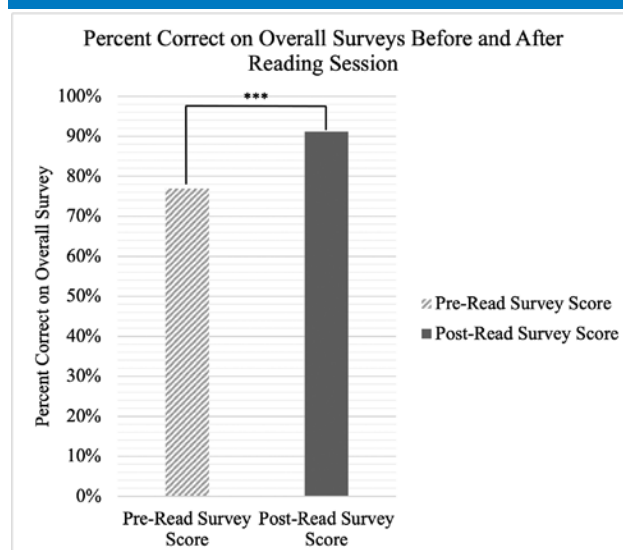
Discussion

The overall significant change in score between the PEANUT pre- and post-read surveys demonstrates that third-grade students were able to learn about the topic of food allergies from the reading of a children's book. Students were able to apply the knowledge they learned during the reading session to the post-read survey in order to more correctly answer the items presented.

Differences between individual questions on the surveys

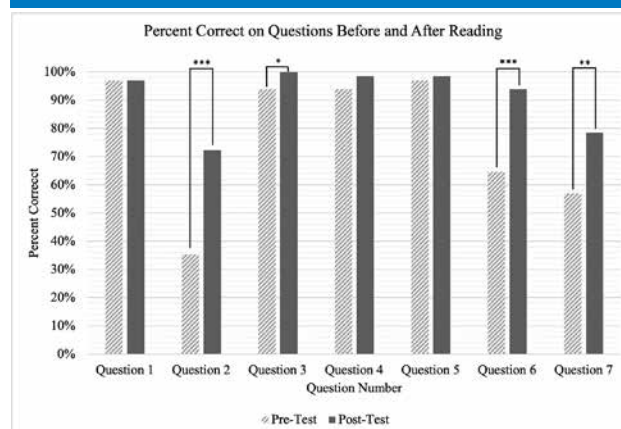
were also analyzed in order to further explore knowledge gained during the session. Four of the seven questions in the PEANUT survey demonstrated a significant improvement in number of correct answers from before to after the reading. This indicates that children improved specifically on the four questions regarding symptoms of allergic reactions, allergen-avoidance, the immune system's role in allergic reactions, and the treatment for anaphylaxis. There was no significant improvement on the three questions regarding the definition of food allergies, what causes anaphylaxis, and types of foods

Figure 1. Comparison of overall scores on the pre-read and post-read surveys via paired t-test analysis.



*** indicates p-value < 0.0001.

Figure 2. Graph demonstrates comparison of pre-read and post-read scores by individual question, demonstrating significant improvement in questions 2, 3, 6, and 7 (n = 65).



* indicates p-value < 0.05, ** indicates p-value < 0.01, *** indicates p-value < 0.0001.

Table 2. Individual question analysis via Wilcoxon signed-rank test is demonstrated through this table through number and percent correct on pre- and post-read survey questions as well as the percent increase in score per question.

Pre-read and post-read survey comparison by individual question						
Question #	Pre-read		Post-read		Results	
	Number correct	% correct	Number correct	% correct	% increase in score	p-value
Question 1	63	96.9%	63	96.9%	0.0%	1.0
Question 2	23	35.4%	47	72.3%	36.9%	2.63E-05***
Question 3	61	93.9%	65	100.0%	6.2%	0.04381*
Question 4	61	93.9%	64	98.5%	4.6%	0.1751
Question 5	63	96.9%	64	98.5%	1.5%	0.5667
Question 6	42	64.6%	61	93.9%	29.2%	4.34E-05***
Question 7	37	56.9%	51	78.5%	21.5%	0.008985**

* significant at p<0.05, ** significant at p<0.01, *** significant at p<0.0001.

which can be enjoyed with food allergens. These questions demonstrate a “ceiling effect” in which a majority of the children answered correctly on the pre-read surveys, leaving little room for significant change in the post-read survey. More research would need to be completed in order to assess the differences between individual questions and reason students may score correctly or incorrectly.

