

UAB ELITE SPORTS MEDICINE INITIATIVE

THE CHALLENGE:

PREVALENT CHILDHOOD OBESITY AMID DECREASING SPORTS ACTIVITY RATES

Alabama is ranked 6th in the prevalence of overweight and obese children between the ages of 10 and 17 (*The State of Obesity: Better Policies for a Healthier America*, 2017). At a time when there should be a convergence of efforts to *increase* childhood activity, there is a steady *decline* in the percentage of school-aged children who participate in active sports, with a 4% drop between 2011 and 2016. Moreover, children from low-income households (<\$25,000) are disproportionately affected with nearly three times as many of these kids choosing to participate in no sport compared to children from high-income households (>\$100,000) (Aspen Institute, 2017). According to Global Obesity Prevention Center (GOPC), Johns Hopkins University, the impact of increasing the proportion of youth who achieve a healthy activity level to just 50% is estimated to be **4 million years of life and \$20 billion saved**.

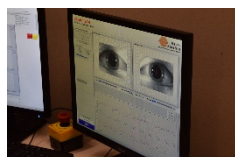
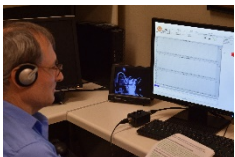
THE REQUIREMENTS

Increasing the health of the US through sports safety and performance requires excellence in the following areas:

- Global access to elite clinical care
- Deliberately collaborative, multi-disciplinary research
- Continuum of education from community to medical and scientific training

COLLABORATIVE SOLUTIONS LEVERAGED BY UAB

UAB is an economic leader with **\$7.15 billion impacting the state of Alabama annually**. State and local revenue attributed to the presence of UAB totaled \$268.6 million in FY 2016 (Tripp Umbach, 2017). UAB's economic impact has exponential growth potential if leveraged with athletics, community, and state. For 16 straight years, Birmingham has been the number one local market for college football games aired on ESPN (Deitsch R., January 2018). In 2016, UAB Athletics generated a \$35.7 million economic impact for the state of Alabama and created a 196% growth in ticket sales the following year (132,000 in 2016 vs. 259,000 2017).

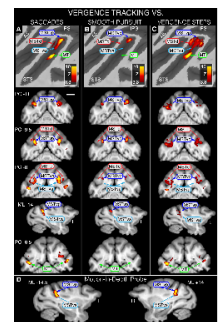


Following completion of the \$25 million state-of-the-art football facilities at UAB and with momentum gaining toward the \$174 million sports stadium in the city of Birmingham, stakeholders from town to tower pitched a **\$100 million sports medicine initiative** to Speaker

of the House McCutcheon in April 2017. The center proposed to advance the science of performance, health and safety of the over 60 million athletes in this country. The scope would include advanced concussion, vision, and nutrition management as well as orthopedic, cardiac, and psychological services led by UAB Medicine, Health Professions, and Athletics.

Meanwhile, a group of optometry and vision scientists and clinicians, engineers, and neurologists from UAB and Auburn were working together to pitch a \$7 million research

proposal to the NSF. The uniquely qualified group proposed to use the eye as a window to the brain in concussion. Although not funded, the science was praised and the group was encouraged to seek funding through other avenues such as the NIH. The Alabama Department of Commerce granted \$20,000 in seed money in 2016 to allow the group to continue to foster momentum in collaborative science, medicine, and engineering. In 2017, UAB and Auburn clinician scientists studied women's soccer and football student-athletes so that a cohort of players received vision, vestibular, and DTI MRI testing pre-season and post-impact exposure.



THE DELIVERABLES:
UAB SPORTS MEDICINE INSTITUTE
FOR ELITE SPORTS SCIENCE-PERFORMANCE-SAFETY

For every \$1 in state funding received by the institution, UAB generates \$25 in economic impact that is returned back to the state (Tripp Umbach, 2017). Leveraging 80% in state funds for a \$100 million deliberately collaborative, statewide, multi-institutional project led by UAB would have the potential for a **\$2 billion economic impact**.



