Kinesiology Today

AKA American Kinesiology Association

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President's Column

Reflections

By Wojtek J. Chodzko-Zajko, PhD, AKA President

Wojtek Chodzko-Zajko

As my term as president of the American Kinesiology Association draws to a close, I have been reflecting on the tremendous growth and progress our organization has made in its short five-year history. I am pleased to report that the AKA is now a strong and vibrant organization that is making great strides as the primary advocate for academic kinesiology in universities and colleges around the country. In this month's column I will attempt to provide you with an update of the many activities of the AKA with the goal of recognizing the extraordinary efforts of the many individuals who are working so hard on behalf of the organization.

Under the leadership of Duane Knudson, the AKA membership committee has conducted an impressive campaign to inform department heads and administrators of the many benefits that accrue to a department with membership in the AKA. The AKA now represents more than 150 member departments and continues to grow in size and stature. There is every reason to believe that our organization will maintain a steady rate of growth for the foreseeable future.

The AKA workshop committee, led by Steve Estes, has organized an impressive leadership workshop titled *The Future of Teaching and Learning in an Online World*. The meeting will be held in San Jose, California, January 26-28, 2014. As online learning spreads throughout higher education, kinesiology is beginning to provide more high-quality learning options in online formats. The move from the classroom to the website offers new challenges, and the 2014 Leadership Workshop will explore online learning trends and how to best expand offerings beyond the boundaries of the traditional classroom. Using keynote addresses from experts, case studies, roundtable

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No Cheers for These Injuries

By Siv Schwink, KT staff writer

Are cheerleaders as likely to get injured as football players? Probably not. On the other hand, authorities are beginning to realize just how dangerous cheerleading is. While overall injury rates among high school cheerleaders are low compared with other girls' high school sports, cheerleading accounted for 66 percent of all catastrophic injuries among female high school athletes over the last 25 years.

Once solely a sideline activity aimed at rousing the spirits of sports fans sitting in bleachers, cheerleading has fundamentally changed over the last three decades. While the familiar chants, jumps, and kicks remain a part of the tradition, today's most spectacular competitive and sideline cheerleading stunts involve complex partner skills—human pyramids, standing lifts, acrobatics, and aerial tricks.

The technical difficulty of cheerleading stunts has increased in recent years and, with it, a there has been a stunning growth in popularity. By 2003, cheerleaders numbered 3.6 million nationwide, counting participants from six years old through college age. High school cheerleaders—a third of whom are involved in year-round competitions—count for about 400,000.

Not surprisingly, complex stunts and a greater number of participants correlate with more cheerleading-related injuries. The incidence of injury per athletic exposure is highest among the oldest participants and decreases with decreasing age.

The scourge of injuries has caught the attention of the American Academy of Pediatrics (AAP), which now is calling for cheerleading to be designated an official sport by governing bodies like the National Federation of State High School Associations (NFHS) and the National Collegiate Athletic Association (NCAA).

In a policy statement issued on October 22, 2013, the AAP recommends cheerleading's classification as a sport because it would standardize safety regulations and minimize the risk of injury. At the same time, it would provide the infrastructure for better reporting of cheerleading injuries and therefore better data on which to base future safety regulations.

Dr. Jeffrey Mjaanes, a lead author of the policy statement, said the executive board members of the AAP Council on Sports Medicine and Fitness set cheerleading

safety as a priority because of concerns among AAP member pediatricians, based on the numbers and kinds of cheerleading injuries they are seeing.

"The policy statement was not intended to stir up any political discussions," Mjaanes reported. "We came at this purely from a medical standpoint. With this policy statement, we wanted to provide a platform for pediatricians to advocate for cheerleaders' safety. We also wanted to establish a ratio-

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Take the Stairs, Not the Elevator

As part of a new program to promote increased physical activity among its employees and residents, the transportation and human resources departments of the city of Greensboro, North Carolina, have launched the Park and Stride program, which encourages those using any of the four downtown parking garages to consider taking the stairs rather than the elevator. The campaign includes life-size images of 44 city employees affixed to the walls of stairways in the garages with brief statements explaining why they walk rather than ride. Although previous research has shown such signs to be more effective in encouraging stair use when placed alongside escalators rather than elevators, a recent study has shown that such point-of-choice prompts were effective ways of increasing energy expenditure by those visiting public parks in Los Angeles. KT

-SJH

Signs in Public Parking Garage in Greensboro, NC

The U.S. Postal Service has stopped producing the exercise-themed Let's Move stamps after complaints that they depicted children skateboarding without knee pads, doing headstands without helmets, and cannonballing into the water

Major League Baseball appears to be losing younger fans, a trend that could spell trouble for the league decades down the road. The *Wall Street Journal* reports that the average World Series viewer this year was 54.5 years old, up from 49.9 in 2009. Kids age 6 to 17 accounted for just 4.3% of the audience, compared with 7.4% a decade ago.

Communities on the Move

As cities become increasingly clogged with traffic and suffer the inevitable results---smog, respiratory ailments, noise pollution, tension, not to mention the health toll exacted on people who forsake human locomotion in favor of cars--- city fathers and mothers are turning their attention to ways metropolitan centers may become more walk-friendly. Interest, spurred by Jeff Speck's popular book *Walkable City*, has spread beyond America to countries where walking may be the only way to preserve economic and environmental viability and improve the health of the general population. For Speck, a walkable city not only makes environmental and economic sense, but it makes for a healthy citizenry.

In a well-worth-watching video Speck points out that "sustainability – which includes both health and wealth – may not be a function of our ecological footprint, but the two are deeply interrelated. If we pollute so much because we are throwing away our time, money, and lives on the highway, then both problems would seem to share a single solution, and that solution is to make our cities more walkable."

The grand hope of Speck and others in the walkable movement is that city plans for the future will prioritize pedestrians over cars and will provide for more car-free streets and plazas. In car-free neighborhoods, such as those in the upscale, small town (5,500) of Vauban, Germany, cars are banned, in this case replaced by a tram that runs through the center of town and offers transportation to nearby Freiburgh. Seventy-percent of its residents do not own cars and 57 percent sold their cars to move there. In the USA a Vauban-like community called Quarry Village, under development on the outskirts of Oakland, California, may be the most advanced experiment to create a low-car residential environment. It will provide access without a car to the Bay Area Rapid Transit system and to the California State University's campus in Hayward. Walking offers not only the possibility of improved health for residents, it may be the simplest, most cost-efficient way to improve a city's economic and environmental viability.

Walking-friendly urban designs are not likely to achieve the lofty goals that those in the walkable movement hope for unless sidewalks are maintained in walkable condition. Just how important a relatively simple thing such as sidewalk maintenance can

be as a motivating factor was discovered in a recent study by University of Michigan researchers from the School of Public

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A Balancing Act: Fall Risk Assessment and Intervention

by Siv Schwink, KT Staff Writer

People today are living longer than previous generations, and—not for lack of trying—there is still no cure for old age. Fall risk, a major health concern among seniors, has huge implications for quality of life and independent living through the golden years. Falls in seniors also represent a massive burden on our health care system, with an estimated $20 billion per year spent on fall-related medical costs in the United States.

Statistically, older adults who fall are at higher risk for falling again. And a fall that requires medical intervention can initiate a marked decline in health. Fall risk assessment and successful early interventions are an important health care priority for the aging population.

Johnathon Dingwell

A growing body of research into fall risk in older adults recognizes that it's an enormously complex and multivariate problem. Scientists come at it from a multitude of disciplines—neurology, psychology, pharmacology, disease, biomechanics, and kinesiology—using all the tools of modern scientific research.

To improve screening and prediction of fall risk, studies consider an almost limitless number of highly specific correlating factors—mental acuity and cognitive impairment; living situation and activity level; and specific health considerations like osteoporosis, neurological gait disorders, pacemaker, sinus node disease, Parkinson's, and back pain.

Nonlinear Biodynamics Lab at the University of Texas at Austin

Of course, not all potential variables are *causally* related to falls. Some, like age or race, may correlate to higher fall risk but may not directly cause falls. What's more, studying any one causal variable in isolation may not fully measure how, in interaction with other variables, it contributes to maintaining stability or whether it predicts fall risk.

