Kinesiology Today

AKA American Kinesiology Association

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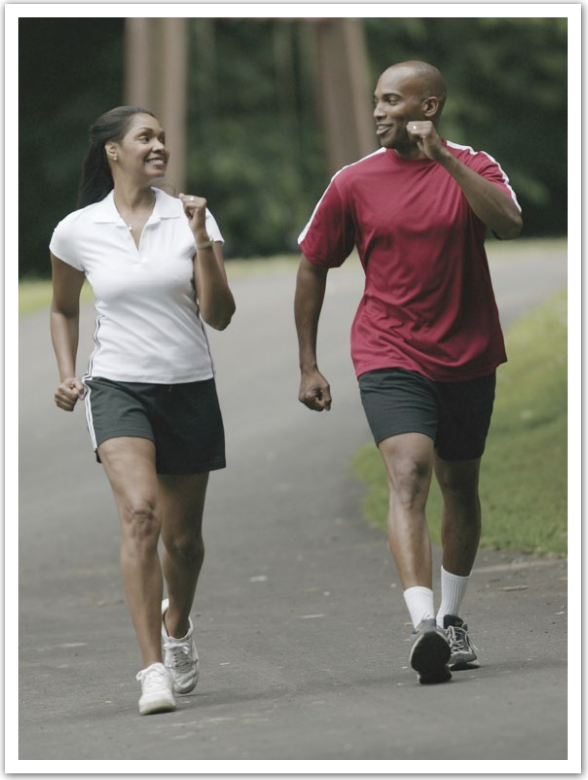
Gauging the Exercise Advantages

Siv Schwink, KT staff writer

Sixteenth-century poet Philip Sydney once noted that "the ingredients of health and long life are great temperance, open air, easy labor, and little care." One recent study that looked at the correlation between longevity and "easy labor" in the form of a brisk 10-minute walk each day suggests Sir Philip wasn't far off. Mounting evidence shows that taking time out for even a little leisure-time physical activity each day may actually give you longer years in return.

Where prior studies had linked exercise to a lower risk of mortality at any age, an international research team has now quantified the advantage by examining correlations between levels of daily activity after age 40 and specific gains in life expectancy for both men and women. The study, published in the November (2012) issue of *PLOS Medicine,* was led by National Cancer Institute nutritional epidemiologist Steven C. Moore.



"The idea that doing a little bit of leisure-time physical activity gives you some benefit, and doing more gives greater benefit, isn't surprising," said Moore. "The main impact of our findings is the quantification—how much exercise yields how much benefit."

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Are Trampolines Dangerous or Are We "Jumping" to Conclusions?

By Amy Rose, KT Staff Writer

Trampolines, long recognized by physical education teachers and gymnastic teachers as inherently dangerous, have taken another hit in an updated policy statement published in September by the American Academy of Pediatrics (AAP). Authors of the study did not mince words: "Pediatricians need to actively discourage recreational trampoline use," said Michele LaBotz, MD, FAAP, co-author of the statement. There is good reason to worry. In 2010 trampolines were implicated in nearly 93,000 emergency room visits and 3,100 hospitalizations. Sprains, strains, fractures, and occasionally spinal cord injuries are the price sometimes paid by those drawn to the springy devices.

But there are signs that the trampoline, once exiled from gymnastics competitions and high school physical education classes on the grounds that it was unsafe, seems to be making something of a comeback, partially due to a downward trend in injuries over the past few years. Some high schools now include it as an afterschool activity, and competitive trampoline appears to be on the upswing. It was featured as a competitive sport in the London Olympics this past summer.

While any reasonable person might wonder about the safety of athletes who spring 30 feet into the air hoping to land on the trampoline bed, proponents do not see trampolines as inherently dangerous, blaming the context and conditions in which the sport is allowed to occur. The AAP report, for example, felt that available data did not allow them to focus on trampoline competition involving highly trained athletes. For this reason, they limited the scope of their statement to recreational trampoline use, which often takes place on inferior equipment typically used in unsupervised backyards and recreational centers.

Photo provided by USA Gymnastics

According to the AAP statement, published in the September 24 issue of *Pediatrics*, three-quarters of injuries happen when two or more people are jumping at the same time. Small children are especially at risk for serious injury.

Although the AAP strongly discourages the use of trampolines in a recreational setting, Susannah Briskin, pediatric sports medicine specialist and co-author for the AAP safety statement, offered three main recommendations to improve trampoline safety: only allow a single jumper at a time, make sure a responsible adult is actively supervising children, and check and maintain equipment routinely. Smaller children are most at risk in dual jumping, because larger kids or adults can cause them to bounce higher and land out of control on the mat. Toddlers have higher centers of gravity (because of

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AKA President's Column

Lessons in Diversity from the AKA Leadership Workshop

Wojtek J. Chodzko-Zajko, PhD, President, American Kinesiology Association

Wojtek Chodzko-Zajko

The American Kinesiology Association (AKA) held its annual workshop for faculty and administrators on January 27-29, 2013, in Orlando, Florida. Department heads, directors, and deans of kinesiology programs from around the country explored issues related to recruiting and retaining faculty and students from underrepresented populations. There was a broad consensus that the time has come for kinesiology departments to work together collaboratively to promote, support, and sustain diversity in our departments. Accordingly, this week the AKA established the *AKA Diversity Taskforce,* which has been charged with assisting AKA departments to develop and implement action steps and strategies to increase the number of students and faculty of color at our institutions.

In the workshop keynote address, Dean Dana Brooks of West Virginia University reminded us why we should care about diversity in kinesiology. He stressed that a commitment to enhanced diversity is essential because it leads to enrichment in learning, it challenges stereotyped preconceptions, and it helps to foster the mutual respect that emerges from a racially and ethnically diverse campus. At many of our institutions, kinesiology departments have experienced significant challenges in recruiting and retaining students and faculty of color. At the workshop, we explored some of the root causes of our diversity challenges and identified a series of action steps and strategies to help overcome some of these problems.

Board of Directors Meeting in Orlando, January 26-27: Pictured left to right: Jane Clark, Jason Carter, Michael Delp, Melanie Hart, Wojtek Chodzko-Zaijko, Susan Peterson, Duane Kudson, Terry Rizzo, Joe Starnes, Jane Jenkins, Richard Van Emmerick, Michael Bemben, Amelie Lee, Ron Feingold, Phil Martin, Steve Estes, Tom Templin, Shirl Hoffman

With respect to the recruitment of undergraduate students, we identified a number of factors that inhibit students from diverse backgrounds from applying to our programs. For example, many high school students have a poor understanding of what kinesiology is about, and it is important that we continue our efforts to educate the general public about the field of kinesiology and the potential career opportunities available

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Unraveling the Secrets of the Knuckleball

By Peter Gwynne

A team of French researchers has examined what causes the knuckleball—in baseball and other sports—to move unpredictably late in flight. They conclude that the player who throws, kicks, or otherwise releases the ball provides just one factor in the orb's resulting motion.

The finding is particularly relevant because Major League Baseball honored New York Mets pitcher R.A. Dickey with the 2012 National League Cy Young award. Dickey's stock in trade is the ability to throw the fluttering knuckleball pitch so accurately and consistently that he ended the season with 20 wins and an ERA of just 2.73.

The researchers have found that an effect in the wake that the ball leaves behind it as it travels toward the batter creates the knuckling effect, as long as the pitcher throws the ball at the appropriate speed.

"When a sphere is in a flow, there is a critical velocity at which the wake behind the sphere and the drag force acting on the ball sharply decrease," explained hydrodynamics graduate student Caroline Cohen of France's École Polytechnique. The decrease in the size of the wake can lead to a sideways force that increases the ball's deviation from a straight-line path. Fluid physicists call this the "drag crisis."

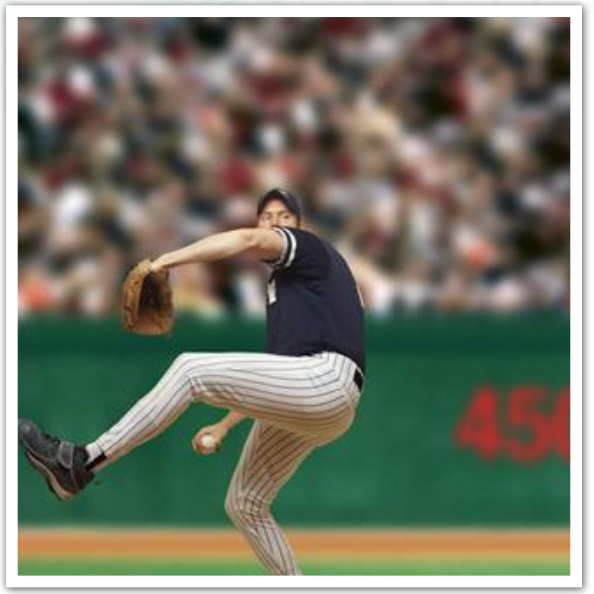
Thrown relatively slowly and with minimum spin, compared with that of Major League fastballs, the knuckleball confuses batters by changing direction in an apparently random fashion late in flight.

But knuckleballs aren't restricted to baseball. In cricket, Indian fast bowler Zaheer Khan has been known to use a knuckler for his slower ball. Volleyball players experience knuckling as a spiked ball closes on them. And, most important to the French scientists, top players such as Spanish-league Real Madrid star Cristiano Ronaldo can kick a soccer ball in such a way that it zigzags unpredictably en route to an opposing goalkeeper.

Ronaldo's performances persuaded the group, headed by École Polytechnique research director Christophe Clanet and also including his graduate student Baptiste Texier, to explore the effect.

