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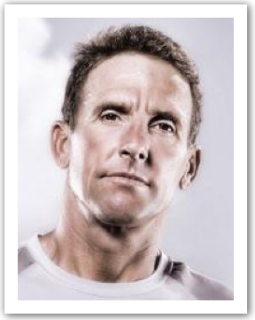
Triathlons: Are They Good for Your Health? Is Drinking a Lot of Water a Good Thing? Do You Need A Lot Of Money to Compete?

By Penny McCullagh, PhD, KT Editor

A lot of popular articles have been appearing in the press about triathlons. I investigated a few of the stories, and on a recent visit to Boulder, Colorado, chatted with world-famous triathlete Dave Scott. Dave was my former masters swim coach when I lived in Davis, California.

Dave Scott is the most recognized athlete and coach in the sport of triathlon. His career in the sport began with the inception of the sport in 1976. He won his first Hawaii Ironman in 1980 and won again in 1982, 1983, 1984, 1986, and 1987. In 1993, he was honored for his accomplishments in the sport and became the first inductee into the Ironman Hall of Fame. To celebrate, Dave came out of retirement and at the age of 40, after a five-year absence from competition, decided to race again. In a stunning and memorable performance, beating out an impressive field of professional athletes—many of whom were in their 20s—Dave placed second overall. This incredible physical and mental feat earned Dave a new nickname among the triathlon community: The Man.



Dave Scott

Dave currently devotes his time to educating and inspiring athletes of all abilities and ages, leading sport camps, clinics, and races across the country and running his own training group in Boulder. Dave contributes years of wisdom, wit, and creativity to his passion for helping others. He was the national coach for Team In Training from 1999 to 2013, helping to certify TNT

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coaches nationwide, and is now actively involved in the running of his business. Dave Scott, Inc., offers individual and group fitness and nutrition consultations; online training plans; innovative strength, flexibility, and injury prevention programs; multimedia sport analysis and training tips; and corporate and triathlon club speaking engagements and clinics. Dave is based in Boulder, Colorado, and enjoys spending time with his family and maintaining a healthy and physically fit lifestyle. To learn more about Dave, visit http://davescottinc.com.

And I Thought a Lot of Exercise Was Good For You!

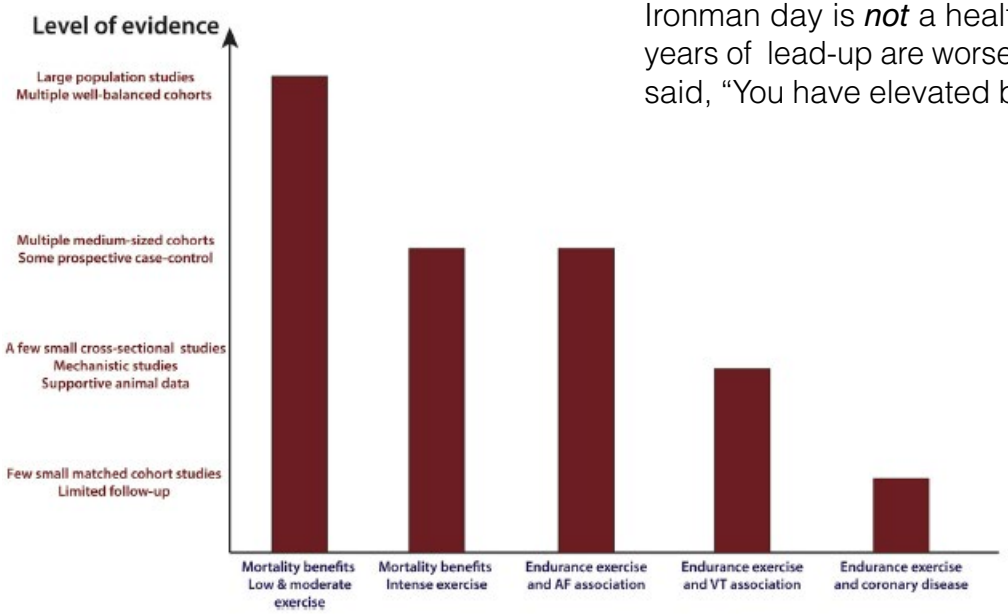
Andre LaGerche, MD, PhD, is head of sport cardiology at the Baker ID Heart and Diabetes Institute in Melbourne. He completed his PhD at the University of Melbourne and did four years of postdoctoral research in Leuven studying the effect of endurance exercise on the heart. He suggests that resting images are poor surrogates for functional limitations and prefers to study the heart while at exertion. He has developed novel echocardiographic and cardiovascular magnetic resonance imaging (CMR) for the noninvasive assessment of the function and structure of the cardiovascular system. He wrote a review published in the Canadian Journal of Cardiology on the potential toxic effects of exercise.

In his recent review he recognizes the overwhelming positive benefits of exercise and suggests that an article on the potential toxicities of exercise might be perceived as a barrier in the fight against sedentary behaviour and the emerging epidemic in lifestyle associated morbidity. However, this report was aimed to address an entirely different demographic, one at the other end of the spectrum from inactivity. As opposed to the unquestionable science behind the benefits of 'getting off the couch,' in this article we discuss the often questionable, incomplete, and controversial science behind the emerging concern that high levels of intense exercise might be associated with some adverse health effects."

In his review he makes some claims based on his analysis of the research:

- He clearly recognizes the benefits of low and moderate exercise intensities and suggests that the findings do not generalize to intense exercise levels.
- Studies clearly show that elite athletes live longer than the general population. However, they may also be better off in terms of many lifestyle factors such as smoking, alcohol consumption, diet, obesity, and socioeconomic status. Athletes generally have positive health behaviors, including exercise.
- There is increasing evidence that longstanding endurance training might lead to some heart arrhythmias.
- Most studies have shown a relationship between atrial fibrillation (AF) in middle-aged men who were endurance athletes, but this same relationship has not been shown in women. Also the relationships to other types of cardiac arrhythmias is not so clear.
- He proposes speculations about the potential harmful outcomes as well as some of the mechanisms that may cause these outcomes with the hope of stimulating research in this understudied topic

In the following figure LaGerche presents some of the controversies and level of supporting evidence. The graph shows the compelling evidence for cardio benefits of exercise but the less well-documented evidence regarding cardiac damage from high-level exercise including atrial fibrillation (AF) and ventricular tachycardia (VT). LaGerche argues that the evidence for the benefits of low- to moderate-intensity exercise are strong but the research evidence for high-intensity exercise is minimal and much more needs to be done.



Comments from Dave:

How aware do you think most triathletes are of the potential negative effects of high-intensity, high-volume long-term training, and when do you become aware?