Enormous strides have been made over the last decades in identifying physical factors useful in fall risk assessment and in the development of intervention strategies. Jonathan Dingwell, a associate professor in the AKA-member department of kinesiology and health education at the University of Texas at Austin, is an expert in the biomechanics of walking. He approaches the study of fall risk and stability from multiple angles, most recently using dynamic 3-D modeling to assess fall risk factors that cannot easily be isolated or emulated in real test subjects. He also uses 3-D video

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Executive Director's Corner

Announcing New AKA National Awards

By, Amelia Lee, AKA Executive Director

Amelia Lee

The board of directors of the American Kinesiology Association is proud to announce the creation of four competitive awards to honor outstanding undergraduate and graduate students in kinesiology. These are in addition to the recognition awards currently available for member departments to showcase the talents of their students. Since 2010 AKA member departments have had the privilege of submitting nominations for Undergraduate and Graduate Scholar Awards and a Writing Award. This program focuses national attention on students who have been screened and recommended by the faculty in their departments. In 2013, 71 students were honored for outstanding achievements in kinesiology, and these students received certificates and are publicly recognized on the AKA website: www.americankinesiology.org. I encourage you to take advantage of this opportunity and nominate your most accomplished students for these program-based awards. Nominations will be accepted beginning February 1, 2014, and awards will be processed as they are received through May 1, 2014.

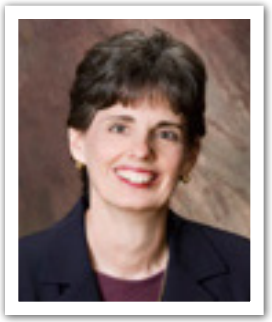
In addition to the current approach to focusing attention on member departments' most exceptional students, beginning in 2014 nominations will be accepted for the four new awards: a National Undergraduate Scholar Award, a National Master's Scholar Award, a National Doctoral Scholar Award, and a National Graduate Writing Award. One winner will be chosen by the AKA awards committee for each category. Depending on the student enrollment in the department, institutions can still submit one or more candidates for the program-based awards that have been available since 2010. However, only one nominee can be submitted for each of the National Awards. Along with the nomination form, a one-page vita or a one-page biography of the student is required for the National Awards. Nominations are due April 1, 2014, and forms must be signed by the chair of the member department. To be eligible for the National Awards, students must graduate in the current academic year (i.e., December, May, or August) that the nomination is submitted. The AKA awards committee will select the four award winners, and their biographies will be published on the website. National award recipients will receive a $250 gift certificate for Human Kinetics products.

Descriptions of the purpose and selection criteria for the National Awards can be found on the AKA website. All nomination forms should be sent to Amy Rose at Human Kinetics. AmyR@hkusa.com. This is an excellent opportunity to focus national attention on your outstanding undergraduate and graduate students, so make plans to submit your nominations for the 2014 awards today!

INSIGHT

Expediting Exercise Protocols Through the IRB Approval Process

By Marilyn Looney and Pamela Macfarlane, Department of Kinesiology and Physical Education, Northern Illinois University



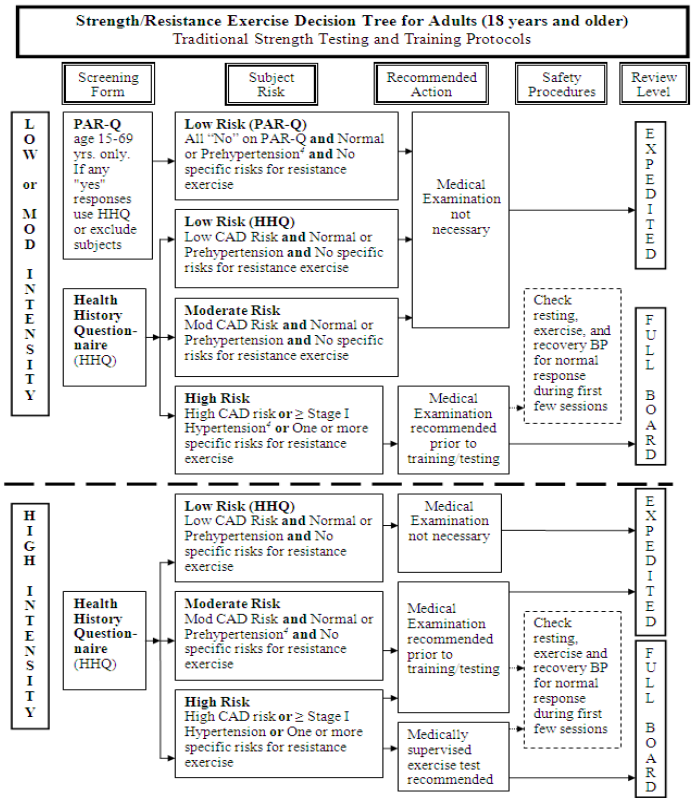
Marilyn Looney

Pamela Macfarlane

Submitting research proposals to the Institutional Review Board (IRB) is a part of life for faculty engaged in research. The process is often viewed as tedious and frustrating to kinesiology faculty who face unique problems with the process as the result of real or perceived risks associated with exercise.

Because human performance research by kinesiologists often exposes participants to physical challenges that are greater than that experienced in a normal day, proposed research can be seen as risky to the untrained eye. Those IRB members who are not trained in the effects of exercise on the body may tend to be overly conservative in their approach where they are not at ease in making a decision about the safety of a protocol. A common conservative approach is to require each participant to get medical approval before participation or require a convened meeting of the IRB to discuss the protocol. This can result in unwarranted delay in gaining approval for protocols where the risk of participation is low due to the intensity of the exercise challenge or the health status of the participants. For example, medical approval to participate in a research study ought not automatically be required for an active 50-year-old female jogger who is at low cardiovascular risk if the protocol includes walking a mile, body composition, and flexibility measures.

After encountering some of these problems at Northern Illinois University (NIU), we developed guidelines for protocols involving physical activity and exercise. These guidelines are available on the NIU "Research Compliance and Integrity" web page under "Guidelines for protocols involving physical activity and exercise" (www.niu.edu/orci/human_research/applications/physical.shtml).



Before the guidelines were approved for use, feedback was sought from exercise physiologists from the department of kinesiology and physical education and from physicians and allied health professionals serving on the IRB.

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Exercising for Posterity

Research results on the benefits of exercise are commonly reported at conferences on epidemiology, exercise physiology, public health, and cardiology but not usually at meetings on fertility and reproductive medicine. In October, Harvard professor Dr. Jorge Chavarro and doctoral student Audrey Gaskins presented a study at the joint meeting of the International Federation of Fertility Societies and the American Society for Reproductive Medicine showing improved sperm counts for men who were regular exercisers.

Gaskin told *Health* magazine, "Men engaging in exercise for seven hours or more per week, essentially one hour a day, had 48% higher concentrations than men who were engaging in less than one hour per week." Male partners (n = 137) of couples who sought treatment at the Massachusetts General Hospital Fertility Center between 2006 and 2012 provided semen samples and answered questions regarding their regular levels of physical activity. Interestingly, men who spent more than 90 minutes each week in *outdoor* physical activity had a 42% higher sperm count than those who spent no time outdoors, and men who lifted weights had a 25% higher sperm count than those who did not lift weights. The researchers speculate that exposure to sunlight, a good source of vitamin D, might have boosted fertility among outdoor exercisers and that lifting weights led to elevated levels of testosterone and improved insulin sensitivity, both of which have been related to higher sperm counts.

Read more at Health: http://news.health.com/2013/10/14/exercise-might-boost-mens-sperm-counts-study-finds/

-SJH

Investors can now purchase an equity interest in the future earnings of NFL players. Fantex, a start-up in San Francisco, has registered a convertible tracking stock with the SEC. The stock, whose value is pegged to the brand of Houston Texan runningback Arian Foster, will pay him an upfront fee of $10 million in exchange for 20% of his future brand-related earnings including endorsements, broadcasting, and coaching.

Most faculty members (85%) say the quality of online courses is lower than that of in-person courses with respect to the interaction with students during class, and 78% said the same about online courses' ability to reach at-risk students.

Source: 2013 Inside Higher Education Survey on Faculty Attitudes On Technology.

Short Guys Really Can Jump!

by Amy Rose, KT writer

Although Brandon Todd had nearly reached his full height of 5 feet 5 inches by the time he was a freshman in high school and starting on the Cambridge High School varsity basketball team, the 14 year old basketball star dreamed of reaching new heights on the basketball court. He first dunked a basketball as a 5-foot-2 13-year-old, an accomplishment that sparked a desire to follow in the footsteps of the 5-foot-7 NBA player Spud Webb. After watching video footage of Webb winning the NBA slam dunk contest in 1986, Todd was determined to improve his vertical jump. He tried new shoes, every workout he could find and more, but couldn't reach the rim on a consistent basis.