To remove the human factor, they dropped steel, glass, and plastic beads of different sizes into a tank of water and monitored their passage with a high-speed camera.

"The advantage of water is in reducing



the length of the observation, because water's density is 1,000 times that of air," Clanet explained. "Moreover, we can easily visualize the wake of the beads in water with a fluorescing dye."

To ensure that the beads were not spinning as they entered the water, the team drew two perpendicular lines on each bead. Images of the lines taken as the beads dropped confirmed that the beads did not twist or rotate once they reached the water.

"It's a very clever way to proceed—creat-

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Executive Director's Corner

About Logos and Membership

Amelia Lee, Executive Director

Amelia Lee

A logo can serve as a front-line representative of who we are and what we are about in kinesiology. It symbolizes our shared sense of mission and purpose and helps to communicate to the general public what we stand for as we strive to convey our unique characteristics. Although some departments continue to shy away from incorporating kinesiology into their titles, it is clear that the term has gained enormous popularity. Currently over 175 departments are identified as "kinesiology" departments, including the majority of doctoral programs in the United States.

Several years ago AKA began to push the idea of AKA-member departments affixing the AKA logo to their websites. It is a good way for departments not only to identify themselves as members but also to signify that they are part of a national network of first-class departments.

It also is a way of helping AKA continue to achieve status and visibility and allowing it to become a significant force for unifying the field and advocating for kinesiology at the highest levels. Today AKA is growing rapidly with a membership of 142 departments. New affiliates join weekly. However, of these, only 31 currently post the AKA logo on their websites. *We need the help of all member departments.*

If you require suggestions as to how to include the logo on your website, I recommend consulting the websites of California State University at San Bernardino, Iowa State University, Michigan State University, and Texas A&M University. These and many others have developed excellent sites that incorporate the logo. If you are a member department, we would urge you to be a part of our growth and add the AKA logo to your website.

If you are not a member of AKA, you might want to know why so many departments are taking advantage of the extensive benefits that we offer. First, membership is a way of increasing your opportunities to network with a broad community of talented kinesiology leaders. AKA membership gives you excellent professional development opportunities, keeps you informed of current issues, and serves as a valuable resource for commonly needed services such as advertising your jobs on the website.

The AKA Leadership Workshop offered each year has become a unique platform for collaborating with colleagues from other universities on issues vital to our field. AKA Scholar Awards are presented each year to students of AKA-member departments. We offer free assistance in developing departmental strategic plans, publish position statements, and disseminate other information that your departments will find useful. In addition, AKA is committed to advocating for kinesiology at the highest levels. AKA members enjoy a multitude of valuable benefits, including the opportunity to connect with others who can share ideas and views about issues in our field. We urge you to join AKA's community of leaders from academic units interested in the study of physical activity and its impact on health, society, and the quality of life. KT

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John A. Lucas (b. December 24, 1927; d. November 9, 2012)

By Scott Kretchmar, Professor, Penn State

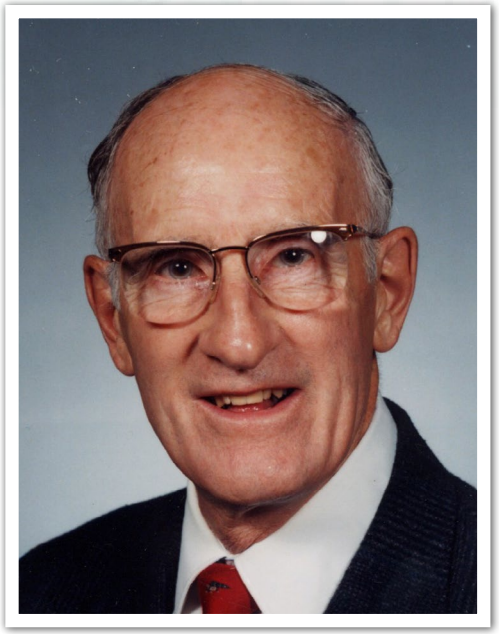
John Lucas died on November 9, 2012, after a year-long struggle with Lewy body dementia. He was 84 years old and living with his son in Columbia, Missouri, at the time of his death. John was married in 1955 to Joyce Lucas, who passed away in 2010.

John, a native of Boston, spent his professional career at Penn State University, first as a track and field coach and later as a famed sport historian. Local legend has it that Lucas was relieved of his coaching duties when some of his athletes reported to the athletic director that on road trips John would occasionally leave them at the track and head off to the library.

For over four decades, John wrote about the history of sport and the Olympic Games. He traveled tirelessly to give lectures on these topics. He rubbed shoulders with the IOC elite and in 1991 was named Honored IOC Lecturer for North America by then-President Samaranch. Lucas attended 14 different Olympics beginning with the 1960 games in Rome. He was a fine runner himself (a finalist in the 1952 U.S. Olympic Trials at the 10,000 meters), and he would take a ceremonial lap around the track at each Olympic Games. Over the years, as security at the Games became tighter, Lucas had to pull ever more-important strings in order to receive permission to take his lap.

John first mentioned retirement to me in 1984 when I was the new department head at Penn State. This notice, however, turned out to be premature. He was still teaching courses for the department 25 years later! During his remarkable research and teaching career, he published 4 books and 339 articles. But he was just as proud of the work he accomplished with alumni, children, and friends of the Olympic movement. He was affectionately called Mr. Olympics by some of those who heard his lectures and reveled in the many (often embellished) stories he told.

John was a collector and record-keeper. His personal library included a huge catalogued array of books, pamphlets, newspaper articles, and various memorabilia. John even kept track of his daily jogs, meticulously entering the mileage after every run. According to his journal, he amassed over 150,000 miles during his lifetime, more than 6 times the circumference of the earth.



John Lucas

John will be missed at Penn State. He was one of those rare individuals who was both honored . . . and loved.

These Fists Were Made for Fighting…

Siv Schwink, KT Staff Writer

Is the ability to deliver a bone-crunching, skin-splitting punch an evolved human trait? Did a dark, violent past shape our hands into fists?

In a study funded by the National Science Foundation and published in the January issue of *The Journal of Experimental Biology* (2013, v. 216, issue 2), University of Utah researchers Michael Morgan and David Carrier argue that the biomechanical anatomy of the hand tells us just that.

In early hominids, natural selection for manual dexterity in tool use is well attested and accepted. But, Carrier and Morgan point out, there are really two primary purposes to the human hand: to craft and use tools and to punch.

Carrier, lead author on the study, said humans are in fact the most violent of all of the extant great ape species, so it makes sense that selection for superior fighting performance helped to shape our physical form and our psyche.

He further explains that, in the evolution of species, sexual dimorphism is often greatest in those traits that would allow a male to dominate over other males. The hands of men and women are different in both size and strength.

"I think there's a desire among some people to think that our aggressive tendencies are a product of modern society, and that we didn't used to be that way," said Carrier. "But the evidence is overwhelming that our past was more violent than our present. The work we're doing suggests our aggressive past may go back to the beginning of our species."

To support their argument, the researchers performed three experiments to test whether the proportions of the human hand that allow for supportive buttressing in the fist posture would have given our early hominid ancestors—at about the time they abandoned their arboreal lifestyle four or five million years ago—an advantage in male-to-male combat.

"There is no historical record for this period," Carrier expanded, "so we look for clues in the fossil record. And our musculoskeletal anatomy tells us what the forces were that shaped our bodies and our minds—it tells us what our ancestors were good at."

Compared with other great apes, humans have shorter palms and fingers, and our longer thumbs are both more flexible and stronger. As a result, the researchers point out, we are the only hominids able to buttress our fists.

The researchers suggest that by bracing the tips of our fingers against our palm and wrapping our thumb in front of our fingers, the striking area of the fist is stiffened and strengthened. At the same time, buttressing allows the thumb to act as a shock absorber, reducing the likelihood of injury when delivering a solid punch.

Photo Credit: Lee J. Siegel, University of Utah

University of Utah medical student Michael H. Morgan strikes a punching bag that was used by Morgan and university biology Professor David Carrier in a study that suggests human hands evolved for fighting with fists, not just for the manual dexterity needed to use tools, play musical instruments and paint artworks.

To test their hypothesis, the researchers enlisted 12 punching experts—healthy men

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Technology Continues to Push Limits of Human Performance

Advances in technology continue to open new paths to exercise, skill learning, and physical rehabilitation. Ekso Bionics' Ekso Skeleton, a wearable robot that enables paraplegics to stand and walk, was described in these pages in the Spring 2012 issue. Now comes word of a couple of new devices, one that encourages proper sitting posture as a way of alleviating back pain and the other that uses feedback to help shape movements used in sports.

The LUMOback device, which came on the market in November for $149, is a waistband that fits against the lower back and vibrates when the lower back (and in some cases upper back) isn't positioned properly. According to its executive leadership team (all graduates of Stanford Business School), it is highly sensitive in detecting faulty posture and "will help correct many cases of poor neck and upper back posture, which owe to poor positioning of the lower back." The thin sensor device connects wirelessly to a mobile app for smartphones or tablets. It emits a gentle vibration when it detects posture is out of alignment and, using a friendly avatar named LUMO, tracks your posture and activities in real time, mirroring your daily activities.

LUMOback


The Ghost

Going several steps beyond the LUMO is a prototype product called the Ghost, the brainchild of Benedict Copping, an industrial designer, and his colleagues at Imperial College London. The device, which can detect flexion and rotation in joints, supplies feedback in the form of vibrations whenever arm movements are in synch with a digitally prescribed pathway of movement (really a series of gateways). The device consists of sensors for detecting movements and LEDs and vibrators that let the performer know when his or her movements are correct. In swimming, for example, sensors detect the movement of joints, and blinking LEDs and vibrating pads inform the wearer about the strokes in relation to the efficient movements used by expert swimmers.

