Kinesiology Today

AKA American Kinesiology Association

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Playing the Strong Hand

By Siv Schwink, KT staff writer

How do we know how to pick things up? It's not something that most of us wonder about, but Andrew Gordon has spent much of his career pondering the question. His insights have enabled thousands of children with cerebral palsy to live more active lives, and his work ultimately could help patients who have neurological disorders such as Parkinson's or who need prosthetic hands. In recognition of his work, the National Academy of Kinesiology recently elected him to the status of active fellow.

Gordon, professor of movement sciences and director of Columbia's Teachers College Center for Cerebral Palsy Research, has worked from the outside in. He began 25 years ago with observations of kids doing simple hand exercises, and his current efforts to map new or restored brain circuitry result from the therapies he has developed.

Most of Gordon's work has centered on children with hemiplegia, a severe weakness in the limbs resulting in very low dexterity on the affected side of the body. When he was

HABIT play activities driving wrist extension and manual dexterity.

-Photos by Claudio Ferre

in graduate school in the late 1980s, such children weren't expected to benefit much from physical rehabilitation, because it was believed they could not learn from experience—or extract sensory information—when trying to grip with the affected hand.

"The general consensus was that this kind of impairment didn't get better, but I just didn't believe it," Gordon says. "I had worked with these kids and seen their hand movement improve after just a half

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Do good looks signal greater athleticism—and better genes?

By Siv Schwink, KT staff writer

In the animal kingdom, sexual selection—a type of natural selection that has less to do with survival and more to do with wooing a mate—can give rise to some extraordinary examples of sexual dimorphism. Take, for example, the colorful feather displays among the males of many bird species, the size of the male baboon's canines, the marvelous male throat sack of some reptile and amphibian species, and the lion's proud mane.

Evolutionary biologists maintain that these exaggerated (sometimes outlandish) physical qualities that don't provide an immediate survival advantage but do increase attractiveness to potential mates evolved as visual cues indicating other desirable but less immediately discernible qualities, like good health, strength, and stamina. In other words, the more attractive the display, the better the genes, and the greater the odds of a good life for the offspring.

Justin Park
University of Bristol

But what about us humans? Are the physical attributes we collectively find most attractive actually visual cues to good health, heritable physical fitness, and better genes? At the core of what we deem attractive is physical fitness. But studies have consistently found that when judging attractiveness, we give more weight to facial features than body attributes.

In a recent study, Erik Postma, an evolutionary biologist at the University of Zurich in Switzerland, found that facial attractiveness in men may be a visual cue to potential mates, signaling greater physical endurance. He argues that a preference for males with great endurance, even more so than brute strength, is a likely vestige of our evolutionary past, because before the invention of spears or arrows, great endurance was necessary for tracking and hunting large-game animals on foot over the course of several days.

"Why do we show a preference for certain faces?" asks Postma. "For this preference to evolve, showing this preference must be associated with certain benefits in terms of reproduction and survival—what evolutionary biologists call fitness."

Using headshots of 80 male elite cyclists who completed the 2012 Tour de France—one of the greatest endurance trials worldwide—Postma surveyed 816 people, asking them to rate the faces for attractiveness. Postma compared the attractiveness ratings to the riders' overall staying power at key points in the race and found a strong correlation: The top 10 percent of riders were perceived to be on average a quarter more attractive than the bottom 10 percent.

Could good looks be a function of an evolutionary past in which our female ancestors favored males with great endurance?

"A man's endurance performance is of course very difficult to judge when you meet someone for the first time," explains Postma, "but one might be able to indirectly get some information by looking at someone's face. Indeed, studies show that we pay disproportionally a lot of attention to someone's face."

Postma found the correlation between high attractiveness rating and high endurance was strongest among naturally cycling women; men (who made up about 25 percent of the survey participants) and women on birth control hormones also consistently

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President's Message

Progress and Appointments for *Kinesiology Review* and Presidential Task Forces

By Penny McCullagh, AKA President

Penny McCullagh

I hope you are having a wonderful summer and that you are able to take a least some time to enjoy yourself. AKA committees, board members, and other members continue to be busy contributing to the goals of AKA.

We are pleased to announce that *Kinesiology Review* has named a new editor. Dr. Maureen Weiss of the University of Minnesota was named editor beginning June 1, 2014. Dr. Weiss has an extensive publication record and has served in numerous leadership roles in kinesiology, including president of four professional organizations. She also has extensive editorial experience serving as editor of research quarterly for exercise and sport as well as numerous other editorial positons. AKA looks forward to working with Editor Weiss.

Mo Weiss
Kinesiology Review
Editor

Kinesiology Review is the official publication of the American Kinesiology Association and the National Academy of Kinesiology. (http://journals.humankinetics.com/about-kr). One issue each year will be dedicated to papers that grow out of the annual workshop. Thanks to Terry Rizzo and the publication committee of AKA for drafting some guidelines to facilitate the special issue. Kim Graber and Wojtek Chodzko-Zajko are working on getting the workshop papers from San Jose ready for inclusion in *Kinesiology Review.*

A presidential task force (Jason Carter, Jim Morrow, and MiSook Kim) submitted a report regarding MERLOT (Mulitmedia Educational Resource for Learning and Online Teaching) hosted by California State University. The report was reviewed by the executive committee, and AKA is moving forward to implement MERLOT as a platform for hosting materials related to all subdisciplines in kinesiology

A presidential task force (Mary Rudisill and Michael Delp) is working on some strategies to assist kinesiology departments with CIP codes and how their university might be using these codes for funding purposes.The Classification of Instructional Programs (CIP) provides a taxonomic scheme that supports the accurate tracking and reporting of fields of study and program completions activity. CIP was originally developed by the U.S. Department of Education's National Center for Education Statistics (NCES) in 1980, and revisions occurred in 1985, 1990, and 2000.

The executive committee met in Dallas in June and reviewed the reports from all the standing committees. Thanks for all your hard work in helping move AKA forward. After deliberations, it was decided that a new standing committee would be formed—diversity task force—and that the research and analysis committee would be suspended. The membership, communication, publications, workshop, and awards committee will continue with their duties.

Finally, thanks to efforts at Human Kinetics, our new website has been launched. I encourage you to take a look.

Remember to use *Kinesiology Today* as a resource in your program Thanks to Shirl Hoffman for all his work on this publication. I encourage faculty to share with their students, and as chair I often share it with my dean or share in student–parent orientations to inform individuals outside our field about kinesiology.

Do the Right Thing

Race and Compensating College Athletes: The Backstory

By, Billy Hawkins, University of Georgia and Steven Waller, University of Tennessee

The glaring gap highlighted by the HBO *Real Sports*/Marist Poll between the whites and blacks who believe athletes should be compensated speaks to the racial divide that continues to exist in this country. Each semester, when we poll our classes on whether athletes in revenue-generating sports should be paid equitably, there is a distinct demarcation in responses based on race, where the responses replicate the findings in the HBO *Real Sports*/Marist Poll. On certain levels, these data reinforce the assumptions of Andrew Hacker in *Two Nations: Black and White, Separate, Hostile, Unequal* (Scribner, 2003). Despite the racial progress we have made as a nation by electing our first multiracial president, examples still haunt of the conflicting perspectives that are shaped along racial lines. Author, philosopher, and public intellectual Cornel West was correct when he argues in his book *Race Matters* that race is a significant factor in all facets of life in the United States, including sports.

Left: Billy Hawkins, professor of sports management, department of kinesiology, University of Georgia. **Right:** Steven Waller, associate professor of sports management, department of kinesiology, recreation, and sport studies, University of Tennessee.

The recent HBO *Real Sports*/Marist Poll revealed that 61 percent of African Americans think top college athletes are unpaid because many of these athletes are African American. Moreover, 33 percent of Latinos and 25 percent of whites agreed. The question is why. The history of race relations, the legacy of slavery that economically, politically, and socially advantaged whites over people of color in the United States, and the larger issue of globalization and white supremacy where the majority of people of color are subject to a power elite made of a white majority are broader justifications and speak volumes to the racial divide in the HBO *Real Sports*/Marist Poll responses, specifically, and the racial divide that exists in this country in general.

With the legacy of slavery, Jim Crow segregation, and racism in this country, there exists a pattern where the physicality of the black body has been exploited for economic gain but devalued as a citizen deserving equal rights and privileges. The issue of payment or additional compensation in some form would not be an issue if the percentages of players who were generating the majority of the revenue were white. The predominance of black male athletes in the revenue-generating sports of football and basketball biases the responses to whether athletes should be paid or not. An article in the May 5, 2014, edition of the *Chronicle of Higher Education* indicates that between 2007 and 2010, black males represented more than 57.1 percent of football players and 64.3 percent of men's basketball players, respectively. Moreover, approximately 50 percent of black male athletes graduate within six years from colleges in the seven major NCAA Division I sports conferences, compared with 67 percent of athletes overall, 73 percent of undergraduates, and 56 percent of black undergraduate men. The common denominator is that black men are frequently underrepresented in the

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More Bad News on Obesity

The Institute for Health Metrics and Evaluation at the University of Washington reported in the May issue of Lancet that 29 percent of the world's population (2.1 billion people) were either overweight or obese in 2013. From 1980 to 2013 this segment of the population increased by 27.5 percent for adults and 47.1 percent for children. Of the 671 million obese people in the world, 50 percent live in just 10 countries. Of these, the United States has distinguished itself in this gloomy statistic by having nearly 87 million obese people. The United States is followed by China (62 million), India (40 million), Russia (29 million), Brazil (26 million), Mexico (25 million), Egypt (22 million), Germany (17 million), Pakistan (17 million), and Indonesia (15 million). The United States accounts for only 5 percent of the world's population yet hosts 13 percent of the global total of overweight and obese. According to the report, 160 million Americans are either obese or overweight, including nearly 75 percent of American men, more than 60 percent of women, and 30 percent of boys and girls under the age of 20.