Even though he had a successful high school basketball career in Ohio, where he was a finalist for Mr. Basketball along with LeBron James, Todd was overlooked by larger college programs because of his height. After graduation, he went to a junior college in Illinois and began developing himself as a personal trainer, while keeping up on his basketball skills. In 2008, he was recruited by Division III Muskingum College in Ohio where he averaged 28 points, 7 assists, and 6 rebounds a game

While playing and studying at Muskingum, Todd continued to work on his vertical jump. In an interview with Greatist.com, he credits his exercise science and kinesiology professor for showing him the secrets to improving his vertical jump. Todd said, "I remember talking to her about the muscles and how to jump. She said, 'Well why don't you look up old Russian weight lifters? They're all big and fat; they're all short; but when they celebrate they jump really high off the ground because of their lifting technique.' I researched (the lifting techniques) and I learned how to do some of them. And then next thing you know, my sophomore year of college, I could do anything."

Now he has developed his own vertical jump training program FlytRight, which he uses to train not only elite athletes, but young jumpers as well, some as young as 8-years old. Todd's program includes two main principles: forced progression and a full body approach.

Todd says the most prevalent concept is forced progression, "this ensures no matter the exercise or technique, you improve in one diameter or another, whether it be reps or weight. This ultimately helped me increase

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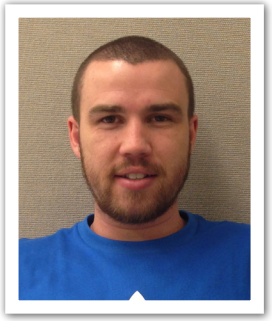
Brandon Todd, 5'5" Brandon Todd has trained to develop a 44 inch vertical jump.

Biomechanics Behind Brandon Todd's Vertical Jump

By David Whiteside, University of Michigan, School of Kinesiology



David Whiteside

So what's the science behind this remarkable achievement? How does a 5-foot-5, 28-year-old athlete manage to achieve a 44-inch vertical jump? We asked David Whiteside, research fellow in the department of kinesiology at the University of Michigan's School of Kinesiology, to give us some insight into the biomechanics required for getting Todd's body that far off the ground.

"First, jumping is all about explosive strength, or power—the ability to generate large forces over an extremely short time. With this in mind, there are two key ingredients to a proficient jump: strength (the ability to generate large forces) and speed (the ability to do so quickly). In athletics, having one or the other is useful, but Brandon Todd has both.

Strength is a straightforward concept that most can relate to. Strength is how well the muscles can exert force. Strength isn't just about being big but about having muscles that can generate large forces against a resistance (e.g., gravity in jumping). Developing strength is not a quick process and requires intense, prolonged training and a strict diet. It is easy to see that Brandon Todd has an exceptional physique, something that could only be a product of such dedication.

Speed is a little tougher to understand, but in the context of jumping can ultimately be broken down into three categories: muscle fibers, coordination, and stretch–shorten cycle.

Muscle Fibers

We know that certain muscle fibers are better suited than others to explosive activities. Fast-twitch muscle fibers are able to contract rapidly to produce large bursts of power, whereas slow-twitch fibers contract slower but are more resistant to fatigue. The distribution of these fiber types comes down to genetics—it's usually an even mix. However, Brandon Todd is likely part of a select club whose muscles are stacked with fast-twitch fibers (80-90%) and provide him with tremendous explosive ability. At the muscle level, Brandon is essentially built like Olympian sprinter Usain Bolt.

Coordination

This mainly comes down to how well your body segments work together toward a common goal. We have two legs, each with three joints, all of which need to extend in a finely timed sequence when performing a jump. This is easier said than done: If one or two joints are lagging behind or performing suboptimally, they will negate the good work being done at the other joints. Interestingly, this coordinated extension motion has been described as the most powerful movement that the human body can generate. Thus, when one is able to optimize the timing and efficiency of this movement, the results can be remarkable—such as a 5-foot-5 guy dunking! Vigorously swinging the arms can also help propel the body upward, something you will often see Brandon doing.

Stretch–Shorten Cycle

The final piece of the puzzle is extremely important: the ability to use the elastic potential of the muscle. In explosive movements, an athlete will generally stretch a muscle (and tendons) out like an elastic band before it

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Professional Athletes Poor Role Models for Nutrition

Margo G. Wootan, nutrition policy director at the Center for Science in the Public Interest, has chided Michelle Obama for tapping former NBA star Shaq O'Neal as a spokesman for her Let's Move fitness venture, citing O'Neal's new line of sugary drinks, Soda Shaq Cream Soda. The bottler, AriZona Beverage, along with 7-Eleven, describe the drinks as "all natural" and tell Shaq's fans that they can "satisfy their sweet tooth without the guilt."

Wootan points out that there are "270 empty, obesogenic calories and 17 teaspoons of sugar in every oversize can." She says O'Neal "shouldn't have it both ways: You can't do a photo-op with the first lady promoting exercise one day and sell disease-promoting sodas the rest of the year." Complicating things has been O'Neal's interview with CNN Sanjay Gupta in which he described his family's struggle with diabetes and professed to "stay away from the sodas."

In a bit of piling on Michael Jacobson, the executive director of CSPI says on the center's website, "Clearly, Shaq knows better. He has said he avoids soda himself, and worries about obesity and diabetes. But he's now using his name, face, and reputation to make those health problems even bigger. It's shameful hypocrisy, presumably motivated by money."

Actually, Shaq may not be the only indictable culprit. A study in the October issue of *Pediatrics* found that of the 512 brands endorsed by the top 100 athletes (according to Bloomberg *Businessweek's* 2010 Power Rankings), 24% were associated with food brands. A whopping 79% of the 62 food products athletes endorsed were "energy-dense and nutrient-poor." Ninety-three percent of the 46 advertised beverages had 100% of calories from added sugar. Peyton Manning, LeBron James, and Serena Williams had the most endorsements for energy-dense, nutrient-poor products.

www.cspinet.org/new/201307171.html -SJH

Technology

New Fitness Tracker

Fitbit, a leader in digitized exercise equipment, has introduced its newest innovation—Fitbit Force—a digital fitness tracking device that couples Fitbit's expertise in digital fitness tracking with "basic smartwatch functionality." The device combines the functions of its belt-clip One tracker and its wrist-worn Flex. It uses sensors to keep track of such biometric data as steps taken, miles walked, calories burned, and hours slept and displays them on a small OLED screen. It can be wirelessly synchronized with computers and certain smartphones and serves as a wristwatch as well. It sells for $130.

GPS in the NFL

Eight NFL teams have contracted with Catapult, an Australian firm, to gather data on players in real time during practices using a 3.5-ounce device that is worn on the shoulder pads. The device will collect data on a player's acceleration, speed, distance run, and collision forces. The devices are used to determine the quality of practice sessions. For example, data collected by some teams show that high activity in Thursday practices is associated with Sunday losses and that when players stand around for 80% of a practice session they seem to be more prone to injuries. A scientist with Catapult told *Sports Illustrated*, "We're creating dashboards for the athletes' bodies."

Sports Illustrated, November 4, 2013.

Robots Aiding Referees

A blatant refereeing error at the last World Cup has persuaded the International Football Association Board to use goal-line technology, what some say may be the first step toward a wider use of technology to assist match officials. Hawk-Eye, a Sony-owned company that has developed technology currently in use in tennis and cricket, is behind the goal-line technology used by the English Premier League. A German company, GoalControl, developed the technology used in the June FIFA Confederations Cup in Brazil and now is at work on new decision aids for referees, including those that might identify handballs, offsides, and other violations. FIFA has gone on record as opposing any further technological developments beyond goal-line monitoring.

The Economist, September 7, 2013. KT

New Survey on Exercise Captures National Attention But Deserves Careful Look

by Shirl Hoffman, KT Editor

Recently, the results of a new on-line survey about exercise habits of Americans have been trumpeted by scores of media outlets including Reuters, Chicago Tribune, ABC News and CBS news. Google lists 11 pages of entries for "Timex Survey." Catching most of the attention is the finding that 75% of Americans claim to "work out" at least once a week. As often is the case with polls, journalists have been more interested in the results than in the methods employed to obtain them. In this case the survey methods hardly justify the sensational headlines.

The results are based on responses from 1200 adults aged 24 to 44 who chose to respond to selected questions on the survey available through the popular on-line polling website SodaHead.com. (The actual number of responses to each question varied widely.) Seventy-five percent of respondents claimed to "work out" (no description as to what this means) at least once a week; 77% of them prefer to exercise alone rather than in groups. Some 29 percent of respondents said they spend between 30 minutes and one hour exercising and 18 percent claim to exercise between one and two hours. Running was the most popular form of exercise. Sixty-one percent of respondents said they don't exercise in a gym, and 29 percent said that when they exercise, they spend between 30 minutes and an hour. (The strangest question in the survey asked respondents how long they normally take to shower. Most showered less than 15 minutes but one-quarter took 20-30 minutes and nearly 10% spent more than 30 minutes showering.)