The Ghost was initially designed as an assisting device for blind athletes who are disadvantaged by limited visual feedback regarding their performances. Now it is viewed as a way for average, sighted athletes to mimic the swings of professional golf and tennis players, whose movements can be digitally recorded and saved on the machine.

Watch a video of the Ghost in action at www.dailymail.co.uk/sciencetech/article-2197629/The-vibrating-Ghost-glove-make-serve-like-Murray-downloading-celebrity-moves-helping-copy-them.html

-SJH

Basketball Players Spread Their Wings

Sports Illustrated's David Epstein, well-known by kinesiologists for his informative writings on sport science---especially genetics and athletics--- excerpted a brief passage on the importance of arm length in NBA basketball players from his forthcoming book *The Sports Genes* in a recent issue of the magazine (November 12, 2012). According to Epstein, height may not be nearly as important as wingspan in achieving success in the game, especially when it comes to shot-blocking and offensive rebounding.

NBA players aren't just tall, they have formidable wingspans. While the average person's wingspan is approximately equal to their height, the average ratio of arms to height in NBA players is 1.06. Some, like 6'8 ¼" Elton Brand's outstretched arms reach to 7'5 ½." Highly sought after 17-year old BeeJay Anya, ranked number 16 in the class of 2013 recruits, is 6'8" tall but has a wingspan of 7'9" one of the longest ever seen in a recruit.

This may not be quite as large as New Zealand's Marabou stork (12' plus), but for humans, it is way beyond what might be considered normal. Arm length isn't predictive of scoring ability (The Orlando Magic's 6'4"sharpshooting J.J. Redick's wingspan is a subpar 6'3 1/2"). But, says Epstein "it is equally as important as height when it comes to predicting offensive rebounds, and, arm span and height together account for half of the variation among players in defensive boards without even taking into account factors like playing time, weight, and vertical leaping ability." Still the contribution of arm length to sports performance can be misleading. As Epstein points out, while a long reach would seem critical for success in boxing (indeed, 6"1/2" Sonny Liston's arms spread to a reach of 7 feet), phenomenal boxing champion Rocky Marciano who stood 5'11" had a reach of only 5'7". Time to replace outdated terminology about "getting-a-leg-up on the competition" to "getting-an-arm-up"?

-SJH

So…How Are We Doing?

When he was mayor of New York City, Ed Koch, who passed away on February 1, was famous for standing on street corners and asking people "How'm I doin'?" He wanted feedback and he paid attention to residents' gripes and complaints as well as compliments. We at KT need feedback too. We think KT is being well-received, and we suspect that there are some gripes as well. Please send them to us at shirlh@hkusa.com.

New Look for Physical Education

Heather Van Uxem Lewis

Balance of Powers: Martial Arts class is a thinking person's game.

At The School at Columbia University, an independent K-8 school situated nine blocks south of Teachers College in Manhattan, physical education has a new look. On a recent morning a teacher asked his third graders to warm up their minds before they warmed up their bodies. Before they grabbed jump ropes they spent a few moments discussing how street games came to be invented amid the conditions of big-city life. The children call out ideas they've studied in the classroom: how jump rope, stickball and other activities were shaped by limited space and materials. "Street games," says one boy, "are traditionally part of the culture of New York." Later, while working in small groups, they use iPads to record the performances of classmates for later analysis.

This new face of physical education is part of "City," a third-grade curriculum theme that cuts across disciplines at The School. It is an attempt to tightly integrate physical education and classroom studies. The approach grew out of research by TC's AKA-charter board member Steve Silverman and his colleagues; it points physical education away from the traditional "gym class" model---competition as motivator in which the jocks rule---toward learning enjoyment and lifelong skills development.

Team sports still retain an important place in the curriculum: seventh graders do a unit on soccer but at The School it is linked to what they learned in the classroom. (In this case students form a soccer league modeled on one organized by Nelson Mandela and other prisoners in the Robben Island penitentiary.) In the classroom they write letters arguing for the league's recognition and demanding equipment, as the prisoners did. The letters are evaluated on their persuasiveness.

Reaching all types—kids who think of themselves as athletes and others who, for a variety of reasons, do not---is a challenge for every physical education teacher. The roll-out-the-ball gym class stereotype---where the teacher sets up competitive activities for the most competent students, while others go through the motions, chitchat or just stand around—dies hard.

"This isn't a surprise given that most physical education teachers are athletic types themselves" says Silverman who chairs the Teachers College Department of Biobehavioral Sciences. "One problem is that most of us who were undergraduate physical education majors were successful doing motor skills so were not thinking about the less skilled, and there are a lot of them."

Kids not normally drawn to physical activity may be saddled with images of physical incompetence and body standards popularized by the media. "If you feel your body doesn't mirror particular dominant ideals, it impacts your physical education engagement," says Laura Azzarito, associate pro-

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Editor's Two Cents' Worth

Can Kinesiology Help Merge Academic and Athletic Cultures?

Shirl Hoffman, KT Editor

Shirl Hoffman

When recent scandals involving both an academic department and the athletic department embroiled the UNC-Chapel Hill campus, its chancellor promised to strike a groundbreaking balance between athletics and academics at his institution. If his vision of UNC becoming a national leader in restoring sanity to college athletics, not merely by instituting scandal-proof policies, but by creating a structure for fully integrating athletics and academics is ever realized, it will establish a legacy that far outlasts local euphoria for winning national championships.

But he shouldn't underestimate how difficult it will be to tear down walls that have long separated athletic and academic cultures. Surely it entails much more than cleansing athletics of its seamier aspects. And it involves much more than reining in unprincipled coaches and players, or insuring that "friendly faculty" don't participate in pathetic efforts to keep athletes academically eligible. "Clean athletic programs" just as surely as "dirty programs" can remain safely cordoned off from the educational mission of a school.

"Merging" the two cultures isn't so much a matter of injecting academics with the spirit and aims of athletics as much as it is injecting athletics with the same values that undergird academic missions---namely, a commitment to teaching, learning and discovery of knowledge. It is probably a testimony to our cynicism that such suggestions seem fanciful, but only because college athletics, almost from their inception, have been allowed to remain isolated from the core business of the university.

At ground level, integration means bringing the same spirit animating the study of biology, psychology, or kinesiology to bear on athletic performances. It means that athletes should graduate knowing more about sport than X's and O's. A university that truly respects what it purports to sell to the culture---knowledge, intellectual curiosity, ethical frameworks, love of learning---will insist that athletes graduate having developed---if only at a bare minimum--- an informed conception about their athletic lives.

In a way this is nothing new. Colleges have traditionally woven art, music, drama and dance ---like athletics, kinetic experiences performed for public display and appreciation---into the academic fabric. Dancers, for example, master the skill of dancing and display their talents in public performances but they also learn the theory of choreography, the history of dance, and the art and science of human movement. Art students learn to paint and sculpt but they also learn art history and criticism, not because it promises to improve the quality of performances but because it will improve the quality of the performer.

Knowing more about art makes for empathetic artists who can put their contributions in the context of history and understand the basis for their impact on the human spirit. Knowing more about the science of movement makes for dancers who understand the cultural importance of their work as well as the demands movement places on their bodies, dancers who can appreciate their accomplishments that much more.

But most athletes---those contracted to perform on the university's biggest stage---

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Harkin Introduces Bill to Spur Physical Activity

Legislation introduced in January by Iowa Senator Tom Harkin includes provisions to fight chronic disease, encourage healthier communities, schools and workplaces, and improve physical activity opportunities for all, including those with disabilities. The *Healthier Lifestyles and Prevention America* (HeLP America) *Act* targets school physical education programs and provides tax incentives for businesses that offer comprehensive workplace wellness programs to their employees. The bill:

1. Supports State efforts to provide resources to child care providers to help them meet high-quality health, mental health, nutrition, physical activity and physical development standards; highlights nutrition standards and physical activity as a possible component of State Child Care and Development Block Grant plans.
2. Directs the Department of Education to provide oversight, guidance, and technical assistance to ensure that schools provide equal opportunities for students with disabilities for Physical Education (PE) and extracurricular athletics.
3. Includes in annual state report cards a set of indicators describing the physical activity environment in schools including measures of the time, quality, teachers, and facilities devoted to PE. Adds PE to the existing set of "core subjects," bolsters nutrition and physical activity in community learning centers, and engages parents and teachers in physical activity and healthy eating opportunities
4. Establishes competitive grants to public entities and nonprofit private entities to implement community-based sports and athletic programs for people with disabilities, including youth with disabilities.
5. Requires HHS to issue and update physical activity guidelines for all ages every 10 years while compiling intermediate reports highlighting specific groups, issues, concerns, or practices.

Three days after Senator Harkin announced his legislation, some of which addressed the issue of physical activity opportunities for students with disabilities, the Department of Education announced new guidance on the same subject. Under the new rules disabled students who want to play interscholastic sports for their school should be allowed to join traditional teams if school officials can make "reasonable modifications" to accommodate them. The rules are not intended to guarantee disabled students spots on a team. After all, many able-bodied students who lack proficiency in sports are denied access to competition as well. Schools must not, however exclude students based on their disability if they can compete with their classmates. In some instances it may be necessary to design a separate sports league for such students.

More information here. KT

-SJH

Is It the Exercise or the Music?

