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A New Game Plan for PE and Physical Activity in American Schools

by Siv Schwink, KT Staff Writer

Scientific research shows that children and adolescents who engage in daily physical activity are healthier and perform better academically than those who do not engage in daily physical education. But over recent years, almost half of all U.S. school administrators report having scaled back physical education programs for K-12 students, due in large part to budgetary constraints and to political pressures to improve standardized math and reading test scores since passage of the 2001 Leave No Child Behind legislation.

Now, a report issued by the Institute of Medicine (IOM) of the National Academy of Sciences is calling for American schools to make sweeping changes to transform the increasingly sedentary behavior among the nation's youth—changes that would provide health-enhancing opportunities for youth to engage in 60 minutes of daily exercise, in part through their PE courses but also through active modes of transport to and from school, before- and after-school



programs, in-classroom physical-activity breaks, recess, and intramural or extramural sports programs.

Recognizing that schools cannot do it alone, the report encourages schools to use a public-health-minded systems approach to build an integrated program in partnership with local businesses, parks and recreation departments, departments of transportation, health clinics, neighborhood organizations, and local families.

The report, titled "Educating the Student Body: Taking Physical Activity and Physical

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PRESIDENT'S COLUMN

What Kinesiology Graduates Need to Know: The Importance of Developing and Assessing Student Learning Outcomes for Our Programs

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



Wojtek Chodzko-Zajko

As my term as AKA president draws to a close and I prepare to hand over the reins to my colleague Penny McCullagh, I would like to thank everyone associated with AKA and its member departments for providing me with an enjoyable and rewarding experience over the past two years of my presidency. Without question, one of the most important initiatives that my colleagues and I on the board of directors have been involved with has been the articulation of the core body of knowledge that our students need to acquire when pursuing an undergraduate degree in kinesiology.

In May 2012 in this column I described the four fundamental areas that AKA believes should be included in the core of all undergraduate kinesiology programs:

Kinesiology Core Element 1: Physical Activity in Health, Wellness, and Quality of Life

There is a growing appreciation for the importance of regular physical activity as an integral component of a healthy lifestyle. Over the past 20 to 30 years a substantial body of evidence has accumulated regarding the benefits that accrue to people of all ages who participate in regular physical activity. These advances in our understanding of the relationship between physical activity participation and health have important implications for students of kinesiology. Many undergraduate kinesiology students will go on to enter graduate programs in health-related professions, such as medicine, physical therapy, occupational therapy, and nursing. Accordingly, it is essential that the undergraduate kinesiology core include content that explores in detail the relationship between physical activity participation, health, and well-being.

Kinesiology Core Element 2: Scientific Foundations of Physical Activity

A defining feature of the academic discipline of kinesiology is its embrace and integration of the multidimensional study and application of physical activity. Well-prepared kinesiologists are expected to have a sound understanding of the scientific foundations of physical activity. For many departments this scientific foundation is provided by a series of courses that are taken by all majors regardless of their ultimate career goals. Examples of scientific foundation courses include exercise physiology, motor behavior, biomechanics, sport and society, and exercise psychology. The specific titles and content of scientific foundation courses offered will vary from institution to institution depending on local preferences and constraints.

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Physical Activity Motivation is Barking at Your Feet

by Amy Rose, KT Staff Writer

If you're looking for a walking partner, your best companion could be waiting at your door. Many studies have shown positive links between dog ownership and physical activity. Dog owners not only walk more often but they also walk for longer periods. Acquiring a dog can increase recreational walking by 31 minutes a week or more, according to a study by Hayley Christian, research assistant professor at the Centre for the Built Environment and Health at the University of Western Australia.

Christian says that dogs provide important social support as motivation for walking. "People consider dogs an important part of the family. We have a sense of responsibility to care for them by providing food, shelter, and exercise," she said.

Dog owner Mary Schiff says that after her family dog died, she missed having a dog to walk with. "I was the one who took care of her and walked her every night," Schiff said. After a couple of years, she got Taffy, a cocker spaniel mix, and is back in the habit of her nightly walks. "She's a great motivator. In between dogs I tried walking on my own and I didn't enjoy it as much. I know it makes her happy," she said.

Researcher Gavin McCormack at the Population Health Intervention Research Centre at the University of Calgary says dog walkers have a higher frequency of walking four or more times a week for 90 minutes or more than nonowners or nonwalkers. Women and people who live in apartments are also more likely than men and house dwellers to walk their dogs. According to McCormack's research, dogs also motivate their owners to remain physically active through all seasons and throughout life. Dog owners tend to maintain or increase their levels of activity throughout the colder months because of a sense of responsibility to the dog. "During winter some owners report even more physical activity, possibly to make up for less activity by the dog during the day," said McCormack.

Walking a dog through your neighbor-



Scott Wikgren and his dog Maggie enjoy kayaking and swimming together, as well as walking.

hood facilitates not only physical activity but social interactivity as well. According to Christian, a dog walker with a set routine will get to know the neighborhood better and build more friendships. It also increases the perception of safety while on walks. Older adults especially benefit from a healthy relationship with dogs. It keeps them active longer, improves their social interaction, and helps cognitive function.

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Manhattan Changes Department Name to Kinesiology

by Jeff Cherubini, Manhattan College



Jeff Cherubini

As of July 1, 2013, Manhattan College's department of physical education and human performance has officially been renamed the department of kinesiology, joining the nearly 200 departments nationwide that have adopted the name. The primary purpose of the name change is to make the chief title of the department more inclusive, unified, and applicable to all students and faculty. Several reasons have been discussed over the years about why a name change was warranted: representation, identity, promotion and marketing, recruitment, and recognition among other schools and departments. Equality in the department had also been discussed. Whereas our official department name was physical education and human performance, the human performance aspect was frequently left out in both spoken and written contexts, and the department was often referred to as physical education or simply PE. As defined and also used

in common language, physical education no longer accurately describes the evolution and entirety of our department's programs, courses, research interests and scholarship, service, and student ambitions and future career paths. The six tenured faculty in the department have expertise and teaching experience in the major components of kinesiology, including but not limited to adapted aspects of physical activity, recreation, and sport; athletic training and injury prevention; biomechanics; exercise physiology; exercise science; motor learning; pedagogy of teaching physical education; psychosocial aspects of physical activity, exercise, and sport; sport history; and sport sociology. In addition to preparing students for careers in teaching K-12 physical education and exercise science, we all contribute to the preprofessional training of our students interested in pursuing graduate studies in physical therapy, occupational therapy, sports medicine, and other health-related fields. In essence, as a department, we are the definition of kinesiology.

The official journey to kinesiology started with a written proposal submitted to the physical education faculty in the fall

2012 semester. The proposal included the American Kinesiology Association's (AKA) official definition of kinesiology, a logical rationale for change, an emphasis on maintaining excellence in our physical education teaching program, a summary of the benefits of changing the name, and steps needed to implement the change. While the term *kinesiology* better represents and encompasses our department's overall curriculum, the names of the department's two majors (K-12 physical education teaching and exercise science) accurately depict each program's course of study. With this, no immediate changes were needed to any academic programs or curriculum, which undoubtedly made the process easier. After extensive and thoughtful discussions, the faculty unanimously approved the proposal. The proposal was presented to the dean and then the provost. In the spring 2013 semester, an updated appendix was added to strengthen the original proposal and provide further details. The appendix included a description of similar actions at other colleges and universities as well as changes in significant organizations in the discipline (i.e., creation of the AKA

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Human Advantages in Throwing Appeared Millions of Years Ago, Say Biological Anthropologists

Each time 6-foot-7-inch St. Louis Cardinal ace pitcher Adam Wainwright unleashes his 92-mile-per-hour sinkerball, he bears witness to unique evolutionary developments that biological anthropologists believe separate him from other primates. Chimps, our nearest evolutionary relative, are lousy throwers, something visitors to the Furuvik Zoo in Sweden can be thankful for. It seems that Santino, a male chimp at the zoo, has become famous for the way he hides and plots and hurls stones at zoo visitors. But even though Santino is much stronger than Wainwright, his throws, like throws of most chimps, max out at about 20 mph. The reason, researchers say, is his anatomy, a shoulder complex that limits his throws to dartlike movements rather than the sweeping whole-body movement seen in a professional baseball player.

The throwing advantage enjoyed by humans is thought to have first appeared almost 2 million years ago, a change that enabled bipedal *homo erectus* to hurl spears and other projectiles at prey. Presumably the ability to throw well conferred a strong

selective benefit to early hunters. In a recent report published in *Nature Medicine*, postdoctoral researcher Neil Roach and his associates asked why humans were so uniquely adapted to throwing, whereas other creatures are not. They sought to identify the course of these changes in evolutionary development. After constructing a biomechanical model of throwing and then examining the fossil record to see how evolutionary changes might have affected the mechanics of the throw, they then tested some of their hypotheses in a biomechanical study in which the anatomy of baseball pitchers was selectively constrained by braces.

As most kinesiology students learn in their introductory biomechanics classes, the act of throwing is a series of rotational movements that occur first at the hips and then at the torso and shoulder, followed by rotation of the upper arm and then wrist. (Fingers also contribute to throwing, and



External rotation of the upper arm during throwing

the evolutionary adaptations of the hand that enable us to grip a ball date back millions of years.)

Rotation at each joint develops forces that, when added to forces produced at the preceding joints, result in a cumulative final velocity. Each sequential movement requires a preparatory phase commonly

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Doing the Right Thing

By Mary Rudisill, Auburn University, School of Kinesiology



Mary Rudisill

of working together toward a common goal. The workshop was warmly received and its impact is still being felt. Encouraging working and learning environments that honor and respect varied perspectives and support an open exchange of ideas in an unbiased and nonprejudicial way is something that everyone can support. The newly appointed AKA diversity Task Force has made several recommendations to the AKA executive committee, one of which is to include a diversity column in KT ("Doing the Right Thing"). This is the first contribution to the column written appropriately by Mary Rudisill, the current chair of the task force.