Similar studies in the past have looked at the utilization of literature to teach children about disease processes and healthy habits.^{18,19} These studies both support the findings of this study and add an additional perspective on the use of literature to educate children. However, this study is novel in that it specifically targets the education of children about the topic of food allergies, how to prevent allergic reactions, symptoms of allergic reactions, and the treatment for anaphylaxis. Through this study, it can be determined that children learned about several topics pertaining to food allergies through the reading of an children’s book. This was both shown through the overall pre-read and post-read survey score as well as through analysis of individual questions within the survey.

There are several limitations of this study. First, the sample size was limited due to several factors including but not limited to time constraint, difficulty obtaining parental consent forms, and limitations in the teacher’s schedules to allow time for the study. In addition, only four classrooms from one school district were able to be surveyed. As the surveys were conducted in South Dakota classrooms, these results have limited generalizability. Other limitations include the fact that only one topic was studied and only one book was used. This may limit generalizability to other topics and books. The PEANUT surveys were short and only tested certain variables from the reading. The surveys were designed only with input from an elementary educator. Future studies could explore understanding and further development of survey questions. Other learning styles should also be assessed and compared to the reading sessions to see if there are more beneficial ways to teach health topics in classrooms. In the future, there should also be consideration into the permanence of the knowledge gained.

Interestingly, both children and educators commented that the reading and interactive question-and-answer session was entertaining. Students were engaged during the reading and seemed eager to learn more about the topic. In each classroom, students asked several questions regarding allergies, health, and medicine. A few students even shared their own experiences with allergies in front of their

peers. Not only did this project demonstrate the use of an educational tool, but it also served as an enjoyable service project in classrooms.

Conclusion

This study revealed that students were able to improve their knowledge on the topic of food allergies through reading a children’s book, as shown by pre- and post-read surveys. Following completion of the study, it can be concluded that third-grade students learned and were able to apply the knowledge gained from the reading session to the PEANUT surveys. Secondary aims include raising awareness and support among peers, though these aims were not directly measured. Future studies should be completed to further assess the benefits of learning through reading sessions and children’s books. It may be beneficial to further study the demographic information on the children who participate and evaluate the impact various factors could have on the study. It may also be beneficial to complete this study with different age groups of children as well as other books and topics.

Conflict of Interest Statement – The author of this paper, Mykayla Vollmer, MD, is also the author of the children’s book used in the study and benefits financially from the sales of the book. Schools were not charged for the use of the book and there was no benefit financially from the study itself. At the time of the project Mykayla was a medical student (MS IV) with anticipated graduation to receive her degree as a Doctor of Medicine in May of 2023. Paul Thompson, PhD, and Michelle Schimelpfenig, DO, have no conflicts of interest associated with this project.

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Please note: Due to limited space, we are unable to list all references. You may contact South Dakota Medicine at ereiss@sdsma.org for a complete listing.

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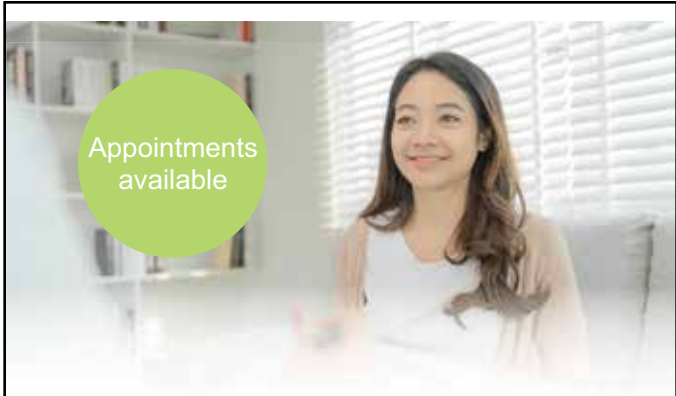
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EXTENUATING CIRCUMSTANCES:

The Patient as Precedent

Stare Decisis and the Collapse of the Scientific Method

Wendell W. Hoffman, MD, FACP, FIDSA

Abstract

The Stare decisis of Medicine is the Scientific Method and the Stare decisis of the Scientific Method is Debate over any knowledge claim involving the patient. COVID-19 has threatened the orthodoxy of the Scientific Method with a new orthodoxy – *Medicine as political purpose*. Among the many examples involve origins, immunity and lockdowns. In each of these the patient-as-judge may declare a mistrial. Only Medicine can restore trust through the legal doctrine of Completeness.