In a lead story in the *Wall Street Journal* (February 6, 2013) fitness companies are described as being almost as devoted to creating and selling the music that accompanies their classes as they are to selling the exercises themselves. As the influence of radio as a marketing device wanes and interest in yoga, Zumba, and indoor cycling grows, exercise instructors are giving attention to their playlists with unprecedented vigor. Fitness businesses are cutting licensing deals with music companies, intent on selling exercise songs the same way film and television executives peddle soundtracks.

Scott Melker, a music producer and DJ hired by Flywheel Sports to help coordinate music with its indoor cycling classes, told the *WSJ* that labels and artists who want their music included in his playlists pitch him regularly. At SoulCycle, a rapidly expanding national chain of spinning studios, instructors are prohibited from sharing their playlists with students online. Co-founder Julie Rice admitted that "music is a part of what people come to SoulCycle for."

"Concerts" are now organized by fitness companies, notably Zumba Fitness, whose conventions are now attended by as many as 8,000 people who want to listen to music by Wyclef Jean and Vanilla Ice. Yoga is even getting into the act. MC Yogi Nicholas Giacomini, a California-based yoga studio owner and hip-hop musician, has written, recorded, and sold more than 100,000 yoga-centric rap albums, although some yoga purists worry about matching a soundtrack to the meditative practice.

-SJH

Noted in Passing

According to a report released in January by the Delta Cost Project, annual spending by public universities in the six most powerful NCAA conferences now exceeds $100,000 per player, 6 to 12 times per-student academic spending. Schools in the SEC spent approximately $164,000 per athlete, 12 times as much as the institutions spent on academic expenses. **Chronicle of Higher Education**

Scientists have developed artificial muscles constructed of yarn that are capable of "ultra-fast contractions" and can lift loads 200 times heavier than is possible by using human muscle. While well suited for a diverse assortment of applications in industry and medicine, because of technical reasons, they are not suitable for replacing lost or damaged muscle in the human body. **Fox News**

Rob McLeod (aka "Frisbee Bob") and his dog Davy Whippet broke the Guinness record for Frisbee dog catching. McLeod, a Frisbee sport competitor, threw the disc 402 feet. Davy caught it, becoming the first dog to catch a flying disk over 400 feet. **World Record Academy**

Insight

Physical Activity and Public Health: Threat or Asset to Physical Education?

Russell R. Pate, Ph.D., Department of Exercise Science, Arnold School of Public Health, University of South Carolina

Russell R. Pate

Like many physical activity scientists of my generation (aged 60+ years), my professional roots are firmly embedded in the field of physical education. I was an undergraduate physical education major, and my graduate studies in exercise physiology were pursued in a traditional HPER unit. However, unlike most colleagues of my generation, I have spent most of my academic career in a unit that was either part of or closely connected to an accredited school of public health. Further, much of my research and professional activity has been focused on promotion of physical activity in youth, and most of my work has relied on public health methodologies. These experiences, I believe, give me a unique perspective on the relationship between school-based physical education and the field of public health. In this brief essay I will endeavor to summarize my understanding of the relationship between physical education and public health. Further, I will speculate on the various paths this relationship might take in the future.

Physical education (PE) became established in American schools in the late 1800s, and my reading of the history of the field suggests that PE was "sold" to the policy-makers of the day on the basis of the health and fitness benefits of exercise. Accordingly, the early forms of physical education emphasized calisthenics, gymnastics, and other fitness-generating forms of physical activity. It was only in the mid-20th century that PE programs migrated to an emphasis on motor skill instruction and exposure to sports and sport skills, a focus that has been dominant to the present day. Public health, as a formal professional pursuit in the United States, originated in the early 20th century and began gaining national reach following the creation of the Centers for Disease Control in 1946. The early focus of public health was infectious disease prevention, and major public health victories involved eradication of infectious diseases through immunizations and sanitation of the water supply. More recently, public health has developed a focus on noncommunicable diseases that now account for most of the morbidity and premature mortality in the developed societies of the world.

Though it rarely has been viewed as such, I think that school physical education could be seen as America's first major investment in public health. While the early promoters of PE clearly had population-level health promotion in mind, the field of public health essentially ignored both physical activity as a health behavior and physical education as a strategy for promoting physical activity until the 1980s. But as public health turned its attention to noncommunicable disease prevention and the data linking physical inactivity to increased risk for chronic diseases became increasingly compelling, public health began adopting physical activity as a population health parameter. At present, physical activity remains a "new kid" and relatively minor player in the overall public health system in the United States. That said, few public health leaders would deny that physical activity is a major public health concern in the developed nations of the world, and some actually see it as one of the great public health challenges of this century.

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Which High School Football Players Have a Leg Up on Scholarships to BCS Schools?

When it comes to offering scholarships to high school football players, coaches at the most competitive (Bowl Championship Series) universities rely on a basketful of predictors in making their choices. Now, for the first time, empirical evidence has been brought to bear on some of the factors that are in play in the selection process. Using a database for 2008 college recruits available at Rivals.com, Kennesaw State University exercise science and sport management professor Joshua Pitts and Mississippi State economics professor Jon Rezek examined the effects of such variables as a player's weight, height, BMI, race, speed, and his high school team's success on the chances that they would be recruited by a Bowl Championship Series school. Complete player profiles were available on 1,162 of the 3,112 players in the Rivals.com data base. They also collected GPA and ACT scores as proxies for playing intelligence or what they termed "field sense." They surmised that such scores may serve as a proxy for field sense in that players with high cognitive ability may be able to grasp more complex strategies, tactics, and game plans. Additionally, coaches might be presumed to favor student athletes who have demonstrated success rather than struggled in the classroom.

The research, published in the *Journal of Sports Economics* (13:5), turned up results that were interesting and in some cases eye-opening. For example, African American players received almost twice as many scholarship offers as non-African American players on average. The authors wondered if the disproportionate share of offers to African American players may be reflecting their higher level of investment in developing athletic skills "due to previous and current racial discrimination in nonathletic-related labor markets." Not surprisingly, size matters, especially in a lineman's chances of being recruited. An additional 10 pounds in weight equated to an additional 0.15 scholarship offers; an additional inch in height equated to an additional 0.604 offers. Height was particularly important for lineman, where an additional inch in height resulted in approximately one additional scholarship offer. But BMI weighed negatively on the chances of being offered a free ride. A one-unit increase in BMI was associated with 1.5 fewer scholarship offers.

Speed was a particularly important variable in the selection of running backs: a second of improvement in 40-yard dash time led to about 1.1 additional scholarship offers.

Even though African American players are much less likely to be quarterbacks—a finding the authors suggested may be due either to self-imposed or externally imposed racial segregation—African American high school quarterbacks received approximately 1.5 more scholarship offers than non-African American quarterbacks. African American wide receivers and defensive backs received on average 3.5 more scholarship offers, and lineman 1.6 more, than non-African American players at the same positions. Players from Texas and Florida were more likely to be recruited to a BCS school.

The relationship between GPA and scholarship offers was negative but not statistically

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Football Still King Among Sports Fans

Americans may not be quite the avid sports fans that some have made them out to be. Recent data from an online Harris Interactive Poll in which respondents were asked to name their favorite sport found that of a total of 2,237 (aged 18+) contacted, only 1,466 (65%) were able to name a favorite sport at all. The results do, however, show a continued public fascination with football. Those who identify professional football as their favorite sport increased 10 percentage points (from 24% to 34%) between 1985 and 2012. College football was not nearly as popular, being identified by only 11% of the sample as their favorite sport. This was a scant 1-percentage point increase over the 17-year period. Baseball was the big loser; where 23% identified it as their favorite sport in 1985, only 16% did so in 2012. NBA basketball was listed as the favorite sport of 7% of respondents, a modest increase of 1 percentage point, while the popularity of college basketball (3%) decreased by 3 percentage points. Women's tennis, professional and college basketball, golf, and soccer were named as favorite sports by less than 0.5% of respondents. African Americans (48%), those between the ages of 40 and 49 (41%), and Westerners (40%) were more likely to name professional football as their favorite, while those between the ages of 18 and 24 (23%), college graduates (27%), and Southerners (30%) were less likely to do so.

www.harrisinteractive.com/NewsRoom/HarrisPolls/tabid/447/ctl/ReadCustom%20Default/mid/1508/ArticleId/1136/Default.aspx

-SJH

Noted in Passing

This year's National Survey of Student Engagement revealed that 27% of first-year students chose not to purchase required academic materials because of their cost. **Chronicle of Higher Education**

Although most students value college consumption amenities such as student activities, sports, and dormitories, the demand apparently is highest at less-selective institutions. A recent economic report says "the taste for academic quality is confined to high-achieving students" and suggests that more selective schools have a greater incentive to improve academic quality while less selective schools "have a greater incentive to focus on consumption amenities." According to the report, "the vast majority of colleges appear to have a negative enrollment response to increases in academic spending." **National Bureau of Economic Research Working Paper 18745**

Required University Physical Activity Programs on Downward Spiral

According to a recent study published in *Research Quarterly for Exercise* and Sport (December, 2012, 503-512) by Oregon State Professor Brad Cardinal and his colleagues, the number of institutions requiring successful completion of physical activity requirements in colleges and universities is in a downward spiral, in spite of warnings from health professionals of the dangers confronting those who fail to meet minimum standards of physical activity. The study tracked the curricula of 354 randomly selected four-year universities and colleges dating back to 1920 to identify which required completion of physical activity requirements for graduation with a baccalaureate degree. The trend observed was both interesting and disturbing. Whereas 97% of the institutions required some sort of physical education course in the 1920s, only 39% do so today. Cardinal said, "It is alarming to see four-year institutions following the path that K-12 schools have already gone down, eliminating exercise as part of the curriculum even as obesity rates climb."