Despite media hubbub, the survey hardly justifies recurring headlines such as "Survey Reveals Nation's Exercise Habits," or "Running Is The Most Popular Exercise in the U.S." In fact, the findings offer little reliable information regarding how many Americans exercise, how much time they spend doing it, whether they exercise in groups or alone, or which forms of exercise do they most often engage. While such on-line surveys may be useful in sampling opinions of a limited number of respondents in the workplace or in an organization (AKA has used them to poll its membership), using them to survey a broader audience is fraught with problems. For example, they are notoriously lacking in sampling validity which limits any effort to extrapolate the findings to a broader population. Such surveys also are weakened by self-selection; that is, respondents rather than the researchers decide who will respond. Those who choose to respond to online surveys and those who do not respond may be driven by a range of unknown motivations for doing so. Stakeholder bias is another problem since those with a vested interest in the results of the survey can respond multiple times. Because researchers cannot control who responds to the survey there is no way of knowing who actually responded.

Jerry Thomas, former president of AKA and co-author of Research Methods in Physical Activity 6th Edition (Human Kinetics, 2011) says…." there is likely a huge difference between "attitudes/opinions" of people who choose to respond and those who are asked to respond. The bias is there even when people are asked to respond because some will not and you do not know why. However, that bias is greatly expanded when people just happen to find a survey for which they respond. It is like saying "if you like to travel, come over and answer my survey about

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Hatch(et)ing New Sports: Axe Throwing and Haggis Hurling

Add these to your list of oddball sports: axe throwing and haggis throwing. Seven years ago, Matt Wilson launched Toronto's Backyard Axe Throwing League after a weekend of hurling the weapons at trees. Now, the league (BATL) has moved beyond the backyard. It currently has 128 members who compete on a four-night-a-week schedule, paying $40 (Canadian) for 3 hours (minimum of 10 people required). So popular is the fledgling sport that Wilson has had to cap membership and build a larger 8,000-square-foot facility close to downtown Toronto. Axes are regular handyman hatchets with a 1.5-pound head and a 15-inch handle. Throwing lanes are 15 feet long with brightly colored targets. Techniques vary, although most use a two-handed technique. The axe must make one full rotation and stick in the target. A match consists of three rounds of five axes; the winner must win two out of three rounds to win a match. Amid loud music, good-natured heckling, and a bit of beer, throwers keep coming, some sporting aliases like Killface or Arm. Wilson told the *Wall Street Journal,* "Once you throw one and sink it in there, you're hooked."

Credit: Vice.com

Read more and see video: http://www.torontosun.com/2012/10/08/axe-throwing-league-hits-target

Hurling your haggis can bring to mind what sometimes happens after one dines on the Scottish delicacy of sheep guts, oatmeal, and suet stuffed into a sheep's stomach. But throwing a haggis (or a facsimile thereof) has become increasingly popular as a competition in Highland games both in North America and in Scotland. While the Scottish version still uses ready-to-eat haggis, their North American brothers and sisters often settle for a cornhole or bean-bag, although in most other respects, the competitions are similar. In Scotland, the rules of haggis hurling are enforced by the clerk of the heather (who starts the event)

Credit: 1stcontact.com

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Editors' Two Cents' Worth

The Kinesiologist as Adjudicator

By Shirl Hoffman, KT Editor

Shirl Hoffman

Reflecting on the results of the Timex Survey (see "New Survey on Exercise Captures National Attention But Deserves Closer Look") and the media's indiscriminate characterization of the survey results as representative of Americans' exercise habits, I've been wondering what might be the responsibility of kinesiologists and their organizations to challenge publicly not only the findings of such surveys but all of the misinformation about sport, exercise, and physical activity that makes its way into mainstream media. Whether grossly untrue, unfairly exaggerated, or simply lacking proper qualification, erroneous reports about sport, exercise, and physical activity often pass into the public domain as having the official endorsement of science.

For the most part, the response of our field to such incidents has been, well, underwhelming. No organized effort has been forthcoming to reveal the errors in the Timex Survey or to correct the media hype surrounding it. Wouldn't a press conference, for example, have been the expected response from a discipline that bills itself as the authoritative source of knowledge about physical activity?

Kinesiologists like to think that they and their work are beyond politics, but the adage "everything is political" is truer than we might want to think. Disciplines and professions must constantly stake out, claim, and reclaim their areas of expertise. And whether they like it or not, they are expected to serve as society's adjudicators in matters related to physical activity, responsible for ensuring that only accurate knowledge about physical activity passes into the public domain.

Maickel Melamed, 38, of Caracas, Venezuela, has muscular dystrophy. In October she completed the Chicago Marathon in 16 hours 46 minutes. An exhausted Melamed told reporters, "When you cross the finish line, you think to yourself, I can do anything with my life."

See video: www.huffingtonpost.com/2013/10/14/maickel-melamed-venezuela_n_4096905.html

New Data on Enrollment and Unemployment of Little Help to Kinesiology

On first glance new data released by the National Center for Educational Statistics, the Georgetown University Center on Education and the Workforce and the Census Bureau's American Community Survey promise new insights into the number of students earning bachelor's degrees in kinesiology and their employment prospects. On closer inspection, however, the data raise more questions than they answer.

Data from the NCES, for example, shows that the number of bachelor's degrees granted in parks, recreation, leisure, and fitness studies (36,000 in 2010-2011) is lowest among primary categories of majors earned in the United States. Health professions, by comparison, graduated 143,000; education 104,000; and biological and biomedical sciences 90,000. Considering the enormous enrollment spurt kinesiology departments have experienced over the past decade, such a finding seems puzzling, even counterintuitive. The answer to the puzzle is in the way kinesiology as a field of study is treated in the taxonomy of fields of study used by NCES—the Classification of Instructional Programs (CIP). Because the system spreads integral elements of kinesiology across a variety of categories, interpretation of data for kinesiology departments is difficult if not impossible.

For example, students enrolled in kinesiology departments who are studying physical education teaching are counted under "education"; those studying exercise physiology are counted under "biomedical and bioengineering"; those enrolled in athletic trainer and training are counted under "health professions and related areas"; and those studying kinesiology and exercise science, sport studies, sport and fitness administration management, and health and physical education are all grouped under "parks, recreation, leisure, and fitness" studies. Thus, when the NCES reports that only 36,000 students are enrolled in parks, recreation, leisure, and fitness studies, we are left to wonder how high the enrollment figures for kinesiology actually were, had all its areas of specialization been counted in the tally.

The same spurious CIP codes appeared to be used in the Census Bureau's American Community Survey and the Georgetown University Center on Education and the Workforce report *Hard Times: College Majors, Unemployment and Earnings:* www9.georgetown.edu/grad/gppi/hpi/cew/pdfs/HardTimes.2013.2.pdf. While it is reassuring to read that those who majored in physical fitness and parks and recreation are among the least likely to be unemployed (5.2%), it tells us virtually nothing about levels of unemployment among those who majored in other areas in kinesiology. To add to the confusion, presumably students who major in parks and recreation are included in the same employment category. A representative of the center told AKA that they relied on the Census Bureau's classification system for the *Hard Times* report and agreed that the definition of academic majors needed to be clarified. (Calls to the bureau have gone unanswered.) The flawed CIP taxonomy continues to be used by NCES to shape demographic reports even though it offers an incomplete, and perhaps erroneous, account of trends in kinesiology. Calls and letters to the NCES from AKA over the past few years suggesting a revamping of the taxonomy continue to be ignored.

Wall Street Journal (November 11, 2013). "Why Focusing Too Narrowly in College Could Backfire."

-SJH

Vatican to Field Cricket Team: Take on Priests of England

The Vatican recently held a press conference to announce the official launch of the St. Peter's Cricket Club, a joint venture by the Pontifical Council for Culture and the Australian embassy to the Holy See. The declared purpose is to use the sport to build interfaith and intercultural relations. "There is no doubt that sports have an important place in millions of people's daily lives. [They are] a powerful means to convey values, attitudes, a moral and ethical message," Australia's ambassador to the Vatican told reporters. He also pointed out that cricket can be "a way of furthering a vital team spirit among young men training for the priesthood." The goal is to eventually field a team that can take on a Church of England team at the famous Lord's Cricket Ground (and presumably settle old theological scores). Scouting for player-priests began with a tournament between pontifical colleges in and around Rome in November. The team wore the yellow and white colors of the Vatican emblazoned with an emblem of the keys of St. Peter's. Appropriately, tea and cucumber sandwiches were served at the press conference.