The January 2013 AKA workshop explored issues surrounding diversity in kinesiology departments. The stirring presentations helped raise awareness of the significance of diversity and the importance

A Change is Gonna Come

In 1963, singer-songwriter Sam Cooke sang about "A Change Is Gonna Come" as he addressed the issue of inequities in the United States, and expressed a hope for change. The harsh reality is that 50 years later, we are still singing the same song in higher education, where we *speak* of diversity and emphasize its importance but continue to perpetuate inequities particularly for some groups of people.

While the majority of universities across the nation agree that a racially and ethnically diverse student body and faculty are critical to providing high-quality education, the unfortunate scenario is that there are few racially and ethnically diverse campuses. Historically underrepresented groups (e.g., African American, Hispanic, Native American) are missing on university campuses in the United States. These groups are also missing from kinesiology programs as well. In higher education, we are required to have diverse applicant pools for students, faculty, and administrators, but we have not seen adequate change over the years. We need to remember the value in diversity rather

than simply meet minimum standards for increasing diversity on our campuses. As Maya Angelou said, "We should all know that diversity makes for a rich tapestry, and we must understand that all the threads of the tapestry are equal in value no matter what their color."

Cooke's lyrics address the challenges of discrimination but express optimism for future change: "It's been a long, a long time coming. But I know a change is gonna come, oh yes it will." I too, share in this optimism and believe that change is coming soon. Today, attempts are being made to address diversity issues in kinesiology. Thanks to the American Kinesiology Association and other organizations such as American College of Sports Medicine Leadership and Diversity Training Program, serious efforts are under way to eliminate this *fixable* deficiency and to initiate strategies that will result in positive change. At the American Kinesiology Association (AKA) Leadership Workshop held January 26 to 28, 2013, in Orlando, Florida, leaders in the field addressed the issues of diversity enhancement in kinesiology with two main goals in mind: to raise awareness about the importance of diversity

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Do Major League Baseball Umpires Favor Pitchers of the Same Race? Recent Research Says No

Research on the behaviors of officials—primarily in basketball and baseball—has had a long and often contradictory history. Two years ago a study of baseball umpires using data from seasons 2004 through 2008 examined discrimination among umpires when matched with own-race and other-race pitchers and found that pitchers were given more favorable decisions about strike calls when they were of the same race as the umpire. (The advantage disappeared, however, during specific conditions such as pivotal pitches and pivotal at-bats or in well-attended games.) Now a new study published in the May 8 online issue of the *Journal of Sport Economics* sheds new light on the issue.

Researchers Scott Tainsky of the department of recreation, sport, and tourism at the University of Illinois and associates Brian

Mills at the University of Florida and Jason Winfree at University of Idaho examined a mind-boggling amount of data (8.3 million pitches from 1997 to 2008) and recorded called balls and strikes and umpires' and pitchers' races (white, black, Hispanic, Asian, or any combination). They found that white pitchers were at a slight comparative disadvantage under the eyes of all three groups of umpires. Winfree told *Science Daily*, "Based on what we found, it's (discrimination) certainly not conclusive, and we could make an argument that there's actually reverse discrimination if you look only at averages."

While acknowledging the complexities of racial classification, and cautioning that in such a study categorical groups may be unduly influenced by a small number of clustered observations, the authors con-

clude that the evidence for discrimination was mixed, at best, and at times signaled reverse discrimination. Neither did they find evidence that any presumed advantage or disadvantage affected the way the pitchers pitched. "The real upshot of the study," Tainsky told KT, "is that there was relative consensus among umpires of all races that white pitchers threw the most strikes."

Tainsky, S., Mills, B.M., & Winfree, J.A. (2013). Further examination of potential discrimination among MLB umpires. *Journal of Sport Economics*, May 8, 2013.

-SJH

Carpal Tunnel Syndrome Linked to Shape of Hands and Wrists

by Siv Schwink, KT Writer

If your hands are short and wide and your wrists are square shaped, you may be at higher risk for developing carpal tunnel syndrome (CTS). This is especially true if you are short and heavyset, suggests a new study by researchers at the University Hospital of Patras in Greece.

The carpal tunnel is a narrow, rigid passageway in the wrist, formed by bones and connective tissue, through which nine long flexor tendons and the median nerve all pass. Swelling in any one of the tendons can put pressure on the nerve, which can then become entrapped or compressed. This is the medical condition known as CTS. The pain, tingling, numbness, and muscle weakness associated with CTS can make engaging in everyday tasks quite difficult.

CTS will affect anywhere from 3 to 6 percent of working-age adults at some point in their productive lifetimes, with women about three times as likely to develop CTS than men. "Although CTS is not a serious illness, it is very common in the female population worldwide, causing significant distress to the sufferers and great man-hours lost to the employers," commented Elisabeth Chroni, MD, PhD, a professor

of neurology at the University of Patras, Greece, and one of the primary investigators on the study.

The results of the study suggest that early screening—taking external hand and wrist measurements and calculating BMI—may be used in a clinical setting, not as a diagnostic tool, but to predict greater vulnerability to CTS.

"Anthropometric measurements cannot substitute for medical examinations," stated Chroni. "However, these simple hand measurements can be used for screening purposes. These measurements serve prevention better than confirmation of CTS. Individuals can be aware of their own risk to develop CTS."

Such screening—with the need for expensive tests—might allow potential sufferers to alter behaviors and so minimize other potential risk factors, such as engaging in tasks with repetitive hand or wrist motion.

"Subjects at high risk should avoid overusing the hands in activities known to be associated with CTS. If this is not possible for professional or other reasons, then they should be prepared to deal with CTS as

soon as the first symptoms occur," she added.

Many other factors have likewise been implicated in contributing to the development of CTS—including trauma to the hand and several medical conditions like diabetes, rheumatoid arthritis, pregnancy, and renal failure. Yet most cases of CTS develop without an obvious cause. This study may also explain why some people develop CTS and others don't, even when practicing the same occupation or hobby.

The study included 100 individuals. Half of the subjects (the CTS patient group) had a clear diagnosis of CTS, both by symptoms and by median nerve conduction abnormalities. The other half (the control group) had no history of CTS. The demographics of the two groups were comparable: Each comprised 40 women and 10 men with similar occupations, hobbies, and residences. Knitting and gardening were the two most common hobbies in either group. And the patient group excluded individuals with an established predisposition for CTS, such as hypothyroidism, rheumatoid arthritis, and diabetes.

Each subject was given a full set of CTS

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U.S. Schools Fail to Make the Grade on Physical Education Policies

by Siv Schwink, KT Staff

Currently, more than a third of all U.S. school-aged children are overweight or obese. It's a health issue that has immediate consequences to quality of life for a large segment of American youth—and serious implications for the health and well-being of the nation's future work force. What's more, over the past three decades, the percentages of obese children and obese adolescents have doubled and tripled, respectively, according to data collected by the CDC.

It's well established that healthy lifestyle habits, including healthy eating and physical activity, can lower the risk of becoming obese and developing related diseases. Over the past decade, many states have turned a hopeful eye to their school systems to provide children with the education and physical activity they need in order to lead healthier lives.

But, according to a new study on the efficacy of state-level policies and laws requiring physical education and physical activity in elementary and junior high schools, little or no support is provided to schools for training, implementation, or evaluation, let alone enforcement of these policies. At

Table 1. Assessment of State Policies Specifying Minutes of Physical Activity during the School Day or Week

State (year introduced)	Policy Goals (grades included)	Required Minutes of PE (grades included) ^a	Specificity & Strength Rating
Arkansas (2007)	90 min PA weekly (K-6)	60 min PE weekly (K-8)	+
District of Columbia (2009)	60 min PA daily (K-12)	150 min (K-5) or 225 min PE weekly (6-8)	+
Idaho (2010)	60 min MVPA daily (K-12)	Amount unspecified	++
Iowa (2009)	30 min PA daily (K-5) or 120 min (6-12) PA weekly	Amount unspecified	+
Kentucky (2005)	150 min MVPA weekly (K-5) ^b	Amount unspecified	+
Louisiana (2005)	30 min MVPA daily (K-8)	150 min PE weekly (K-8)	++
Mississippi (2007)	150 min PA weekly (K-8)	50 min PE weekly (K-8)	+
Missouri (2009)	150 min (K-5) or 225 min (6-8) PA weekly	50 min (K-6) or 45 min (7-8) PE weekly	++
New Hampshire (2005)	30-60 min PA daily (K-12)	Amount unspecified	+
North Carolina (2005)	30 min MVPA daily (K-8)	Amount unspecified	++
Oklahoma (2010)	60 min PA weekly (K-5) ^c	60 min PE weekly (K-5)	+
South Carolina (2006)	150 min PA weekly (K-5)	90 minutes PE weekly (K-5)	+
Tennessee (2006)	90 min PA weekly (K-12)	Amount unspecified	+
Virginia (2011)	150 min PA weekly (K-8)	Amount unspecified	+

Note: "PA" = physical activity; "MVPA" = moderate to vigorous physical activity; "min" = minutes; "+" = weak wording; "++" = moderate wording; ^aFrom NASPE 2010 Shape of the Nation; ^b150 minutes of MVPA is noted as maximum as opposed to minimum; ^cThe 60 min/week of PA was required in addition to the 60 min/week of PE.

the same time, the wording of the policies is not strong enough or specific enough to establish the kind of health-changing practices that are warranted.