Unfortunately, Cardinal and his associates were not able to determine if the trend is due to changes in the tastes and values of university curriculum committees or if some of the blame can be laid at the feet of kinesiology faculty who, in struggling to define themselves as academic centers of excellence, have deemphasized the role of required physical activity courses in the curriculum. If indeed enthusiasm for required physical activity courses has waned among kinesiology researchers, one can appreciate the irony of those whose research aims at increasing physical activity levels of the public not backing efforts to increase the physical activity levels of their students. It is time for kinesiologists to "get serious about our roles in advocating for and using research to bring physical education back to college campuses," says Cardinal. "College isn't too late to start influencing students and getting them on a healthy trajectory."

A position paper by the National Association for Sport and Physical Education is available on this topic here. Required physical activity programs are also emphasized in the National Physical Activity Plan, which includes among its recommendations to "encourage USDE/CHEA accrediting agencies to require all institutions receiving Federal (Title IV) funding to hold a class focusing on the impact of physical inactivity, resources and opportunities for physical activity, and positive health behaviors such as an institutional graduation requirement" (www.physicalactivityplan.org/education_st6.php).

-SJH

Brad Cardinal

Number 1 on the Field Doesn't Always Mean Number 1 at the Bank

A recent analysis of the value of college football programs by Indiana University-Purdue University Columbus finance professor Ryan Brewer ranks the market value of 115 teams from the top-tier Football Bowl Subdivision. The study, in press for the *International Journal of Sport Management,* takes into account the program's revenues and expenses, risk assessments, and growth projections. Interestingly, neither Alabama nor Notre Dame, the two teams that competed for the national championship, were at the very top of the list. Notre Dame was the fourth-most valuable team ($597.4 million), and Alabama was the eighth-most valuable team ($476 million). Texas, the most valuable team ($761 million), and Michigan, the second-most valuable team ($732 million), finished the season ranked 18th and 24th, respectively.

Although Tennessee was the 12th-most valuable team ($364 million) in the analysis, recent reports show the athletic program to be more than $200 million in debt. Faced with an annual obligation of $21 million in debt payments, mostly for a $130-million upgrade to its Neyland Stadium and an $11.4-million obligation to buy out a string of fired coaches, the athletic department has temporarily halted its annual transfer of $7 million to the university's general fund. The key to financial success, Tennessee athletic director Dave Hart told Sports Business Journal, is fielding a winning football team. "We've got to get football healthy," said Hart. "That's our economic engine." Efforts to reach researchers for explanations as to how Tennessee football can be valued at $364 million when the athletic department is $200 million in debt were unsuccessful. Read more at Wall Street Journal, January 7, B8, and www.sportsbusinessdaily.com/Journal/Issues/2013/01/28/Colleges/Tennessee.aspx

-SJH

Kinesiology Makes the Major Papers and Leagues

As researchers continue to peel back the frontiers of science and human performance and as practitioners seek to highlight their professional credibility by referencing their educational backgrounds, "kinesiology" is gradually emerging as the publicly acknowledged title for this vast and complicated field of study. Witness two recent stories in national outlets in which kinesiology takes center stage:

In a *Sports Illustrated* story (October 22, 2012, D7) about the amazingly durable arm of Detroit pitcher Justin Verlander, columnist Phil Taylor credits the science of kinesiology with helping to develop new approaches on how to coach and manage pitchers. Says Taylor: "What was once the art of handling pitchers now leans heavily on science. Teams consult kinesiologists, biomechanists, orthopedic surgeons, and physical therapists about how to keep their pitchers healthy. Pitching coaches learn about shoulder abduction, pelvis rotation, kinetic chains, torque level, trunk tilt, and joint loads. General managers read doctoral dissertations on pitching mechanics, analyze injury histories, and factor in anecdotal evidence—all in an effort to avoid the dreaded arm injury."

More recently, the *Wall Street Journal* (December 19) featured an article with the barely apt title "Stop Mocking the Gym Majors" that shows how an educational background in kinesiology has helped former athletes transform themselves from players to fitness leaders, trainers, and even gym owners. The article notes the enrollment boom in kinesiology departments, notably at University of Michigan's School of Kinesiology where applications rose 30% last year, and cites Mary Rudisill, head of the AKA-member kinesiology department at Auburn, regarding the number of faculty in her department who are former athletes. Anthony Trucks, a former Pittsburgh Steeler linebacker who has established his own training operation in California, told the *WSJ* reporter that his clients ought not be more impressed with his experiences in professional football than with his performance in the calculus and anatomy courses he took while at the University of Oregon. "I'm not a dumb jock," said Trucks. "I studied kinesiology, and as much as anything that's why I have the ability to help other people." KT

-SJH

Short Shots

Chinese Waistlines Growing Faster than GDP

A new book, *Fat China: How Expanding Waistlines Are Changing a Nation* by Shanghai-based author Paul French and co-author Matthew Crabbe, underscores the growing obesity epidemic in China. Although the percentage of adults who are overweight or obese grew from 25% in 2002 to 38.5% in 2012, few national programs are being launched to stem the epidemic. French says one of the reasons may be fear that people will ignore government messages in the face of scores of others sent their way by the ruling powers. French told the *Washington Post,* "When I talked to government officials, their argument was: 'Right now we're trying to tell them to do and not do a lot of things, such as not spitting on the street, not dropping trash everywhere, and not driving like complete idiots. They know they can only tell people to do some things...before they get fed up.'" KT

Washington Post, December 31, 2013

Freshmen See Themselves as Cut Above Peers Academically but Not Physically

Results of the 2012 Freshman Survey published by the Cooperative Institutional Research Program at the Higher Education Research Institute at UCLA are in. As if they all were from Lake Wobegon, seventy-six percent view themselves as in the "top 10 percent" or "above average," and 69% rated their academic ability above average or in the top 10 percent of peers. Arthur Levine, former president of Columbia University's Teacher College, told the *Chronicle* that these student self-assessments "don't track well with their abilities or with what they've learned." Levine believes part of the reason can be traced to parents who coddle their children and to professors who inflate their grades. A much lower percentage (55%) rated themselves either above average or in the top 10 percent for physical health, and only 52% rated themselves in the category for emotional health. KT

Sander, L. (2013). Students are ever more focused on jobs. *The Chronicle of Higher Education,* February 1, A2.

Resistance Training Improves Vascular Function in African American Males

A recent study led by Professor Bo Fernhall of the department of kinesiology and community health at the University of Illinois Chicago and reported in the *Journal of Human Hypertension* (November 22) found that 6 weeks of resistance training significantly reduced markers of substances known to be harmful to arteries in a group of African American men but not in a similar group of Caucasian men. Levels of substances known as MMPs, which help remodel blood vessels after injury or infection, and 8-isoprostane, a marker of oxidative stress involving chemically charged ions or molecules called reactive oxygen species, dropped following the short training period in a sample of African American males but not in a sample of Caucasian males matched in body mass index. Moreover, the decrease in MMP-9 was significantly correlated with the increase in muscle strength in the African American men. Doctoral student Marc Cook, who led the study, told *Science Daily* he now knows what to say to African American men who ask him why they should exercise. "If you don't like cardiovascular exercise, if you

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don't like running on a treadmill, if you can't play basketball or you're not good at it, you can lift weights and improve your health, especially when it comes to high blood pressure, which happens to run in our family," he said. "If you just want to lift weights and you do it on a regular basis, you could improve your function." KT

Science Daily, December 21

….But Resistance Training Is Less Effective in Burning Fat

When it comes to burning fat, however, resistance training was found to be a poor substitute for aerobic training. Research from exercise physiology labs at Duke University suggests that aerobic training is a more efficient way to burn fat than either resistance training or a combination of the two. Overweight or obese adults (N=119) were randomly assigned either to resistance training (three days per week of weightlifting), aerobic training (12 miles per week), or aerobic plus resistance training. The aerobic exercise group spent an average of 133 minutes training per week and lost weight, while the resistance training group spent approximately 180 minutes exercising per week without shedding pounds. (The resistance training group actually gained weight due to increased muscle mass.) The combination group invested double the time of the other groups but did not have significantly reduced fat or body mass over the exercise-alone group, although people in this group had significantly reduced waistlines. KT

Willis, H.L., et al. (2012). Effects of aerobic and/or resistance training on body mass and fat mass in overweight or obese adults. *Journal of Applied Physiology, 1831-1837.*

Need a Favor? Ask a Woman

So say two studies presented at the American Economic Association in January. In one study, 47 business school students were asked about incidents during their work day when they agreed to do a favor to which they would have preferred to say no. Female students did the favor even though they were five times more likely to report feeling worn out. In a second study involving altruistic behavior in small groups, female undergraduates were 50% more likely to comply with an implicit request for a favor than male students. The researchers say that women may agree to requests for favors because they worry about the consequences of saying no. One result of this agreeable behavior may lead them "to become overburdened with low-skill tasks." KT

Wall Street Journal, January 12-13, 2012, G-4

Olympians Live Longer, but Not All Enjoy Same Benefits

Two studies reported in the December (Christmas) issue of the *British Medical Journal* (online) shed light on the mortality of Olympic athletes. The first, which found that Olympic medalists outlive most of us by an average of 2.8 years, compared data on 15,174 male and female medalists who competed since 1896 with matched controls. Thirty years after competing, 8% more medalists were alive than similarly aged people from their own countries. Medalists in eight of nine countries represented had a significant survival advantage compared with controls. Gold, silver, and bronze medalists each enjoyed similarly sized survival advantages. Investigators noted that their study was not designed to explain this effect, but "possible explanations include genetic factors, physical activity, healthy lifestyle, and the wealth and status that come with international sporting glory" (www.bmj.com/content/345/bmj.e8308).