I read the literature, I talk with other athletes and with cardiologists. I know that high-intensity and high-volumne training have led to heart issues with a many athletes and is prevelavent with marathoners. More recent studies show high enzyme levels post-Ironman with enzyme levels reaching similar levels those of people with cardiac arrest! Luckily most of athletes survive but they did a lot of damage. That single Ironman day is ***not*** a healthy day but the years of lead-up are worse. My cariologist said, "You have elevated blood pressure, your aterial return and ventricles are tired, and you have overloaded your system." Research studies are documenting these effects. I was aware of my very high cortisol levels (affected by mental stress as well), high levels of andrenalin and high cortisol all the time. I don't sleep well, either. Also HDH and testosterone are affected. I have a lot going against me resulting in my recent heart irregularities.

Do you really need so much training to be at the top?

I won't talk about myself. I have worked with top level athletes and I have had to temper their training. But they are stubborn. A lot of athletes need huge training for the psychological aspects- to increase their confidence. Also many athletes even during training want to race. As a coach I have tailored the programs—they train too hard and when they go to the big race they don't do well. If you start stacking up those hard days, come major race day and you are creamed.

Why are men not running times like mine and Mark Allen's? Mark and I have the second- and third-fastest marathon times. The young athletes are running really fast in the half triathlons, but when they get to Hawaii they do not do as well**.** Less is bet-

ter! We can get away with a lot less. I do a lot of run–bike–runs. I do swing pace: half-marathon pace, subthreshold or close, then drop down 30 or 40 seconds. I have been successful wth this. Out of 100 minutes, do 24 minutes at threshold, and the return is magic. For example, If an athlete uses his half-marathon pace as the baseline on a given longer run, the swing is 20 seconds slower and 20 seconds faster than the baseline pace. For example: 5 minutes at baseline pace of 7 minutes per mile plus 5 minutes at 20 seconds faster than basefline pace or a 6:40 mile plus 5 minutes at 20 minutes slower or 7 minutes 20 seconds. Repeat this 3 to 6 times.

You are well read in the research literature. What motivates you to do that? Did you do so when you were a student in training at UC Davis?

I wanted to apply the science to training and encourage athletes to understand some of the science. Probably not so much so when I was an undergraduate. I now have a voracious appetite for research. The science is so much better than it was 25 years ago. If you are picking a coach they should know energy systems, muscle physiology, periodization. Don't just get some ex-athlete who does not know the science. In this country there is no quality control on coaches, and it bothers me. When athletes come to me I tell them I follow the science of training. Most coaches can do well with athletes at the beginning of the season when athletes are just starting to get in shape. I have had a real paradigm shift in how I train athletes.

Given this recent evidence about negative effects of high-level long-time endurance activity, what would be your recommendation to upcoming athletes in the sport?

I gave a talk last night to a group of athletes and students at CU, and I told them what I know. I was out for a long, long ride. I was extremeley dydrated—mowed the lawn, swam . I told them at the end of the talk that after that long hard day, I had an afiib. I think it resonated with them. I suggested they should be accutely aware of high-intensity, high-volumne exercise on the heart, especially if they have a heart history. The problem is when you talk to 20-year-olds they are invincible. I have talked to my son, who was a Nordic skier and now a triathlete. I think when I was coaching him I needed to give him more recovery.

And I Thought a Lot of Water While Exercising Was Good for You!

Hyponatremia occurs when the level of sodium in the blood is abnormally low. Sodium is an electrolyte, and it helps regulate the amount of water that's in and around the cells. In hyponatremia, one or more factors—ranging from an underlying medical condition to drinking too much water during endurance sports—causes the sodium in your body to become diluted. When this happens, your body's water levels rise, and your cells begin to swell. This swelling can cause many health problems, from mild to life-threatening.

In a recent letter to the editor in the *New England Journal of Medicine*, researchers suggest that a high incidence of hyponatremia has been reported among marathoners. To investigate the prevalence in triathletes, they recruited a convenience sample of 932 men and 157 women from 2005 to 2013 in the European Ironman competition. A venous blood sample was taken within 20 minutes of the end of the race and was analyzed on site. Based on sodium levels in previous studies, athletes were categorized as mild, severe, or critical. The finishing times for the race ranged from 7:59 to 16:20. Of all the athletes, 10.6 % had hyponatremia. Of those, 8.7% were

classified as mild, 1.6% had severe, and .3% had critical hyponatremia. The incidence was higher among females and those who took longer to finish the race. The data, when compared to other studies, indicate that this condition occurs slightly less in triathletes than in marathoners. No explanation for why this might be the case was offered.

Comments from Dave:

Are athletes aware of hyponatremia, and how does the information get to them?

In Kona it is hot and you hear everyone saying you have to drink, drink, drink. I shudder when I hear that. We are not camels. The medical team in Kona is on it now. There are symptoms—fingers become puffy—and people could recognize this in themselves. The sweat rate may slow down, vision may be impaired. I forewarn athletes all the time.

In the well-run races there are now warnings about drinking too much. The word is getting out. In Kona each year they have a medical conference and they are testing athletes. In the letter to the editor you provided me, they tested athletes over a nine-year period in the World Championships, which are held all over the world. For these events there is considerable variability in weather and humidity, and in this short report they did not provide those details or data on heat and humidity. The incidence of *hyponatremia* is higher with females. Their cooling mechanisms are not as great and they are out there longer. While *hyponatremia* may also occur in marathoners, they do have somewhat of an advantage because they start early in the day and end early. In Hawaii they are completing the run in the heat of the day. I try to get athletes down to bare minimum in food and drink on race day.

One more time, you keep up on the research? How do you do it?

I look at a lot of journals. I am member of the American College of Sport Medicine (ACSM) and the National Strength and Conditioning Association (NSCA). I read the *Journal of Nutrition* and a lot of good newsletters, and I follow up by reading the original research. I love giving talks and I like to be challenged.

Cost of Participating in Triathlons

If you enter a swim race you need a suit (maybe a wetsuit) and some goggles. If you enter a running race you need some shoes and shorts. If you enter a bike race, you need a bike (and that can get costly). If you enter a triathlon you need all that, plus a maybe a coach, plus a nutritionist, plus a massage therapist, plus a physical therapist. Then you need to bring along your family and supporters. If you want to enter the big one, the World Championships in Hawaii, then it may cost you!