This isn't the Vatican's first venture into sports. Since 2007 it has sponsored an annual soccer tournament in which seminarians from more than 16 schools and 65 countries compete for the Clericus Cup. (Penalties earn players a blue rather than a yellow card, which results in a 5-minute bench penalty that British reporters refer to as "the sin bin.") Sports—this time a foot race—also figured in a recent Vatican celebration ("A Race of Faith") in which the culture ministry organized a 100-meter sprint along Via della Concilazione, the main boulevard leading to St. Peter's Square.

-SJH

Credit: AP

News V.A.: Official Vatican Network

Short Shots

New Moms Targeted for Fitness in New Business Ventures

"We're about strength for motherhood and being fit regardless of what age your kids are," said Susan King Glosby, vice president of operations for Fit4Mom, a new fitness venture targeting new mothers. Fit-4Mom is one of a handful of increasingly popular mom-friendly operations that cater to new mothers anxious to lose weight acquired during pregnancy. Fit4Mom now has 275 franchises nationwide; there are over 150 Baby Boot Camp franchises as well. The facilities and programs attract new mothers not only because they often feel intimidated and embarrassed about the changes in their physiques brought about by their pregnancies but because they welcome exercisers' children, no matter how young. Normal facilities often provide day care but set an age limit at 6 months; mom-centric programs welcome children of any age and even allow moms to bring strollers to the class. Some normal exercise classes incorporate strollers into the exercise routines (Strollers Stride Program) and Rock 'n' Stroller 5K Run held in October at National Harbor outside of Washington, DC. KT

Washington Post, October 1, 2013.

Moderate Walking Associated With Lower Risk of Breast Cancer

A team of researchers has found that 7 hours a week of walking at a moderate pace for an hour a day, even in the absence of other more vigorous recreational activity, was moderately associated with a lower risk of breast cancer. The study, reported in *Cancer Epidemiology: Biomarkers and Prevention* (2013: 22: 1906-1912), examined postmenopausal women in the American Cancer Society Cancer Prevention Study II Nutrition Cohort. Average number of hours per week spent walking, jogging running, lap swimming, tennis and racquetball, bicycling, stationary biking, aerobics and calisthenics, and dancing were collected along with time spent walking and in leisure-time sitting. Of the more than 73,000 women in the cohort, 4,760 had developed breast cancer between 1992 and 2009. Nine percent reported no recreational physical activity. The most active women experienced a 25% lower risk of breast cancer than the least active. Forty-seven percent of women reported walking as their only recreational activity; among these women, a 14% lower risk was found for those walking 7 hours per week compared to 3 hours per week. The time spent in leisure-time sitting was not associated with a higher risk of cancer. While the mechanism explaining the advantage of exercise has yet to be clarified, the authors note that older, physically active women tend to have lower levels of estrogen and that breast cancer is affected by lifetime exposure to estrogen. KT

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And You Thought Tennis Was Slow?

An informal analysis of actual time spent in tennis action at the recent U.S. Open tennis tournament showed players active on average 31 minutes 30 seconds during a match, approximately 17.5% of game time. Downtime was spent not so much in arguing or challenging rulings but between points when players were toweling themselves or bouncing balls before service. Sporadic though the action might be in tennis, it is a far more active game than baseball or football, where action time was found to be 17 minutes 58 seconds, and 10 minutes 32 seconds in baseball and football, respectively. KT

Wall Street Journal, Sept 4, 2013.

Squeezing Your Way to Lower Blood Pressure

A new study conducted at McMaster University has found that squeezing a handgrip dynamometer can lower blood pressure in patients who are taking antihypertension medicine. Three times a week patients in an exercise group performed isometric contractions on the dynamometer for 2 minutes at 30% of their maximum grip strength. After 4 minutes of rest, they repeated the exercise, squeezing four times each session. (Only one session was supervised.) A control group did no organized exercise. Average systolic BP declined from 125 to 120 in the exercise group and increased from 128 to 130 in the controls. While mean arterial blood pressure (average BP from one heartbeat to the next) declined from 90 to 87 in the exercise group, it increased from 93 to 94 in the control group. Researchers surmise that blood pressure changes may have been lowered due to changes in physiological pathways that control heart rate, blood pressure, and blood vessel function. KT

Millar, P.J. et al. (2013). Isometric handgrip training lowers blood pressure and increases heart rate complexity in medicated hypertensive patients. Scandinavian Journal of Medicine and Science in Sports, 23(5), 620-626.

Which to Do First: Increase Physical Activity or Control Diet?

Some clarity on the issue of whether it is best to address changing exercise habits and dietary behaviors simultaneously or sequentially has been offered from researchers at the Stanford University School of Medicine. A pool of 200 inactive participants, identified for their poor dietary habits, were divided into four groups: one that learned to make dietary and exercise changes simultaneously, one that learned to change dietary changes first and make exercise changes one month later, one that reversed this order, and a fourth (control group) that was taught stress-management techniques. One year later, those who began changing diet and exercise habits simultaneously were most likely to meet national guidelines for exercise (150 minutes per week) and national guidelines for nutrition. KT

King, A.C. et al. (2013). Behavioral impacts of sequentially versus simultaneously delivered dietary plus physical activity interventions: The CALM trial. Annals of Behavioral Medicine, 46, 157-168.

Housework Apparently Not Up to Snuff

A new study by British researchers has discovered that British National Health Service Guidelines that suggests that housework is a legitimate form of moderate-intensity physical activity that counts toward the recommended 150 minutes of moderately intense activity each week may be in need of revision. A survey of over 4,500 adults

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Short Shots

found that those who counted housework were heavier than those who did other activities for the same amount of time. Only 20% of women reached the weekly exercise target if housework was not counted. Professor Marie Murphy from the University of Ulster, who led the study, told BBC News, "When talking to people about the amount of physical activity they need to stay healthy, it needs to be made clear that housework may not be intense enough to contribute to the weekly target and that other more intense activities also need to be included each week." KT

Murphy, M.H. et al. (2013). Does doing housework keep you healthy? The contribution of domestic physical *activity to meeting current recommendations for health. BMC Public Health*, October 18, 966.

Capitalizing on Recess

As time allotted for physical education classes in public schools has been reduced, kinesiologists have turned to recess periods as opportunities for increasing physical activity in children. Using Recess Enhancement Program (REP), a program in which children are coached to participate in age-appropriate games during recess, John Chin and David Ludwig found that vigorous physical activity increased at 25 public elementary schools in New York City. Researchers used a systematic visual scan process to record levels of physical activity. The rate of vigorous physical activity was 52% higher in REP schools than in non-REP schools, and a significantly higher level of vigorous physical activity persisted when the coach was not in the scan area. KT

Chin, J.J., & D. Ludwig. (2013). Increasing children's physical activity during recess periods. *American Journal of Public Health,* July, 1229-1234.

Shaking Hands After Contests Now OK, Says Kentucky High School Athletic Association

Not long after its apparent ban on athletes forming lines to shake hands after games had become fodder for the media, the KHSAA clarified its position. The original wording of the "directive" appered to ban the hallowed tradition due to a scourge of fights that have marred the conclusions of football, soccer, and volleyball games. The statement said, "It is disappointing that this action has become necessary, but enough incidents have occurred both in our state and in others, that the necessity has arrived." Fights after games had become a problem, particularly in football, soccer, and volleyball. The revised statement allows teams to enact the ritual but warns coaches that they will be responsible for oversight. KT

We Are Stressed and Fat, Says World Economic Forum

The World Economic Forum's new Human

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Short Shots

Capital Index, a measure of how well a nation harnesses the power of its people, rates the United States 16th globally, gives it fairly good grades for education and opportunity, but ranks it 43rd in overall in health and wellness. The index ranks the United States 112th out of 122 countries in obesity and 106 for reported levels of stress. KT

http://reports.weforum.org/human-capital-index-2013

Early Release Data Shows Physical Activity Levels Flat Through March 2013

Early release data from the National Health Interview Study shows that in early 2013, approximately 48% of adults in the United States met the federal physical activity guidelines for aerobic activity, roughly the same percentage for estimates in 2012. The age-adjusted percentage of adults who met the guidelines (based on leisure-time activity) was 38.8% for Hispanic adults, 51.9% for non-Hispanic white adults, and 41.1% for non-Hispanic black adults. The annual percentage of adults meeting the 2008 federal guidelines for both aerobic and muscle-strengthening activities increased from 16.3% in 1997 to 20.2% in 2013. KT

www.cdc.gov/nchs/data/nhis/earlyrelease/earlyrelease201309_07.pdf

Cheating for the Fun of It

Now comes word that all of the cheating that goes on in professors' classrooms and in NCAA athletics may be anchored in the simple fact that it is fun. Research from the University of Washington has found that those who commit unethical acts (providing no one gets hurt) find it pleasurable. Even when there was no tangible reward, people who cheated felt better on average than those who didn't cheat, according to results of several experiments that included over 1,000 people in the United States and England. More than half the study participants were men, and 400 were from the general public in their late 20s or early 30s and the rest were in their 20s at universities. In one experiment, participants who cheated on math and logic problems were overall happier afterward than those who didn't and those who had no opportunity to cheat. In another trial, researchers asked the participants not to cheat because it would make their responses unreliable, yet those who cheated were more likely to feel more satisfied afterward than those who didn't. Is it possible that Lance Armstrong, who deceived so many of us for so many years, cheated because he was addicted to its pleasures? KT

Ruedy, N. et al. (2013.) The cheater's high: The unexpected affective benefits of unethical behavior. Journal of Personality and Social Psychology, 105(4), 531-548.