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A second study reported in the same issue of *BMJ* examined relationships between longevity and type of Olympic competition. Data were examined from athletes (N=9,889) who participated in the games between 1896 and 1936. Activities were classified according to different levels of cardiovascular intensity, static and dynamic intensity exertions, high or low risk of body collision, and different levels of physical contact. Surprisingly, mortalities (hazard ratios) for athletes from events with moderate or high cardiovascular intensities (cross-country skiing, biathalon, rowing, etc.) were not different from those who competed in events requiring low cardiovascular intensity (cricket, curling, golf, etc.). Increased mortality was found, however, among athletes who participated in events with a high risk of body collision and high levels (but not moderate levels) of physical contact. The investigators believe the higher mortalities for athletes involved in body collision events reflect "the effect(s) of a gradual accumulation of multiple bodily injuries during sporting activities" (www.bmj.com/content/345/bmj.e7456) KT

Hair Concerns Is a Reason Why Some African American Women Avoid Physical Activity

A recent study in the *Archives of Dermatology,* conducted by researchers at Wake Forest School of Medicine, surveyed African American women (average age 42) about their hair care practices and physical activity and found that hair maintenance limited their physical activity participation. Thirty-six percent of the women said hair concerns led to avoidance of swimming and water activities. Twenty-nine percent avoided aerobic and gym activities for the same reason. Women with neither dry nor oily scalps were more likely to participate in gym or aerobic activities than those with scalp complaints. KT

Hall, R.R., Francis, S., Whitt-Glover, M., Loftin-Bell, K., Swett, K., and McMichael, A.J. (2012). Hair Care Practices as a Barrier to Physical Activity in African American Women. Archives of Dermatology, December 17.

Evidence Suggests Obesity Decline in Preschool Children

According to a study reported in the December 26 (2012) issue of *JAMA*, obesity among children from low-income families may be declining. Whereas the prevalence of obesity rose from 13.05% in 1998 to 15.21% in 2003, obesity rates decreased slightly to 14.94% in 2010. Prevalence of extreme obesity (BMI of 120% or greater of the 95th percentile) increased from 1.75% in 1998 to 2.22% in 2003 but fell to 2.07% in 2010. "To our knowledge, this is the first national study to show that the prevalence of obesity and extreme obesity among young U.S. children may have begun to decline," the authors write. "The results of this study indicate modest recent progress of obesity prevention among young children. These findings may have important health implications because of the lifelong health risks of obesity and extreme obesity in early childhood." KT

www.sciencedaily.com/releases/2012/12/121226080338.htm

Promoting Physical Activity on College and University Campuses

David R. Bassett, Jr., University of Tennessee

In February 2012, Dr. Patty Freedson (President of the National Academy of Kinesiology) convened a meeting of representatives of three kinesiology organizations to discuss how to promote physical activity on college campuses and how to increase the visibility of the field of kinesiology.

Representatives of the National Academy of Kinesiology (NAK), the American Kinesiology Association (AKA), and the American College of Sports Medicine (ACSM) met in Indianapolis to consider the issue. A committee was formed: David Bassett, NAK, Committee Chair (University of Tennessee, Knoxville), Kathy Janz, NAK, (University of Iowa), Joe Starnes, AKA (University of North Carolina, Greensboro), Mary Rudisill, AKA, Steve Hawkins, ACSM (California Lutheran University), and Sheila Ward, ACSM (Norfolk State University). Also in attendance were Jim Whitehead (ACSM Executive Director), Barbara Ainsworth (ACSM President), and Kimberley Scott (AKA and Human Kinetics).

The committee decided to begin by developing a program to assess the quantity and quality of physical activity opportunities for students, faculty, and staff on campus. They will model this effort after the American Fitness Index™ (AFI) program established by ACSM with the support and funding of the WellPoint Foundation. A survey will be conducted, and the results will be used to construct a metric known as the National Collegiate Fitness Index (NCFI). The goal is to be able to assess the environmental supports for exercise (i.e., leisure-time physical activity) as well as active transportation (i.e., walking and cycling for utilitarian purposes). This may help colleges and universities in determining where they could improve and assist them in identifying resources and policies that support physical activity. It could also help prospective students in selecting schools that fit their needs.

The survey is now being developed to assess the physical activity environment on college and university campuses, and it is targeted at both 2-year and 4-year institutions. Within a year, the survey will be delivered to 800 colleges and universities that have a kinesiology-type program on campus, and it will later be expanded to include more institutions.

Once the surveys are returned and the data are analyzed, each school will receive a report that rates their campus environment on its conduciveness to physical activity. The results of the survey will also be published on a website providing ratings for college campuses. This is the first goal, and the committee will develop other action items to help bring kinesiology programs on campuses to the forefront of physical activity promotion.

Conferences, Meetings, and More

19th Annual Physical Activity and Public Health Course to Be Held in September

The Physical Activity and Public Health Courses, sponsored by the Centers for Disease Control and Prevention and the University of South Carolina Prevention Research Center, will hold its 19th annual training event on September 10-18, 2013, in Park City, Utah. Over 500 researchers and 400 practitioners from across the United States and around the world have attended the course. Two courses are held concurrently: The Postgraduate Course on Research Directions and Strategies targets postdoctoral personnel and focuses on grantsmanship, study design, physical activity measurement, and other topics. The Practitioner's Course on Community Interventions is intended for those interested in promoting physical activity through community-based initiatives. Topics include public health models for physical activity promotion, needs assessment, best practice intervention strategies, and program evaluation. More information is available at www.sph.sc.edu/paph/ or contact Janna Borden at jsborden@mailbox.sc.edu or 803-576-6050.

NAKHE Plans Collaborative Congress

NAKHE has announced plans for a collaborative congress including representatives from AAHPERD, ACSM, AIESEP, AKA, and NAK that will address pressing issues in the field. The meeting will be held in San Diego, January 8-12, 2014. Proposals for papers will be accepted until August 1, 2013. For more information contact Betty Block at Betty.Block@tamuc.edu.

ACSM Sponsors Health and Fitness Summit and Exposition

March 12-15, Las Vegas, Nevada
Register at www.acsm.org/attend-a-meeting/2013-health-fitness-summit-exposition.

North American Society for the Psychology of Sport and Physical Activity

NASPSPA's annual meeting will be held in New Orleans, June 13-15, 2013. More information is available at www.naspspa.org.

Third International Conference on Ambulatory Monitoring of Physical Activity and Movement

The conference will be held on June 17-19, 2013, at the University of Massachusetts. Information is available at www.umass.edu/sphhs/icampam2013.html.

AKA Scholar Awards Now Accepting Nominations through May 1st.

The annual scholar awards honor a select number of students from member departments, recommended by department faculty, whose academic and leadership records are distinctive. The awards are intended to recognize and promote academic excellence, to further the professional competence and dedication of academically accomplished students and to promote kinesiology and its related fields.

See selection process and download forms for each category
Undergraduate Awards
Graduate Awards
Student Writing Awards

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Are Trampolines Dangerous or Are We "Juming" to Conclusions?

the disproportionate weight of their heads) and are more likely to lose control.

It is often thought that trampolines can be made safer by padding springs and positioning mats around the equipment, but the AAP found that safety measures such as enclosure nets and additional padding have not made any significant reduction in the number of injuries reported. On the other hand, the Consumer Product Safety Commission specifically warns against "using the trampoline without shock-absorbing pads that cover its springs, hooks, and frame."

Trampoline manufacturer Spring Free launched a new design in 2005 that removed the frame and springs from their normal parallel plane with the jumping mat. The frame and springs were moved below the bed and constructed of composite materials, which provide rigidity to support the mat but remain sufficiently flexible to create a soft edge on the mat. Steven Holmes, Spring Free's president, said they "wanted to change the definition of trampoline" and believes that the product they have come up with is safer and requires less maintenance than most trampolines used in recreational settings.

Holmes agrees with Briskin that "a person's behavior is the best way to reduce the risk of injury," pointing out that more serious injuries occur when jumpers attempt to do flips and other tricks that they are not trained to do, jump at the same time another performer is on the equipment, or do not seek professional instruction before they attempt advanced stunts. He recommends that children always be supervised while using a trampoline just as they would while doing other high-risk activities.

And he warns that problems are inevitable when backyard trampolines are being manufactured and marketed as though they were toys rather than serious pieces of sporting equipment. "Consumers wear out their equipment, the structure becomes unsafe, and department stores don't sell parts to maintain the toys," said Holmes. His theory is that the mentality of a disposable toy adds to the risk of using unsafe equipment.

Susan Jacobson, trampoline and tumbling program director for USA Gymnastics, said that her organization follows the recommendations by the AAP; USA Gymnastics–certified coaches use a trampoline development course to instruct young athletes. By providing a safe environment, qualified instructors, and strict safety requirements, Jacobson believes a professional training program such as USA Gymnastics can provide a safe way for children to enjoy the benefits

Photo provided by Spring Free

of trampoline jumping. "Children learn the basics first, such as how to stop bouncing and control themselves," said Jacobson. "We teach building blocks before they try higher level skills."

With proper safety controls in place, Jacobson believes trampoline instruction can start at a very young age, with appropriate levels of bouncing and close supervision. Jacobson has also seen success with children with special needs responding to trampoline activities. "Jumping and spinning accelerates the brain into a higher active rate," Jacobson said. This helps children with autism, ADHD, and sensory integration disorders improve their physical function as well. "Core stability, balance, aerobic activity, sensory processing—all can benefit from trampoline use," she said. KT

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Gauging the Exercise Advantage

The research team examined a large pool of data that had been collected in six prior prospective cohort studies; in total, about 650,000 subjects who had been followed for a median of 10 years were included. Subjects were grouped by weight, activity level, and several other factors to calculate new information about how exercise (or the lack thereof) typically correlates to expected lifespan.