Now comes word that as bad as the statistics on childhood obesity are, they may be even worse than originally thought. Researchers in preventive cardiology at the Mayo Clinic conducted a meta-analysis published in June 2014 in *Pediatric Obesity* online. The meta-analysis was aimed at assessing the diagnostic performance of BMI to detect excess body fat in people up to 18 years of age. The researchers specifically looked at the validity of BMI in identifying excess body fat in clinical settings versus fairly complicated reference standard measures used in research such as dual-energy X-ray absorptiometry, hydrostatic weighing, air-displacement plethysmography, isotope dilution, bioelectrical impedance analysis, and skinfold thickness measurement. They examined 37 studies with more than 53,000 participants and concluded that existing studies actually may fail to identify up to 25 percent of children who have excessive percentage of body fat. Apparently one of the reasons BMI calculations are imperfect assessment tools for children is that children's height and weight do not grow proportionately. While no one is ruling out BMI as a diagnostic tool for children, the study does suggest that clinicians take extra cautions when using it.

Although national attention has been focused heavily on curtailing caloric intake as a preventive measure, a recent study e-published ahead of print in the March 10 issue of *American Journal of Medicine* spanning 15 years (1994-2010) suggests that lack of physical activity rather than caloric intake may be the prime culprit. A research team from Stanford University School of Medicine analyzed trends in obesity, waistline obesity, physical activity, and caloric intake in American adults over the period and reported that 51 percent of female adults in the United States reported no leisure-time physical activity in 2010, three times what it was in 1994. Forty-three percent of men reported no leisure-time physical activity, a fourfold increase. The team also observed substantial increases in BMI and abdominal obesity over the years, but they did not find significant increases in caloric consumption. KT

- SJH

Men: It Isn't All in the Wrists; It's That Right Knee

Okay, men. Not sure which moves on the dance floor will impress women? Now, thanks to a study by evolutionary biologists and anthropologists at Northumbria University (actually completed in 2010 but has recently garnered the attention of journalists), men now have some hints regarding what the opposite sex likes to see in a man's dance moves. Females' selection of male mates may be determined in part by the quality of the males' movements, especially those requiring skill and strength, variables most likely to signal health and genetic quality. Since dancing is a set of rhythmic, culturally influenced, nonverbal body movements that require skill and strength and is an important part of sexuality and courtship attraction, it also may signal physical and genetic characteristics that reflect male mate quality.

They used cutting-edge motion capture technology to analyze patterns in male dancing and constructed avatars from the data to control for confounding effects of variables such as facial attractiveness, height, and clothing. The avatars were based on recorded dance performances of 19 males. The analyses focused on three body regions: legs (ankles, knees, and hips), arms (shoulders, elbows, and wrists), and central body (neck and trunk). Fifteen-second video clips of the avatars were shown to 37 females aged 18 to 35 who rated each performance for quality on a scale of 1 (extremely bad dancer) to 10 (extremely good dancer).

Investigators found that three movement variables were key predictors of dance quality: variability and amplitude of movements of the neck and trunk and speed of movement of the right knee. According to the researchers, a "good" dancer thus displays larger and more variable movements in relation to bending and twisting movements of the head and neck and torso and faster bending and twisting movements of the right knee. The investigators concluded, "Such movements may form honest signals of male quality in terms of health, vigor or strength," noting that this observation remains to be confirmed.

See videos of avatars at http://www.today.com/video/today/54772101#54772101

Executive Director Column

AKA Provides Leadership Training for Kinesiology Administrators

By Amelia Lee, AKA Executive Director

Amelia Lee

It has become increasingly clear that the accountability culture in higher education requires a complex set of skills for academic leaders if they are to be successful in an administrative position. In the previous issue of *Kinesiology Today*, Shirl Hoffman highlighted leadership challenges reported by department chairs in a December 6, 2013, article in *Chronicle of Higher Education.* (And the next issue will include a feature article on the life of the kinesiology chair.) Today's chairs are held accountable for documenting what students learn; are expected to meet with alumni and donors; convey the importance of faculty work to their administration and external constituents; mediate faculty conflicts and resolve student complaints; recruit more and higher-quality students; and supervise faculty, staff, graduate assistants, and part-time adjunct instructors.

The 2015 AKA pre-workshop symposium will address these challenges for first-time academic administrators and those aspiring to be administrators in a kinesiology department or college. It will address many of the expectations associated with an administrative role today and provide strategies for managing the various situations and achieving positive resolutions. The symposium is primarily directed toward faculty who desire to move into administrative roles or who have recently assumed an academic leadership position. However, experienced administrators are invited to participate and discuss these issues in Kinesiology leadership. The symposium will be a highly interactive session with discussions built around case studies and lessons learned when assuming an academic leadership position. Facilitator for the symposium is T. Gilmour Reeve, vice provost for academic programs, planning, and review at Louisiana State University. Dr. Reeve has served as a chair of kinesiology departments at two universities and held other administrative appointments in the offices of academic affairs and the president's office at three universities. The session begins at 2:00 p.m. on Saturday, January, 24, 2015, and ends at 3:00 p.m. Sunday, January 25.

We hope to see you there!

"Upcoming AKA-sponsored Webinars"

October 1	Larry Leverenz and Greg Gardner on The Future of Athletic Training Education.
October 15	Bill Kohl on The Role of Public Health in Kinesiology

DC Levies Tax on Fitness Facilities in Spite of Strong Opposition

When the DC City Council proposed levying a 5.75 percent sales tax on commercial gyms and yoga studios, they seemed to have in mind $100-a-month operations frequented by flush federal employees. Clearly they didn't contemplate its impact on less financially endowed residents. The tax inspired a flock of insurgents who posted signs on health club doors saying "#donttaxwellness" and who gathered in Freedom Plaza to chant, "Tax slurpees, not burpees." Yoga enthusiasts were there as well, some of them performing a downward-facing dog pose and calling the tax a wellness tax. A number of them showed up at the June 22 DC Council meeting for the vote clad in Day-Glo yellow T-shirts. In the end, however, it was all in vain. The nearly $5 million that the tax will raise is to offset a $143 million package of tax cuts that were enacted earlier.

Council chairman Phil Mendelson, who was acting on recommendations made by the DC Tax Revision Commission along with the conservative Cato Institute and the liberal Fiscal Policy Institute, said that there was no evidence that a 5.75 percent sales tax would discourage gym membership. He told the *Washington Post*, "We have a sales tax on restaurants and alcohol that's significantly greater . . . and we have seen restaurant activity boom over the last several years in the district." It is still uncertain whether Mayor Vincent Gray, an arch-opponent of the tax, will veto the measure.

- SJH

Samuels, Robert. Proposed fitness tax reveals two sides of D.C. June 23, 2014.

www.washingtonpost.com/local/fitness-tax-reveals-two-sides-of-dc/2014/06/23/7623b48c-faef-11e3-b1f4-8e77c632c07b_story.html?wpisrc=nl_health.

Elbow Surgery on Rise Among Pitchers

In increasing numbers, major league pitchers are having "Tommy John surgery" to replace ligaments in their elbows. Two of the procedures were performed on major league pitchers between 1974 and 1984, 7 between 1985 and 1994, 87 between 1995 and 2004, and 181 between 2005 and 2014. Eighty percent of major league pitchers who have the surgery return to the big leagues. Most also get back to a level of performance not far off from what they were before the surgery.

Wall Street Journal.

Reading Cognition and Fitness Are Positively Linked in Kids

By Siv Schwink, KT staff writer

Emerging research suggests that more fit children have a great advantage when it comes to reading performance and language skills: They comprehend written language more quickly, enjoy a richer vocabulary, and have a greater ability to recognize and correct errors in syntax.

Researchers at the University of Illinois at Urbana-Champaign peered into the brains of 46 9- and 10-year-old boys and girls using electroencephalography (EEG) and found a strong correlation between their levels of aerobic fitness and the speed and depth of their language processing. Their findings are published in the June 2014 issue of *Brain and Cognition*.

The study is the first of its kind to examine language-specific neuroelectrical brain responses in real time in conjunction with cardiorespiratory fitness (as measured by oxygen uptake during exercise). The research group was led by neurocognitive kinesiologist Charles Hillman and inspired by the work of psychologist Kara Federmeier, an expert in the neurobiological basis of language. Doctoral student Mark Scudder is lead author on the study.

Mark Scudder
University of Illinois

Charles Hillman
University of Illinois

The team investigated two language-specific event-related potentials (ERPs). ERP is a measure of the brain's electrical signals in response to specific stimuli, represented by specific waveforms in the EEG output. The N400 ERP waveform is associated with language comprehension across multiple indices—most simply put, it's activated by accessing the meaning of words from long-term memory. The P600 ERP waveform is associated with rules of grammar and syntax; it's activated by a recognition that language rules have been violated.