In 2012 obesity prevalence ranged from 20.5% in Colorado to 34.7% in Louisiana in 2012. No state had a prevalence of obesity less than 20%. Obesity prevalence in nine states and the District of Columbia was 20% to 25%. Thirteen states (Alabama, Arkansas, Indiana, Iowa, Kentucky, Louisiana, Michigan, Mississippi, Ohio, Oklahoma, South Carolina, Tennessee, and West Virginia) had an obesity rate of 30% or higher.

CDC Update, 2013.

"Any business (kinesiology department) today that embraces the status quo as an operating principle is going to be on a death march."

Starbucks CEO Howard Schultz

Conferences

American Kinesiology Association Annual Leadership Workshop

AKA Pre-Workshop Smyposium
Establishing Learning Outcomes for Core Categories in Kinesiology:
Achieving the Appropriate "Fit" for Academic Programs
Differing on Purpose and Content
DATES: January 25-26, 2014

The Future of Teaching and Learning in an Online World
San Jose DoubleTree by Hilton January 26-28
San Jose, California

Using keynote addresses from experts, case studies, roundtable discussions, and panel presentations, the workshop will aim to clarify some of the issues associated with developing online delivery programs. The workshop will feature speakers from small, medium, and large universities as well as community colleges. Topics range from success stories to ways to avoid approaches that might result in missteps. Department chairs, academic deans, and faculty interested in developing knowledge and skills about online learning will benefit from the workshop.
Registration is limited. Registration information at
www.americankinesiology.org/conferences

National Association of Kinesiology in Higher Education
Collaborative Congress:
Steps Into the Future
January 8-11, 2014
San Diego, California
www.nakhe.org/node/3

International Society of Biomechanics in Sport
July 12-16, 2014
East Tennessee State University, Johnson City, Tennessee
Submission deadline for papers: February 7, 2014
www.etsu.edu/academicaffairs/scs/isbs2014

North American Society for Sport Psychology and Physical Activity Annual Conference
June 12-14
Hilton Minneapolis Downtown
Submission of abstracts opens December 7, 2013, and closes January 15, 2014
www.naspspa.org/about-the-conference

42nd Annual Convention of the North American Society for Sport History
May 30-June 2, 2014
Glenwood Springs, Colorado
www.nassh.org/NASSH_CMS/node/10

ACSM Conference: Developing the Healthy Youth Athlete
February 11-12, 2014
Lake Buena Vista, Florida
www.attendaconference.org/sportsseries

American Educational Research Association Annual Meeting
April 3-7, 2014
Philadelphia, Pennsylvania
www.aera.net/EventsMeetings/AnnualMeeting/tabid/10208/Default.aspx

National Athletic Trainers' Association Annual Meeting
65th Clinical Symposia and AT Expo
June 25-28
Indianapolis, Indiana
www.nata.org/Annual-Meeting

National Strength and Conditioning Association Tactical Strength and Conditioning Conference
April 15-17
San Diego, California
www.nsca.com/Events/Conferences/TSAC-Conference-2014

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No Cheers for These Injuries

nal medical basis for safety guidelines that can be discussed with parents of patients who participate in cheerleading."

Mjaanes asserts that sport designation would help to ensure the other recommendations were heeded, and cheerleaders would consistently be provided with access to certified coaches, team physicians, and adequate practice facilities. It would also mandate preparticipation physical examinations to screen for higher risk of injury among participants.

Asked whether sport designation was listed first among the policy statement's 12 recommendations because it should be weighted more heavily, Mjaanes said, "All of the recommendations were important, but yes, this is in fact a big issue. Cheerleading stunts have become increasingly flashy, with acrobatics, pyramids, and tosses, yet a lot of cheerleaders don't have access to the same level of care as other athletes do. High-velocity, high-force routines can result in a high number of sports injuries, and we've seen that these can be very catastrophic. The best way that we saw to advocate for these athletes would be to declare it a sport rather than a club or activity."

Catastrophic refers specifically to closed-head injuries, skull fractures, and cervical spine injuries resulting in permanent brain injury, paralysis, or death.

Currently, only 29 state high school athletic associations recognize cheerleading as a sport. At the college level, the NCAA does not include competitive cheerleading in its list of sponsored sports, though it does offer catastrophic injury insurance to cheerleaders at member colleges and universities that have adopted required cheerleading safety regulations. (Catastrophic, in the context of insurance, refers to injuries resulting in medical bills in excess of $90,000.)

The policy statement has generated a strong reaction in the media and gets a mixed review from the American Association of Cheerleading Coaches and Advisors (AACCA), an organization founded in 1987 to promote cheerleading safety nationwide. The AACCA provides a training certification program for cheerleading coaches, publishes an annually updated cheerleading safety manual (since 1990), and collaborates with the National Federation of State High School Associations, which also publishes safety rules for high school cheerleading. (In fact, one of the recommendations outlined in the policy statement is adherence to the guidelines in each of these organizations' safety manuals.)

AACCA executive director Jim Lord said he appreciates the recent media focus on cheerleading safety prompted by the AAP policy statement because it has bolstered public awareness of cheerleading safety concerns, and this ultimately provides a stronger platform from which to urge state associations to adopt cheerleading safety regulations. And he agrees with the bulk of the recommendations in the report, which align with AACCA guidelines.

But Lord wonders if the recommendation that all state high school associations and the NCAA designate cheerleading a sport might make cheerleading safety worse, not better, in some states. "Our first concern is the focus on cheerleading being designated a sport at the high school and college levels," explained Lord. "Keeping in mind that the majority of cheerleading squads do not compete or compete only once per season, in some states this designation might mean teams would be required to compete. This could result in an increase in injuries."

In Lord's opinion, the best way to minimize the risk of injury is to make sure cheerleading coaches are properly trained through a certification program that includes risk management and skill progression training techniques to guarantee participants aren't attempting stunts beyond their abilities.

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No Cheers for These Injuries

"Most state high school associations do require their member schools to follow either the NFHS or AACCA cheerleading rules. However, there are still some states that don't have any such requirement for cheerleading, although their local schools or districts may have a requirement," he added. "We are working with the NFHS to have these states adopt these minimum safety standards."

Moreover, Lord said he was disappointed at the policy statement's failure to recognize the strides made in cheerleading safety in the last few years, saying that the success of national campaigns for cheerleading safety have contributed to a marked decline in serious injuries over the last 6 to 7 years. He worries that the policy statement could alarm administrators, who might decide not to allow the performance of any cheerleading stunts.

"The current and recent snapshot of cheerleading injuries shows that cheerleading is actually as safe or safer than other girls' sports—and certainly safer than many boys' sports," stressed Lord.

Mjaanes, on the other hand, says that the data reviewed in the policy statement were the most current available when the medical literature was reviewed, noting that a lag between research, writing, and publication is standard. The policy statement cites two primary sources of data that indicate a steady increase in cheerleading injuries, including a Consumer Product Safety Commission report that counts 4,954 hospital emergency room visits for cheerleading injuries in 1980 and 26,786 in 2007, an increase of more than 400%. Most of these cheerleaders (98%) were treated and released; 221 were hospitalized. Over roughly the same period, catastrophic injuries increased from 1.5 per year from 1982 to 1992 to 4.8 per year from 2003 to 2009, according to a 2009 annual report from the National Center for Catastrophic Sport Injury Research.