- 1) **Global access to elite, intentionally integrated Clinical Care under one roof** (see p. 3)
- o Super Teams in concussion, vision, nutrition and hydration, behavioral health, orthopedic, and cardiac specialties led by *UAB Health Professions*, *UAB Athletics*, and *UAB Medicine* in combination with J Andrews, MD;
 - o *BlazerVision*, uniting comprehensive and acute vision care, concussion expertise, and athletics to maximize visual function on and off the field and provide a competitive edge to student-athletes
 - o Innovative strength, conditioning, and exercise rehabilitation led by *UAB Center for Exercise Medicine*
 - o Partnerships with *Children’s of Alabama*, ranked among the best pediatric medical centers in the nation.
 - o National conferencing and clinical medical education areas
 - o Considering the new football stadium, state-of-the-art Regions Field, and burgeoning upgrades to downtown areas, Birmingham has the potential to become a destination city for championship and tournament play.

2) **Deliberately collaborative, multi-disciplinary Research: current projects with leverage potential**

Title	Department	Collaborators/Funding source
<i>Vestibular and Oculomotor Research Laboratory: Mild Traumatic Brain Injury Protocol (IRB-150213004)</i>	SHP/PT	SO, COA
<i>Passive Eye Response as a Surrogate for Brain Response to Head Acceleration</i>	SO, Radiology	NIH/NINDS (\$200,000 in funding)
<i>Sideline Testing during Impact Evaluation and Return to Play 2017 (IRB-300000315)</i>	SO, SHP/PT	Engineering, Radiology, AD
<i>Development and Application of Noninvasive Physical Sensors around the Eye for Quantifying Ocular Biomechanical Changes due to Injurious Blast Shockwave</i>	SO, Radiology	DoD (\$1M in funding)
<i>MR Imaging and Video Kinematic Study in Acute Concussion: A Prospective Study (IRB X170519008)</i>	Radiology Engineering	SO
<i>Convergence Insufficiency Treatment Trial in Concussion (NIH UG1 proposal, 2017)</i>	SO, Ophth, SHP/PT,	Children’s of Orange County, Philadelphia, Alabama; Akron Children’s and Harvard University
<i>Central Activation of the Near Triad in Athletes with Low Pupillometry Scores</i>	SO	AU/Council on Visual Development
<i>The Eye as a Proxy to the Brain in Concussion</i>	SO, Radiology Engineering	AU, Purdue/Alabama Dept. of Commerce
<i>EEG Investigation of Cortical Signals Produced by Vestibular Stimulation (under IRB review);</i>	SO, SHP/PT	Current MD/PhD student, Graham Cochrane with C. Busetini and J. Christy
<i>Routine in Eye Care in College Athletes: A prospective study (IRB-300000913)</i>	SO	

3) **Continuum of Education from community to medical and scientific training**

- o Mentoring of students, residents, and fellows at UAB and other state institutions (see above)
- o Voice of advocacy, ethics and policy in sports health and safety
- o Revenue stream for outreach and re-investment in underserved communities

THE MILESTONES

- July 2018 Submit manuscripts on above research in data analysis stage (3 to 5)
- August 2018 Converge with other Grand Challenge proposals (at least 2, preferably 3 or more)
- Fall 2018 Meet with key collaborators to determine leverage potential for state funding (see below)
- Winter 2018 Create additional collaborative research teams that can be leveraged for future federal funding
- Spring 2019 Submit at least one research proposal to an outside funding source for research (e.g. NIH or DoD) exceeding \$500,000;
- Spring 2019 Ground breaking: \$174 million stadium
- 2020 In addition to concussion legislation *AL 2011-541 HB 108* (2011) and Alabama House Bill 9, first of its kind, create legislation that would require all schools to have return-to-learn protocols
- 2021 Groundbreaking: \$100 million statewide Sports Medicine Institute led by UAB