The idea for the ultratriathlon in Hawaii was hatched during the awards ceremony of the 1977 Oahu Perimeter Race. Navy commander John Collins and his wife had participated in short triathlons in California and decided to combine the Waikiki Rough Water Swim (2.4 miles), the Around Oahu Bike Race (112 miles), and the Honolulu Marathon (26.2) into one giant challenge. He decided that whoever finished first would be called the Ironman. The first race in 1978 had 15 men, and 12 finished. The second year had 50 entrants but bad weather resulted in only 15 athletes and a first female finisher. In 1980 Dave Scott beat 106 men and 2 women with a winning time of 9:24.33, and we got to see the event on *ABC's Wild World of Sports.* The event then moved to Kona and Dave went on to dominate in the 1980s, winning 6 races between 1980 and 1987. He became known as "The Man."

An article by John Hanc in the *New York Times* suggests that participating in triathlons can be very expensive. You might at first think that an entry fee, purchasing equipment, and transportation and lodging

at the site would be the bottom line. But for many triathletes, that is not the case.

He reported that "A 2015 survey conducted for the World Triathlon Corporation—the Tampa, Fla.-based organizers of Kona and other Ironman races—found that the average annual household income for Ironman participants is $247,000. USA Triathlon, the largest multisport organization in the world, says the average income for all triathletes, including those at shorter distances, is $126,000." You would need to have that kind of salary or better if you followed Marc Blumencranz's program. Marc is not a professional athlete but rather the managing director of an insurance brokerage. He spent about $100,000 to compete at Kona, including a house rental for himself and family well ahead of the race so he could acclimatize to the heat and a block of hotel rooms for 10 days leading up to the race for his coach, massage therapist, and physical therapist. He also hired a private chef.

To compete at the World Championship you have to qualify at one of the qualifying races held around the world, so you will not just be hopping on a plane to Hawaii. If you don't manage to qualify by your finishing time in a prequalifying race you can make a donation of upward of $50,000 to a nonprofit organization to gain a bib. In his report, Hanz indicated that women are less likely to spend the big bucks. So get out your checkbook if you want to compete in these events, and don't be fooled by thinking triathletes get big prize money or big sponsorship. That is typically not the case for a majority of the athletes.

Comments from Dave Scott

Your first Ironman was in 1980 and you won; your last Ironman was in 2001 when you did not finish. How did the costs change over that period?

There are not that many triathletes that are professional and when you research the data most of them do not make much in prize money and sponsorships. However, it is still very popular and more athletes participate every year.

You have to qualify for Kona and that costs a lot, even if you do not take an entourage. It could take you few races to qualify. Some people make donations of $30,000 and up to get an entry slot. There are a lot of athletes who could be good at the sport, but it is an elitist sport. The entry fees are high—some are over $1,000. Bikes are expensive. I was on a bike with $1,600 wheels. The bike was $12,000. It was phenomenal, but I can't afford that, nor can most people. People are willing to pay an extraordinary amount. Hawaii is still the golden nugget!

With such high costs, what about the opportunity for kids to participate?

I have been told that 90% of youth in New Zealand have done a triathlon. Australia has a developmental kids' program, and there are a couple of pockets of kids' clubs in the United States. While I think it is a great sport for kids, the liability issues in the United States prevent widespread participation. That is too bad because I think the variety of activity provided by this sport is great. KT

LaGerche, A., (2016). The potential cardiotoxic effects of exercise. Canadian Journal of Cardiology, 32, 421-428).

Danz, M., Pottgen, K., Tonjes, P.M., Hinkelbein, J., & Braunecker. S. (2016, March 10). Letter to the editor. New England Journal of Medicine. www.nejm.org/toc/nejm/374/10.

Hanz, J., (2016, Feb 12). When amateur Ironmen pay for the eilite treatment. New York Times.

How Many Americans Have a Healthy Lifestyle?

1. How many Americans have a healthy lifestyle defined as sufficiently active, eating healthy, nonsmoker, and having recommended body fat?
   a. 5.8%
   b. 2.7%
   c. 15.95%
   d. 23.4%
2. What percentage of 4,745 individuals assessed had none of the healthy lifestyles?
   a. 37.5%
   b. 25.4%
   c. 11.1%
   d. 5.4%

You will need to read on to find out the answers!

The data to answer these questions were derived from estimations based on the U.S. adult population (N = 4,745) using data from the 2003-2004 National Health and Nutrition Examination Survey (NHANES).

The researchers used these data because they were the only data that have physical activity measures publically available. The NHANES project is conducted by the Centers for Disease Control and Prevention and selected a representative sample of U.S. residents. In addition to being interviewed in their homes, individuals were examined in a mobile lab across 15 geographic areas in the United States. To measure physical activity, the individuals wore accelerometers. To assess diet, they did a 24-hour recall. Smoking behavior was measured by assessing serum cotinine, and body composition was assessed through X-ray absorptiometry. Participants were classified on a scale of 0 to 4 points and a score was assigned by summing the number of healthy lifestyles. A blood sample was used to assess a number of biomarkers of cardiovascular disease.

Of the entire sample, only 2.7% qualified to meet all four healthy lifestyle markers. Of the remaining individuals, 16% reached three of the markers, 36.8% reached two, 33.5% reached one, and 11.1% did not meet any of the markers. Of the sample, 71.5% were nonsmokers, 37.9% had a healthy diet, 9.6% had normal body fat percentage and 46.5% had sufficient physical activity. There was little variation by age, sex, or ethnicity. The data also revealed that having more healthy lifestyles was associated with more positive biomarkers levels related to disease.

The authors call for more research to determine how to motivate people to take on healthy lifestyles. KT

- PMc

Loprinzi, P.D., Branscum, A., Hanks, J., & Smit, E. (in press). Healthy lifestyle characteristics and their joint association with cardiovascular disease biomarkers in US adults. Mayo Clinic Proceedings.

Need a Story to Start Out Your Class? If You Are Teaching in Skill Acquisition or Sport Psychology, You May Find Something Here

Need a little story to start out your class? Well, you might find it here. I was recently introduced to a website created by Rob Gray. Each week Rob produces a new podcast. These are relatively short and would be a great addition to your class or at least a conversation starter. Following are some of the titles that are currently posted, but there are many more. I attempted to set up an interview with Rob to ask him a few questions about his podcasts, but I found most of the answers on his website, and our peronal schedules were not meshing very well. I asked for his permission to post his ideas in *KT*, and he was happy to allow me to reproduce his thoughts.

I encourage you to access his site and use his materials in your kinesiology program.