Lord said he also takes issue with AAP recommendation 6, which addresses the types of surfaces that are safest for cheerleading stunts, saying a softer surface could contribute to imbalance and greater incidence of injury. Mjaanes said the AAP recommended pyramids and partner stunts be performed only on a spring floor or with a landing mat on a traditional foam floor or grass or turf because, statistically, the fewest injuries occur on those surfaces; stability for specific stunts wasn't considered. KT

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Communities on the Move

Health. Jamilia Kwarteng and her colleagues interviewed 919 adults from low to moderate income neighborhoods in Detroit to assess the duration and frequency of vigorous and moderate physical activity. The physical environment in the blocks adjacent to their residence was assessed through systematic social observation by trained observers. They found a positive association of sidewalk condition and duration and frequency of physical activity; interestingly the association was stronger with young people than with older residents. While correlational data doesn't speak directly to what factors precisely might be discouraging city walking it does suggest that the physical environment may play a larger role in determining our exercise habits that is usually recognized.

See: bit.ly/1cF08y4 Journal of Public Health, online October 24, 2013 KT

-SJH

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A Balancing Act: Fall Risk Assessment and Intervention

of subjects walking on treadmills to study several factors, including gait variability, the effect of both mechanical and visual perturbations on stability during walking, and how varying step widths and lengths contribute to stability while walking.

When we stand or walk, the interplay of various mechanical degrees of freedom means there is more than one possible strategy that would maintain upright position. "There's an infinite number of ways that you can walk successfully, so it's hard to pin down a single thing that could lead to being more stable or more unstable," observes Dingwell.

Dingwell explains that everyone's gait is variable. The brain doesn't send the same signal to the limbs with each step. Even healthy young people with little fall risk have some degree of gait variability. And while greater gait variability is in fact associated with greater fall risk, it's not a linear correlation, making gait variability challenging to use in assessing fall risk.

"Our perspective is that it's actually in the differences between strides and how that difference is negotiated that you actually see the interesting things that are happening in terms of stability and balance," notes Dingwell. "How does the brain correct for differences? If you have a very small perturbation in a stride, how rapidly does that perturbation either grow or decay on the next stride?"

Dingwell has experimentally tested a common clinical recommendation that slowing walking speed can reduce fall risk, which has been debated by fall risk scholars. Dingwell's stability studies show that slower walking increases gait variability, which in turn decreases stability, but that doesn't match up with data reported in other studies.

"Slower walking speed correlates to higher fall risk, but this is confounded by the fact that older adults tend to walk slower. The correlation doesn't mean slower speed is causing the falls. It could be that the same thing that's causing them to fall is what's causing them to slow down," explains Dingwell.

Dingwell said the recommendation is probably sound; but from a biomechanical point of view, this would also depend on the kind of fall one is trying to avoid. Walking slower is most effective against tripping and falling forward and less effective against slipping and falling backward. Step width and length also affect stability and need to be considered in making this kind of recommendation.

Another interesting finding by Dingwell's group comes from his 3-D modeling study, which, among other fall risk factors, studied the mechanics behind older adults' lower success rate in recovering from a trip. Strategies deployed by young and old are quite similar, but older individuals take smaller recovery strides, have less leg strength, and use arm motion protectively outstretched to break a fall, whereas young people fling the arms in the opposite direction of the fall to counter the angular momentum and slow the fall, allowing more time to get that larger recovery stride.

Emerging research into how the brain processes sensory information critical to maintaining balance is filling in gaps in our understanding. A team at McGill University in Montreal, led by physiologist Kathleen Cullen, has for the first time isolated the precise neurons in the brain's cerebellum that encode sensory information from unexpected motion, like a fall. The same neurological process supports all of the postural corrections we make all day long without any real awareness that we are doing it.

"We found that neurons in a small region of the brain that connects the cerebellum to the spinal cord respond selectively to unexpected motion. The cerebellum actually computes unexpected motion within a millisecond so that you can send an appropriate signal to the spinal cord to rapidly

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A Balancing Act: Fall Risk Assessment and Intervention

adjust balance," explains Cullen.

"During motion, your brain is normally able to make an estimate, or what we call an internal model, of the sensory inflow that it should get from your sensory systems—vision, touch somatosensory, proprioception, vestibular. Your cerebellum then computes the mismatch (or error) between what your brain expects and the actual sensory input.

"Athletes can compute this mismatch for very complex motions, as in a gymnast doing a back flip on a balance beam. This explains why cerebellar patients cannot do this, even for a simple movement like placing a foot on a step."

The team's results also show for the first time that two separate processing streams in the cerebellum encode unexpected movements, one for unexpected head movement (through the vestibular system of the inner air) and one for body position and velocity (through comparison of vestibular and neck-muscle sensory inputs from muscles and Golgi tendon organs).

As people age, they begin to lose that sense of balance because they lose some of the sensory input, including vestibular sensation, that was present in younger years. This makes balance more challenging because there is less reliable information to estimate movements. Older adults rely more on vision, which is a slow sense compared with vestibular and proprioceptive systems. "In rehabilitation programs, patients can retrain their sensory organization to use faster sensory inputs such as vestibular and proprioception to better maintain balance," notes Cullen.

Other new research is looking into how we can better predict risk of outdoor falls in older adults, since the risk factors are distinct from those of indoor falls. Hyun Gu Kang of California State Polytechnic University's kinesiology and health program looked at the correlation between postural sway while standing and indoor and outdoor fall risk—both with and without dual tasking.

Kang's data came from the MOBILIZE Boston study and included 717 healthy community-dwelling adults over the age of 75 who did not have any diagnosis of visual or cognitive impairment. Based on falls data collected over a three-year period through self-reporting, Kang and his colleagues determined that individuals with more control over postural sway (i.e., better reflexes and stronger muscle tone) were at higher risk for outdoor falls, whereas individuals with more postural sway were at greater risk for indoor falls.

Kang explains, "Indoor falls tend to occur in older adults with various frailties, such as depression and poor balance. Outdoor falls seem to occur in otherwise healthy adults, so lower postural stiffness and damping may indicate subtle problems that may progress to poor balance later. Also, the causes of falls indoors and outdoors may be different, requiring different motor responses."

The study also found that postural sway measurements taken with dual tasking had no effect on predictive accuracy for fall risk. More and more, scholars of fall risk are assessing the ultimate goal of their research and how best to define its success:

"Even if we can get individuals at high risk of falling into the right interventions to increase their strength, motor coordination, responsiveness, and reaction time, we may still not see a reduced number of falls," comments Dingwell. "Stronger, more fit individuals might increase their activity level until they put themselves at higher risk of falling. Still, that could be a good outcome, if we are successful in improving lifestyles and health and offer a better quality of life." KT

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New Survey on Exercise Captures National Attention But Deserves Careful Look

travel." Walt Thompson of Georgia State University who was quoted (not entirely accurately) in news accounts points to the introduction that preceded the survey as particularly troublesome. Says Thompson, "the introductory sentences introduce a bias which renders the entire survey invalid. The sentences to which Thompson refers reminds readers that "experts say you are supposed to exercise at least a few times a week…" and asks them to "take the survey and see how your habits correlate with others." "Who, Thompson asks, will dare to admit that they don't exercise as much as they should after this biased introduction?"

Not surprisingly results of the Timex Survey stand in stark contrast to data supplied by more reliable sources. For example, while the Behavioral Risk Factor Surveillance System, the world's largest, ongoing telephone health survey, has found that anywhere from 60% to 80% of respondents indicate that they had participated in "some exercise" during the past month more than half (52%) of all American adults fail to meet the 2008 Physical Activity Guidelines, and less than 3 in 10 high school students fail to engage in at least 60 minutes of physical activity each day. Only 20 percent of U.S. adults meet both the aerobic and muscle strengthening components of the physical activity recommendations. (The CDC has yet to report on time the average American takes to shower after exercising.) Whereas the Timex survey found "running" to be the most popular physical activity, the highly respected National Sporting Goods Association Survey has consistently found "exercise walking" not running as the most popular leisure activity

Results of the Timex survey also differ from the findings of the Gallup-Healthways Well Being Index which are based on monthly telephone interviews with a random sample of at least 28,000 adults aged 18 or older living in all 50 U.S. States and the District of Columbia. While the percent of respondents who claimed to exercise for at least 30 minutes per week reached record levels each month in 2012, in 2013, reports of exercise frequency for each month were lower than comparable months in the previous year (53 percent in June versus 55 percent in 2012.) The headline here if the media had cared to look, was that physical activity levels actually declined over the past year. Unlike the Timex survey the carefully crafted Gallup-Healthways survey relies on telephone numbers chosen at random among landline listed telephone numbers and cellphone numbers selected using random-digit-dial methods. They are also weighted to match the national demographics of gender, age, race, Hispanic ethnicity, education, region, population density, and phone status (cellphone only/landline only/both, and cellphone mostly). Such findings surely are more in the public interest and more helpful to policy makers than unreliable data suggesting that most Americans life physically active.