Precedence – A Definition – To stand by things decided

The U.S. COVID-19 pandemic public health emergency has expired but the ongoing loss has no end in sight with: more than 100 million infections, more than 1 million deaths, countless chronic COVID sufferers; inestimable delayed medical diagnoses, immeasurable damage from lack of preventative care, substantially higher healthcare disparities, incalculable harm to healthcare systems, the catastrophic developmental deficit of millions of our children.

Hovering is a crisis of trust, amidst the collapse of credibility from unreliable edicts like, “follow the science.” With hundreds of thousands of studies published by hundreds of thousands of researchers,¹ Medicine gazed at the fog of new evidence, while glanced at the clarity of old evidence preceding the pandemic – the science of precedence – what the legal tradition calls *Stare decisis*.

The Stare decisis of Medicine is the Scientific Method and the Stare decisis of the Scientific Method is Debate – without which Science is spelled Politics by another synonym. Before COVID-19, debate like the rate limiting step in chemical reactions, drove consensus over evidence. Our Stare decisis defines the guard rails protecting what we call Science – and while it can be overturned like its legal cousin – it is rare. Imagine the collapse of the Scientific Method. Perhaps it already has – as Medicine has flirted with a new orthodoxy called *Medicine as Political Purpose*. The collapse of debate left Precedence careening toward the “suppression and censorship of COVID-19 heterodoxy”² – striking esteemed scientists and direct-care physicians, over their dissent from this neo-orthodoxy.

In short, the rails fell down.

The Scientific Method dates to Aristotle and is how Science is settled. As a merger of inductive and deductive reasoning, the Method involves empirical observations generating theories (inductive), intertwined with the testing of hypotheses derived from these theories (deductive) – *all facilitated by debate*. I have previously offered a working definition of such debate, “...where questioning, argumentation and minority dissent is welcomed – where skepticism of one’s own position is robust – and where premature judgment is suspended.”³ Without such debate there is no Method, no Science and no Authority to declare, “follow the science.” Without such debate, Science becomes Scientism.

This is not about any individual piece of evidence but rather *how Medicine establishes any knowledge*. It is the rules of the racetrack which preceded COVID-19, not about specific COVID-19 competitors on the racetrack – and the nature of the elevator which preceded COVID-19, not the specific COVID-19 cargo of the elevator. Protect the rules and the nature of the Scientific Method and we *will* “follow the science.”

The legal community defines Stare decisis as follows: “... that courts will adhere to precedent in making their decisions. Stare decisis means “to stand by things decided...”⁴

Stare decisis is not just the individual decisions by the court but also how decisions are arrived at – particularly that adherence to rule 106 of the Federal Rules of Evidence, is followed. This critical protector of justice requires that, “If a party introduces all or part of a writing or recorded statement, an adverse party may require the introduction, at that time, of any other part – or any other writing or recorded statement – that in fairness ought to be considered at the



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same time.”⁵ If this rule, “...an expression of the doctrine of completeness...”⁵ is violated, then the judge may declare a mistrial – *for both sides must be fairly heard*.

Science entered the pandemic with trust in decline. This came from esteemed scientists themselves, such as the preeminent expert on meta-science Dr. John Ioannidis, who shocked the scientific world in 2005 with his now famous paper, “*Why most published research findings are false*.”⁶

Fast forward 10 years and very little changed. Dr. Richard Horton, current editor of the prestigious *Lancet Journal of Medicine* said in 2015, “The case against science is straightforward: much of the scientific literature, perhaps half, may simply be untrue...science has taken a turn towards darkness...”⁷

The Science brand has therefore suffered over the decades, turning evidence (per Horton) into flipping a coin. Dr. Horton is no stranger to controversy, having originally published the infamous and widely discredited (and finally retracted) Andrew Wakefield paper on measles/mumps/rubella vaccine and autism in 1998 – and then published another infamous and widely discredited (and also retracted) study on hydroxychloroquine (HCQ) in May 2020. This Surgishere informed paper claimed that HCQ carried a greater risk of heart arrhythmia and death. Per *The New Yorker*, “Horton’s critics wonder why he still has a job.”⁸ Yet apparently undaunted, Horton “...has sought to merge almost entirely the scientific mission of *The Lancet* with a political purpose...”⁸

The “best”⁹ medical journal in the world as political purpose now out in the open? Medicine as political purpose now hiding in plain sight? COVID-19 has unfortunately not diminished this hypothesis-of-politicization, but rather fed it steroids.