- Color Blindness in Athletes and Fans
- Skill Acquisiton in the Movies: The Award Goes to . . .
- The Ecological Approach to Perception Action
- Imagery and Observational Learning
- Consolidation & Interference Between Training Session
- Schema Theroy, the Motor Program & Contributions of Richard Schmidt
- How Do You Become an Expert?
- Superstitious Rituals

http://perceptionaction.com/

Rob Gray is an Associate Professor of Human Systems Enginerring at Arizona State University (ASU). He completed his BA in Psychology At Queen's University and his MS and Ph.D. in Experimental Psychology at York University in Canada. He worked as a research scientist for Nissan Cooporation, and then was appointed Assistant Professor in the newly formed Applied Psychology program at ASU and then begain Program Head. He held a number of positions over the last 10 years and in 2007 he was awarded the Distinguished Scientific Award for Early Career Contribution to Psychology from the American Psychological Association and the Earl Allis Award for Early Career Achievement in the Field of Applied Experimental & Engineering Psychology. He is currently Associate Professor of Human Systems Engineering at Arizona State University

Why am I doing this Podcast?

1. **I wanted an outlet to be more creative in research communication**
   When I was younger I used to love creative writing. I even once won a prize for a story I wrote called "The Chicken from Outer Space". I miss that. When I first started as a scientist I tried being creative and entertaining in my writing. But as most people that have been through the publication process well know, reviewers will stomp that out of you right quick. "Too colloquial", "Not appropriate for a scientific article!", "Stick to talking about what was actually measured". So, I gave up on trying to write creative journal articles years ago. Just the facts, ma'am. I don't really even have that many creative article titles..need more Psych

Science submissions I guess I used to satisfy my creative fix pretty well by trying to do colorful and fun talks at conferences. But I don't go to all that many conferences anymore and most of the the time I get assigned a poster instead of a talk. So, to heck with them! I will start my own virtual conference where I am always the keynote speaker and can present about whatever I want! I also thought about writing a blog but there are already a lot of great one's out there and the idea of do even more writing doesn't really excite me. Plus…

2. I am a big podcast fan and I always wanted to do one

As a person that rides a bike to work, goes on long drive road trips, and has a hobby of long distance running, podcasts are a godsend for me! They have kept me company for many a mile. And the people doing them seemed to be having so much fun! Its liking having your own radio station.

I had thought about doing one related to my personal interests… running (no, there is a ton of those already), Dr Who (there is even more of those!). Plus I am not sure when I would find the time. So, I came up with the idea of…

3. I am using this material as part of my teaching materials

As I have mentioned a couple times on the podcast, the impetus for me starting the podcast now was that I needed to update my materials for a few online courses I am teaching. My choices were: (a) Do what I had done before and spend a bunch of time staring at a screen narrating my power point lectures to create output I would send only to my students or (b) put a little more effort into creating episodes (with my slides as supporting material) and release them to the world! I also hoped my students would enjoy the mobility and style of this format more, which they do seem to so far. With (b) as my choice my intention was to release one episode every 2 weeks but I started having too much fun with it and have gotten a bit carried away

Something I was secretly hoping would occur seems to be happening also…

4. I want to help facilitate better connections between practitioners and researchers

Because of the podcast and related interactions on social media I have made some new connections with coaches, trainers, analysts and people working at sports tech companies, and I hope this will continue. I have already convinced several of these people (along with academics I already knew) to do interviews which will be coming on the podcast soon. I think the issues of transferring research to practice, and using practice to help guide research questions need to be considered much more in psychology, sports science and human factors. I am hoping that through the podcast I will be able to get more of a two-way discussion going.

And finally, something a few people may have been wondering..

5. Am I making any money off of this?

No, not a dime. I am actually footing the bill for the media hosting and website myself. In the future I would be open to having a sponsor/supporter help me cover some of these costs if I thought it would be something people in this area might be interested in, but for now, I am not too fussed about it…just having too much fun with it.

-PMc

Practice Makes Perfect: Embracing Stressful Situations Can Help Performance

By Patrick Wade, Staff Writer

Spend just an average amount of time surfing the Internet or social media, and you are likely to come across at least one quick guide, 10-step list, or other survey or study on avoiding stress. But what about embracing it?

That's the advice given by journalist Kayt Sukel, who compiled research on stress and risk and how the two relate to performance in her new book, *The Art of Risk: The New Science of Courage, Caution and Chance.* Subjecting yourself to stress improves your capability to perform in crunch time, she suggests, and working on the fringe of your ability is the best way to encourage improvement in all kinds of activities.

"It really is everywhere," Sukel said. "How are you going to gain the skills to become a chess champion, right? You've really got to push the envelope. How are you going to get ahead in graduate studies?" The concept is called deliberate practice, a term used by Florida State University psychologist K. Anders Ericsson. The idea is that expert-level performance requires training beyond your current ability.

"Maybe play tennis with somebody who's rated better than you are, or practice that hard wall over and over again even if you keep falling off of it," Sukel said. And that's where the idea of embracing stress—and its natural partner, taking a risk—comes in. You can't push the envelope without accepting the notion that you might fail.

"If you're working at the edge of your performance ability, you're probably going to fail quite a bit." Sukel says the research shows that repetition and automaticity really are the key. Embracing the stress of working on the edge of your performance ability helps over time to reduce your cognitive load. Keep practicing that golf swing, playing a guitar riff, or hitting a fastball, and you may eventually get to the point where you can do it without thinking. That's a good thing, because the brain's motor functions work at much higher speeds than its cognitive systems. "When you work at the edge that way, you get better, you don't have to worry about all the piddly stuff."

Sukel takes the idea even further than sports. She says embracing stress helps to improve not only your physical well-being but also your emotional well-being. Taking a risk here and there will better equip you to handle the stress involved when you're facing a challenge. "How do we learn how to control our emotions? We find ourselves in situations where we have to be able to regulate and control ourselves," Sukel said.

She sees it as a prerequisite of success, and Sukel thinks that taking risks has contributed a lot to her own professional accomplishments. Athletes might suggest the same thing.

"I think every professional athlete would say the same thing: they had that one coach that saw in them they had to push themselves even further," Sukel said. "When they finally accomplished that skill, whether it was shaving 10 seconds off a run time or finally hitting that impossible-to-hit fastball, they run with it." KT

Sukel, K. (2016). The art of risk: The new science of courage, caution and chance. Washington, DC: ***National Geographic.***

Ericsson, K.A., Krampe, R.T., & Tesch-Römer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review*, 100(3), 363-406. doi:10.1037/0033-295x.100.3.363

Technology

Implants to Monitor Fitness? How Far Will We Go?

The number of people who are now wearing fitness trackers is amazing. Jonah Comstock in *MobiHealthNews* reported on a survey of 1000 people conducted by PricewaterhouseCoopers that 77% of people want their wearable to help them exercise better and the full report indicates that by March 2014, 3.3 million fitness trackers had been sold. At first this looks like good news. In an effort to become healthier, it appears that folks are spending their own money to track their fitness. Some employers are even getting in with offers of reduced insurance costs to employees who wear the devices. Can there be a down side?