Presented with several sentence structures designed to activate these ERPs, more aerobically fit (at or above the 70th percentile) children had higher-amplitude and shorter-duration N400 than their less fit (at or below the 30th percentile) peers. This was true whether words appeared in sentences following normal language rules or in a nonsensical context that violated the rules.

Scudder explains, "One of the possible reasons higher fit children do better on tests of reading and get better grades in school could be, in part, more efficient access to word-related knowledge and their ability to utilize such information accurately.

"Additionally, the large P600 component that we observed only in the higher fit children may indicate that they are able to allocate greater resources towards the reanalysis and repair of grammatical errors," he adds.

Where prior studies had positively linked children's speed and accuracy on standardized language tests with physical fitness levels, without EEG, the exact nature of the link remained a mystery.

"The types of standardized tasks that children typically encounter involve several individual yet complementary cognitive

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Sportswomanship Redux

Sports fans have vivid memories of Western Oregon University home-run hitter Sara Tucholsky being carried around the bases after she injured her knee rounding first base on her victory lap. The run wouldn't have counted if she hadn't touched all bases, and the rules prohibited her teammates from helping her, but said nothing about her opponents from Central Washington helping her. They did and, as a result, Tucholsky's team won. It was hailed as a colossal example of sportsmanship seen too little these days.

Now, Florida Southern College softball players have duplicated the act. When Eckherd College's Kara Oberer hobbled up to the plate with a bad leg to hit a three-run homer to put her team ahead 4-2, she took two steps toward first base and her knee locked up and sent sharp pains up her leg. Pitcher Chelsea Oglevie told reporters, "It wasn't until she got to first base that I realized she was sobbing." She and a teammate carried her the rest of the way. "It really didn't cross our minds that we were doing anything significant. It was just second nature. Any person who respects and honors the game should reach out a hand and do what we did," Oglevie said.

- SJH

See video at http://www.abcactionnews.com/news/region-polk/florida-southern-college-softball-players-display-awesome-act-of-sportsmanship.

Controversy Simmers Over Cardiac Screening and Fairness to Black Athletes

Whether athletes need to be screened with ECGs for cardiac abnormalities as part of a preseason physical continues to be a hot potato issue with some signs that proponents may be gaining a slight advantage. There is plenty of ammunition on both sides. Some point to data showing a rate of sudden cardiac death in young athletes to be as much as 1 in 43,000, others to data showing only 1 death in 164,000. Both the American Heart Association and the American College of Cardiology have issued position papers opposed to the practice, arguing, "It is not prudent to recommend routine use of such tests as 12-lead electrocardiography, echocardiography, or graded exercise testing for detection of cardiovascular disease in large populations of young or older athletes . . . based on both practical and cost-efficiency considerations, given the large number of competitive athletes in the United States, the relatively low frequency with which the cardiovascular lesions responsible for these deaths occur, and the low rate of sudden cardiac death in the athletic community." They cite the anxiety produced by false positives and the fact that such false findings can lead to unjustifiable exclusion of athletes from insurance and competition.

In Europe, Israel, and other countries, such exams continue to be given, but controversy still continues regarding how clinicians should distinguish normal ECG alterations in athletes from abnormal findings requiring additional evaluation for conditions associated with sudden cardiac death. To this end an international group of experts in sports cardiology and sports medicine convened in Seattle in 2012 to improve on standards for ECG interpretation in athletes and additional criteria that had been recommended by the European Society of Cardiology (ESC). Now, a more refined set of criteria has uncovered a different but equally serious problem. A study by researchers at St. Georges University assessed the impact of the ESC criteria, the newly published Seattle criteria, and a group of proposed refined criteria in a large cohort of black and white athletes. The early standards had been based mostly on white athletes. The researchers discovered that existing criteria tended to unfairly single out black athletes as suffering from cardiac abnormalities, thus exposing them to problems arising from false positive screenings, particularly exclusion from competition. While the original ESC recommendation identified cardiac abnormalities in 40 percent of black athletes and 16 percent of whites, the Seattle criteria identified abnormalities in only 18 percent of black athletes and 7 percent of white athletes. The more recently refined criteria reduced abnormal EKGs to 11 percent in black athletes and 5.3 percent of white athletes. Investigators believe that the refinement of criteria "has the potential to significantly reduce the burden of false positive (EKGs) in athletes . . . without compromising the sensitivity of the ECG in detecting pathology." KT

- SJH

Sheikh, N., et al. 2014. Comparison of ECG criteria for the detection of cardiac abnormalities in elite black and white athletes. *Circulation*, 129:1637-1649.

Blindness and Age Not Barriers to Pole Vaulters

Charlotte Brown is legally blind, can barely distinguish light from dark, and has no depth perception. Nonetheless, she represented Emory Rains High School at the Texas State Championships in the pole vault in May. She cleared 11 feet and finished in a two-way tie for fourth out of nine competitors in the Texas Class 3A state meet after missing three times at 11 feet 6 inches. She says she welcomes the challenge of mastering a sport that's difficult for athletes with perfect vision. She downplays her difficulties. "I think everyone struggles with something in life. This was my something."

Although Flo Meiler entered 14 events in the masters track meet held in July in Winston-Salem, North Carolina, the pole vault is her favorite. She set a record for her age group on June 7 with a vault of 6 feet, not an insignificant accomplishment for a woman 80 years of age. She didn't start pole vaulting until she was 65. Meiler told reporters, "I couldn't imagine not doing this. I love it. It's a wonderful feeling."

-SJH

Video of Brown here Story about Meiler at Bowman, T. July 17, 2014. Phenomenal. *Winston-Salem Journal.*

New AKA Board Members Appointed

The executive committee of AKA has announced the appointment of six new members to the Board of Directors for a three-year term. Congratulations to all!

Rafael Bahamonde is Associate Dean in the IUPUI School of Physical Education and Tourism Management and is Director of Diversity Scholar Research at the university.

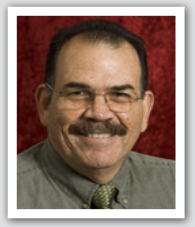
Rick Kreider serves as Professor, Department Head, and Thomas A and Joan Read Endowed Chair for Disadvantaged Youth in the Department of Health and Kinesiology at Texas A&M University.

Scott Gordon is Professor and Chairperson in the Department of Kinesiology at the University of North Carolina at Charlotte.

Doris Corbett is Director of the School of Health, Physical Education, and Leisure Services at the University of Northern Iowa.

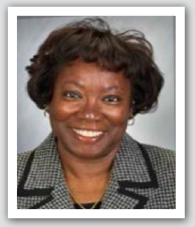
Steve McCole is Chair of the Exercise Science and Physical Education Program at McDaniel College.

Paul Carpenter will join the Department of Kinesiology at California State University East Bay in the Fall of 2014 as Professor and Department Chair.

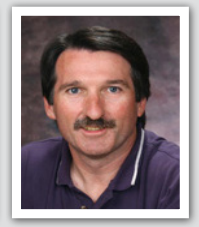

Rafael Bahamonde


Rick Kreider


Scott Gordon


Doris Corbett


Steve McCole


Paul Carpenter

Good Reads

Drones Now Enlisted by Mischievous Coaches?
www.nydailynews.com/sports/soccer/sacre-bleu-france-claims-drones-spied-world-cup-prep-article-1.1830611

Why We Say "Soccer" Instead of Football
www.theatlantic.com/international/archive/2014/06/why-we-call-soccer-soccer/372771/

Athletes revel in chance to represent New Jersey as state hosts Special Olympics USA
www.nydailynews.com/sports/more-sports/zone-athletes-revel-chance-represent-n-state-hosts-special-olympics-article-1.1820874

Why Free Play Is the Best Summer School
www.theatlantic.com/education/archive/2014/06/for-better-school-results-clear-the-schedule-and-let-kids-play/373144

Exercise to the People: Research Into Physical Activity Helps Drive Government Policy in Brazil
www.nature.com/news/2011/220711/full/news.2011.431.html

Your Doctor Doesn't Know Enough About Nutrition or Exercise
http://www.washingtonpost.com/news/to-your-health/wp/2014/06/23/your-doctor-says-he-doesnt-know-enough-about-nutrition-or-exercise/?wpisrc=nl_health

Can Shoes Actually Prevent Running Injuries?
www.theatlantic.com/health/archive/2014/06/can-shoes-help-prevent-running-injuries/371517

High School Gym class Gets a 21st-Century Makeover
http://www.usnews.com/education/blogs/high-school-notes/2014/05/19/high-school-gym-classes-get-a-21st-century-makeover

Why Coconut Water Could Replace Your Sports Drink
http://www.livescience.com/46368-coconut-water-health-benefits.html

Humans Don't Have a Monopoly on Gestures
http://www.telegraph.co.uk/science/10945811/The-66-gestures-which-show-how-chimpanzees-communicate.html

Professors Must Take Academic Fraud Among Athletes More Seriously
www.insidehighered.com/views/2014/07/18/professors-must-take-academic-fraud-among-athletes-more-seriously-essay#sthash.z7JrH2qc.dpbs

Pro Wrestling Is Fake But Its Race Problem Isn't
www.theatlantic.com/entertainment/archive/2014/07/the-not-so-fictional-bias-in-the-wwe-world-championship/374042

On the Lighter Side . . .
www.theonion.com/articles/new-study-finds-people-who-sit-for-at-least-5-hour,36233

Five Reasons to Drink Coffee Before Your Workout
www.cnn.com/2014/07/08/health/coffee-workout/index.html?hpt=he_c2

Editor's Two Cents Worth

Exercise or Fun? It May Make a Difference

By Shirl Hoffman, KT Editor

Shirl Hoffman

One of the rewards of editing *Kinesiology Today* is that the job prompts you continually to review happenings in kinesiology and in other fields, sometimes fields related only tangentially to kinesiology. Recently a research article on exercise published (surprisingly) in *Marketing Letter*, a research journal for those working in marketing science, came across my desk. The study—two field experiments and one observational field study—was authored by marketing researchers in France and the United States. They wanted to know if consumers eat more after they exercise as a way to compensate themselves for performing hard work. By manipulating the context, they were able to frame physical activity as fun or exercise and they discovered that people helped themselves to less dessert at mealtime and fewer hedonic (high-caloric) snacks when the bout of physical activity was framed as fun rather than exercise. In a separate study they polled racers who had just completed an ekiden race (long-distance relay) and discovered that those who experienced the race as fun were less likely to compensate with a hedonic snack afterward. Apparently, say the researchers, when physical activity is perceived as exercise, it triggers a search for reward.