Three major COVID-19 controversies – on origins, immunity and shutdowns – illustrate the departure from the Scientific Method. These are added to the precedence of the totality-of-evidence-for-and-against any therapy¹⁰ – and how this older orthodoxy was deemed “flawed”¹¹ by a neo-orthodox hegemony.

Accidental Lab-Leak - Dismissed

Neo-orthodox = natural emergence of SARS-CoV-2 - vs. *Heterodox* = accidental lab-leak of SARS-CoV2

Why was the accidental lab-leak hypothesis dismissed?

Why would the former director of the CDC, the esteemed Dr. Robert Redfield (an acclaimed virologist), put his

entire reputation at risk to bring transparency to this? Testifying under oath on March 8, 2023 to the House Select Subcommittee on the Coronavirus Pandemic, Redfield stated that he was excluded from this origins question in January/February 2020 – the debate being “squashed.”¹²

Why was the neo-orthodox side sanctioned by national gatekeepers in academia, public health, government and the media? This, until forced into the open by reports from the Department of Energy¹³ and the FBI.¹⁴

Redfield, with his credibility on the line, said that suppression of the lab-leak theory was “...antithetical to science”¹⁴ and that, “This was an a priori decision that there’s one point of view that we’re going to put out there, and anyone who doesn’t agree with it is going to be sidelined.”¹⁵ Dr. Anthony Fauci immediately pushed back saying, “He is totally and unequivocally incorrect in what he’s saying that I excluded him.”¹⁶

He said/he said? Let them debate. Better, let them debate in the sunlight.

To dismiss the highly plausible and historically proven lab-leak hypothesis – seen with other infamous pathogens, including-but-not-limited-to smallpox, anthrax, SARS, Ebola and influenza - was not Science, because it was not an exercise of the Scientific Method. Worse, the primary responsibility of Medicine to lead scientific debate was humiliated by the House of Representatives, voting 419-to-0 to declassify intelligence related to the lab-leak hypothesis.¹⁷

Medicine taken to school on unanimity by politicians?

Should the patient-as-judge declare a mistrial in the courtroom of the Scientific Method?

Naturally Acquired Immunity - Marginalized

Neo-orthodox = vaccinated and unvaccinated vs. *Heterodox* = immune and non-immune

Why was the naturally acquired immunity hypothesis marginalized?

Why, “...if you have circulating antibodies that neutralize the virus, they are antibodies that are not recognized by the government, unless they were derived from the vaccine?”¹⁸

Politically correct Immunoglobulins?

Per the above testimony, the esteemed Dr. Marty Makary of Johns Hopkins has been chief critic on this issue. Makary, Chief of Islet Transplant Surgery, called out the neo-orthodox position early on. Per Makary, “Since the

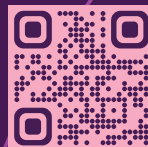
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Athenian plague of 430 BC, it has been observed that those who recovered after infection were protected against severe disease if reinfected.”^{18,19} Dr. Makary continued, “A Lancet study looked at 65 major studies in 19 countries on natural immunity. The researchers concluded that natural immunity was at least as effective as the primary COVID vaccine series...In fact, the scientific data was there all along – from 160 studies, despite the findings of these studies violating Facebook’s ‘misinformation’ policy.”¹⁹⁻²¹

To marginalize a bedrock concept of immunology was not Science – because it was not an exercise of the Scientific Method. *Worse*, the lack of debate set the stage for the Centers for Medicare and Medicaid Services on Nov. 5, 2021, to join the neo-orthodox side and precipitously issue the first ever federal vaccine mandate for health care provider staff. No proof of naturally acquired antibodies welcomed here.

Never mind that COVID-19 vaccines had only been in use for less than a year – that no one knew if these vaccines produced more durable immunity than naturally acquired immunity – that staff, who were COVID-vaccine hesitant, turned from actual heroes to potentially terminated – that the threat of termination came at warp speed compared to other healthcare required vaccines, such as the flu shot in use for decades – that CMS withdrew the mandate on June 5, 2023.

Never mind that this was not about vaccination per se – but about the potential termination of essential colleagues *without debate*.

Should the patient-as-judge declare a mistrial in the courtroom of the Scientific Method?

Focused Protection – Vilified

Neo-orthodox = “Lockdownists”²² vs. Heterodox = “Harm reductionists”²²

Why was the focused protection hypothesis vilified?