CURRENT AND POTENTIAL KEY COLLABORATORS

Grand Challenge 2018: Sports Medicine Initiative Leads

<i>UAB Peds Optometry/BlazerVision</i>	Katherine K. Weise, OD, MBA; BlazerVision Co-Director (Principal Contact) Director, Pediatric Optometry Services; 1716 University Blvd; (205) 567-2922 kweise@uab.edu
<i>UAB Neuro Optometry/Statistics</i>	Mark W. Swanson, OD, MSPH
<i>UAB Lead Team Physician</i>	M. Heath Hale, MD, MPH
<i>UAB Neurology</i>	J. Thomas Houston, MD
<i>UAB Radiology</i>	Mark Bolding, PhD
<i>UAB Athletic Trainer representative</i>	Dan Springer, MAEd, ATC, LAT; UAB Football Head Athletic Trainer
<i>UAB Vestibular Research</i>	Jennifer B. Christy, PT, PhD; UAB VORClinic lead; UAB Health Professions
<i>UAB Mentoring Representative</i>	Graham Cochrane, UAB MD/PhD student
<i>Nueropsych/Community Representative</i>	Joe Ackerson, PhD; Chair, Alabama Statewide Sports Concussion Taskforce
<i>UAB Coaching Staff Representative</i>	Bill Clark, UAB Head Football Coach

Other Grand Challenge 2018 Proposals with Convergence Potential

Impact attenuation in sports (D. Sicking, PhD)
Coach Safely Initiative (J. Crowe, Coach Safely/Chair; K. Sunkavalli, MD, MBA)

Potential Sports Medicine Initiative Executive Committee Representatives (in addition to the SMI Leads listed above)

<i>UAB Orthopedics</i>	Robert Crabtree, MS, Executive Administrator Amit Momaya, MD, UAB Team Physician
<i>Community Orthopedics</i>	James Andrews MD; Founding member, Andrews Sports Medicine
<i>UAB Cardiology</i>	Marc G. Cribbs, MD
<i>Sports Rehab; Speed and Agility</i>	Lyle Henley, UAB Football
<i>UAB Center Directors</i>	Marcas Bamman, PhD; UAB Center for Exercise Medicine Lori McMahon, PhD; Comprehensive Neuroscience Center
<i>Pediatric Care</i>	Reed Estes, MD; Children's of Alabama (COA), UAB Lead Team Physician; Drew Ferguson, MEd, LAT, ATC, CSCS; Director of COA Sports Medicine James Johnston, Jr, MD, UAB Pediatric Neurosurgery, COA Laura Dreer, PhD; Neuropsychology, COA Director of Concussion Research
<i>Student-Athlete Care</i>	Michael Goodlett, MD; Lead Team Physician, AU Jimmy Robinson, MD; Lead Team Physician, UA
<i>Ocular Trauma Care</i>	C. Doug Witherspoon, MD; BlazerVision Co-Director
<i>Collaborative Research</i>	Tom Denney, PhD; AU Radiology Kenny Brock, DVM, MS, PhD; VCOM Assoc Dean, Biomedical Affairs/Research Ann Sereno, PhD; neuroscience and biotechnology, Purdue
<i>UAB Athletic Department</i>	Dan Carlson, Senior Associate Athletics Director for Administration Bryan Koch, MEd, LAT, ATC, Associate AD for Sports Medicine Frank Messina, PhD; UAB School of Business/ Faculty Athletics Representative
<i>Nutrition Science and Research</i>	Jose Fernandez, PhD; Professor, Department of Nutrition Science; Editorial Board for the <i>International Journal of Obesity and for Ethnicity and Disease</i>
<i>Vision Research</i>	Lei Liu, PhD; UAB Optometry and Vision Science Claudio Busetini, PhD; UAB Optometry and Vision Science

Potential Community and State Leaders

Josh Carpenter, PhD	Director of Economic Development for the city of Birmingham
David Carrington	Jefferson County Commissioner; Chair, Finance, Information Technology and Business Development Committee
Mac McCutcheon	Speaker of the House, Alabama House of Representatives
Jim McClendon, OD,	State Senator, Alabama; Chair of the Health and Human Services Committee

Plus, representatives from other Alabama institutions including USA, UAH, and others from Alabama's historically black colleges