All of which left me wondering if the larger and perhaps more important implication of the findings is that how we view physical activity—how we approach it, how we experience it, how we reflect on it, how we internally assign it to our categories of human experience—can have effects lasting far beyond the specific event itself. Clearly the study shows that how we mentally frame physical activity can trigger (or not trigger) expectations that we be rewarded with hedonic snacks in the minutes and hours following, but might it also show that viewing physical activity as pure fun on one hand or as a workout or medicine (as the ACSM has framed it) might affect our behaviors in other ways yet to be imagined?

All of which caused me to think of the trails my wife and I trudge in the beautiful environs of the Blue Ridge Mountains in North Carolina this time of year. We never set out to exercise. Our hikes are assigned to a different category of experience, a bit like listening to good music or reading a good book. And while walking at a brisk pace through forested, root-infested paths, crouching low for branches and climbing over fallen trees, spotting occasional wildlife, fording streams, and marveling at the rhododendron tunnels, the peacefulness of the meadows, and the stunning scenery offered by the misty, blue-tinged mountains, does indeed the tax our physiological systems, never does it delude us into thinking we are "exercising." Our hikes are pure, unadulterated fun—I'm even tempted to say joy. Is the activity hiking or nature appreciation or appreciation of each other? It's hard to say. It all seems to blend into one unified, pleasant experience. Were we to reflect post-hike that we had been exercising or, worse yet, taking medicine, it would be a truly onerous chore to lace up our boots and head for the hills the next day. And who knows how much ice cream we would eat when we get back to our home? KT

Science, Exercise, and Dementia

Research continues to roll back the curtain on the relationship between exercise and development of dementia in later years. Most encouraging is a study published in *Frontiers of Aging Neuroscience* by J. Carson Smith and colleagues of the kinesiology department at the University of Maryland. Their research suggests that exercise may help ward off and possibly delay the neurodegeneration associated with genetic risk for Alzheimer's disease. Smith and colleagues tracked four groups of healthy older adults between the ages of 65 and 89 with normal cognitive abilities over an 18-month period. Before and after the 18-month period they used MRI to measure the volume of the hippocampus, a region of the brain responsible for memory and spatial orientation. Groups were classified into high risk and low risk based on the presence or absence of a genetic marker thought to increase risk for the disease, and into high or low levels of physical activity measured by a subjective self-report survey. (Low activity was defined as two or fewer days per week of low-intensity exercise; high activity was defined as three or more days per week of moderate to vigorous activity.) Participants with a high genetic disposition for Alzheimer's who did not exercise evidenced a 3 percent decrease in the volume of their hippocampus, whereas no significant reductions in hippocampal volume were seen in the other three groups, including the high exercise group with a genetic disposition for Alzheimer's. Smith and colleagues believe their findings warrant recommending increased levels of physical activity as a way of maintaining brain integrity by reducing atrophy in the region of the brain that is critical in the formation of episodic memory.

But the value of exercise in preventing brain degeneration may show up much earlier than the later years, according to a recent Swedish study. A population-based cohort study of more than 1.1 million 18-year-old male conscripts who underwent exams between 1968 and 2005 were followed up for up to 42 years (mean follow-up time was 28 years). The research team at Sweden's University of Gothenburg, led by Dr. Jenny Nyberg, examined the relationship between objective data on both cardiovascular and cognitive fitness collected at time of conscription and the risk of early-onset dementia and mild cognitive impairment later in life. Men conscripted with poor cardiovascular

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Online Doctoral Program in Kinesiology at UNCG First in Nation

This fall the department of kinesiology at the University of North Carolina at Greensboro will welcome the first cohort of students to its newly established online EdD program. It will be the first doctoral degree program in kinesiology in the United States to be offered entirely online. The program is an online extension of the successful on-campus professional doctoral program that was established at UNCG in 1997. Unlike the PhD at UNCG, which develops research skills in a highly specialized area of academic study, the EdD is an interdisciplinary degree program focused on scholarship and professional practice in the areas of leadership, advocacy, and teaching.

Dr. Pam Brown, Coordinator of the Online EdD at UNCG

Dr. Pam Brown, the program coordinator, emphasizes that the EdD is explicitly professional in its thrust and aimed at practicing professionals who have substantial experience in the field of kinesiology. "The emphasis is on application, but the dissertations are still carried out with similar care, precision, and rigor as the PhD. As fitting for a professional program, they tend to involve more of a research-into-practice approach than our PhD dissertations with their emphasis on traditional experimental methods." All applicants must have a minimum of three years of experience in the field and have completed at least a master's degree.

Traditionally the program has been aimed at faculty from smaller, local colleges where teaching and other duties are of primary importance. While college teaching and administration are likely to remain the primary career orientation of students, the target audience in the online version stretches beyond to those working at a variety of professional kinesiology venues. "This program is expected to appeal to a wide range of individuals in the field of kinesiology, including athletic trainers, physical education and health teachers, clinicians, community youth leaders, fitness professionals, coaches, and others who are interested in addressing professional practice issues from an interdisciplinary, collaborative approach," says Brown.

Accordingly, the backgrounds and career aspirations of the incoming crop of EdD students vary considerably. The cohort includes several college and university faculty members from California, Pennsylvania, Virginia, North Carolina, and Washington DC; two individuals working as human performance coordinators and one as a cognitive performance coach for the U.S. military; a national sports coach; three college volleyball coaches; a clinical social worker; a dean at a community college; a strength and conditioning coach; athletic trainers and clinical coordinators of athletic training; and others currently in physical activity supervisory positions.

"An attractive feature of the program is that students will be able to remain employed while earning their degree, which allows them to immediately apply what they are learning in their classes to their professional careers." The kinesiology department has partnered with the Division of Continual Learning at UNCG to develop online courses that support the goals of the program.

Department head Sandy Shultz says, "The program was a critical move to increase the accessibility of doctoral studies to working

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Is the Corruption of Peer Review Harming Scientific Credibility?

According to science writer and Science 2.0 founder Hank Campbell, the answer to this provocative question is yes. His essay, which appeared in the July 13, 2014, issue of the *Wall Street Journal,* takes aim at what he perceives as the dangerous laxity in peer review processes in place at some major scientific journals and organizations. The result, says Campbell, is an embarrassing number of sloppy, inaccurate, and in some cases fraudulent research papers that not only see the light of publication but are popularized by the media.

He points to a number of high-profile cases as illustrative, citing Sage Publications' recent announcement that it was retracting 60 papers on acoustic science from its *Journal of Vibration and Control* due to irregularities in the review process (one of the reviewers of the papers was in fact the author of the study using an assumed name) to a study published in the June proceedings of the National Academy of Science whose authors claimed that hurricanes with female names lead to more deaths than those with male names, presumably because of implicit sexism. Male-named storms, so the investigators suggested, are taken more seriously; therefore fewer people are killed or injured in storms with male names. However, a closer examination of the data showed the investigators' analyses and the media's pronouncements to be flawed. (For a critical look at the study, see http://blog.minitab.com/blog/the-statistics-game/do-the-data-really-say-female-named-hurricanes-are-more-deadly.)

Campbell says that the National Academy's current guidelines are asking for problems because of lenient standards for peer reviews. For example, if you are a member, you can edit a research paper that you wrote yourself and only have to answer a few questions before an editorial board; you can even arrange to be the official reviewer for people you know. The result of such laxity isn't just the publication of a dubious finding like the hurricane gender-bias claim. Some errors can have serious consequences if bad science leads to bad policy. Campbell thinks the best solution is for journals to require investigators to submit the data they collected and used in reaching their results along with their publication, a practice not followed by most journals.

Michael Eisen, a biologist at UC Berkeley, is a cofounder of the Public Library of Science, one of the world's largest nonprofit science publishers that requires that researchers' data be made available publicly. Says Eisen, "We need to get away from the notion, proven wrong on a daily basis, that peer review of any kind at any journal means that a work of science is correct. What it means is that a few (1 to 4) people read it over and didn't see any major problems. That's a very low bar in even the best of circumstances." KT

- SJH

Wall Street Journal, July 13, 2014.