Jordan Carlson, a postdoctoral researcher at University of California at San Diego's department of family and preventive medicine, is lead author on the study "State

Policies About Physical Activity Minutes in Physical Education or During School," published this year in the *Journal of School Health* (v. 83, issue 3). Based on comparative data that Carlson and his research team collected, including interviews with state coordinators tasked with implementing the physical activity legislation, the study

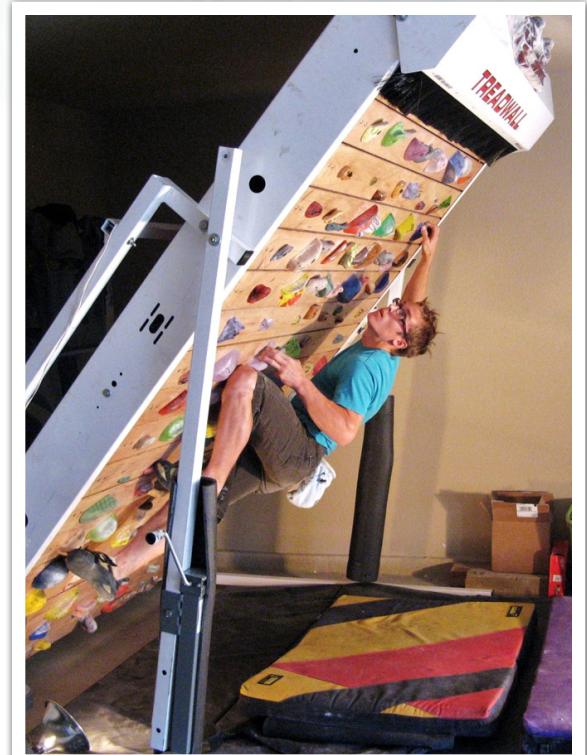
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If Climbers Can't Go to the Mountain, Let the Mountain Come to Them

Now climbers lacking a mountain or wall to climb can get a vigorous workout on climbing treadmills that offer variable climbing angles, speeds and a variety of hold positions. The devices fit into any 10-foot tall room . When as the climber "ascends" the wall rotates offering a never ending "wall face". One model (the M6) is on casters making it possible to wheel it into the gym. The Treadwall R manufactured by Brewers Ledge, Inc.



Student from Cardinal Cushing School in Hanover, Massachusetts works out on the Treadwall M6, mounted on casters.



Andy Raether, a skilled climber from Las Vegas , maneuvers on the Treadwall "Kore" unit designed for the climbing community.

EDITOR'S TWO CENTS WORTH

What an Exercise Pill Cannot Do



Shirl Hoffman

I just lie down until the feeling goes away." Now, media reports, keying on a study published in Nature Medicine, suggest that Hutchins may not have been as far off the mark as most kinesiologists would believe.

In the study, mice injected with Rev-Erb (a protein that improves oxidative function) not only lost weight, their cholesterol levels were reduced, they improved their exercise capacity, and they used more oxygen and expended five percent more energy than non-inoculated mice even though they were habitually less physically active. According to some reporters, here is the couch potato's dream.

All of which led Richard Gunderman of Atlantic.com (July 18) to wonder what the

Robert Maynard Hutchins, legendary president of University of Chicago during the thirties and forties (and the abolisher of football there) is said to have once remarked "every time I feel like exercising,

future holds for a society whose members no longer have to run, cycle, lift, pull, stretch and strain in order to keep their bodies slimmed, toned, and capable of running five-minute miles. It would free up a lot of time that people now spend going to Y's and gyms says Gunderman. And some, for whom the spirit is willing but the flesh is weak, would be relieved of the burden of guilt they carry around for not adhering to a daily workout schedule. It might also help stem the tide of injuries incurred in the pursuit of a smaller waistlines and larger biceps, and, says Gunderman and it would allow schools, who now are forced to fit time in the school day for recess and physical education, to focus on the really important stuff of fractions, cell-division, and science. (Presumably Gunderman isn't aware of how physical activity programs are already being squeezed out of school curriculums to allow more class time for STEM subjects.)

Not all would be good however. For one thing he notes the devastating hit that would be taken by the \$25 billion health club industry and the additional \$20 billion or so generated by Nike. No longer would we need fancy exercise machines, balls

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You Can't Keep a Good Man Down (From the Mountain, That Is)

You can't keep a good man down (from the mountains) even if they are octogenarians. When Yuichiro Miura, who has had four heart surgeries, reached the top of Mount Everest (29,028 feet) in May, he phoned home to tell his family that he had made it and that he felt great although totally exhausted.

Miura trained for the climb by walking 3 to 5 times a week with 25 to 30 kilograms of weight on his back. "I made it!" Miura said in a phone call from the summit to his home in Tokyo that was captured by the broadcaster NHK. "I never imagined I could make it to the top of Mount Everest at age 80. This is the world's best feeling, although I'm totally exhausted. Even at 80, I can still do quite well."

Another octogenarian, 81-year-old Nepalese Min Bahadur Sherchan, was scheduled to begin his ascent on Everest when Miura was resting at the top. The two are informally competing to be the oldest person to visit the peak. Sherchan held the record



Yuichiro Miura, climbed Mt. Everest at age 80

when he reached the top in 2008 at age 76. This time Sherchan's ascent had to be terminated due to poor weather.

View videos:

<http://www.guardian.co.uk/world/2013/may/23/nepalese-everest-climb-oldest-record>

<http://www.youtube.com/watch?v=mZlzGgJ17C4>

-SJH

Danish woman Annette Fredskov ran 26.2 miles every day for a year. She celebrated the anniversary of her daily routine by running a double marathon last month. After running a total of 10,000 miles and wearing out 20 pairs of shoes, she says running "is the best thing that has happened to me." Did we mention that Annette has multiple sclerosis?

In a piece about basketball player LeBron James, John Krakauer, professor of neurology and neuroscience at Johns Hopkins University School of Medicine and coauthor of the 2009 paper "Inside the Brain of an Elite Athlete: The Neural Processes That Support High Achievement in Sport" published in *Nature Reviews Neuroscience*, asks, "Why look at the brain as better than the body? Why look at the body as better than the brain? It's all just matter. There's this cultural addiction to singling out the cognitive. To say Einstein is a more evolved genius than LeBron James is some sort of nonsense." *Time*, June 17, 2013.

Geographically Challenged NFL Mixes Up States

Les Hall, a huge Carolina Panthers fan, bought a new NFL team T-shirt online. The shirt which is emblazoned with the letters NC and a picture of a panther are set off against a Carolina blue background formed in the shape of the state. The only problem is that the state is South Carolina, not North Carolina. Apparently the shirt was a one-off and now is destined to be a collector's item.

Thanks to sportswriter Scott Fowler of the *Charlotte Observer*.



Photo credit to Les Hall.



"No helmet system can protect you from serious brain and/or neck injuries including paralysis or death. To avoid these risks, do not engage in the sport of football."

Although the warning has been on Schutt Sports football helmets for years, it has recently attracted media attention, perhaps as the result of its appearance as a pop-up on the company's website with a link to information about head injuries stemming from the game. In fact, access to the Schutt website requires users to first click on the warning. "The simplest thing we can do is remind people that the game has inherent risks," Robert Erb, Schutt's chief executive, told the New York Times. "It's an ethical, moral and legal issue. People need to know these things."

Kinesiology Major Receives Barrett Honors College Outstanding Graduate Award

This story compliments of ASU News (Science and Tech).

Andrew Albert always wanted to be a competitive cyclist. Albert, a kinesiology major and the recipient of this year's Barrett Honors College Outstanding Graduate Award at Arizona State University, said his interest in the sport was sparked after competing in a triathlon during his junior year in high school.

The Barrett Honors College Outstanding Graduate Award at ASU recognizes the academic achievement and significant contributions in the areas of research and community service by honors college graduates. The award is given annually at the college's spring convocation ceremony.

"The mechanics of cycling and the way a bike becomes an extension of human operability fascinated me," Albert said. "I enjoyed it immensely, and it was then and there that I decided to pursue the sport competitively."

After finishing high school, Albert, a resident of Chandler, Arizona, started applying to colleges in the state as well as in California and Colorado. He was accepted to several schools, including the University of Arizona and the University of Colorado in Boulder, but

decided to join Barrett to take advantage of the breadth of academic and extracurricular opportunities available at ASU and to remain close to his Scottsdale-based cycling coach.

"At the time, I was focused on building my cycling career," he said. "Soon, I realized that the competitive cycling lifestyle and living out of a suitcase weren't for me. I quickly turned my attention to exercise and kinesiology—subjects that matched my interests."

In his sophomore year, Albert took a class offered by Shannon Ringenbach, an associate professor of kinesiology and the director of ASU's Sensorimotor Development Research Lab, who was launching an innovative research project examining the effects of assisted cycling therapy (ACT) on the motor, clinical, and cognitive functions in adolescents with Down syndrome (DS). Albert was intrigued and signed up as a research assistant.

"Andrew was the perfect fit for the study because he is a cycling expert," Ringenbach said. "He hit the ground running, learned the ACT technology, collected data for 10 adolescents with Down syndrome, and defended his honors thesis on the topic his junior year."



Andrew Albert, a kinesiology major, is the recipient of this year's Barrett Honors College Outstanding Graduate Award at Arizona State University.