On Oct. 4, 2020 an open letter entitled the “Great Barrington Declaration”²³ was authored and signed by three esteemed scientists – Harvard’s Martin Kulldorff, Oxford’s Sunetra Gupta and Stanford’s Jay Bhattacharya. The proposal was based on the heterodox supported, “harm reductionist”²² concept of collateral damage – proposing “focused protection,”²⁴ instead of the neo-orthodox approach of sustained lockdowns. In the Declaration the authors stated, “Current lockdown policies are producing devastating effects on short and long-term public health... lower childhood vaccination rates, worsening cardiovascular

disease outcomes, fewer cancer screenings and deteriorating mental health – leading to greater excess mortality in years to come, with the working class and younger members of society carrying the heaviest burden. Keeping students out of school is a grave injustice.”²³

The Declaration was signed by thousands of scientists, but the reaction was swift and fierce with the esteemed Dr. Francis Collins calling these three particular scientists, “fringe epidemiologists.”²⁴ In an email obtained through a Freedom of Information Act request, Collins, not known for animosity and combativeness, told the esteemed Dr. Anthony Fauci, that he wanted, “a quick and devastating published take down of the Great Barrington Declaration’s premises.”²⁵ Fauci replied, “...that same night to let Collins know that there was already a devastating take down of the Great Barrington Declaration (GBD)...in that *august* (my emphasis) scientific publication *Wired*.”^{25,26}

Wired magazine? *The Lancet* journal? Facebook? Are they not all “august” absent the Scientific Method?

Six months *before* the GBD, Dr. Ioannidis warned the world against the collateral damage of lockdowns^{27,28} – and ignited a “...firestorm of criticism.”²⁹ Ioannidis, “...a lion of medical science”²⁹ and, “...one of the most influential scientists alive...,”²⁹ made a basic epistemic observation that, “...we don’t know how long social distancing measures and lockdowns can be maintained without major consequences to the economy, society, and mental health.”²⁷ *Not debating what we don’t know?* Ioannidis was fringe before it was famous to be “fringe.”

To vilify the ancient principle of collateral damage was not Science – because it was not an exercise of the Scientific Method. *Worse* it featured ad hominem attacks by esteemed scientists against other esteemed scientists.

Should the patient-as-judge declare a mistrial in the courtroom of the Scientific Method?

Just as Medicine looked to the Social Sciences to recover, “Do no harm”^{30,31} – so Medicine must look to the Legal Sciences to preserve the Scientific Method. To fulfill our oath to tell, “The truth, the whole truth and nothing but the truth,” we must recover the doctrine of completeness, to admit to and rectify what the esteemed Dr. Ioannidis feared early on, “...a once-in-a-century evidence fiasco.”²⁷

Medicine...*all rise*. The honorable patient-as-judge is in the courtroom, “...to stand by things decided.”⁴



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Member News

Visit www.sdsma.org for the latest news and information.

Congratulations 2023 SDSMA Award recipients!

The SDSMA presented awards to recipients at the Annual Awards & Scholarship Recognition banquet in June.

- The SDSMA's **Distinguished Service Award** recognizes a physician or lay person who has been of outstanding service to the medical profession in South Dakota. This year the Distinguished Service Award recipient is **Robert L. Allison, MD** of Pierre.



- The **Outstanding Young Physician Award** was presented to **Randall J. Waldner, MD** of Redfield. This award is given to a young physician under 40 or within the first eight years of professional practice after residency and fellowship training. This physician is recognized for outstanding achievements, dedication and service to the community and the SDSMA at the local, state and national levels.



- The SDSMA's **Community Service Award** is presented each year to a physician who

separates himself or herself through outstanding work in the area of community affairs. This year the award was given to **Daniel G. Petereit, MD** of Rapid City.



- **Angela Kennecke**, founder of **Emily's Hope**, received the SDSMA's **Richard P. Holm, MD, Media Award**. The Media Award recognizes those who have helped promote the medical field and medical issues.
- The **Young at Heart Award** is presented to a physician who has inspired young physicians as a mentor, role model and leader. This year's recipient is **Kenric D. Malmberg, MD** of Brookings.



- **Kara L. Dahl, MD** of Aberdeen received the SDSMA's **Past President's Award**. This award is presented each year to the immediate past president of the SDSMA in recognition of their

many years of work and dedication to the SDSMA.



- **Terry M. Marks**, administrative services coordinator for the SDSMA, received the **Special Presidential Award**. This award is chosen by the SDSMA president to recognize the recipient's contributions to the medical profession.