Writing for Gold

Telecasts of the World Cup have once again underscored one of the more frustrating aspects of international soccer: players' theatrical display of injuries suffered from what at times seems like incidental contact. Not only does writhing on the ground afford a bit of rest to winded players, but it can also eat up precious time benefitting the team with the lead. (When it was protecting its lead against Spain in World Cup play, Chilean players flopped on the ground in agony due to "injuries" a total of 11 times, more than 24 other teams had in two games.) Now come data ranking teams according to their flopping prowess. Heading the list is Brazil, which, through the first 32 games of the 2014 World Cup, flopped for 17 "injuries," which collectively consumed a total of 3 minutes and 18 seconds. The honors for consuming the most time writhing went to Honduras and France, each of which used up a total of over 7 minutes. In its analysis, *The Wall Street Journal* discarded what were clear injuries yet still counted 293 cases of embellishment that collectively consumed 118 minutes and 21 seconds of time. KT

- SJH

Top Five Teams for "Injuries" and Writhing Time

	Injuries	Total writhing time
Brazil	17	3m18s
Chile	16	6m58s
Honduras	15	7m40s
Nigeria	15	6m25s
Mexico	15	3m58s

The world rankings of flopping. June 25. *Wall Street Journal.*

Boomers and Exercise

Based on 760 responses from people 50 to 67 years old

How would you rate your physical health?

Extremely good	43%
Good	27%
Fair or poor	29%

Which most closely reflects your opinion about physical exercise?

One of my most important priorities	18%
A priority but not among my most important	49%
Not a priority	32%

AARP Bulletin, April 2014.

Sport Coaches Play Key Role in Keeping Teens on the Straight and Narrow

By Amy Rose, KT Staff Writer

Predicting influences on teen behaviors has been a challenge for every generation. However, teens today seem to be targeted by more influences than ever before. From video games, television, Internet, and social media, they are bombarded by messages and images all day long. Several recent studies have sought to pinpoint influences that might discourage or promote negative behavior in teenagers through their early habits and activities. Not surprisingly, peers, family, media, advertising, and celebrities all contribute in varying ways to what teens choose to do, with whom, and in what contexts. Research suggests that among these influences of adolescent and preadolescent behavior, involvement in physical activity and sports may be among the most important.

In a study appearing in the July 24, 2014, issue of *Academic Pediatrics*, researchers at Dartmouth who conducted telephone surveys of more than 6,500 students between the ages of 10 and 14 found that early teens who spent their time in coached team sports were less likely to try smoking, while those who participated in other activities such as music, dance, and church groups were associated with lower risk of trying drinking. Anna Adachi-Mejia, an assistant professor at the Geisel School of Medicine at Dartmouth College and lead author on the study, told KT, "In a nationally representative sample we found that 'tweens' who participate in sports with a coach were less likely to try smoking. Parents and guardians may think that tweens need less adult supervision when they are not in school. However, our research suggests that certain coached extracurricular activities can help prevent tween smoking and drinking." Adachi-Mejia believes the involvement by coaches can provide an admired and respected adult who can model and reinforce positive behaviors.

She told *Science Weekly* (April 30), "We know that team sports participation offers cardiovascular and other benefits, including obesity prevention. This study shows that specific types of extracurricular activities may be associated with risk of youth smoking and drinking initiation." Further, Adachi-Mejia lamented the increased emphasis youth sport teams are placing on winning, an approach she says leads to a philosophy of exclusion, often for those who need it the most. Adachi-Mejia adds, "I'd like to encourage communities and schools to explore the possibility of offering noncompetitive, affordable team sports with a coach."

Coaches may also help steer teens under their tutelage away from unhealthy drinking habits, which in turn may encourage them to lead more positive lifestyles. As the consumption of soft drinks and fruit drinks has declined, the consumption of sport and energy drinks among adolescents has tripled, due in part to an increase in advertising. (In 2010 Gatorade TV ads were among the top five products seen by children.) Investigators have long suspected a link between consumption of sport and energy drinks and unhealthy lifestyles.

In a study published in the July 21 issue of *Journal of Nutrition Education and Behavior*, researchers at the University of Minnesota and Duke University surveyed more than 2,500 public middle school students to examine associations between consumption of sport and energy drinks by teens and their general health behaviors. The research team, led by Nicole Larson, senior research associate in the department of food science and nutrition at the University

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Exercise Affects Gut in More Ways Than One

We know that exercise may reduce waistlines, but what's the effect on the inside? In a new study published in the aptly named journal *Gut,* researchers at the National University of Ireland examined blood and fecal samples from 40 rugby players and from 46 nonathletes. The nonathletes were further subdivided into those with high and low BMIs. Athletes were found to have significantly higher proportions of taxonomic groups of microbes than the nonathletes. Both the athletes and low-BMI nonathletes had a higher proportion of Akkermansiaceae, a bacterium associated with lower levels of obesity and metabolic disease. Greater diversity in gut microbes is thought to be linked to a better immune system and lower risk of obesity. Also positive associations were noted between microbial diversity and protein intake. The researchers conclude that both exercise and diet are significant drivers of biodiversity in the gut.

Clarke, S.F., et al. (2014). Exercise and associated dietary extremes impact on gut microbial diversity. Gut. (first published online June 9, 2014.)

Writer's Block? Take a Walk

Building on a collection of studies that have demonstrated improved performance on memory tests and executive function, researchers at Stanford University have discovered a link between walking and creativity. Marily Oppezzo administered tests of creativity to undergraduate students while seated in a drab room furnished only with a desk and a treadmill. Tests involved such tasks as specifying alternative uses for common objects. When the same tests were repeated while walking on the treadmill, Oppezzo found that performance improved substantially (60 percent). In a companion study she assessed the durability of the cognitive changes by having students sit for two consecutive test sessions and then walk for 8 minutes while voicing suggestions for object use. Then they again sat at the desks and repeated the test. Walking appeared to improve the students' ability to produce more and subjectively rated "better" ideas than in preexercise trials. In follow-up tests to determine the role environment might have played, Oppezzo tested students while sitting and again while walking outdoors. She then retested them at a desk and treadmill in an unadorned room. Walking outdoors resulted in higher creativity scores than sitting outdoors but appeared to confer no special advantage over walking on a treadmill in a drab room

Oppezzo, M., & Schwartz, D.L. (April 21, 2014). Give your ideas some legs: The positive effect of walking on creative thinking. *Journal of Experimental Psychology: Learning, Memory, and Cognition.*

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Short Shots

Overuse Injuries in Young Athletes Linked to Higher Socioeconomic Status

In what may be the first study to link sport injuries to socioeconomic status, Loyola University researchers have found that young athletes from families on private medical insurance incur a 68 percent higher overuse injury rate than young athletes supported by public insurance (Medicaid). Thirty percent of the privately insured athletes specialized in one sport versus 19 percent of the publicly insured athletes. (Because intense specialization in a sport typically demands access to substantial resources for traveling, equipment, and training, the investigators postulate a link between specialization and socioeconomic status.) The groups also differed in the amount of time devoted to unstructured free play. While both engaged in 10 hours per week of organized sports, privately insured athletes spent far less (5.2 hours per week) in informal play activities such as pick-up basketball and touch football than publicly insured athletes (7.1 hours). The researchers hypothesize that such free-play activities may offer protection against serious overuse injuries. Lead researcher Neeru Jayanthi recommends that young athletes not spend more than twice as much time playing organized sports as they spend in free play and that an athlete not spend more hours per week than his or her age playing sports (a 12-year old should not spend more than 12 hours per week playing a sport). The results were reported at the International Olympic Committee World Conference in Monaco. KT

Loyola University Health System. April 11, 2014. Young athletes from higher income families more likely to suffer serious overuse injuries. *Science Daily.* www.sciencedaily.com/releases/2014/04/140411091317.htm.

Breast Cancer Survival Linked to Running

That a link may exist between exercise and breast cancer survival has been evident for some time. For example, cancer survivors who engage in 2.5 hours of moderately intense physical activity per week have been found to have a 25 percent lower risk of dying from breast cancer. Now, research reported in the

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International Journal of Cancer points to even greater benefits from increased levels of exercise intensity. Of 986 breast cancer survivors followed in the National Runners' and Walkers' Health Study at Berkeley National Laboratory, walkers (714) and runners (272) had an overall 24 percent reduction in cancer mortality per metabolic equivalent hours per day of exercise (one MET hour represents less than a mile of brisk walking or two-thirds of a mile of running). Mortality risk for runners, however, decreased 40 percent per MET hour per day compared to the mortality risk of those not meeting current exercise recommendations; walkers' risk decreased a mere (nonsignificant) 5 percent per MET hour per day. Running more was linked to a lower risk of mortality. For example, averaging more than 2.25 miles of running per day was associated with a 95 percent lower risk than for those not meeting current exercise recommendations.

Williams, P.T. (2014). Significantly greater reduction in breast cancer mortality from post-diagnosis running than walking. *International Journal of Cancer.* http://onlinelibrary.wiley.com/advanced/search/results.

Do Fall Births Confer an Athletic Advantage?