Photo credit: Andy DeLisle

Pilot data from Albert's honors thesis helped the project win a grant from the National Institute of Child Health and Human Development in 2012. Ringenbach, who's also his thesis director, said Albert has since become the lead research assistant for the study and has collected data for 30 individuals with DS. He has also helped with recruitment efforts, scheduling, equipment mainte-

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Short Shots

Your Gait Will Give You Away

Studies have demonstrated that people are fairly accurate identifiers of the gaits of people they know. Now security specialists are working to improve on this human ability through sophisticated biometric technology. Whereas fingerprints and iris scan security measures depend largely on cooperative subjects, a person's gait can be identified from low-quality security cameras. One of those leading the charge is Martin Hofmann of the Technical University in Munich. Hoffmann's work has greatly improved the clarity of images—so much so that analysts viewing videos of several hundred people achieved a recognition rate of almost 80 percent. Another problem that has troubled researchers is finding a way to identify a person captured at different camera angles. Daigo Muramatsu and colleagues at Osaka University in Japan are now working on a way to identify gaits when viewed from different angles. They filmed 20 people on a treadmill using 24 cameras arranged around them and used these data in writing software that can model the appearance of a person's gait when viewed from different angles.

In preliminary tests, the system led to lower identification error rates at almost all angles, results Muramatsu describes as promising.

New Scientist, September 20, 2012.

Early Stardom Doesn't Guarantee Olympic Gold in Track Athletes

Time's July 22 article on the basketball national championship for second-graders has the director of Maryland's Finest AAU program telling a reporter who asked if 7-year-olds might be a bit young to participate in national tournaments, "Not at all. If we pick them up in the fourth, fifth, or sixth grade, they already have bad habits. It's too late, too late."

Conventional wisdom has it that the better an athlete is when he is young, the better he will be during his 20s and even later. Anecdotal evidence would seem to be in conventional wisdom's corner. One can point to Tiger Woods, Phil Mickelson, Jimmy Connors, the Williams sisters, and others who excelled when they were young and continued to excel into their late 20s and early 30s.

A study from the Indiana University

department of kinesiology that was presented at the recent ACSM meetings in Indianapolis suggests conventional wisdom may be wrong, at least as far as track athletes are concerned. Joshua Foss and Robert Chapman of the Indiana University kinesiology department studied the performance careers of 65 male finalists and 64 female finalists of the 2000 Junior World Championships (juniors) and a comparable number of finalists at the 2000 Olympics (seniors). All the athletes were finalists in the 100-, 200-, 1,500- and 5,000-meter races. Senior athletes performed their best at a significantly later age than their junior counterparts in all four men's events and in three of four women's events. Only 26% of the junior athletes went on to earn medals in the Olympics. Researchers say the findings should cause national sport governing bodies to rethink how they budget limited funds since focusing spending on junior athletes seems not to guarantee Olympic champions down the road.

Science Daily, May 31, 2013.

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Appetite Suppressed by High-Intensity Workouts

A small exploratory study from the School of Sport Science, Exercise and Health at the University of Australia offers hope that some forms of exercise may be helpful in controlling overeating in overweight men. Aaron Sim, a graduate student at the University of Western Australia, and his associates assigned 17 overweight men to four 30-minute treatment groups. In one they rested and in three they cycled at moderate (continuous cycling at a moderate speed), high, or very high intensity (both alternated between bursts of speed and longer, more constant speeds). At the conclusion of the sessions the men consumed a liquid diet of 267 calories and one hour later were given oatmeal and told to eat until they were comfortably full. They ate, on average, 764 calories after resting but only 594 calories after the very high-intensity workouts. Calorie consumption after the very high-intensity workout was also lower than after moderate-intensity workouts. The day after the very high-intensity workout, the men reported eating a little more than 2,000 calories during the day after the

moderate exercise, 2,300 calories after the moderate workout, and 2,600 during the day after the resting session

Sim, A.Y. et al. (2013). High-intensity intermittent exercise attenuates ad-libitum energy intake. *International Journal of Obesity*. (Advance online publication June 4, 2013.)

The Hot Hand in Basketball: Old Beliefs Die Hard

Many studies have explored the widespread belief in the “hot hand” in basketball—that is, the belief that a player is more likely to make a basket on the next try after a successful shot. The largely negative findings haven’t dampened general belief in the phenomenon or convinced fans, players, and coaches that the real issue at hand is the human tendency to misidentify patterns. A new study published in *Psychological Science*, based on a season’s worth of observations of all 30 NBA teams and 173,032 pairs of shots, suggests that the belief continues to govern the behavior of players and coaches. The Educational Testing Service’s senior research scientist Yigal Attali found that being successful on a single shot increases the likelihood that the same player will take the next shot and that the next shot will be made from a greater distance. Contrary to popular

belief, he also found that a successful shot decreased the probability that the next shot would be successful and decreased the probability that the coach will replace the player.

Attali, Y. (2013). Perceived hotness behavior of basketball players and coaches. *Psychological Science*, 24(7), 1151-1156.

Second Thoughts About That Second Glass of Red Wine?

Long believed to be linked to longevity as a result of its antioxidant properties (and a good excuse to drink that extra glass of red wine), resveratrol has been found in an investigation to actually blunt the effects of exercise. In a small study in Copenhagen, 27 healthy (65 years or older) men were given eight weeks of training in CrossFit and circuit regimens. A number of cardiovascular measures were monitored. Half were given 250 mg of resveratrol and half took a placebo. The results observed at the conclusion of the exercise program were startling.

- Maximal oxygen uptake in the placebo group was 45 percent greater than for the resveratrol group.
- The placebo group but not the resveratrol group showed a decrease in blood pressure.

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- Levels of prostacyclin—a vasodilator—were higher in the placebo group.
- The placebos showed positive effects on cholesterol and triglycerides that the resveratrol group didn't.

By the end of the exercise program, the placebo group had a 45 percent greater increase in maximal oxygen uptake than the resveratrol group. The placebo group also saw a decrease in blood pressure, but the resveratrol group did not. Levels of a vasodilator prostacyclin (a good thing) were also lower in the resveratrol group, and the resveratrol group did not experience the positive effects on cholesterol and triglycerides that the placebo group did.

<http://www.theatlantic.com/health/archive/2013/07/study-anti-aging-antioxidant-actually-seems-to-undo-effects-of-exercise/277993/> Original study published in Gliemann, L. (2013) Resveratrol blunts the positive effects of exercise training on cardiovascular health in aged men. *Journal of Physiology*, July 22, 2013 (ahead of print).

Athlete's Dilemma

A working paper from the University of Hamburg seeks to explain why athletes continue to take performance-enhancing drugs (and continue to get caught). Athletes, says mathematician Berno Buechel, are in a position similar to “the prisoner’s dilemma,” in which they know that they would be better off if none of them took drugs but because neither can trust the other, both take them to increase their chances of winning. Buechel says the reason they continue to risk it is that they don’t really think they will get caught, and he knows the reason why.

Theoretically, authorities are supposed to catch the bad guys, but the game being played must take into account not just the athletes and the testing bodies but the fans and sponsors who pay for everything. If testing of athletes were as rigorous as it is presumed to be, it would entail more costs, it would risk disruption to the lives of athletes, and, if the pervasiveness of corruption were to be revealed by the test, team owners might face retribution from the fans. Thus, better to test sparingly, which of course gets us back to the situation in which athletes cheat even if they aren't inclined to do so.

When the researchers plugged all vari-

ables into their mathematical model, they concluded that the best way out for all concerned was for all tests, either positive or negative, to be made public so that customers could get a real sense of how widespread the practice is. Given the current situation, says *The Economist*, it may “be that the real guilty parties in sports doping are not those who actually take drugs, but those who create a situation where only a fool would not.”

Athlete's Dilemma, *The Economist*, July 20, 2013.

How Exercise Calms the Brain

Exercisers have long appreciated how a workout lowers anxiety, but scientists have been puzzled by the mechanisms involved. Since exercise excites new neurons in the hippocampus where emotion, thinking, and memory are located, increasing neurons should make us more rather than less anxious. A study conducted at Princeton University and published in *Journal of Neuroscience* suggests that exercise promotes the formation of neurons that release the neurotransmitter GABA, which appears to keep young neurons from being overactive. Researchers compared the brains of mice that ran regularly on a treadmill with the brains of sedentary mice and found more

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GABA neurotransmitters in the active mice. When they stressed both sets of mice by dunking them in cold water, the fit mice released substantial amounts of GABA, which suppressed their anxiety. Researchers are cautiously optimistic about finding the same effects in humans.

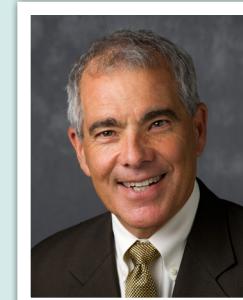
Walking and Quality of Life

A Canadian study, purporting to be the first that carefully looked at objective measures of walking and health among older men, has underscored the benefit of walking in older men. Steps taken in three consecutive days by 385 obese or overweight men above age 55 living in Alberta, Canada, were measured by the StepsCount SC-01 pedometer; the Rand-12 Status Inventory was used to measure health-related quality of life. The men averaged 8,539 steps per day. While the men who walked the most reported the highest level of health quality of life, substantial associations between steps taken and health quality of life were seen at significantly lower step counts suggesting that the oft-cited 10,000-step-per-day prescription should not be taken as a minimal standard. Strong

associations were found between step count and psychosocial health outcomes such as depression and anxiety symptoms.

Vallance, J.K. (2013). Daily pedometer steps among older men: Associations with health-related quality of life and psychosocial health. *American Journal of Health Promotion* Vol. 27, No. 5 pp. 294-298.

Purdue's Zelaznik Elected to American Association for the Advancement of Science



Howard Zelaznik

The 2012 crop of newly elected fellows to the prestigious American Association for the Advancement of Science included Howard Zelaznik, professor in the health and kinesiology department and associate vice president for research at Purdue

University. The association, the largest general scientific society in the country, elected 701 new members, 9 of whom are from Purdue. Zelaznik was cited for distinguished contributions to the fields of psychology and kinesiology, particularly for the development of a theoretical framework in movement timing. "It was a nice surprise," he said, "as there are no kinesiology or exercise science sections in AAAS. It is quite an honor. I trust in the future I can help our emerging scholars to join AAAS and become fellows."