- The **Friend of Medicine Award** was presented to **Sen. Bryan Breitling**. This award is given in recognition of contributions serving as an effective advocate for health care and the medical profession.
- The **COPIC Humanitarian Award** honors a physician for volunteer medical services and contributions to their community. **Matt**

Member News



Matthew Owens, MD, received the COPIC Humanitarian Award. He is pictured with Bev Razon, COPIC's Senior VP of Public Affairs.

Owens, MD of Redfield is the recipient of this year's award. The award recognizes individuals who unassumingly volunteer outside the spectrum of their day-to-day lives. The recipient of the award designates a \$10,000 donation from COPIC to be provided to a health care-related 501(c)(3) organization in South Dakota. Dr. Owens has chosen Community Memorial Hospital/Clinic Foundation as the donation recipient.



Earl Kemp, MD received the 50-Year Award



Carroll Isburg, MD received the 50-Year Award

- Nine physicians were recognized with the SDSMA's **50-Year Award** for medical practice in South Dakota. Physicians who received this award were: **Robert L. Ferrell, MD** of Spearfish; **Lawrence W. Finney, MD** of Winchester, Calif.; **Carroll D. Isburg, MD** of Yankton; **Earl D. Kemp, MD** of Sioux Falls; **Robert J. Meyer, Sr., MD** of Omaha; **David P. Munson, MD** of Sioux Falls; **Dennis D. Ries, MD** of Freeman; **Ronald M. Rossing, MD** of Bloomington, Minn.; and **Chung H. Tuan, MD** of Yankton. These physicians have been practicing medicine for a half-century and have contributed greatly to the medical profession.



David Munson, MD received the 50-Year Award

Not pictured: Kenric Malmberg, MD - Young at Heart Award, Robert Ferrell, MD - 50-Year Award, Lawrence Finney, MD - 50-Year Award, Robert Meyer, Sr., MD - 50-Year Award, Dennis Ries, MD - 50-Year Award, Ronald Rossing, MD - 50-Year Award, Chung Tuan, MD - 50-Year Award

Award recipients are pictured with SDSMA outgoing president Lucio N. Margallo II, MD unless otherwise noted.

Photos by Allison Media

SDSMA elects 2023-24 Board of Directors



Denise S. Hanisch, MD
2023-24 SDSMA President

The SDSMA Board of Directors recently elected for 2023-24 are:

- President – **Denise S. Hanisch, MD**
- President-Elect – **Jennifer J. Tinguely, MD, MPH**
- Vice President – **Susan M. Anderson, MD**
- Secretary-Treasurer – **Keith A. Hansen, MD**
- Immediate Past President – **Lucio N. Margallo II, MD**
- At-Large Director – **Mark C. Ballard, MD**
- At-Large Director – **Deepak M. Goyal, MD, MBA**
- At-Large Director – **Benjamin D. Meyerink, MD**
- Policy Council Chair – **Lisa B. Brown, MD**
- SDSMA Delegate to the American Medical Association – **Mary S. Carpenter, MD**
- SDSMA Delegate to the American Medical Association – **Robert L. Allison, MD**
- SDSMA Alternate Delegate to the American Medical Association – **Robert J. Summerer, DO**

Congratulations to the 2023-24 Board! Learn more about Board members at sdsma.org.

2023 SDSMA Annual Leadership Conference addresses opioids and substance use disorder

At the 2023 SDSMA Annual Leadership Conference last month in Sioux Falls, attendees heard from experts on the facts of opioid use, what can be done to reverse the crisis, safe prescribing, substance use disorders and more.

Robert E. Van Demark, Jr., MD, chair of the SDSMA Committee on Pain Management and a past president of the SDSMA, addressed best practices and new guidelines in opioid prescribing. Attendees also heard from South Dakota Department of Health Secretary Melissa Magstadt and South Dakota Department of Social Services Secretary Matt Althoff about state efforts to combat opioid abuse and provide access to medication-assisted treatment and naloxone. Bobby Mukkamala, MD, immediate past chair of the American Medical Association, provided an update on association advocacy aimed at reducing overdose deaths. Additionally, Angela Kennecke brought the message of Emily's Hope for attendees. She provided information on addiction and the toll the opioid epidemic is taking on the U.S. Angela founded Emily's Hope after the death of her daughter, Emily, from fentanyl poisoning, after having obtained what she thought was

heroin. Emily's Hope aims to increase awareness, promote prevention and end stigma.