The large study population included individuals from a broad age range and diverse sociodemographic groups. In addition to the link between physical activity and longevity, the researchers looked at how factors such as gender, level of education, race or ethnicity, smoking status, and pre-existing disease, considered jointly with varied physical activity, affect longevity. As the numbers affirm, a little bit of effort makes a big difference.

"In people aged 40 and over, even very low levels of leisure-time physical activity—equivalent to 10 minutes of walking per day—were associated with a 1.8-year increase in life expectancy compared to people who do no leisure-time activity," said Moore. "With activity levels equivalent to 45 minutes of walking per day, we see a gain of 4.5 years in life expectancy."

The subjects in the study were divided into four groups by body mass: normal weight, overweight, and two classes of obesity.

The good news is that the benefits of activity were evident at all levels of body mass index (BMI). In fact, inactive healthy-weight individuals were found to have a 4.7-year lower life expectancy than healthy-weight individuals who regularly engaged in moderate exercise (equivalent to about 25 minutes of brisk walking per day).

Likewise, inactive overweight individuals lost 3.9 years compared with moderately active members of their BMI group, inactive obese individuals with a BMI under 35 lost 5.0 years, and obese individuals with a BMI 35 and over lost 7.2 years.

Remarkably, inactive normal-weight individuals lose 3.1 life-expectancy years compared with active obese individuals under 35 BMI and have a comparable life-expectancy to active obese individuals 35 BMI and over. These results demonstrate the critical role exercise plays in overall health.

The findings revealed that men and women enjoy comparable benefits from regular exercise with respect to longevity. However, data showed life-expectancy gains were substantially higher for black individuals given equivalent levels of activity than for white individuals, with gains of anywhere from 2 to 4 years over the full range of moderate-to-vigorous activity levels. However, the researchers said it was unclear what underlying factors may be driving this observation.

Former smokers likewise show higher gains in life expectancy at the same activity levels than do nonsmokers or current smokers; former smokers gain about 5 years, whereas nonsmokers and current smokers gain in the range of 3 to 4 years.

In all of the joint categories, one finding was fairly consistent: the more exercise, the greater the benefit—up to a point. The greatest benefit was at approximately 45 minutes per day of brisk walking; beyond that, the benefit of additional exercise began to plateau.

With the steady decline in physical activity levels over recent decades in the United States and other developed nations, the study points to a potential decrease in population life expectancies, the authors point out.

Moore said, "A lot of people do almost no activity at all; they might walk from their car to their building at work, but they don't engage in intentional leisure-time activities. For that very large percent of the population, even 10 minutes per day of leisure-time walking would be of great benefit.

"Also, there's a lot of evidence out there that shows longevity isn't the only benefit; regular physical activity also improves the

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Gauging the Exercise Advantage

quality of life. So it not only adds years to your life, it adds life to your years."

Moore said his team is not done sifting through this data. He is currently working to build a consortium that will study the association between physical activity and future cancer risk. The same cohorts will be used, along with several additional cohorts.

"We've been pooling data for months," said Moore. "All told, the consortia will include about 1.3 million subjects in this new study. The large data pool will make it possible to study for the first time physical activity in relation to rarer cancers. We anticipate that we will have adequate case numbers to examine physical activity in relation to 20 to 25 different cancers. In the current literature, fewer than 10 of these cancers have been studied in depth." KT

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Physical Activity and Public Health: Threat or Asset to Physical Education?

What does this mean for physical education? From the perspective of public health, physical education is a huge resource that could be used to provide students with the physical activity they need to meet public health guidelines and to promote long-term adoption of a physically active lifestyle. But I think it is also true that physical education, in its current form, is often seen by public health leaders as a wasted resource that is not making much of a contribution to public health. Many expert panels have called for physical education to change, to place more emphasis on providing physical activity during classes, and to deliver a curriculum aimed at promoting lifelong physical activity. How has physical education responded to these calls? In my view, some change has occurred, and there certainly are model programs in place that would please those who prefer an emphasis on providing and promoting physical activity. But, taking a broad view, I don't see much change. It seems to me that multiple sources of inertia in the system have prevented any wholesale change in the nature of our PE programs.

So where are we going? As it stands right now, I think that most physical education specialists are comfortable defending their programs on the basis of the health benefits of exercise but feel no real responsibility to modify their programs in ways that would meet public health objectives. Odds are this will continue. But it is also possible that, in the long term, physical education will embrace a public health role and redirect its programs accordingly. Things could also evolve in the opposite direction: Physical education could double down on the education model, which seems based on the assumption that, if we effectively teach kids motor skills, they will opt for a lifestyle that uses those skills. My preference? I would like to see PE benefit from the tremendous opportunities that are provided by the emergence of physical activity as an important public health priority. And frankly, I think the field can have it both ways. I think that PE could be systematically modified to provide kids with meaningful experiences with specific forms of physical activity (i.e., fundamental motor and sports skills) and do so in classes that optimize physical activity and provide kids with enjoyable physical activity experiences. It's possible, and some are doing it…but I'm not holding my breath. KT

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Lesson in Diversity from the AKA Leadership Workshop

to our graduates. At many of our institutions the rigid and inflexible enforcement of admission criteria based on standardized test scores serves to disadvantage minority applicants who often have had less opportunity to take advanced placement courses and are often less well prepared to take college admission examinations. One solution will be to advocate for admission criteria that recognize that there are many different ways to assess student potential. The adoption and implementation of diverse and flexible admission criteria help to support and sustain an institutional commitment to diversity. Another solution will be to work with admission officers on our respective campuses to help develop a better-informed network of high school recruiters who can help share information about the many opportunities available to our graduates.

At both the undergraduate and graduate student level, the lack of a diverse faculty inhibits our ability to attract students from underrepresented groups and underscores the need to continue institutional commitments to diversity and inclusion in faculty recruitment. One effective strategy for recruiting both faculty and graduate students of color is to build collaborative relationships between our departments and historically black colleges and universities (HBCUs) and other minority-serving institutions. At the AKA workshops we were provided with numerous examples of successful partnerships that have established a mutually beneficial relationship between HBCUs and predominantly white institutions. The AKA Diversity Taskforce will develop and disseminate guidelines and models of best practice to help other AKA member departments develop similar collaborative relationships in the future.

At many of our institutions more attention needs to be paid to developing a welcoming and supportive culture that makes students from underrepresented groups feel at home at our institutions. There is a need to recognize and avoid the use of culturally insensitive labels, to foster respect and sensitivity to religious practices and observances, and to help build a sense of trust that emerges when communities truly embrace a culture of diversity. The Kellogg Commission recommends that departments develop specific diversity plans that establish goals, strategies, and action steps to help recruit, support, and retain faculty and students of color. In the forthcoming months and years, the American Kinesiology Association Diversity Taskforce will work closely with our AKA member departments to make a strong and sustained commitment to increasing diversity in our field. It is the right thing to do.

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Unraveling the Secrets of the Knuckleball

ing a laboratory situation that, as best they can, models real life," said Alan Nathan, an emeritus professor of physics at the University of Illinois at Urbana-Champaign, who has used tracking images to analyze knuckleball pitches.

The study provided the surprising result that the extent of knuckling increased when they used less dense beads to pass through the water.

"The big surprise was that every bead made a zigzag—from a little plastic bead to a steel one weighing seven kilograms," Cohen said. "Our visualizations showed that the zigzag effect is due to the asymmetry of the wake behind a sphere, caused by the rearrangement of the vortex the sphere emits as it flows through the water."

Based on their observations, the French team deduced a set of laws to predict the amount of knuckling for different ball sizes and fluids.

But an initial understanding of those laws, Cohen said, indicated that we should be unable to observe the knuckle effect in soccer. Since Ronaldo undoubtedly knuckles a soccer ball, the process needed another ingredient.

That extra ingredient was the drag crisis.

"But you need to kick the ball at a velocity close to that of the drag crisis and to do so with no spin to observe the knuckle effect," Cohen said.

The makeup of the soccer ball also influences the extent of knuckling.

"The smoother the sphere, the more zigzag you observe, because the drag crisis is larger for smooth spheres," Cohen said.

The Jabulani soccer ball used in the 2010 Men's World Cup fluttered so much more than previous balls because it had no seams and was very smooth, she added.

But the construction of baseballs used by MLB remains the same every season, so that factor doesn't affect knuckleball pitchers.

"The only difference in baseballs is the presence of seams, which can orient the direction of the lateral force," Cohen said. "But the effect is the same."

The research suggests why there are random changes in the ball's movement even if it is consistently released the same way.

"It could well be that the ultimate reason for the knuckleball is the shedding of vortices. That doesn't at all contradict what I have found by tracking pitches," Nathan said.

The research was presented earlier this month at a meeting of the American Physical Society's Division of Fluid Dynamics in San Diego.

Slo-mo video of now Toronto Blue Jays pitcher R.A. Dickey's knuckleball can be seen at www.sportsgrid.com/mlb/watching-r-a-dickeys-knuckleball-in-slow-motion-proves-how-difficult-it-is-to-hit/. A documentary on the knuckleball can be found at www.imdb.com/title/tt2343601/.

This article was originally published November 28, 2012, by Inside Science News Service at www.insidescience.org. A former science editor of Newsweek who can neither kick nor pitch a knuckleball, Peter Gwynne is a freelance science writer based on Cape Cod, Massachusetts.