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What Kinesiology Graduates Need to Know:

Kinesiology Core Element 3: Cultural, Historical, and Philosophical Dimensions of Physical Activity

A solid grounding in cultural, historical, and philosophical aspects of kinesiology is an essential component of a kinesiology education. Before entering careers in research or clinical practice, an understanding of philosophical and historical issues will help prepare future professionals for the numerous ethical questions they will face upon graduation. Coursework in the humanities assists students in understanding and appreciating diversity, developing cultural competencies, and making ethical decisions based on sound principles. In many kinesiology departments, undergraduate coursework examines topics such as physical culture, cultural kinesiology, sociology of sport and physical activity, history of sport and physical activity, and sport marketing and media. Specific courses will vary from institution to institution depending on local preferences and constraints.

Kinesiology Core Element 4: The Practice of Physical Activity

The American Kinesiology Association believes that regular participation in physical activity is an essential component of a healthy and successful lifestyle and that the undergraduate curriculum should provide numerous opportunities for students to be physically active. At some institutions this may take the form of a physical activity skills program that provides opportunities for participation in sport and recreation through a diverse menu of courses often taken for academic credit. At other institutions students may be encouraged to be physically active through internship and practicum experiences. In some instances physical activity participation may occur at venues outside the kinesiology department, such as in campus recreation facilities. The AKA does not prescribe a specific process for departments to follow regarding how the practice of physical activity is incorporated into the curriculum.

Recently, an AKA committee met to extend this work by identifying specific student learning outcomes for the four core content categories described previously. At a July 2013 meeting in Champaign, Illinois hosted by Human Kinetics Publishers, the AKA executive board and a number of experts in curriculum and evaluation identified a strategy by which AKA can assist our member departments in developing locally appropriate student

learning outcomes for their institution and subsequently map those outcomes against courses and other curricular offerings.

Developing Student Learning Outcomes for Kinesiology

The ability to develop, justify, and appropriately evaluate student learning outcomes is an increasingly crucial element of programmatic assessment at all institutions of higher learning. The AKA believes that it is important that our association provide leadership to assist our member departments in this area of curricular planning and review.

It is possible to identify the following set of consensus student learning outcomes for each of the four kinesiology core elements:

Student Learning Outcomes for Kinesiology Core Element 1: Physical Activity in Health, Wellness, and Quality of Life

AKA believes that a kinesiology graduate should be able to...

- Describe the relationship between physical activity participation and health, wellness, and quality of life,

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What Kinesiology Graduates Need to Know:

including a detailed explanation of current physical activity guidelines and recommendations.

- Critically evaluate research related to physical activity and its impact on health and chronic disease.
- Design and evaluate physical activity programs that promote health and improve quality of life.

Student Learning Outcomes for Kinesiology Core Element 2: Scientific Foundations of Physical Activity

AKA believes that a kinesiology graduate should be able to...

- Explain how the scientific process informs our understanding of physical activity.
- Describe the underlying scientific foundations of physical activity.
- Critically evaluate information about physical activity from a scientific basis.

Student Learning Outcomes for Kinesiology Core Element 3: Cultural,

Historical, and Philosophical Dimensions of Physical Activity

AKA believes that a kinesiology graduate should be able to...

- Describe the sociocultural and historical factors that influence physical activity.
- Demonstrate an appreciation of cultural diversity and make ethical decisions.
- Critically evaluate scholarly work related to cultural, historical, and philosophical dimensions of physical activity.

Student Learning Outcomes for Kinesiology Core Element 4: The Practice of Physical Activity

AKA believes that a kinesiology graduate should be able to...

- Demonstrate an appreciation and commitment to physical activity practice.

The manner by which student learning outcomes are developed, used, and made available to faculty and students will vary across institutions. However, the AKA is

committed to assisting our member departments by sharing information about the processes used to establish and evaluate student learning outcomes by different member departments.

A suggested process that might be used by departments to review the AKA student learning outcomes and to adapt them to their own institution is as follows:

- Faculty review and provide feedback regarding AKA recommended learning outcomes.
- Additional department-specific student learning outcomes can be added if desirable.
- Existing course syllabi are reviewed for content and consistency with the learning outcomes.
- Matrices mapping student learning outcomes against courses and other learning experiences are developed.
- Proposed student learning outcomes are shared for comment and possible revision with various constituencies, including faculty, students, and advisors.
- The final student learning outcomes are added to course syllabi, and instructors are made aware of the need to evaluate attainment of

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What Kinesiology Graduates Need to Know:

these learning outcomes.

- Student learning outcomes are re-evaluated and updated by the department on a regular basis as needed.

Of course, the development of student learning outcomes is by no means the end of the process. It is important to assess and document the extent to which each student has demonstrated competence in the required areas of performance. Information about student progress on student outcomes can be obtained from many sources.

The specific assessment process employed will vary from institution to institution but is likely to include many of the following indicators of competency: (1) grades attained by students in required coursework, (2) evaluations provided by practicum and/or internship supervisors, (3) student documentation of the learning

outcomes in portfolios and other written materials, (4) faculty ratings of oral and/or poster presentations, and (5) student self-ratings of competency obtained by anonymous survey on graduation.

Next Steps

Upon completion of the review of the proposed student learning outcomes described in this column by the full AKA board, all information about the AKA core curriculum and the associated student learning outcomes will be made available for download by interested parties on the AKA website.

I firmly believe that these efforts will lead to improved communication across kinesiology programs that will, in turn, lead to an informed sharing of ideas and perspectives. This will result in enhanced curricula in AKA departments across the nation and beyond.

Additional information from AKA about the core curriculum is available [online](#).

Join us on Facebook at American Kinesiology Association.

Get AKA updates, Share Department news, Comment on current issues and Connect with others through the AKA Facebook page today.



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Physical Activity Motivation is Barking at Your Feet

Forty percent of households in the United States and Australia have dogs. With all of these, 16 percent of owners still do not walk their dogs on a regular basis. Studies have looked at some of the barriers to dog walking in order to implement interventions to change that statistic. These barriers include safety issues, street design of the neighborhoods, and availability of high-quality parks. Also, some dog owners do not have the same sense of responsibility for dogs who might be considered outside dogs or who have limitations because of health, age, or breed. Surprisingly, McCormack found that an off-leash recreation area close by does not necessarily facilitate more recreational walking for the dog or his owner. He said the owners seemed to avoid the dog parks because of crowding and unknown dogs. Christian said she has also found mixed reactions to dog parks. "It's good to let dogs have free runs when possible, but it's also good to walk with them on the leash," she said. The breed of dog can also make a difference in the kind of activity and amount that is appropriate. Scott Wikgren, a longtime dog owner and physical activity enthusiast, extolls the benefits of exercising with his dogs. Wikgren not only takes his black Labra-

dor mix, Maggie, walking and running, but they also go hiking, kayaking and swimming together. Wikgren suggests researching a dog breed that will be compatible with your lifestyle and activities. Labradors are a hardy breed that go out in all types of weather and terrain. They also have low-maintenance coats and lots of energy. Wikgren says most of the time he would rather exercise with his dog than with people. There is no competition and no excuses, and dogs help relieve stress levels.

Researchers are now looking at ways to unleash the potential of the canine impact on physical activity. "It still seems to be an underutilized activity," said Christian. "We would probably have a big impact on society if we could find ways to get owners to walk their dogs more." Christian is currently working on a pilot study investigating minor interventions to increase recreational dog walking. The study equips dogs with pedometers to count their steps. The motivational tool, which works for humans, might



A group from Illinois enjoy a day at the dog park with their dogs.

also carry over to their dogs when they see how few steps their pets are really getting. She also recommends working with local government agencies such as Animal Control and Community Development to instill dog-friendly areas and rules in communities. "There's a whole lot of potential for physical activity lying at our feet," said Christian.

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Manhattan Changes Department Name to Kinesiology

as well as numerous affiliated scholarly societies and associations that study physical activity). With the help of Amelia Lee (executive director, AKA) and Kim Scott (business manager, AKA), the updated appendix included a representative sample of kinesiology departments from private colleges and universities with similarities to Manhattan College in terms of enrollment and department-level programs of study and majors. Ultimately, all was approved.

Kinesiology as the study of human movement clearly encompasses our undergraduate curriculum (physical education teacher education, exercise science, and preprofessional training for physical therapy and other health-related fields) and is the best single contemporary term used to represent our collective field of study and the programs in our department. Kinesiology communicates what our department is:

inclusive, scientific, and deeply academic. I am thankful to the AKA for their help as well as Manhattan College faculty, staff, and administrators alike for their openness to change, care, and work hard throughout the process. With this support, Manhattan College now has a department of kinesiology!

The following was used to summarize benefits to faculty and administrators:

- More inclusive and accurate in describing the multi- and interdisciplinary approach of our department's programs of study.
- Better reflects the entirety of the teaching, research, scholarship, and service of our faculty.
- More unified and accurate in describing all our students' majors, interests, activities, and career goals.
- Increases professional application opportunities for our students and graduates.
- Enhances the recognition, image, and visibility of the department, school, and college.
- Increases the public health-oriented narrative (via physical activity) in the community in terms of our programs, courses, and services.
- Increases admissions applicants and enrollment and thus the quality of students accepted. Many prospective students who may not have thought of physical education as a degree choice (misconception that it may only lead to teaching physical education) may take another look at what our department has to offer.
- Increases access to, and enrollment in, current department courses.
- Increases the potential for advancement and fund-raising opportunities for the department, school, and college.