So your kids were born in March and April and you want them to be terrific athletes? According to a study published in the *International Journal of Sports Medicine,* maybe you shouldn't get your hopes up. But, if they happened to be born in October or November, hire a coach, buy the best equipment, and pull out all of the stops. They have fate blowing out their sails. Well, at least it looks like they may be stronger and fitter than their unlucky Pisces or Capricorns. So says clinical physiologist Gavin Sandercock at the Centre for Sports and Exercise Science at Essex University. Based on fitness tests conducted on more than 8,500 boys and girls between the ages of 10 and 16, Sandercock found that those born in November were fitter and stronger than those born in all months. They scored up to 15 percent higher in strength tests, ran 10 percent faster, and jumped 12 percent higher than those born in April. Those born in October were not far behind, but both groups scored substantially higher than those born in April, May, or June. The relationship held despite controlling for age and despite no significant intermonth differences in anthropometric characteristics.

Sandercock, G.R.H., et al. (2014). Athletic performance and birth month: Is the relative age effect more than just selection bias? *International Journal of Sports Medicine.* 10.1055/s-0034-1368725.

Jumping Jack Named Official State Exercise

When students from John J. Pershing Elementary school in St. Joseph, Kansas, testified before General Assembly committees, lobbied legislators, and handed out buttons and brochures, they weren't certain their cause would prevail. They were pushing the legislators to name the jumping jack the official state exercise. Students and other supporters had been lobbying the assembly for six years to no avail. The idea was not simply to encourage people to increase their physical activity but to honor John J. Pershing,

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the Missouri-born Army general who led American forces in World War I, and who is credited with inventing jumping jacks as a cadet at the U.S. Military Academy at West Point. Despite pushback from legislators concerned about the deluge of state symbols given official status by past legislatures, Governor Jay Nixon signed House Bill 1603 into law July 10, and said law to come into effect on August 28. Missouri isn't the first state to enshrine exercise. In 2003 the Maryland legislature, citing the ill effects of a sedentary lifestyle, officially recognized walking as the official state exercise. KT

School District to Distribute Fitbits to Teachers

Tax watchdogs have their eyes on a plan by the Des Moines Public Schools to spend $375,000 for Fitbits to be distributed to all teachers in the school district who participate in its Healthy U wellness program. The Fitbit (featured in previous *KT* issues) tracks users' movements and calories burned each day. Employees get $100 for having a free biometric scan and filling out an online form, plus another $100 for completing six wellness goals from the more than two dozen options the program offers, including such things as going to the dentist, watching a webinar, and joining a bowling league. Apparently, those who find these options too strenuous can receive credit for creating their own wellness goals. "Your Goal, Your Choice, Your Way!" as the program guide puts it. KT

Brennan, P. June 29, 2014. Teachers get outfitted with Fitbits at taxpayers' expense. *The Daily Signal*. http://dailysignal.com/2014/06/29/teachers-get-outfitted-fitbits-taxpayer-expense.

Walking Helps Parkinson's Sufferers

A study published in the July 2 issue of *Neurology* sends hopeful signals to those with Parkinson's disease. The research team, led by Ergun Y. Uc of the University of Iowa and the Veterans Affairs Medical Center of Iowa City, recruited 60 senior citizens with mild to moderate Parkinson's disease to participate in a walking program three times a week for six weeks. They began walking 15 minutes each day and gradually increased their walking time to 45 minutes. They wore monitors to measure heart rates and walking speeds. Each participant recorded the impact of the experience on their lives in a journal and completed surveys about symptoms and tests related to exercise. They reported gaining better control over their movements, were less fatigued, and felt more optimistic as a result of the experience. While mindful of the preliminary nature of their study, the authors concluded, "Our preliminary study suggests that aerobic walking in a community setting is safe and well tolerated, and it improves aerobic fitness, motor function, fatigue, mood, executive control, and quality of life in mild to moderate Parkinson's disease." KT

Uc. E.Y. July 2. Phase I/II randomized trial of aerobic exercise in Parkinson disease in a community setting. *Neurology.*

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Soccer Helps Score Fitness Goals for Middle-Aged Women

While not normally thought of as a fitness activity for middle-aged women, recreational soccer has much to offer. It involves fairly sustained bouts of moderate physical activity while concentrating participants' attention on the excitement of the game. British researchers recruited 41 overweight and obese women with mild to moderate high blood pressure and had 21 of them play soccer three times a week under the supervision of a coach. The other half made no alterations in their lifestyles. The women were in their early 40s, soccer novices, and largely sedentary. After 15 weeks, the systolic blood pressure of the soccer group dropped by an average of 12 points and diastolic pressure had dropped by 6 points, but these measures increased slightly in the control group. Women playing soccer lost approximately four times more body fat than the controls. Triglyceride levels for the soccer group also were lowered. Only 43 percent had normal levels at the beginning of the study, while 77 percent had normal levels at its conclusion. In addition, the soccer group evidenced over a 100 percent increase in endurance (Yo-Yo Intermittent Endurance Test), and resting heart rates were lowered by an average of seven beats per minute. The controls had no increases in endurance and saw their resting heart rates decline by only 3 beats per minute. Investigators noted that "the high training attendance and the surprisingly limited dropouts in the present study . . . demonstrate that recreational football is a health promoting activity with a great potential." KT

Mohr, M., et al. (2014). Football training improves cardiovascular health profile in sedentary, premenopausal hypertensive women. *Scandinavian Journal of Medicine and Science in Sports,* 24, (51), 36-42.

"American football combines two of the worst things in American life: violence punctuated by committee meetings." —*George Will*

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Playing the Strong Hand

an hour in the lab." The key, he found, was lots of practice. When kids kept trying to grip or lift something, eventually they got the hang of it.

Gordon became an early proponent of constraint-induced movement therapy, which employs restraint of a patient's healthy arm to force the patient to use the weaker limb. Gordon adapted the treatment to be child-friendly, restraining the healthy limb in a comfortable cotton sling rather than the traditional rigid cast. Yet by 2004 he had become disenchanted with the technique on several counts.

His turning point was the simple but incontrovertible fact that "in real life, these children have the use of both of their hands." Gordon and his team were also steadily amassing evidence that the better hand had a critical role to play.

"We were finding that in kids with hemiplegia the good hand can inform the bad hand. The brain can transfer the sensory information extracted by the good hand to literally provide the other hand with a template for performance." In other words, lifting something with the good hand first makes it much easier to lift it with the weaker hand. With this as his guiding premise, Gordon and his students developed HABIT (hand-arm bimanual intensive therapy), which has since demonstrated added benefit over constraint-induced therapy by improving the coordination of both hands together.

Variations of HABIT are now widely used in clinics and rehab centers. Parents line up each summer to send their children to the therapeutic day camp Gordon runs on campus. Recently he and student Claudio Ferre created a home teaching kit that can be used with children as young as two years. Perhaps most exciting of all, along with researchers from Belgium and the Netherlands, he and two students, Bhavini Surana and Alexis Sidiropoulos, are targeting lower-extremity rehabilitation in children with more severe (bilateral) forms of cerebral palsy. The approach emphasizes increasing the intensity of motor learning–based rehabilitation training.

Gordon believes he is only beginning to tap into the real potential of his work. He has long understood that the rehab of kids with cerebral palsy provides evidence of neuroplasticity—the generation of new activation patterns in the brain. Only with the advent of recent technologies, however, has he been able to show precisely where and how powerfully new connections are being formed. Using a tool called transcranial magnetic stimulation (TMS) to study children with hemiplegia who have received HABIT, Gordon, along with Kathleen Friel of Burke-Cornell Medical Research Institute, TC student Cherie Kuo, and postdoc Ana Smorenburg, have found a 50 percent expansion in the brain's motor cortical connections to the impaired hand. To get that information, the researchers move a wand over the participant's scalp that delivers mild magnetic impulses to the brain. When the impulses strike cells connected to the impaired hand, the hand reacts with an involuntary muscle twitch.

Now with funding from the National Science Foundation, Gordon, student Trevor Lee, and fellow researcher Marco Santello, a biomedical engineer at Arizona State University, are pinpointing the precise sequence of cognitive mechanisms employed by the brains of healthy participants to represent objects in space and direct movement toward those objects.

"Understanding how we integrate what we know from prior manipulations with an object and what we see is crucial," Gordon says. "This is all the more important when our senses, and thus our ability to create sensory memories, are impaired." He is excited about the possibility that one day patients could be treated with direct, targeted stimulation to the brain. It may sound like a reach but for Gordon, that has always been the name of the game.

This story was adapted from a more complete version "Playing the Strong Hand" written by Joe Levine and published in the spring/summer issue of TC Today, the magazine of Teachers College.

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Playing the Strong Hand

An Interview With Andy Gordon

Andrew Gordon, professor of movement science and neuroscience and education, Teachers College, Columbia University.

KT: Could you tell us more about the activities children do in HABIT?

AG: HABIT engages children with unilateral cerebral palsy in age-appropriate fine and gross motor bimanual activities that require active problem solving. In selecting the tasks, we pay close attention to the role of the more affected hand. They are graded in terms of the complexity of bimanual coordination, from a nondominant passive assist (e.g., stabilizing paper while drawing) to active manipulator (e.g., reorienting paper while cutting). We also take into account their special interests. HABIT applies basic motor learning concepts. For example, children participate in whole and part task practice; the latter requires breaking down motor skills into smaller components (e.g., playing-card turning to promote forearm supination) while increasing repetitions and skill requirements. This provides specificity and intensity of treatment by requiring as many targeted repetitions as possible over repeated intervals.