In a June 19, 2015, article published in *The Conversation*, Rikke Duus and Mike Cooray suggest that we are only at the beginning of this trend. They relayed that a company called Athos (www.liveathos.com) will design clothing that can measure heart rates, respiration, and muscle activity. They also noted that Google and Levi Strauss are developing clothing that can interact with many technical devices and can help monitor weight gain as well as many other tasks. Also fitness bands will go far beyond merely measuring steps and heart rate. Devices are being developed that can measure oxygen, hydration, and blood pressure. Even internal microchips or digital tattoos might replace current devices.

Duus and Cooray reported that they surveyed 200 women who wore Fitbits and found many positive benefits, including taking longer routes to meet goals, increasing weekly exercise, and modifying eating habits. Many positive psychological outcomes were also related to wearing monitors, including personal satisfaction, pride, and happiness. While these are all positive benefits, there were some negative outcomes to dependence on the bands. For example, many women suggested that they felt guilty or that activity time was wasted if they did not wear their bands, and some felt pressured by the need to meet goals. In conclusion, they suggested, "Whether we want to or not, we are slowly, but steadily, transforming into a new human species. Enter homo cyberneticus." KT

-PMc

Vibrating Yoga Pants: Who Needs a Teacher?

Recently reported in NBC Business News (Jan 22, 2016) was a story about yoga pants that vibrate if you do a yoga pose incorrectly or give off a slight "om" sound if you strike the pose correctly. The pants are designed by Wearable Experiments of Sydney, Australia, and can be washed up to 25 times. Some yoga teachers are questioning the use of the pants and say they cannot adjust for individuals who have injuries and do not take into consideration an important aspect of yoga: the location of the feet. Other teachers suggest that the pants can't replace an effective teacher, but they might be useful in providing some feedback to users. Are you ready to buy these pants? KT

-PMc

Give Yoga and Peace a Chance on International Yoga Day

By Amy Rose, KT Staff Writer

In an effort to promote more peaceful understanding among the citizens of the world and in recognition of the physical and mental health benefits of yoga, the United Nations has declared June 21 as the International Day of Yoga. This year will be the second annual celebration of the event at the United Nations and worldwide. According to Germán Bravo-Casas, president of the United Nations yoga club, the event was first sponsored in 2015 by the Indian government at the urging of the new Indian prime minister, Narendra Modi, who is focused on the promotion of yoga as a culture legacy for the world. However, Bravo-Casas says that research shows that many countries and cultures have influenced the development of yoga over the 5,000-year-old history of its practice.

Yoga has long been a way for people to connect their emotional, spiritual, and physical beings into one union of self. The United Nations sees the practice of yoga as a way to support their 15-year plan to develop sustainable development goals. In his remarks to the UN, Secretary-General Ban Ki-moon said, "Our aim is clear. Our mission is possible. And our destination is in our sights: an end to extreme poverty by 2030, a life of peace and dignity for all." Yoga values are regarded as a way to align our personal lives with the aspirations of the United Nations. These aspirations are peace, prosperity, and harmonious relationships with other human beings and with the environment.

Diane Ambrosini, who has been a yoga instructor for 15 years, agrees that an enhanced state of being facilitated by the practice of yoga could be a way to bring the world closer together. "We are all in this together, and we need to make it work together," Ambrosini said. She suggests that if people bring the peace, calm, and acceptance of self that they find in the yoga studio out into the world, an increased acceptance of others will result.

Through history, yoga has ridden several waves of popularity. Bravo Casas says a Russian actress and dancer named Indra Devi is considered the mother of western yoga. Devi discovered yoga in the temples of India in the late 1940s. At that time, yoga was taught only to male spiritual leaders. The maharaja intervened on Devi's behalf to allow her to practice yoga to relieve ailments she was experiencing and in admiration of her performing skills. Devi became such an excellent student and instructor that she later brought her yoga practice to California and became a yoga instructor to the Hollywood stars of the day.

Germán Bravo-Casas, President of the United Nations yoga club

The new age of the '70s and interest by the Beatles also brought another wave of interest with the younger generation in the United States. Since then the practice of yoga has seen a steady growth around the world, but many agree that yoga is

experiencing the biggest boom of all in modern days as people are seeking health benefits, stress relief, and spiritual connection more than ever.

Ambrosini, currently a master teacher at A Gentle Way Yoga Center in La Mesa, California, points out that there is a style, instructor, and method for everyone regardless of age, body type, or ability. She has taught children, elderly people, and those looking for relief from chronic health conditions and emotional imbalance. "It may not be the same benefits, but everyone would benefit in some way (from yoga)," Ambrosini said. "Even hard-core workout folks are looking for a more calming and gentle way to move their bodies."

Diane Ambrosini, author of *Instructing Hatha Yoga*, yoga instructor and advocate, works with client

Bravo-Casas warns people new to yoga to search out a reputable teacher and a style that is most suited to their needs. He warns that the increase in yoga studios and instructors has also brought along many wanting to jump on the bandwagon without proper instruction or motivation for helping others in all aspects of the yoga philosophy. Plans for this year's International Day of Yoga are still being finalized. Bravo-Casas says there are plans for a discussion at the UN on Monday, June 20, and a large gathering of yoga participants on Tuesday, June the 21, to demonstrate and encourage the practice of yoga. There will also be a huge public yoga demonstration in Times Square in New York City, either on Tuesday, June 21, or Sunday, June 19. Look for local events in your area and give yoga a try for International Yoga Day.

International Yoga Day Events

International Yoga Day Festival
Saturday, June 18
All Day Event
Ingram Plaza-Liberty Station
San Diego, CA
Yoga Day in the Park
Balboa Park, San Diego, CA
Sunday, June 19th

U.N. International Yoga Day Celebration
19th June 2016 - 8am - 7:30pm -
Alexandra Palace - London

Rat Race: Sustained Aerobic Activity Influences Neurogenesis

By Patrick Wade, Staff Writer

There's no shortage of research linking aerobic activity to positive effects on the brain, both physiological and psychological. But would different kinds of activity have a significantly different effect? That's exactly the question a team of Finnish researchers set out to explore, and the answer is yes, according to their research published in the *Journal of Physiology.*

Aerobic activity has been shown to enhance neurogenesis in adults, likely by increasing certain growth factors that help precursor cells survive and ultimately proliferate into functioning neurons. Those extra connections improve learning and cognitive performance in studies performed using adult rodents. But testing on animals has limitations, and much of the research has focused on the effects of running on neurogenesis. Running, after all, comes naturally to a rat and is easier to test in the lab.