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These Fists Were Made for Fighting...

aged 22 to 50 who had trained in either the sport of boxing or martial arts—to perform three separate experiments; each experiment employed 10 total men from the pool of 12.

The first experiment tested whether a fist can strike with greater force than a slap. Each subject delivered three each of six specific kinds of hits to a punching bag, which was rigged to measure force.

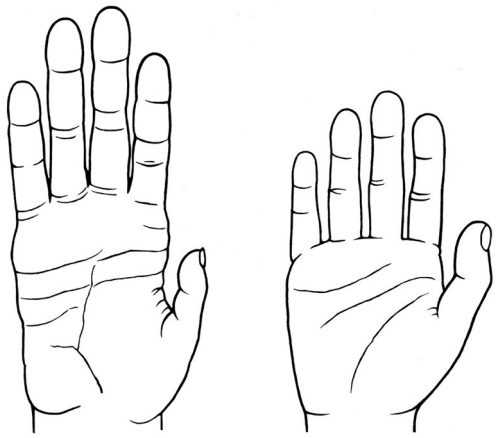

Photo Credit: Denise Morgan for the University of Utah

Compared with a chimpanzee hand, at left, the human hand, at right, has shorter fingers and palms and a longer, stronger more flexible thumb. That not only allows fine manipulation of tools and other objects, but allows humans to make a clenched fist, which apes cannot. A new University of Utah study argues that human hands evolved not only for manual dexterity, but for fighting.

Photo Credit: Denise Morgan for the University of Utah

These three views of a clenched human fist show how we buttress the fist to reduce the chance of hand injury when punching. The four fingertip pads touch the pads at the top of the palm, and the thumb wraps in front of the second, third and part of the fourth finger, which are locked in place by the palm at the base of the thumb. A new University of Utah study showed how a fist punch provides a performance advantage compared with an open hand slap, suggesting human hands evolved for fighting as well as for manual dexterity.

As it turned out, the peak force of each type of strike was the same, no matter whether performed with a fist or open palm. But since a fist delivers that force over one-third the surface area of a slap, the peak force per area of a fist punch was two to three times greater than that of a slap.

The second and third experiments tested whether a fist's buttressing protects the hand during a strike. The men were asked to make clenched (buttressed) and unclenched fists alternately while pressing against a pressure sensor. The researchers measured both the force of the push and how much the index finger flexed (how much buttressing or stiffness the thumb provided it).

Then the men were asked to position themselves as for one-handed pushups with their knuckles pushing against a block placed on a pressure sensor. In this way, the researchers were able to measure the force transfer from fingers to thumb with the fist clenched and unclenched.

The researchers found that the buttressing of a clenched fist provides four times the stiffness in the knuckle joint, which supports their theory that the proportions of our hands evolved to provide a performance advantage when punching.

The researchers point out that human nature is equally capable of producing brutal violence as of creating beautiful works of art or music—our nature is at its core paradoxical. It isn't a huge stretch to believe the disparate forces that drive our very nature may also have shaped the structure of our hands.

Starting with the hand of an arboreal great ape ancestor, it is possible to imagine a number of evolutionary transformations that would have resulted in a club-like structure adapted for fighting. Similarly, as suggested above, there are a number of alternative hand proportions that are compatible with enhanced manual dexterity. There may,

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These Fists Were Made for Fighting...

however, be only one set of skeletal proportions that allows the hand to function both as a mechanism for precise manipulation and as a club for striking.

The researchers further note that their theory is entirely compatible with another recent theory that suggests selection for bipedalism affected the shape of our hands. Two-legged locomotion is associated with a longer big toe and shorter lateral toes, and it has been suggested that the same gene that affected evolution of better feet for walking could have caused a parallel development in the structure of the hand. Carrier and Morgan point out that selection for better locomotion, manual dexterity, and fighting performance likely all played a role in the hand's evolution.

Carrier said a planned upcoming study will present more definitive findings along these same lines. By using cadaver arms secured to a frame, his team will be able to attach instruments to the bones to more precisely measure the force experienced in clenched and unclenched postures (achieved by manipulation of muscles). He said his team is also interested in studying sexual dimorphism of the hand and what those differences mean in terms of both dexterity and striking ability.

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Can Kinesiology Help Merge Academic and Athletic Cultures

leave school knowing little about the scientific and cultural bases of what has consumed them for four years, this in spite of the fact that most institutions harbor ample expertise in their departments of kinesiology. That some of our most respected academic institutions bill themselves as wellsprings of teaching and learning yet fail to bring that solemn mission to bear on a program it regards as "the front porch" for the university isn't so much an administrative as it is a moral issue.

Shouldn't the athlete whose physiology is aggressively manipulated by coaches and trainers also be taught basic principles of exercise physiology? Shouldn't athletes whose body mechanics are objects of endless tinkering by the athletic staff be required to study rudimentary principles of sport biomechanics? Athletes' psyches are vigorously massaged by coaches yet most remain unexposed to elements of sport psychology. Athletes find themselves at the center of fascinating moral pageants and ethical meltdowns but remain ignorant of the burgeoning literature on the philosophy and ethics of sport.

But there is another part to the moral equation. Shouldn't a discipline that regards itself as the in-house authority on teaching and learning and researching about physical activity, sport, and exercise--- a discipline (one would hope) that sees the enormous value of integrating physical activity with intellectual activity--- be a prime advocate for ensuring that athletes study the scientific and cultural basis of that which consumes a large part of their undergraduate experiences? Not to do so, it seems to me, raises suspicions about how valuable practitioners of the discipline consider their intellectual wares to be.

How to do this, of course, is open for debate. Introducing a sport major as David Pargman recently suggested in the Chronicle of Higher Education (http://chronicle.com/article/End-the-Charade-Let-Athletes/135894/) seems impractical and lacking from a number of standpoints. The argument here isn't for athletes to major in kinesiology, but to ensure that they are exposed to some core elements of the discipline, especially those that can illuminate their athletic experiences.

What it would accomplish remains to be seen. One thing seems certain. Properly done it won't just bridge the academic and athletic cultures, it will make them one.

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New Look for Physical Education

fessor of physical education at Teachers College. “The body, and learning how to move, matter a great deal to young people, and finding a self that fits and is comfortable in sports, health and physical education can be very difficult for them.

In her own research Azzarito has given digital cameras to young people and asked them to create visual diaries to express how they feel in their bodies. “Many of the boys showed themselves performing sports. Many girls were completely absent; they took pictures of other people and never wanted to be in the photo.”

Faced with the complexities of body image, cultural conditioning, and the realities of physical education classes it’s no wonder that students of both genders (but especially girls) lose interest in the subject by the time they are in seventh grade, a phenomenon that stretches across ethnic groups and geographical region.

In 2000, Silverman and one of his doctoral students when he was on the faculty at University of Illinois, Raj Subramaniam--- now professor of Health Promotion and Physical Education at Ithaca College--- developed a widely employed survey instrument (Student Attitude Toward Physical Education) that has been used to monitor overall trends and the impact of curriculum and teaching methods on attitudes. Among the findings: competition-based physical activities tend to have an adverse effect on motivation in lower skilled kids but the more surprising finding was that de-emphasizing competition didn’t necessarily deplete the enthusiasm of students with higher levels of skill.

“Sometimes physical education teachers say to me, ‘If I do what you suggest (de-emphasize competition) the highly-skilled kids will get bored,’ but our research suggests there’s nothing we can do to discourage the high-skilled kids,” says Silverman. Subramaniam points to the overall positive effects of instruction as the determining factor: “We found that the teacher and the curriculum were the primary factors that affected attitude.”

Reaching both low skilled and high skilled students is one goal of the integrated curriculum at The School. By focusing on the historical and political context of different sports (e.g. colonialism as a backdrop for cricket) the teaching staff hopes to make physical activities more meaningful and in the process, motivate students to seek out physical activity opportunities on their own.

Some might think that tailoring physical activity as closely as possible to individual skill levels would mean dropping instruction in team sports all together but Silverman believes teachers can remain attentive to the needs of individual students even when

Heather Van Uxem Lewis

Critical Thinking: students use iPads to critique form of classmates

teaching team sports. This requires more of them than simply supervising activities from a central location; roaming the gym, intervening in small group activities, and offering individualized instruction is essential.

Silverman acknowledges that an independent institution like The School is probably more capable of pulling off an interdisciplinary approach, but he hopes that as the gospel spreads, newer teachers will get on board. “It boils down to whether the teachers want to do it. Where there are a lot of young teachers together, you tend to see changes happening.”

This story was adapted from “Head Games” first published in TC Today, the magazine of Teachers College (Fall/Winter, 2012) by Siddhartha Mitter and is printed here with permission. KT

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Which High School Football Players Have a Leg Up on Scholarships to BCS Schools?

significant, but the relationship between ACT scores was both significant and negative. The fact that players with higher GPAs and ACT scores tended to receive fewer scholarship offers from BCS universities than players with lower GPAs and ACT scores is sure to become grist for the mill of critics of big-time college sports. The authors suggested that these academic measures, rather than being a proxy for field sense, may instead have been a proxy for players' commitment to academics and athletics. That is, players with relatively low GPAs and ACT scores may be relatively more committed to athletic success and therefore receive more scholarship offers from BCS schools. The authors' take on this finding is sure to stir controversy: "…given the low probability of acquiring an academic scholarship or financial aid and the restricted financial means of many players, it may be a rational decision for top-quality student-athletes to concentrate only on achieving the minimum academic requirements and devoting additional time to honing their athletic skills."

The study is available online at http://jse.sagepub.com/content/13/5/515.

-SJH

Welcome New AKA Members

Kinesiology Department
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