Other presentations focused on state legislative arenas and the value of physicians being advocates for their profession. Daniel Blaney-Koen, AMA senior legislative attorney, discussed physician burnout and the importance of physician advocacy in support of physician wellness and physician health programs. Tim Ridgway, MD, dean of the University of South Dakota Sanford School of Medicine, presented on trends in medical education and USD SSOM achievements. *Photos by Allison Media*



SDDOH Secretary Melissa Magstadt



DSS Secretary Matt Althoff



Panel discussion on opioids and substance use disorder. Moderator: Benjamin Aaker, MD. Panelists (L to R): Immediate Past AMA Chair Bobby Mukkamala, MD; South Dakota Secretary of Health Melissa Magstadt; South Dakota Department of Social Services Secretary Matt Althoff; SDSMA Committee on Pain Management Chair Robert E. Van Demark, Jr., MD



AMA Immediate Past Chair Bobby Mukkamala, MD



Angela Kennecke, founder of Emily's Hope

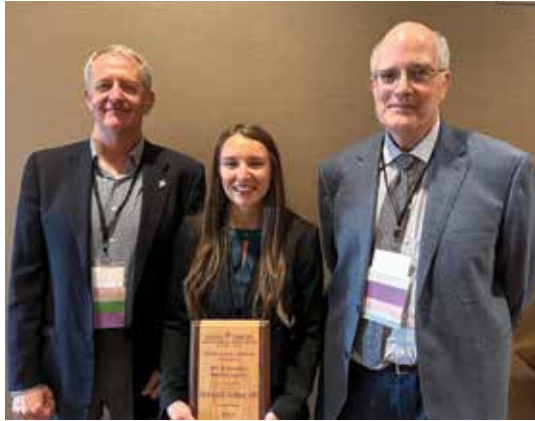


Evening musical entertainment: Clinton and Erin Desmond, Professors of Music at Dakota Wesleyan University

SAVE THE DATE! Join us next year for the 2024 SDSMA Annual Leadership Conference on May 31.

Medical student poster session held in conjunction with SDSMA annual conference

Attendees of the Annual Leadership Conference last month had the opportunity to see medical student posters on display and talk with students about their projects. A special thank you to Keith Hansen, MD, for organizing the poster session. The winning project was "Educating Children Through the Art of Storytelling Using a Medically-Informed Children's Book," by Mykayla Vollmer, MD; Paul Thompson, PhD; and Michelle Schimelpfenig, DO. Dr. Vollmer presented her work to the SDSMA Policy Council.



Mykayla Vollmer, MD had the winning project, "Educating Children Through the Art of Storytelling Using a Medically-Informed Children's Book." She is pictured with Tim Ridgway, MD and Keith Hansen, MD.

For Your Benefit:

Fighting for You and Your Patients

The SDSMA serves as your vehicle for advocacy for your patients and the art and science of medicine through lobbying at the state and federal levels, grassroots activity, and legal initiatives.

SDSMA PAC is your grassroots avenue that works to impact public policy decisions through bipartisan political participation. SDSMA PAC supports and elects pro-medicine candidates on the state level. Members of the SDSMA and their spouses can join SDSMA PAC.

The SDSMA's motto is "Values, Ethics, Advocacy." We take our advocacy role to heart. With your help, SDSMA and SDSMA PAC have the opportunity to dramatically impact the political and legislative process to create meaningful changes in South Dakota's current health care system:

- Improving health and access to care in rural areas;
- Increasing Medicaid reimbursement;
- Promoting Medicare physician payment reform and stopping reimbursement cuts;
- Working to improve clinical quality and patient safety;
- Partnering with state agencies to tackle regulatory, socioeconomic, public health and scientific policy issues;
- Advocating for public health immunizations;
- Promoting adequate funding for medical education;
- Stopping inappropriate expansion of non-physician scope of practice;
- Defending the patient-physician relationship; and
- Reforming medical liability.

If you would like to become involved in any of our advocacy programs, contact Justin Ohleen at johleen@sdsma.org or call 605.336.1965.

"For Your Benefit" is the SDSMA's monthly update on programs and services available to physicians through their affiliation with the SDSMA.

SDSMA Foundation awards 2023-24 scholarships



The SDSMA Foundation scholarships for the 2023-24 school year have been awarded to the following medical students at the University of South Dakota Sanford School of Medicine. Congratulations to the following recipients, who were recognized at the SDSMA Annual Leadership Conference in June.