"The study of exercise effects on adult neurogenesis has long been concentrated only on aerobic exercise, namely running," said Dr. Miriam Nokia, a psychologist at the University of Jyväskylä who led the study. "We think it is important to find out how other forms of physical exercise affect the brain because humans do so much more than just aerobic exercise to stay fit."

So the researchers devised a way to study the effects of different kinds of exercise in rats. One group of rats were placed in cages fitted with a running wheel and were allowed to run—or not run—at will. Others were subjected to higher-intensity activities, either running three-minute intervals on a treadmill at 80 or 90 percent of their running capacity or climbing a ladder with weight applied to the rats' tails.

Researchers then reviewed how many new cells developed in the hippocampus region of the rats' brains during the course of their to seven-week training regimens. The results, according to Nokia, were "remarkable." Rats who ran at will showed, by far, the most neural production. Furthermore, the rats who covered the most ground showed the most neurogenesis.

By contrast, far fewer new brain cells were observed in the rats subjected to interval training, and the rats who underwent resistance training showed no discernable difference from a control group that had no exercises at all.

The research team also noted that the

rats who were put on a treadmill were limited to 30 minutes of exercise for each of three days per week. That translated to about 3.6 kilometers of running per week for the best runners in the group, whereas the rats who were allowed to run at will typically covered several kilometers per day.

In other words, the amount of running the rats accomplished during the seven weeks

seems to be linked with more extensive neurogenesis. Sustained aerobic activity is the key, Nokia said.

"I think (the takeaway) is the finding that the effects of sustained aerobic exercise on the brain are so remarkable," Nokia said. "I really hope that our results motivate people to incorporate aerobic exercise into their daily life because it seems it can have a huge positive impact on the brain."

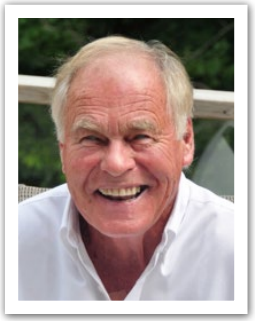
The rats in the interval and resistance training groups were indeed more fit than those in the sedentary control group at the end of the experiment. But the intrinsic level of stress involved in those activities may be what inhibits neurogenesis, according to the research group.

That and other questions about the effects of high-intensity exercise on the brain may be an opportunity for further inquiry, Nokia said. "I definitely think we should continue to study the effects of anaerobic exercise on the brain," she said. "There is still very little information on that. I hope people will realize and start to value the possible gains of sustained aerobic exercise." KT

Nokia, M.S., Lensu, S., Ahtiainen, J.P., Johansson, P.P., Koch, L.G., Britton, S.L., & Kainulainen, H. (2016). Physical exercise increases adult hippocampal neurogenesis in male rats provided it is aerobic and sustained. *Journal of Physiology, 594*(7), 1855-1873. doi:10.1113/jp271552

Fardell, J.E., Vardy, J., Shah, J.D., & Johnston, I.N. (2011). Cognitive impairments caused by oxaliplatin and 5-fluorouracil chemotherapy are ameliorated by physical activity. *Psychopharmacology, 220*(1), 183-193. doi:10.1007/s00213-011-2466-2

In Memoriam



Neil Widmeyer

Dr. Neil Widmeyer, professor emeritus at the University of Waterloo, passed away Friday, December 11, 2015. Doc Wid was an early pioneer in sport psychology. He completed his PhD with Rainer Martens at the University of Illinois and then went on to a successful career as a professor and practicing sport psychologist with many athletic teams. His work with Larry Brawley and Bert Carron and the development of the Group Environment Questionnaire moved the field of group dynamics forward. His work with athletic teams was well respected. He had an infectious smile and positive attitude and will be sorely missed by friends, family, colleagues, and former students. KT

Ann Gentile

Dr. Ann Gentile, professor emeritus at Teachers College of Columbia University, passed away February 9, 2016. She obtained her first PhD from Indiana University and in her pursuit of interdisciplinary approaches to science completed a second PhD in neuropsychology. She was a force in motor learning in the early 1970s, and her paper "A Working Model of Skills Acquisition with Application to Teaching" pushed the idea that movement and environment were important for acquisition of skill. She had much to offer about how to structure practice. While these ideas might seem obvious today, they were new and exciting nearly 50 years ago. A.M. had quite the personality. If she was in the room, you might well be nervous in the event she challenged your ideas. KT

Short Shots

Bike Accidents Shifted From Kids to Adults

When you visit the Centers for Disease Control and Prevention (CDC) website and are interested in exercise, you typically hope to find information that elevates the importance of physical activity in our daily routine. However, their Morbidity and Mortality Weekly Report often cites data on some of the dangerous aspects of physical activity participation. Such is the case in a report by Vargo and colleagues that shows that the number of fatal bike accidents has shifted from children to adults. They reviewed data from the U.S. Department of Transportation from 1975 to 2012. The data analyzed included accidents that involved motor vehicles on public roads. While they found that fewer cyclists had died during this period, they reported that children's deaths had declined while adults' deaths increased. The authors offer a host of reasons for the data, including the possibility that children are not using bikes as much, and adults have increased their use, such as for transportation to work. They put out a call for increased bicycle safety through improved bicycle lanes and education. Sanford and colleagues from UCSF Medical School published a report in *Journal of American Medical Association* in September 2015 using a different database that examined hospital admissions from 1998 to 2013 and found that bicycle injuries more than doubled from 1998 to 2013. Similar to the mortality data just mentioned, injuries and hospital admissions decreased in the under-45 population but increased in the over-45 age group.

If you are thinking of increasing your bike usage or riding to work, be wary! KT

-PMc

Yoga Helps Teen Overcome Anorexia

At the age of 13, Maris Degener was admitted to the hospital for three weeks because of anorexia. She told her friends she had a heart issue. She had been a competitive swimmer, but after her hospitalization, her doctor told her not to exercise. Those with anorexia nervosa often exercise to extremes in order to rid the body of calories. After a few weeks her doctor suggested a gentler type of activity, perhaps yoga. She attended a free class and was hooked. She shared her struggles with her yoga teacher by writing her a letter, and her yoga teacher responded with a story about her own struggles and how yoga had helped her find her way. While the physical health benefits of yoga (flexibility, muscular strength, bone strength) have been well recognized, yoga can also have a host of psychological benefits. Happiness, focus, peace of mind, and encouragement of self-care are some of these benefits. While other activities might also address these outcomes, yoga does so in a gentle way. Maris was encouraged by her teacher to enroll in a 200-hour certification class so she could teach yoga. As a recognized perfectionist, Maris came to learn "that there is no right or wrong—you find what fits you."