KT: Could you tell us about your more recent work involving visual-motor integration?

AG: Our basic motor control studies, supported by a collaborative NSF grant with Marco Santello at Arizona State University, focus on sensorimotor integration during dexterous manipulation. The majority of grasp studies have constrained digit placement to given points on the object while fingertip forces are measured. This only allows participants to create internal representation of forces, but ***just*** at the contact points the participants have experienced. In more natural

HABIT play activities driving wrist extension and manual dexterity.

-Photos by Claudio Ferre

grasp tasks, participants often modulate digit placement on the object and scale fingertip forces accordingly on a trial-to-trial basis until the manipulation goal is attained. This force modulation to digit placement takes into account sensory feedback about the object and digit placement and forces. We have developed a novel approach that removes the constraint of placing the digits at predetermined locations, thereby quantifying, for the first time, the trial-to-trial coordination between digit positions and forces in a more ecologically valid fashion. We are testing the hypothesis

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The Winning Advantage —Who's Got It?

that digit placement and forces are associated with independent internal representations by selectively removing tactile feedback from the fingertips, manipulating visual feedback of performance error, varying visual geometric and density cues, and object rotation tasks that create a discrepancy between visual cues and sensorimotor memories from prior manipulations.

KT: Some of your time is spent supervising a cerebral palsy (PC) rehabilitation day camp. How do you use these experiences to advance your understanding of sensorimotor integration in affected kids?

AG: This year we are sponsoring our 27th camp at which we engage children with CP (currently 19) in fun, age-appropriate activities for 6 hours per day for 15 days. Over the years more than 200 children have participated. We use transcranial magnetic stimulation to map neuroplastic changes in the motor cortex associated with training in children who have unilateral CP. We are also expanding the rehabilitation to include children who have undergone hemispherectomy surgery (anatomical or functional disconnection of one cerebral hemisphere to abolish the effects of seizures). Finally, we are extending the intensive protocols to include the upper and lower extremities of children with more severe forms of (bilateral) CP.

Playing the Forbidden Game

Golf development has been officially illegal in China since the mid-1990s. In the five years after the announcement of the ban, the number of golf courses in China tripled to 600. Washburn, D. 2014. The Forbidden Game. Oneworld.

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Do good looks signal greater athleticism—and better genes?

rated the best performers more attractive, though by a smaller margin.

All of the portraits used were taken before the race, included only very well-trained and healthy-weight Caucasians between the ages of 20 and 30 years, and excluded images of cyclists with beards or who wore sunglasses or caps. Data from participants who recognized the cyclists were excluded from the study.

Interestingly, Postma also asked participants to rate the cyclists on masculinity (which might indicate higher levels of testosterone) and on likability, and he found no correlation between either of these ratings and the cyclists' endurance performance.

Postma cautions that the correlation between attractiveness and endurance performance is not one to one, and a better predictor of performance in a cycling race would be the rider's body mass: "Of course we wouldn't expect a strong effect in the first place, because both attractiveness and performance are such complex traits. In other words, even the ugliest rider can win the tour, and even the most handsome rider will have to train as much as he can to win."

The study is part of a growing body of literature that has emerged over the last decade on the link between good looks and better performance across several of life's arenas—in sports, in business, and even in the game of chess. One study looked at professional soccer players and professional ice hockey players and found a positive correlation between attractiveness and holding the field positions requiring the greatest athleticism.

Another investigation published in 2010 looked into the correlation between facial attractiveness and NFL quarterback career passer ratings and found that good looks and athleticism are linked. The study used portraits of 58 quarterbacks that were rated by 30 college-aged women. Overall, the best quarterbacks in performance were also the best looking of the bunch.

Experimental psychologist Justin Park of the University of Bristol in the UK is one of the authors of this study. He shares, "This research was inspired by the work of Geoffrey Miller, particularly his book *The Mating Mind,* in which he expands on Darwin's sexual selection theory. Essentially, this theory focuses on the role of mating (rather than survival) in shaping certain physical and psychological traits, and modern versions of this theory suggest that certain observable features (such as facial attractiveness, athleticism, and creativity) may be indicators of underlying genetic quality, which has been selected (via mate choice) over evolutionary history."

Park believes this evolutionary effect may still be at work today: "As long as people show preferences for mates who display these indicators—and it does seem that people have preferences with regard to traits such as facial attractiveness and athleticism—then it's likely that current human behavior maintains this link."

Testosterone plays a complicated role in the link between facial attractiveness and heritable fitness, Park comments.

"Some have suggested that testosterone is directly linked to certain physical indicators of quality, most obviously strength and athleticism, but testosterone may be more relevant to intrasexual dominance competition, which is a separate issue from mate preferences," he explains. "For instance, experiments have found that women are not particularly attracted to men's faces manipulated to shapes associated with high testosterone. While dominance competition is generally more prevalent in male animals, the role of testosterone is probably similar for men and women."

In another study published in February 2013, economists Seung Chan Ahn and Young Hoon Lee found a link between good looks and performance in professional female golfers, but they propose

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Do good looks signal greater athleticism—and better genes?

a very different explanation: Physically attractive athletes are rewarded more than unattractive athletes for the same work. The more attractive athlete, in addition to prize money, can gain lucrative sponsorships, product endorsements, and tournament invitations. As a result, she (or he) devotes more effort to improving.

The same phenomena is at work in men's sports, Lee asserts, and this explains empirical evidence that in certain sports, more attractive athletes enjoy greater earnings than less attractive athletes with comparable natural talents.

What's more, the authors hold that this phenomenon also extends to the workplace: Better-looking individuals receive preferential treatment and are rewarded more for the same work and so grow more competent because they are inspired to work harder.

The study suggests it's actually consumer discrimination that drives this phenomenon—we all prefer to look at more attractive people.

"It is well known that consumers discriminate for beauty. So attractive people get more income, all other factors being equal," concludes Lee.

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Science, Exercise, and Dementia

fitness were more than twice as likely to develop early-onset dementia later in life, and those with low IQs had a sevenfold increase in risk for early-onset dementia. Risk levels endured even after controlling for other risk factors such as heredity, medical history, and socioeconomic circumstances. A combination of low cardiovascular fitness and poor cognitive performance in early adulthood was associated with a 14-fold increase in risk of early-onset mild cognitive impairment and an eightfold increase in risk of early-onset dementia.

Beyond objective measures of fitness, it appears that mere self-perception of physical health may be a reasonable predictor of developing dementia in later life. A team of Finnish researchers led by Jenni Kumala followed more than 3,500 individuals over a 30-year period and found that people who rated themselves as being poor in physical fitness at the mean age of 50 years were four times more likely to get dementia during the next three decades as people who rated themselves as being in good shape. The association was strongest among those who were not carriers of a protein that is a genetic marker for dementia. Kulmala told reporters, "Chronic conditions independently increase the dementia risk. Furthermore, if a person additionally feels that his or her physical fitness is poor, the risk is even higher. In terms of dementia prevention, maintaining good physical fitness seems to be especially important for people with chronic diseases."

- SJH

Sources

Smith, J.C., et al. (April 23, 2014). Physical activity reduces hippocampal atrophy in elders at genetic risk for Alzheimer's disease. Frontiers of Aging Neuroscience. http://journal.frontiersin.org/Journal/10.3389/fnagi.2014.00061/full.

Nyberg, J. (2014). Cardiovascular and cognitive fitness at age 18 and risk of early-onset dementia. Brain, 137 (5): 1514-1523. (First published online March 6, 2014.)

Kulmala, J., et al. (2014). Association between mid-to late life physical fitness and dementia: Evidence from the CAIDE study. Journal of Internal Medicine. (First published online April 4, 2014.)

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Do the Right Thing

undergraduate ranks at predominantly white institutions (PWIs) but are overrepresented on those revenue-generating Division I sports teams.

Given the amount of revenue that is generated by football and men's basketball, specifically examining the respective revenues and expenses of these sports, there is clearly an imbalance in athletic labor expended, the cost for this labor (athletic scholarship), and revenue accumulated. For example, the top 20 college athletic programs in 2012 generated total revenues that ranged from $80 to $100 million; all posted a profit that ranged from $4 million to $40 million. The increase in media revenue from conference networks (e.g., Big Ten Network, SEC Network) will produce additional streams of revenue for these respective conferences and schools. Therefore, whether the athletes in these sports are fairly compensated is a valid question to pose.

Most important, the racial demographics of this athletic labor force cannot be ignored. The racial history of this country makes it understandable why there is resistance for fairly compensating these athletes, especially when more than 70 percent of the athletes on the NCAA men's basketball tournament are black males and more than 60 percent of the athletes constituting the former FBS division of football are black males. The history of race relations and the exploitation of the black body for the creation of white wealth have always been a tolerable and comfortable position for many American institutions, including higher education. The black body, once again, is undergirding a system of economic prosperity where the highest percentage of beneficiaries are white, which include scholarships for athletes in nonrevenue-generating sports, coach and administrator salaries. The question, then, is "Would there be resistance to fairly compensating athletes if the majority of the athletic labor force were white?"