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Human Advantages in Throwing Appeared Millions of Years Ago, Say Biological Anthropologist

known as cocking, a reverse rotation in the relevant joint that puts the muscles, ligaments, and tendons surrounding the joint on a stretch. At the right time these elastic structures are released (uncoiled) to produce the throw. As can be seen in the video of pitchers (see the end of this article) and in the previous photo, in a good throw, the external (backward) rotation of the upper arm during this cocking motion can be severe and continues even as the larger segments are being rotated forward.

Roach identified a number of important evolutionary changes that permit humans to throw at high velocities. Wider and more relaxed shoulders, a tall waist that enables humans to separate actions of the hips and thorax and achieve greater torso rotation over a large range of motion (ROM), and a more laterally oriented glenohumeral joint, which allows them to abduct the upper arm in line with torso rotation.

Another critical evolutionary development is in the way the long axis of the humerus came to be aligned with the head of the humerus. The humeral torsion in humans is 10 to 20 degrees lower than that of chimps. (Envision a line drawn from the head of the humerus down the shaft to the axis of

the elbow.) This twist or decreased torsion maximizes the degree of external rotation possible at the shoulder, thus increasing the passive stretch of ligaments, tendons, and muscles during the cocking motion. This stretch of soft tissue in the shoulder joint is largely abetted by the forward rotation of earlier, larger segments, which in effect “leave the arm behind.” By the time throwers in Roach’s study were ready to release the ball, the upper arm had externally rotated backward over an amazingly large range of motion—57 degrees greater than humans can achieve simply using their own muscle power.

This stored elastic energy in the shoulder provides a critical source of power over and above that provided by contracting muscles. Roach found that the internal rotator muscles themselves contribute at most half the shoulder rotation power generated in the throw. The other half is generated by releasing the stretched ligaments, tendons, and muscles. The result is an internal rotation of the humerus at up to 9,000 degrees per second, the fastest motion that the human body is capable of achieving.

Roach and his team went beyond a study of the fossil record and construction of a biomechanical model by testing some of their hypotheses. Using an eight-camera infrared motion capture system, they analyzed the throws of experienced

pitchers (Harvard baseball players) whose throws were selectively constrained with therapeutic braces so that they mimicked the anatomical structures similar to our ancestral hominins. This enabled his team to quantify the relationships between the mechanics of the throw and the contribution of each evolutionary shift.

“We try to push these bits of anatomy back in time, if you will, to see how that affects performance,” Roach told Space Daily. “The important thing about our experiments is that they went beyond just being able to measure how the restriction affects someone’s ability to throw fast and accurately—they allowed us to figure out the underlying physics. For example, when a thrower’s velocity dropped by 10 percent, we could trace that change back to where it occurred. In order to test our evolutionary hypotheses, we needed to link the changes we’d seen in the fossil record to performance in terms of throwing. This type of analysis allowed us to do that.”

See video of the project at http://www.youtube.com/watch?v=I_bYIY6AHew.

Roach, N., et al. (2013). Elastic energy storage in the shoulder and the evolution of high-speed throwing in *Homo*. *Nature* 498, 483-486.

A review of the project can be found at *Space Daily*, July 10, 2013.
-SJH

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Doing the Right Thing

in kinesiology and to motivate discussion and action toward creating more diversity in kinesiology to help advance the field and the education of our students.

Many positive outcomes have resulted from the workshop. AKA established the Diversity Task Force to assist the organization in developing a united strategic effort to tackle the issue. The task force is made up of existing and future leaders and outstanding members of our field who have already made considerable strides. In less than a year the task force has accomplished a number of exciting objectives. The task force created diversity-related targets and goals incorporated into the AKA strategic plan. Included in the mission of AKA's strategic plan is the idea to provide member departments with information pertaining to diversity recruitment and retention for historically underrepresented groups. Also included in the AKA strategic plan in the values section is diversity inclusion and equity in the field. Finally, the following benchmarks were adopted into the AKA strategic plan:

1. Increase the number of historically underrepresented groups in kinesiology.

2. Create a diversity statement for AKA.
3. Include a diversity content on website.
4. Publish the AKA Workshop presentations in *Kinesiology Review*.
5. Provide strategies for promoting diversity in the kinesiology profession.
6. Provide best practices for promoting diversity in the kinesiology profession.

To accomplish the first goal, increase the number of historically underrepresented groups in kinesiology, the taskforce believed that we must accomplish the other benchmarks. Listed below are the benchmark outcomes of the task force thus far:

- *Created and recommended a diversity statement for AKA:* AKA promotes and pursues an evolving understanding of the importance of human interaction in kinesiology-related fields beyond the level of simple tolerance. Diversity in AKA creates a working and learning environment that encourages varied perspectives and an open exchange of ideas in an unbiased and nonprejudicial way. In principle and in practice, AKA values membership, involvement, and expanded access to leadership opportunities regardless of race, ethnicity, gender, religious beliefs, age, marital status, sexual orientation, nationality, physical ability, appearance, language, socioeconomic status, geographic location, professional level, or academic achievement. AKA pursues diversity, particularly for historically underrepresented groups, by maintaining a diversity committee and providing resource information for diversity-related initiatives. AKA is committed to pursuing the development and involvement of diverse kinesiology departments and partnering with other organizations and communities that engage in enhancing diversity in science and sport.
- *Collecting information for the new upcoming diversity web page on the AKA website.* This information will include the following:
 - Best practices: Recognizing best practices in student and faculty recruitment as well as leadership development.
 - Diversity expert names. Identifying experts in the field who can

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Carpal Tunnel Syndrome Linked to Shape of Hands and Wrists

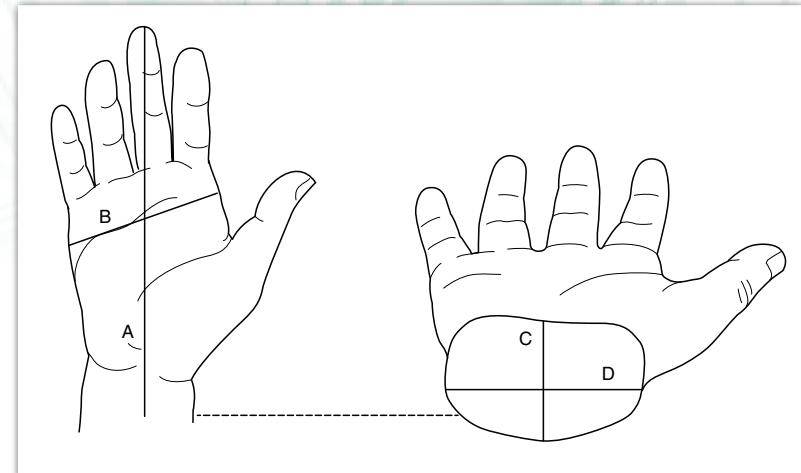
diagnostic tests, performed blindly—without the clinician's knowing which group the subject belonged to. The research team then performed a statistical analysis between the CTS patient group and the control group, looking at hand ratios, wrist ratios, carpal tunnel configuration, and nerve conduction speed.

The researchers found that the shape of an individual's wrist and the shape of the carpal tunnel matched consistently—a square wrist corresponded to a square carpal tunnel, particularly at the inlet. Further, they established that patients had both smaller hand ratio (hand length divided by palm width) and larger wrist ratio (depth divided by width at the base of the hand). And, while the two groups had similar body weights, the BMI was higher in the patients than in the controls. The patient group had thicker median nerves: "There was no clear association between hand or wrist dimensions and median nerve size in healthy controls, implying that thickening of the nerve is part of the compression process," explained Chroni.

The median nerve conduction tests showed that hand and wrist ratios correlated to speed of conduction, with differences by sex, age, and hand use. The internal carpal tunnel configuration and the speed of nerve conduction correlated in the same way.

Chroni said more research is required to answer why a square carpal tunnel might be more likely to contribute to greater nerve compression, or whether it's the overall mechanics of a square hand with short fingers that result in greater bending or extension of the wrist and fingers, leading to compression of the median nerve.

Where other studies have looked at how individual anatomical characteristics—hand and wrist dimensions, carpal tunnel dimensions measured by ultrasound, overall height, weight, and BMI—may contribute to the development of CTS, this is the first such study to make a comprehensive association between all of these traits and the probability of developing CTS.



Hand ratio and wrist ratio affect carpal tunnel development

Chroni cautions that these indicators, while generally effective, are not infallible: "Hand and wrist configuration merely define a tendency for developing CTS. We have no data to suggest that individuals with 'perfect' hand configuration are at no risk whatsoever for CTS."

The research team plans to pursue this line of study further, looking at the development of CTS symptoms in vegetable cannery workers over several years. This project is being planned in collaboration with the department of biomechanics at the University of Patras, Greece.

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U.S. Schools Fail to Make the Grade on Physical Education Policies

concludes that adopting state policies is not enough to affect rates of childhood obesity and overweight.

Commented Carlson, "The biggest criticism I have and that I have heard is this: While these types of state policies and state laws are becoming more common, the states aren't doing anything additional to support it. They are not funding it or putting any kind of infrastructure into place to get the implementation and monitoring that are needed to make a difference."

"For example, here in San Diego, we have a state mandate for PE minutes, but hardly any of the schools are able to meet it because there is no funding or support for that. Most of our elementary schools don't have PE teachers and haven't had them for a long time. That means classroom teachers are responsible for providing PE time, but they aren't trained."

Research attests that obese children and adolescents have increased risk factors for cardiovascular disease, bone and joint problems, prediabetes, and sleep apnea. As adults, they are more likely to be obese and suffer comorbidities, including heart disease, type 2 diabetes, stroke, and many types of cancer.