- David Jensen – Herbert A. Saloum, MD Memorial Scholarship
- Joseph Kelly – J. Michael McMillin, MD Scholarship
- Joshua Schumacher – J. Michael McMillin, MD Scholarship



Joseph Kelly (left) received the J. Michael McMillin, MD Scholarship and David Jensen received the Herbert A. Saloum Memorial Scholarship. The scholarship recipients are pictured with SDSMA Foundation Chair Mary Milroy, MD. (Not pictured: Joshua Schumacher, J. Michael McMillin, MD Scholarship).

Thank you to all of the generous donors who make the SDSMA Foundation's scholarships possible. If you would like to donate in support of deserving medical students, please visit sdsma.org.

Legal brief highlight: Documentation of deaths and burials

The physician or other health care provider last in attendance to any person whose death occurs in South Dakota must within five business days complete the medical certificate portion of the death certificate and file it with the South Dakota Department of Health (SDDOH). When a death occurs without the attendance of a health care provider, the funeral director or other person in charge of the body must notify the county coroner, who then has responsibility for making the medical certificate, and in some circumstances, conducting an investigation into a death. A permit is required for burial, removal, or other disposition of a body of the deceased

person. The reporting and permitting process should be handled through the SDDOH.

More information is available in the SDSMA legal brief *Documentation of Deaths and Burials* at sdsma.org. The SDSMA provides legal briefs online for member physicians on a variety of rules and regulations that apply to the medical profession. For nonmembers, legal briefs are available for purchase.

Physician leadership program now accepting participants

The SDSMA Health Leadership Institute (HLI) is now accepting participants for the 2023-24 cohort!

The HLI helps physicians balance life and work, sharpen their skills in practice management, and train for future leadership positions.

The program offers current and future leaders the opportunity to gain an in-depth knowledge of the role leadership plays in medicine. It prepares



participants for roles within their practice location or health system, and provides professional development, community engagement and leadership skills training.

Six monthly sessions will be held with courses beginning in October.

How to apply – Those interested in participating may contact Justin Ohleen at 605-336-1965 or johleen@sdsma.org. Learn more at sdsma.org.

SDSMA representatives attend AMA Annual Meeting and are featured at Scope Summit

The American Medical Association held its 2023 Annual Meeting in June in Chicago, where hundreds of physicians, residents and medical students gathered to consider proposals across a wide range of clinical practice, payment, medical education and public health topics.

SDSMA Delegates to the AMA Mary S. Carpenter, MD and Rob Allison, MD; Alternate Delegate Robert Summerer, DO; and SDSMA President Denise Hanisch, MD represented the SDSMA in the House of Delegates. Medical student attendees were Nadya Ekhteraee Sanaee, Elise Meid, and Sena Uzunlar. Dr. Hanisch was recognized as the new SDSMA president in a ceremony celebrating state medical association leaders across the nation. A delegate report summarizing highlights of actions taken at the meeting will be provided to SDSMA members.

Additionally, in conjunction with the House of Delegates meeting, the AMA held its Scope Summit in which the SDSMA was featured on a panel discussion of state-level scope campaigns. Because of the SDSMA's success preserving physician-led care in South Dakota, Dr. Allison and SDSMA CEO Barb Smith were invited to provide attendees with background on the types of scope bills South Dakota has faced, the work of the SDSMA in educating lawmakers about the importance of physician-led care, and how physicians can become impactful advocates.



Rob Allison, MD and Barb Smith presented at the AMA Scope Summit.



Denise Hanisch, MD; Robert Summerer, DO; Rob Allison, MD and Mary Carpenter, MD attended the AMA Annual Meeting in June in Chicago.

Eight ways
to **GET INVOLVED** in the SDSMA
RIGHT NOW!

- ***Become a member***
- **Join** an **SDSMA committee**
- Participate in the **Doctor of the Day Program**
- Attend the **Annual Conference**
- Follow SDSMA on **Twitter, Facebook & Instagram**
- **Submit an article** to *South Dakota Medicine*
- **Submit a policy issue** at a membership open forum
- **Meet with your state legislators** to discuss the most pressing issues in medicine

For more information, contact SDSMA staff
membership@SDSMA.org
www.sdsma.org
605-336-1965



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Board News is a monthly feature sponsored by the South Dakota Board of Medical and Osteopathic Examiners. For more information, contact the Board at SDBMOE@state.sd.us or write to SDBMOE, 101 N. Main Avenue, Suite 301, Sioux Falls, SD 57104.



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