Each week, CNN profiles people who have faced a dramatic turning point in their life. Do you have a story to share? Go to CNN iReport to share it. KT

-PMc

www.cnn.com/2015/09/03/health/turning-points-anorexia-yoga/index.html

http://www.cnn.com/specials/opinions/cnnireport

Diversity Within Kinesiology is a Priority for AKA

By Mary Rudisill, AKA President

Mary Rudisill

An Inside Higher Education survey conducted in 2016 revealed that college and university presidents (84% of the 727 respondents) overwhelmingly described race relations on their campus as excellent or good (Lederman & Jaschik, 2016). Interestingly, the survey reported that presidents were aware of the frustrations of minority students on other presidents' campuses but did not feel that the same problems were associated with their own campus. Only 24 percent of the presidents described the state of race relations at colleges nationwide as good, and no one characterized them as excellent. These percentages decreased from 42 percent good and 1 percent excellent when the survey was conducted in 2015. When presidents were asked about how well their own university was serving minority students, 28 percent strongly agreed and 46 percent agreed that their institutions are doing a good job, while only 4 percent disagreed and only 1 percent strongly disagreed.

Critics have accused presidents in higher education of being in denial on the issue and not being aware of the realities on their own campuses, especially after the fall semester in 2015 involving widespread and intense protests by minority students on campuses nationwide. Shaun Harper, founder and executive director of the Center for the Study of Race and Equity in Education at the University of Pennsylvania, responded to the presidents' survey results, stating that he was disappointed but not surprised by the findings that presidents in higher education have a disconnection with the actualities on their own campuses. He warned, "Diversity by itself doesn't create inclusivity. Colleges need to work at that, whether or not they have protests. We'll ask white students which groups of students are likely to feel like they most belong here, and they get confused and say, 'Everyone feels like they belong here.' Meanwhile, in the very next room, someone on our team is talking to black women who are literally crying while talking about how difficult it is to be there."

As leaders of our discipline in kinesiology, let's ensure that we are fully aware of diversity and inclusion in our own programs and not be naive to the realities on our own campuses as many presidents appear to be. The American Kinesiology Association is committed to improving diversity and inclusion for underrepresented groups in our field and among on leadership. In our strategic goals, AKA has outlined strategies for meeting this goal in kinesiology and improving diversity and inclusion.

As stated in the recent AKA white paper (located on the AKA website) prepared by Dr. Jared Russell and approved by the AKA Diversity Committee, "It would behoove leadership in the academic field of kinesiology and related disciplines to carefully examine the means by which they are facilitating and supporting a climate of appreciation for diversity among their respective faculty, staff, and students. Additionally, professional organizations, such as the American Kinesiology Association, are tasked with taking the necessary and appropriate steps to educate, support, and celebrate the development of effective strategies, initiatives, and programs that enhance diversity and inclusion within the academic units

of respective members." Russell reports, "Since its inception, the Diversity Committee has worked diligently to develop an AKA action plan, sustainability plan, and this current white paper. Additionally, the Diversity Committee has spearheaded the continuous efforts of AKA to provide its membership with resources and information including best practices for the recruitment and retention of faculty and students from diverse backgrounds, announcements of employment opportunities, and contact information for professionals in the kinesiology field with expertise in diversity, equity, and inclusiveness. Further, AKA has published commentaries addressing issues of diversity in media outlets such as the AKA webinar series, a special-themed issue of Kinesiology Review, multiple Do the Right Thing columns found in Kinesiology Review as well as Dr. Wojteck Chodzko-Zajko AKA President's Column (winter 2013) titled Lessons in Diversity from the AKA Leadership Workshop (winter 2013)."

AKA will continue to support these efforts and provide the necessary resources and support to our leadership to advance our field with respect to diversity and inclusion. Visit our website to learn more about how you can promote diversity and inclusion in your own kinesiology program.

Editor's One Cent's Worth

Expanding the Reach of *Kinesiology Today*

By Penny McCullagh, PhD, KT Editor

Penny McCullagh

If you have read my last couple of columns, you know one of my primary goals is to increase the readership of *Kinesiology Today*. While I want to expand its use within kinesiology (with your help!), I also want to expand readership outside of kinesiology. Let the world find out what we do! This month I am pleased to say that at least 60,000 people will see at least one article, and maybe folks will click through to take a peak at the entire issue. Richard Reis, a consulting professor or mechanical engineering at Stanford, is responsible for an online publication *Tomorrow's Professor* with over 100 postings related to faculty development each year. If you are not aware of this resource, I suggest you check it out. www.tomprof.stanford.edu. Articles are posted twice weekly under five categories. To date, more than 1,400 articles have been posted:

- Tomorrow's Academy
- Tomorrow's Graduate Students and Postdocs
- Tomorrow's Academic Careers
- Tomorrow's Teaching and Learning
- Tomorrow's Research

Rick leads with this message: "The posting below discusses some important perspectives regarding intra- and interdisciplinary research, teaching and service. It is from *Kinesiology Today (KT)* and its message has implications across many areas in academe. The article is by Penny McCullagh, editor of *KT* and is from the Winter 2016, Volume 9, No. 1 issue, pp 13-17. The magazine is a product of the American Kinesiology Association."

I made a call at the end of that article about highlighting other departments that are being creative in terms of cross-pollinating teaching, research, and service. It's not too late—I would like to feature other examples in future issues. Contact me at kintodayaka@gmail.com

National Physical Activity Plans Unveiled

By Wojtek Chodzko-Zajko, AKA Representative

Wojtek Chodzko-Zajko represented the American Kinesiology Association at the unveiling of the revised version of the National Physical Activity Plan on Wednesday April 20 at the National Press Club in Washington DC. Building upon the initial plan that the NPAP Alliance released in 2010 as a roadmap for actions supporting and encouraging physical activity among all Americans, the revised plan adds two new societal sectors – faith-based settings and sport. In presenting the 2016 plan, Russell Pate, Ph.D., chairman of the nonprofit NPAP Alliance, said "the plan is a living document that will be updated periodically to reflect specific evidence-informed approaches designed to promote physical activity through actions taken in each of nine societal sectors. Strategies are broad approaches to be achieved through implementation of specific tactics that our experts highly recommend,"

The nine societal sectors (* new in the updated plan) include:

- Business and Industry
- Community Recreation, Fitness and Parks
- Education
- Faith-based Settings *
- Health Care
- Mass Media
- Public Health
- Sport *
- Transportation, Land Use and Community Design

Eduardo Sanchez, chief medical officer for prevention, American Heart Association, spoke about the efforts of the Alliance to reflect diversity in the 2016 plan update. "I am proud that the Alliance included a Diversity Committee that worked to insure that the plan addresses the needs of persons of all religious, cultural, ideological, sexual orientation, and gender identity groups to become more physically active."