The HBO *Real Sports*/Marist Poll also indicated that 53 percent of African Americans believe college athletes should be compensated. One possible explanation about this finding is that African Americans are coming to terms with the realities associated with getting a good education on campuses that are designated as Division I. The truth of the matter is that there are costs for black student-athletes playing in athletic programs housed at PWIs. The education is the payoff after four to six years, but the other related costs—assimilation, graduation rates, postcareer transition—are troublesome and perhaps are drivers to the outcry for compensation.

A second response to the same data could simply mean that many are recognizing what some argue is the myth of amateurism in the 21st century. In this era, the term amateur has a floating meaning. Perhaps for some this simply means playing the minimum amount of time in a high-profile program until a meaningful, high-yield exit strategy is developed. The practical truth is that amateurism in a classical sense may not bode well in the minds of athletically gifted and financially challenged student-athletes whose dreams for self and family have been deferred. The principal motive for opting out of a system of intercollegiate sports where there are measureable gaps in the current scholarship system is economic. Despite the fact that only a small number of black student-athletes exit early for the professional sports drafts each year, what matters is why they leave: economics. One can only wonder what might happen if the inequities in the current scholarship system were addressed or if fair market value for their labor were paid as a part of the scholarship package.

In this era of social media it is almost unfathomable to think that fans, parents of student-athletes, and the athletes themselves are unaware of the magnitude of the business of intercollegiate sports. We don't

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Do the Right Thing

necessarily agree that black student-athletes come into Division I programs totally blind to the business of college sports. Yes, one is free to gauge the facts, consider the academic and athletic sides of an institution, and choose. But, what may not be clear are the large sums of revenue that are generated off the labor of the athlete and the inherent but sometimes not so obvious problem with the monetary aspects of playing on a scholarship.

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Online Doctoral Program in Kinesiology at UNCG First in Nation

professionals who wish to explore scholarship and practice associated with leadership, advocacy, and teaching. The need for the program was evident since its announcement in January 2014. We have received many inquiries and filled our first cohort to a maximum capacity of 20 students for the fall. All courses will be taught by our current kinesiology faculty at UNCG who offer an exceptional breadth of expertise to these students."

Although all coursework will be completed online, students will be required to make three on-campus summer visits to foster community and collaboration among students and faculty and to fulfill residency requirements. The required on-campus visits include an orientation before year 1, an oral comprehensive exam and dissertation proposal at the end of year 3, and a dissertation defense at the end of year 4. The program requires the completion of 60 credits including 48 hours of coursework and 12 hours of dissertation. Students will move through the program in cohorts of approximately 20 students. They will take two courses each semester (fall, spring, and summer). Coursework is interdisciplinary and focuses on inquiry, problem solving, teaching and learning, application of research, and leadership in kinesiology. To ensure the collaborative nature of the program, professional learning communities are established to support academic and professional growth throughout the degree program.

Specific Requirements for the Doctor of Education in Kinesiology at UNCG

- Professional leadership in kinesiology (12 hours)
- Interdisciplinary concepts (6 hours)
- Research, inquiry, and problem solving (9 hours)
- Background coursework in support of dissertation (9 hours; no more than 6 hours in independent study)
- Seminar (6 hours)
- Internship (6 hours)
- Dissertation (12 hours)

Additional information at http://kin.wp.uncg.edu/edd.

- SJH

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Reading Cognition and Fitness Are Positively Linked in Kids

processes that all contribute to task performance," remarks Scudder. "Thus, when we only measure children's overt behavioral performance (e.g., how accurately they read a sentence passage), it is difficult to determine which underlying process is the contributing factor in the observed differences.

"The advantage of measuring brain activity using EEG," he continues, "is that we can identify, measure, and visually inspect specific ERP components that have been linked to certain cognitive events with millisecond precision. As such, we are using one of the most precise measurements of cognitive processing with respect to time."

All learning depends on the ability to take in, process, and remember new information—and in higher-level learning, more and more material is presented in written form. It's clear that reading is a keystone of every child's education.

However, additional research is needed to determine whether improving children's physical fitness would also improve language processing in the brain. The research team is currently conducting a longitudinal study, engaging children in 70 to 90 minutes of moderate to vigorous physical activity on school days, to address this question. The team will use the same methods as in this study to assess language skill improvement alongside gains in fitness; a second group that is not participating in the exercise program will serve as the control.

This in-progress work could have huge implications for elementary schools considering interventions aimed at improving children's physiological and cognitive health.

Scudder says, "schools are undoubtedly the key environment to focus our efforts of improving children's health and well-being, and we need to remember that schools are responsible for supporting multiple aspects of children's development. Fixating on just one aspect, such as academic achievement, could risk its own integrity and jeopardize other areas of development (such as their physiological health)."

Asked to postulate on the neural mechanisms underlying the better reading performance and language comprehension of aerobically fit children, Scudder pointed to the results of collaborative work the researchers performed with other U of I research groups. This has included additional brain imaging techniques, including MRI, which looks specifically at the structure of the brain:

"One of the differences we have observed in higher fit children, in addition to better task performance, is larger brain volume for specific areas of the brain that are involved in that particular type of cognitive engagement," he shares. "For example, higher fit children that exhibit superior attention and inhibitory control also demonstrate larger volume for portions of the basal ganglia compared to lower fit children. This may result in stronger connections between neurons, and/or more of them firing in synchrony, which improves the strength of the neural signal.

"Similar results have been found with working memory and the area of the brain called the hippocampus. Further yet," he adds, "other research has discovered that higher fitness may influence cognition by increasing the levels of certain chemicals in the brain. One such chemical is called brain-derived neurotrophic factor—it's important for neuronal growth and support, among its many other influences. All in all, it would appear that greater aerobic fitness has many important influences on the health of our brains that may ultimately have consequences for cognitive processing." KT

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Sport Coaches Play Key Role in Keeping Teens on the Straight and Narrow

of Minnesota, found weekly consumption of sport drinks and energy drinks to be significantly associated with high risk of cigarette smoking, higher levels of screen media use (such as video games), and higher use of sweetened beverages and fruit juices. Although the nutritional values of sport and energy drinks vary, Larson said most kids are drinking the more sugary versions and drinking more than they need to. There was one bright spot in the data: High consumption of sport drinks was related to higher levels of participation in moderate to vigorous physical activity and sports.

According to the American Academy of Pediatrics, adolescents should consume sport drinks only after vigorous, prolonged activity, and adolescents should avoid energy drinks because they offer little nutritional benefit and increase the risk of overstimulation of the nervous system. Larson believes that coaches can play a key role in ensuring athletes practice healthier hydration habits. She encourages coaches, teachers, and parents to become familiar with the AAP recommendations on beverages and encourages young people to follow them. As we've been told for generations, water seems to be the best hydration source available to everyone.

Unfortunately, sport and energy drinks aren't the only libations that put thing young people at risk. A study that appeared in the May 16 issue of *Criminal Behavior and Mental Health* asked British youth who were either excluded from school or involved with the justice system to complete a questionnaire measuring behavior problems—especially hazardous drinking—as well as participation in organized sports. They found that the young offenders group had a significantly higher prevalence of hazardous drinking compared to nonoffenders, but among this group, those who participated in sports were less likely to be hazardous alcohol users. They suggest that the reasons may vary from the inherent demands of sport itself and social support to the influence of social group norms and positive role models. The fact that 70 percent of the young offenders reported not having participated in a sport suggests that vulnerable youths who might benefit most from sporting activities actually access the activities the least. KT

Medicine Man No Help to Struggling Team

With his team sporting the worst win–loss record (24-40) in baseball, Tampa Bay Rays manager Joe Maddon sought help from beyond by asking Seminole medicine man Bobby Henry to come to a game against the Seattle Mariners. Henry walked around Tropicana Field, announcing, "The Rays are ready to go get it." Didn't work. Tampa Bay lost 3-0.

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27 May 2014

Melinda Solmon
Chair of the AKA Scholar Award Committee
Louisiana State University
112 Long Field House
Baton Rouge, LA 70803

Dear Dr. Melinda Solmon and the AKA Awards Committee:

I am greatly appreciative of the recognition and support given to me by the American Kinesiology Association Awards Committee. It is an honor to be one of the recipients of the AKA Scholar Awards for Undergraduate Students in Kinesiology. Please allow me to briefly tell you more about myself.

I am in the concurrent M.S./B.S. in Kinesiology Program at Kansas State University (K-State). This summer I will begin graduate studies with an emphasis in exercise physiology and graduate with my Bachelor's Degree in August. The K-State Kinesiology Department generously offered me a graduate teaching assistantship, so this upcoming school year I will teach basic kinesiology laboratory classes as well as take graduate courses. Research in my mentor's Clarenburg Research Laboratory will occupy the majority of my time and obligations next year for which I am very excited. Our main studies in the Laboratory investigate physiological mechanisms behind vascular control, microvascular skeletal muscle oxygen pressure dynamics, heart failure influences, and exercise.

My aspiration is to graduate with my Master's in Kinesiology in May, 2015 and conduct research in Ecuador the following school year on the Fulbright Grant. Later in the future I intend to pursue a Ph.D. in kinesiology or a related field.

Again, thank you very much for promoting academic excellence and granting me the AKA Undergraduate Scholar Award. I will do my best to continue my scholarship and leadership achievements in Kinesiology and related fields and inspire others to strive for the same.

With sincere gratitude,

Angela Glean