Table 2. Assessment of State Policies Specifying Percent of PE Time in Physical Activity

State (year introduced)	Policy Goals (grades included)	Required Minutes of PE (grades included)^a	Specificity & Strength Rating
District of Columbia (2009)	50% of PE in PA (K-12)	150 min (K-5) or 225 min PE weekly (6-8)	+
Idaho (2010)	33% (K-5) or 50% (6-12) of PE in MVPA	Amount unspecified	++
Oklahoma (2010)	50% of PE in PA (K-12)	60 min PE weekly (K-5)	+
Oregon (2007)	50% of PE in PA (K-8) ^b	150 min (K-5) or 225 min PE weekly (6-8)	+
Texas (2002, 2007)	50% of PE in PA (K-12)	30 min MVPA daily as part of PE (K-8) ^c	+

Note: "PA" = physical activity; "MVPA" = moderate to vigorous physical activity; "min" = minutes; "+" = weak wording; "++" = moderate wording; ^aFrom NASPE 2010 Shape of the Nation; ^bLaw does not take effect until 2017-2018 school year; ^cMore than 30 min/day of PE would be needed to meet 30 min/day of MVPA.

The paper points out that leading national health organizations have established physical activity guidelines specifically for schools to take a leading role in advocating fitness among school-aged youths: 150 minutes per week of PE for elementary schools, 225 minutes for secondary schools, and 30 minutes of physical activity each school day.

The study included the 16 states that have enacted school physical activity policies or legislation—all since 2005—and rated them based on clarity and strength of verbiage in two categories: minutes of daily physical activity required during the school day and minutes or percent of PE time spent in physical activity. Policies were rated as weak if they contained vague language that amounted to suggestions rather than requirements. A moderate rating was given to programs that had some specific requirements.

"We didn't give any of the policies strong ratings," noted Carlson, "because none of them had any strategies for implementation

and none of them had plans for monitoring or to measure accountability."

The distinction between physical education and physical activity is important. Carlson explained that there are short-term benefits to physical activity, including improvements in students' academic performance and the ability to complete focused tasks. And there are long-term health benefits to both physical activity and PE instruction at school.

"One thing we noticed is that some states, instead of specifying a required number of minutes of PE, are requiring minutes of physical activity—it looks like there may be a trend in that direction. The disadvantage is that it lets schools off the hook for having PE teachers. We believe that's a loss for the kids. PE is important because students learn lifelong skills to keep them physically active," asserted Carlson.

Carlson said state coordinators he spoke with held disparate opinions about the kinds of administrative measures that might assist

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U.S. Schools Fail to Make the Grade on Physical Education Policies

with implementation and monitoring of state policies. "Some thought a federal mandate was the way to go," explained Carlson. "Others thought a local control was the way to go to empower schools. Generally, the coordinators thought the new laws were a good thing, but that they had too many loopholes."

One striking example of such a loophole is that in some states, schools could count time between class periods as physical activity minutes, based on the idea that students are walking between classes. Other policies that required PE didn't indicate percentage of PE time that was to be spent in physical activity.

Among the main implications of the study is the finding that more states need to establish comprehensive policies, while existing state policies need reworked language that specifically defines what can and cannot be counted toward physical activity minutes and that requires "moderate to vigorous physical activity" rather than the more vague "physical activity." At the same time, states must provide the wherewithal to implement, monitor, and evaluate school compliance. The researchers found none

of the existing 16 policies were likely to result in significant improvements as they are now written or funded.

On its website, the Centers for Disease Control and Prevention advises that schools play a critical role in combatting childhood and adolescent obesity by educating students about healthy eating and supporting healthy physical activity behaviors. The agency offers these sound guidelines for schools to support healthier youths, each with links to strategies and resources for program development, implementation, and monitoring.

1. Use a coordinated approach to develop, implement, and evaluate policies and practices concerning healthy eating and physical activity.
2. Establish school environments that support healthy eating and physical activity.
3. Provide a high-quality school meal program and ensure that students have only appealing, healthy food and beverage choices offered outside of the school meal program.
4. Implement a comprehensive physical activity program with quality physical education as the cornerstone.
5. Implement health education that

provides students with the knowledge, attitudes, skills, and experiences needed for lifelong healthy eating and physical activity.

6. Provide students with health, mental health, and social services to address healthy eating, physical activity, and prevention of related chronic diseases.
7. Partner with families and community members in the development and implementation of healthy eating and physical activity policies, practices, and programs.
8. Provide a school employee wellness program that includes healthy eating and physical activity services for all school staff members.
9. Employ qualified people, and provide professional development opportunities for staff members in physical education, health education, nutrition services, and health, mental health, and social services as well as staff members who supervise recess, cafeteria time, and out-of-school programs.

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What an Exercise Pill Cannot Do

and racquets, or buy Adidas Springblade® sneakers in which to trot our stuff. He even wonders if people would play less sports, not taking into account of course, the fact that most people who play sports do it for enjoyment and not the exercise.

As often is the case in media reporting on medical science, announcing the discovery of an exercise pill goes far beyond the actual data. In fact, the furthest the research team was willing to extrapolate its findings was that Rev-Erb eventually might be of help to those with skeletal muscle disorders who are unable to engage in physical activity. Furthermore, the effects of Rev-Erb seem related to a fairly narrow set of metabolic phenomenon. Most of the other reasons people exercise (toning muscles, improvement in strength and flexibility and psychological well-being) would still depend upon good old physical activity.

Still, it got me thinking about what if? What if the entire range of benefits conferred on regular exercisers could be duplicated in a pill? More specifically what would be the impact on a profession that has made

exercise its primary, (and in some cases, sole) disciplinary lynchpin?

Obviously colleges and universities could forget about investing in programs that prepare fitness specialists. No longer would it be necessary to prepare physical education teachers since schools would substitute a “pill period” for gym class. While a few diehard exercise physiologists may hang onto their jobs, the need to explore the frontiers of science surrounding exercise (except perhaps to discover a newer and faster acting pill) would be substantially diminished. Since fewer people exercising would likely mean fewer injuries, athletic training and sports medicine may have their ranks culled as well.

Fanciful though such talk may be it does help to readjust our focus on the broad sweep of our discipline, a discipline stretching far beyond exercise. Doing and studying exercise and fitness are critical elements that hark back to our ancient beginnings. Who can doubt that casting our lot with healthcare systems or demonstrating links between exercise and health has been a boon to our still developing field? Yet to think too narrowly about kinesiology, equating it with exercise or therapy (“the exercise as

medicine movement comes to mind”) ignores the broad contours of our field and the role it can play in our lives beyond muscle and cardiovascular function.

For example, imagining that our field is about nothing more than exercise and health threatens to dishonor kinesiology’s historic relationship with sport---something we do for the fun of it. Not only this, it underestimates the important contributions researchers from our discipline make to the study of skill learning and performance and unfairly discounts the efforts of expert skill teachers. Developing competency to move in skillful and artful ways is as essential to living the good life as are exercise and fitness.

If an exercise pill that duplicated the full range of health benefits stemming from exercise ever were developed, I’d like to think that our field would continue to be valued by society, maybe not as a field that trumpets exercise as the way to lower cholesterol levels and blood pressure, but one which helps people develop a full range of competencies in physical activity and thereby points the way to a richer, fuller lives.

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Doing the Right Thing

conduct presentations and lead workshops on diversity-related topics.

- Student and faculty opportunities. Identifying opportunities targeting underrepresented groups that promote success (e.g., summer bridge programs, research mentorship programs, grant mentorship programs, medical school prep programs, young scholars programs).
- Demographic content. Reporting race, sex, ethnic data, and more in kinesiology.
- Faculty and student recruitment and sustainability guidelines for department heads. Providing promotion and tenure mentorship strategies and listings of external reviewers.
- *Kinesiology Today (KT)*. Writing a column addressing diversity issues in kinesiology in *KT*, including topics related to faculty and student recruitment and retention, best practices, and advertising future opportunities. In future upcoming *KT* publications, members of the

task force and presenters at the 2013 AKA Diversity Workshop will share thoughts, ideas, and strategies related to diversity in kinesiology.

- *AKA webinars*. Preparing future webinars related to diversity issues and best practices for increasing diversity in kinesiology programs.
- *Kinesiology Review: AKA diversity workshop thematic edition*. The August 2013 issue of *Kinesiology Review* consists of papers published based on presentations at the 2013 AKA workshop. The articles in this special themed issue speak to the issue of diversity in our field and ways to enhance it. The articles are thought provoking and inspiring and were written to generate a renewed strategic effort across the field of kinesiology to enhance our diversity, particularly for those who are underrepresented.

The AKA Task Force is on the move and committed to bringing about positive change with respect to diversity among the underrepresented groups in kinesiology. It is time for “the change” to happen that Sam Cooke sang about. We have the unique opportunity in higher education to improve

diversity by prioritizing it and implementing effective strategies. We do have the academic freedom to determine the student body makeup necessary for fulfilling our missions and our values. Some programs are experiencing success already. Recruiting, retaining, and adequately preparing students from underrepresented groups into kinesiology for graduate study and higher education will ultimately result in more diversity among faculty in our programs. From that growth and change, more administrators and leaders from such groups will emerge. Take on the challenge, create the opportunities, and do the right thing. I know a change is gonna come, oh yes it will.

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A New Game Plan for PE and Physical Activity in American Schools

Education to School," urges policy makers at the national, state, and local levels to support these changes by considering in their every decision how to increase physical activity opportunities for children and adolescents, both in the nation's schools and in the communities that they serve. It further encourages all stakeholders—parents, teachers, students, and community members—to mobilize and advocate for high-quality PE programs and other school-day opportunities for healthy exercise.