Such criticisms notwithstanding, Jason Feffer, founder of SodaHead is not ready to dismiss the survey findings as unimportant. He told *KT* that the website has a very diverse audience, offers no monetary value to respond, and that the survey included a relatively large number of respondents from over 3 dozen countries. While he acknowledges that the site's audience of 13-80 year olds "share one common demographic: they enjoy answering private questions," he argues that "no survey company can guarantee every one of its respondents accurately represents his/her demographic and always answers accurately and truthfully." As to extrapolating the results to the general population Feffer said he would categorize people who responded to the exercise survey into two groups: "workout aficionados who work out close to home for 30-60 minutes a day -- and the rest of us." Mostly, he says, he leaves the interpretation of the survey results up to each individual. "People can read stats anyway they want to find the agenda they support."

Find survey at: http://www.sodahead.com/survey/featured/exercise-survey/?results=1

-SJH

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Reflections

discussions, and panel presentations, the workshop will discuss how to develop online programs that are rich, outcome driven, and capable of keeping students engaged in real-time interactions. The workshop will feature speakers from small, medium, and large universities as well as community colleges. Topics will range from success stories to ways to avoid approaches that might result in missteps. Department chairs, academic deans, and faculty interested in developing knowledge and skills about online learning will benefit from the workshop. The AKA is grateful to Kim Graber who has served as the program chair for the 2014 workshop. It will be an amazing event and I look forward to interacting with many of you in San Jose in the New Year.

Our communication committee under the leadership of Tom Templin has spearheaded two major initiatives over the past two years. The AKA has expanded the number and scope of our educational webinars that are made available to faculty, students, and administrators through the AKA website. In February of this year, Russell Pate of the University of South Carolina presented a well-received webinar on the evolution of the physical activity guidelines for Americans. The committee has developed an impressive schedule of future speakers who will continue to provide state-of-the-art updates on a variety of kinesiology topics. The communications committee has also been working with our colleagues at Human Kinetics on an extensive revision of the AKA website, which is due to go live before the end of this year.

The research and analysis committee conducts annual surveys of AKA member departments on topics such as faculty salaries, graduate student compensation, and other issues of interest to kinesiology departments. This year, with Michael Delp as chair, the R&A committee conducted a survey of online programs conducted by kinesiology departments across the country. The results of this survey will be presented and discussed at the 2014 AKA Leadership Workshop on Online Learning.

The publications committee provides oversight and advice to the AKA board regarding AKA publications. Under the leadership of Terry Rizzo, the committee has provided valuable feedback regarding the status and scope of key AKA publications including *Kinesiology Today* and *Kinesiology Review*. The committee has also developed a list of suggested topics for the next series of AKA books to follow our successful AKA careers book that was published in 2011.

The AKA awards committee provides a mechanism for AKA member departments to recognize their best and brightest students. These annual awards recognize students from member departments whose academic and leadership records are distinctive. Under the leadership of Susan Petersen, the application process for awards has been greatly simplified. This year the AKA will once again be recognizing students in the following areas: AKA Undergraduate Scholar Award, AKA Graduate Scholar Award, and AKA Writing Awards. It is my hope that readers of *Kinesiology Today* will encourage their departments to nominate students for these awards.

Perhaps the most exciting and important initiative of the AKA over the two-year term of my presidency has been the establishment of an AKA task force on diversity. While the vast majority of kinesiology programs across the nation have adopted the concept that a racially and ethnically diverse student body and faculty are critical to providing high-quality education, the unfortunate reality is that there are far too few racially and ethnically diverse kinesiology programs. Historically underrepresented groups are often missing on university campuses in the United States. These groups are missing from kinesiology programs as well. In January 2013, the American Kinesiology Association (AKA) Leadership Workshop focused on diversity enhancement in kinesiology. Our goal was to both raise awareness about the

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importance of diversity in kinesiology and to motivate discussion and action toward creating more diversity within kinesiology to help advance the field and the education of our students. I am proud to say that the AKA has made a commitment to enhance diversity throughout all of kinesiology and throughout the entire strategic vision of our organization. The diversity papers from AKA's Annual Workshop were published in *Kinesiology Review* in September 2013, and our forthcoming website will include a new section focused on diversity enhancement in kinesiology.

As you can see, the AKA has been busy. The past two years have been an exciting time for our organization. As president, I have had a firsthand opportunity to observe the hard work and passion of many individuals who care deeply about the AKA. However, there is one individual whom I would like to recognize in particular. Our executive director, Amelia Lee, is the glue that holds AKA together. Amelia has been a friend, advisor, and mentor throughout my term, and I will always be in her gratitude. As many of you know, in academic organizations, presidents come and go and the executive director steers the ship. I am pleased to say that with Amelia Lee advising and Penny McCullagh as our new president, the future of our organization is bright.

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Expediting Exercise Protocols Through the IRB Approval Process

Five decision trees cover exercise protocols. One tree is for children and youth (<18 years old), and four trees are for adults (≥18 years) with separate trees for aerobic, strength or resistance (see figure), flexibility, and balance or mobility exercise. Each of the decision trees is organized according to the following topics: exercise intensity, health screening, risk level, recommended action, and level of IRB review. For each mode of exercise, the intensity of exercise is the first key decision to be made, followed by the health risk of the exerciser. By moving from left to right across the decision tree, a stepwise progression leads ultimately to the recommended IRB review level. The adult trees for aerobic and strength and the tree for children and youth include notes to\ guide the decisions.

The use of these decision trees at NIU has improved the consistency of the review process and has allowed researchers to understand the expectations of the IRB reviewers. Researchers may consider adapting or adopting these guidelines for their institution.

A description of the rationale and process behind the development of the guidelines and decision trees was published in *Research Quarterly for Exercise and Sport,* 82:129-134; 371-373[errata], (Macfarlane & Looney, 2011).

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Short Guys Really Can Jump!

my vertical jump and strength tremendously." His key exercises include squat presses, reverse squats and a special "Flyt burpee." "Jumping is a terrific full-body exercise. You use your arm swing. You use your core. You use your glutes. You use your hamstrings. You use your quads. You use the tendons in your ankles. It's almost like swimming," he told the *Washington Post.*

The full body approach includes training for overall athleticism, along with vertical leap. "It's a happy marriage of upper and lower body dynamics. I learned early on that training in just a plyometric nature will only take you so far. You have to incorporate full body training, plyometric and Olympic training. All these styles promote strength, explosiveness, power and coordination," said Todd.

Todd now uses his motivation to bring this training concept to young athletes. "The idea of knowing I can give a smaller athlete a different frame of confidence is beyond gratifying," said Todd.

Sources

http://www.theatlantic.com/video/index/280148/how-a-55-basketball-player-trained-himself-to-dunk/

Lebowitz, S. In the gym with Brandon Todd, 5'5" dunking machine. Greatist.com. www.greatist.com/fitness/brandon-todd-shortest-dunk.

Todd, B. http://flytright.com.

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Biomechanics Behind Brandon Todd's Vertical Jump

contracts to produce force. In the jump, this can be seen when players bend down before they drive upward. Minimizing the transition period between descending and ascending allows your tendons to act like that elastic band, stretching out and then immediately snapping back in the opposite direction to enhance force production. Brandon Todd's ability to do this is nothing short of extraordinary. Watching him dunk, it's actually difficult to see him bend down before he jumps, because it all happens so quickly. The effect makes it look like he is jumping off springs, which isn't far from the biomechanical truth.

Ultimately, Brandon Todd is the perfect mix of physique and technique. Born with a genetic footprint ideally suited to explosive activity, he has also built exceptional muscle strength. Add to this a proficient jumping technique, refined over years of practice and play, and you have what is essentially the perfect mix of strength and speed."

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Hatch(et)ing New Sports: Axe Throwing and Haggis Hurling

and the steward of the heather (who measures the hurl and confirms that the haggis is still intact upon landing). The haggis must be cooked according to an official recipe, be of a certain weight (which differs for male and female contestants), and be unadulterated with anything that would firm it up, making it easier to throw. Hurlers launch their haggis while standing on an overturned whiskey barrel. Winning hurls are determined by distance and accuracy. At the Milngavie and Bearsden Highland Games in 2011, Lorne Colthard threw "the pudding" a world-record distance of 217 feet.

See video of haggis hurlers in action: www.youtube.com/watch?v=ZoARKBJjGwk

-SJH

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