Tennessee's Commissioner of Health John Dreyzehner stated that "states look to the National Physical Activity Plan and the CDC for guidance in promoting physical activity, a priority that we in Tennessee view as a major focus of our future public health goals." According to the plan, "no single, central organization is responsible for implementing the plan or providing the funding that will be needed. Instead, it will be the American people – working as individuals or through their organizations or government entities – who put the plan's strategies and tactics to work in ways that benefit everyone."

Shellie Pfohl, Executive Director of the President's Council on Fitness, Sports and Nutrition, indicated "the ball is being advanced forward every day in promoting healthier lifestyles" and the Council is working with all interested parties to maintain that positive momentum.

Jack Groppel, Cofounder of the Johnson & Johnson Human Performance Institute, shared private sector support for the National Plan through the CEO Pledge for Physical Activity and announced a new Congressional Commitment that was created by the Global Alliance for Health & Performance.

Joan Benoit Samuelson, an American marathon runner who won a gold medal at the 1984 Summer Olympics in Los Angeles, the year that the women's marathon

was introduced, was on hand to challenge more Americans to get active and to reap the lifelong benefits.

Reflecting the multi- and cross-generational thrust of the National Plan, Paul Roetert of SHAPE America welcomed Anthony Olumba, a health and physical education teacher and students from Whittier Education Campus, a public school in Washington, D.C., who led adults in easy exercises to get people moving and demonstrate the benefits of physical activity.

The full NPAP report is available at www.physicalactivityplan.org

The American Kinesiology Association is pleased to be a full partner in the National Physical Activity Alliance along with

The current Board of Director of the Alliance includes;

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UNIVERSITY OF SOUTH CAROLINA

David Bassett
NATIONAL ACADEMY OF KINESIOLOGY

Kim Beals
ACADEMY OF NUTRITION AND DIETETICS

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BELL INSTITUTE

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Sally Yagan
NATIONAL ACADEMY OF SPORTS MEDICINE

Executive Director's Report

AKA Brings Exceptional Value for Kinesiology-Related Units

Amelia Lee, AKA Executive Director

Amelia Lee

Membership in the AKA brings exceptional value for kinesiology-related units, and many are taking advantage of the extensive benefits offered. The leadership workshop offered each year has become a unique platform to network and collaborate with colleagues from other universities on issues vital to our field. Plans are under way for the 2017 workshop, and participants will walk away with tips for developing positive relationships with campus and community organizations and programs. This includes advantages and challenges of partnerships and relationships with athletics, rec sports, and other academic units on campus, community partners, and professional organizations. Phil Martin and Mary Rudisill are serving as cochairs of the Planning Committee with Tom Templin, Terry Rizzo, Rafael Bahamonde, and Karen McConnell as members.

The American Kinesiology Association, with Wojtek Chodzko-Zajko as our board of directors member, is enthusiastically participating as a member of the National Physical Activity Plan Alliance (NPAPA). During this past year the national plan has been reviewed, updated, refined, and expanded. The new plan was released on April 20, 2016, in Washington D.C. at the National Press Club, and Wojtek attended the event. Under Wojtek's leadership the AKA has been active in helping to advance the physical activity agenda in the nation.

All the important AKA work is completed by our Standing Committees; these groups have been very energetic this year identifying action goals for the strategic plan and ensuring their assignments are accomplished or at least under way.

The Awards Committee, chaired by Melinda Solmon honored 88 students for outstanding achievements in kinesiology and in addition selected four students as winners of Competitive Awards for a National Undergraduate Scholar Award, a National Master's Scholarship Award, a National Doctoral Scholar Award, and a National Graduate Student Writing Award.

2017 Leadership Workshop
Building and Sustaining Relationships with Campus and Community Colleagues, Programs and Organizations
January 26-29
Dallas, Texas
Marriott Solana

Other Contributions of AKA to the National Physical Activity Plan Alliance

1. Worked with other organizational partners to encourage the Federal Government to increase funding to support evidence-based physical activity programing and strategies.
2. Planned for the next iteration of the Physical Activity Guidelines
3. Assisted with the Surgeons General's Call to Action on Walking

The Communication Committee, chaired by Alan Smith has updated the AKA website, is coordinating MERLOT, the repository linking to web sites for instructional materials for kinesiology, and has organized three webinars for 2016.

The Diversity Committee, chaired by Doris Corbett, has been updating the website and developing action goals for diversity within AKA.

The Future Directions Committee, chaired by Sandra Shultz is busy discussing potential workshop topics for 2018.

The Membership Committee, co-chaired by Karen Francis and Melanie Hart is always working to promote the benefits of AKA membership and recruit new members and they have been quite successful in this effort. Our current membership is 150, up from 143 a year ago.

The Publications Committee, chaired by Pam Haibach, has recommend topics and collaborative projects for KT that aligns with AKA's mission and is serving as content reviewers for the special issue of Kinesiology Review. Their major goal is to help gather information to judge the efficacy and effectiveness of all AKA publications

2016 National Scholar Awards

Undergraduate National Scholar
Joel Perez
Department of Health and Kinesiology
Texas A&M Kingsville

Honorable Mention
Dylan Bassett, Kansas State University
Jessica Carrigan, University of Maryland
Nicole Sauls, California State University, San Bernardino

Masters National Scholar
Kelly Simonton
Louisiana State University

Honorable Mention
Ronald J. Goubeaux, Texas A&M University, Kingsville
Shaina Riciputi, Purdue University

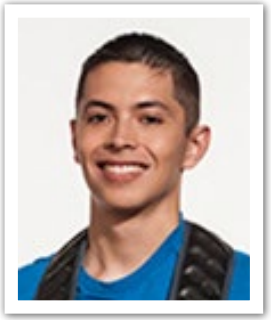
Doctoral National Scholar
E. Andrew Pitchford
University of Michigan

Honorable Mention
Jeremy Foreman, Louisiana State University
Catherine Gammon, Michigan State University
Alicia Johnson, University of Tennessee

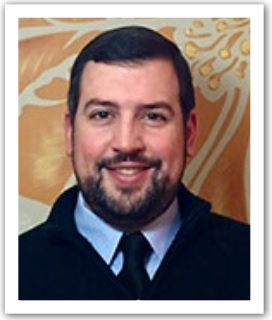
National Writing Award
Chris Hearon Jr.
Colorado State University

Honorable Mention
Rian Landers-Ramos, University of Maryland
Jeffrey Taylor, University of North Carolina, Greensboro

All students recognized as AKA scholars can be viewed on the AKA website. (link to www.americankinesiology.org/scholar-awards)


Joel Perez


Kelly Simonton


Andrew Pitchford


Chris Hearon Jr.

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