Eminent doctors, scientists, and physical education policy experts make up the IOM Committee on Physical Activity and Physical Education in the School Environment that was tasked with analyzing and devising a multidimensional and integrated solution to America's child and adolescent health crisis.

The statistics are alarming: over the last 30 years, the United States has seen a dramatic increase in the prevalence of noncommunicable diseases, many of which have their origins in childhood. A sedentary lifestyle, coupled with the widespread availability of less-than-healthy fast-food options, has contributed to increased incidence of heart disease, colon and breast cancer, obesity, diabetes mellitus, hypertension, osteopo-

rosis, anxiety and depression, and other diseases. When developed in childhood, these conditions may persist as health burdens throughout adulthood.

Clinical and public health guidelines show that youth require 60 minutes per day of moderate- to vigorous-intensity physical activity to optimize health and development. IOM committee members drew on an extensive base of research and on the limited data available pertaining to the widely varying physical education policies and mandates for each state. The report cites extensive evidence in support of a long list of benefits of regular physical activity for children and adolescents. These include improved musculoskeletal health, increased energy, improved cardiovascular and metabolic function, decreased risk of disease including obesity, improved brain and mental health, and inculcation of lifelong physical activity with benefits over the life span.

IOM committee member Gail Woodward-Lopez, MPH, RD, is associate director of the Atkins Center for Weight and Health at the University of California at Berkeley. She has more than 20 years of experience developing, implementing, and evaluating public health programs, including school- and community-based programs to prevent childhood obesity.

"The report lists the comprehensive ben-

efits of a quality physical education program and gives specific examples of effective programs, detailing who would implement them and how," Woodward-Lopez explained. "It outlines the goals that need to be accomplished and includes examples of where this has been done and how this has been done. We really considered feasibility in this report—it's not pie in the sky."

"Our report advocates a 'whole-of-school approach,' which means administrators and program planners need to consider the benefits and possibilities for physical activity in all of their policy decisions—schools need to maximize every opportunity for physical activity. This means incorporating physical activity into classroom lessons and at recess, putting in staff that can support physical activity and making play structures conducive. It also means making school facilities open to the community to use as a playground."

The report also cautions against school discipline policies that take away opportunities for physical activity.

The report points out that, since students spend up to seven hours each weekday at school, schools have the greatest responsibility and the most potential to intervene in the physical activity behaviors of America's 51 million public school students aged 5 to 17. It argues that this is squarely in line with

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the public school system's long tradition of providing access to health services like health screenings, nutrition programs, and immunizations.

What's more, the report puts forth, schools are subject to local, state, and national policies, and emerging evidence shows state legislative policies on physical activity in schools do in fact have a positive impact on physical activity behaviors in school-aged children. However, not all state policies have proven equally effective: Policies that appear to be most effective include required reporting of outcomes, funding provisions, and easing of competing priorities, though more evaluation of such policies and their total impact is needed.

A quality program must have qualified teachers: PE curricula are structured to provide developmentally appropriate activities and lessons that build motor skills and support lifelong participation in physical activity. Teachers trained in PE are best qualified to deliver them.

"Teacher training is very important in developing age-appropriate and safe programs," Woodward-Lopez added. "Once a program is in place, monitoring is very important for continued improvement and to

ensure that there is equal access to physical activity among all students."

Finding teachers qualified to teach PE may prove difficult in the future, however. The report notes the availability of PE teacher education programs at U.S. institutes of higher learner has seen a dramatic decrease in the number of kinesiology doctoral programs offering training to future teacher educators, the number of doctoral students receiving this training, and the number of professors offering training.

Woodward-Lopez acknowledges that schools have a momentous task and that most are struggling financially but points out that legislation has already been introduced in both the House and Senate that would demarginalize PE by making funding available. The PHYSICAL (Promoting Health for Youth Skills in Classrooms and Life) Act, if passed, would recognize health education and physical education as core subjects in elementary and secondary schools, which would make Title I and Title II funds available for placement of qualified PE teachers and for teacher training.

Woodward-Lopez said schools necessarily have something to do with each recommendation put forth in the report, pointing out that test scores really aren't at stake: "Academic performance doesn't suffer by taking physical education and physical activity

time out. It's well documented that healthy children perform better academically. The health benefits aren't to be minimized, but it's important to be aware that the benefits are really twofold," said Woodward-Lopez.

Committee member Charles H. Hillman is a professor of kinesiology and community health, psychology, and internal medicine at the University of Illinois at Urbana-Champaign. His research focuses on the effects of physical activity on brain function in both adults and children.

"There have been several studies that suggest that physical activity and aerobic fitness relate to better performance on scholastic achievement tests and academic work overall. There's evidence that physical activity has a relationship to cognitive function, specifically executive control and relational or associative memory, two areas that are important in that they underlie classical achievement broadly.

"Second, these functions are each tied to specific brain regions: Executive control is tied to the prefrontal cortex, while associative relational memory is tied to the hippocampus. We know that development of these two brain structures is protracted—they are some of the last to develop, with the hippocampus being the most protracted in development.

Because of that, there is good reason to believe the behaviors we perform throughout

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development influence the development of those two regions."

Hillman cautioned that research into the relationship between exercise and cognitive function in children is still emerging, and there are as yet insufficient data indicating just how much exercise is optimal for improved academic achievement: "What we are proposing in this document is that the increase in physical activity, be it through PE or otherwise, should improve the ability to perform cognitive operations throughout the day, particularly as it relates to the types of cognition these areas of the brain perform."

Today, the health burden of physical inactivity in the global population is approaching that of cigarette smoking and obesity. The report estimates that currently only about half of U.S. children are getting the recommended 60 minutes of moderate- to vigorous-intensity exercise, with substantial disparities in daily opportunities for physical activity across racial, ethnic, and socioeconomic lines. If successful in meeting these challenges, schools will act as socioeconomic equalizers, standardizing equal access for all students. n

The report makes six recommendations to policy makers, schools, and key stakeholders

to address the current child and adolescent health crisis that is intensified by insufficient opportunities for physical activity:

1. Taking a whole-of-school approach: District and school administrators, teachers, and parents should advocate for and create a whole-of-school approach to physical activity that fosters and provides access in the school environment to at least 60 minutes per day of moderate- to vigorous-intensity physical activity, more than half (>50 percent) of which should be accomplished during regular school hours.
2. Considering physical activity in all school-related policy decisions: Federal and state governments, school systems at all levels (state, district, and local), city governments and city planners, and parent-teacher organizations should systematically consider access to and provision of physical activity in all policy decisions related to the school environment as a contributing factor to improving academic performance, health, and development for all children.
3. Designating physical education as a core subject: Because physical education is foundational for life-long health and learning, the U.S. Department of Education should designate physical education as a core subject.
4. Monitoring physical education and opportunities for physical activity in school: Education and public health agencies at all government levels (federal, state, local) should develop and systematically deploy data systems to monitor policies and behaviors pertaining to physical activity and physical education in the school setting so as to provide a foundation for policy and program planning, development, implementation, and assessment.
5. Providing preservice training and professional development for teachers: Colleges and universities and continuing education programs should provide preservice training and ongoing professional development opportunities for K-12 classroom and physical education teachers to enable them to embrace and promote physical activity across the curriculum.
6. Ensuring equity in access to physical activity and physical education: Federal, state, district, and local education administrators should

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ensure that programs and policies at all levels address existing disparities in physical activity and that all students at all schools have equal access to appropriate facilities and opportunities for physical activity and quality physical education.

Source: IOM (Institute of Medicine). 2013. *Educating the student body: Taking physical activity and physical education to school*. Washington, DC: National Academies Press.

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Kinesiology Major Receives Barret Honors College Outstanding Graduate Award

nance, and training of other graduate and undergraduate students.

"This study would not have been possible without him," she said. Albert, 22, has three peer-reviewed journal papers in press and two under review. He has coauthored a book chapter titled "Assisted Cycle Therapy (ACT): Implications for Improvements in Motor Control."

In addition to his academic achievements, Albert works with special-needs

populations in the Phoenix area, volunteers at a local nursing facility, serves as a medical team captain for several area marathons and cycling events, coaches youth cycling teams, presides over ASU's American Medical Student Association chapter, and has founded a math and science club at Hancock Elementary School in Chandler that engages schoolchildren in hands-on learning activities to inspire their interest in the STEM fields.

Still, Albert said he was surprised to learn that he'd won Barrett's Outstanding Graduate Award. "Barrett Honors College is full of students who I think are smarter than I am," Albert explained. "I'm grateful for the award. It's an honor and a privilege."

Mark Jacobs, the vice provost and dean of Barrett Honors College, says the award is well deserved. "Andrew Albert epitomizes the coupling of ability and opportunity that is possible at ASU and Barrett Honors College," Jacobs says. "He has applied his very high capability to a stunning number of programs and causes."

Albert said much of his success can be attributed to ASU's size. "Resources and opportunities for students seem unlimited here," Albert says. "Professors are conducting research on any and every topic one can think of. I was encouraged to interact

with my peers and faculty members that led to relationships I wouldn't have formed otherwise."

Albert plans to study medicine after graduation and will be taking the Medical College Admission Test (MCAT) in a few weeks. "ASU has prepared me well for a medical career," he said. "I've been involved in research studies, grant writing, community projects, and on-campus organizations that have helped shape my perspective of the role I hope to play in the world around me."

Albert said he hasn't zeroed in on a specialization yet, although he's leaning toward developmental pediatrics or sports medicine. He said he looks forward to the next chapter of his life. "My first med school acceptance letter would make me very happy, as will graduation," Albert said. "I've enjoyed my time at ASU, and I feel equipped and ready to move onward and upward."

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