Anatomy Academy exposes undergraduate and medical students to all ACGME core competencies through an experiential learning environment

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Anatomy Academy

- Undergraduate, medical, dental, allied health and education students teach anatomy, physiology and nutrition concepts to 5th and 6th grade children.
- Educational intervention to fight childhood obesity through improving health self-awareness and science knowledge.
# Schedule Overview

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<tr>
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<th>9:00-11:00</th>
<th>11:00-12:00</th>
<th>12:00-1:00</th>
<th>12:30-1:00</th>
<th>1:00-3:00</th>
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<tbody>
<tr>
<td>Monday 6/18</td>
<td><strong>7am:</strong> meet at UCLA to commute to Stella</td>
<td><strong>8am:</strong> Training and Set-up</td>
<td><strong>Pre-Test</strong> (mentors)</td>
<td><strong>Lunch:</strong> Bring lunch (everyone)</td>
<td><strong>Active Time:</strong> “fun component” (Christine &amp; Anisha)</td>
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<td><strong>Student Registration</strong> (Jessica)*</td>
<td><strong>Intro, Orientation, Expectations</strong> (Molly)</td>
<td><strong>Goal-Setting</strong> (mentors)</td>
<td><strong>Lungs</strong> (Jessica)</td>
<td><strong>Lungs</strong> (Jessica)</td>
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<td>Tuesday 6/19</td>
<td><strong>Heart</strong> (Molly)</td>
<td><strong>Speaker/Activity:</strong> Activity Fair (Kene)</td>
<td><strong>Lunch:</strong> Bring lunch (everyone)</td>
<td><strong>Active Time:</strong> “fun component” (Kevin &amp; Heajung)</td>
<td><strong>GI</strong> (Kene)</td>
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<td>Wednesday 6/20</td>
<td><strong>Oral Cavity</strong> (Jessica)</td>
<td><strong>Speaker/Activity:</strong> Dental Speakers (Molly)</td>
<td><strong>Lunch:</strong> “Make your own lunch” (Molly, Kene, Jessica)</td>
<td><strong>Active Time:</strong> “fun component” (Alex, Monica &amp; Lisa)</td>
<td><strong>Brain</strong> (Molly)</td>
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<td>Thursday 6/21</td>
<td><strong>Senses</strong> (Kene)</td>
<td><strong>Speaker/Activity:</strong> Neurology Exam led by medical student (Jessica)</td>
<td><strong>Lunch:</strong> Catered from Costco/Subway (Molly, Kene, Jessica)</td>
<td><strong>Active Time:</strong> “fun component” (Molly, Kene &amp; Jessica)</td>
<td><strong>UCLA Field Trip Day:</strong></td>
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<td>T-shirts, Ground Rules (Kene) / Student Athletes Tour (Molly) /</td>
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<td>Q&amp;A, Lunch: Synapse Café (Jessica) /</td>
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<td><strong>Activities:</strong> Lab Session (Jessica), College Orientation (Kene), Physiology Lab (Molly) /</td>
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<td>Post-test (Mentors) /</td>
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<td>Closing (Kene, Molly, Jessica)</td>
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*(overseeing the activity)*
2012 Anatomy Academy: A Logic Model

**Drive**
- Obesity rates
- Suboptimal PE activity in schools
- Need for more ethnic and gender diversity in sciences and medicine
- More opportunity needed to enhance teaching skills in the medical school curriculum

**Resources**
- Molly Diaz, MD/MPH Candidate (Teach for America alum)
- Kene Ojukwu, MD/MPP Candidate
- Jessica Padilla, MPP Candidate
- Dr. Wisco, Professor of Anatomy at David Geffen
- Dr. Brian Cole, expert in Physical Education Public Health research

**Activities**
- Organ-based lectures by medical students and faculty
- Organ-based educational activities
- Nutrition lessons on healthy foods and snacks
- Identification of anatomy on gross specimens, physical and digital models

**Outputs**
- Improvement when comparing pre-/post-test on science concepts
- Portfolio of organ-based assignments
- Completed log of PE activities and science concepts shared with home-life
- Improvement on pre-/post-test on teaching skills and ability to self-assess

**Short-term**
- 5 days of healthy behavior (including meals and exercise)
- Exposure to UCLA campus, UCLA medical students and faculty
- Firm understanding of science concepts and how they connect with exercise

**Long-term**
- Increased interest in science and medicine fields
- Long-term drive and knowledge to seek out and maintain healthy lifestyle
- Established skills on how to teach science concepts at a 5th grade level
Mentors

• Medical and dental students
  – David Geffen School of Medicine at UCLA
  – University of Utah Medical School
• Nursing students
  – Brigham Young University
• Undergraduate students
  – UCLA (Physiological Science)
  – BYU (Physiology and Developmental Biology, Neuroscience, Exercise Science, Nutrition, Education, Biology)
  – Utah Valley University (Biology – required)
• All Mentors receive a 3-hour training on the curriculum, classroom management strategies, teaching strategies, safety
Students

- 5th and 6th grade students
- Stella Middle Charter Academy (Los Angeles, CA)
- Salt Lake Arts Academy (SLC, UT)
- Canyon Rim Academy (West Jordan, UT)
- Harvest Elementary (Saratoga Springs, UT)
- Franklin Elementary (Provo, UT)
- Freedom Academy (Provo, UT)
- Mana Academy Charter School (West Valley, UT) (Fall 2014)
Data

• Mentor and Student Self-Evaluation records:
  – Mentors: Pre- and post- evaluation surveys on the topic of teaching and working with students.
  – Students: Demographics, height/weight, science knowledge, science interest, health self-efficacy

• Reflections
  – Mentors: Journal-style prompted entries
  – Students: Short answer journal entries for each lesson

• Data Analysis
  – Quantitative, STATA; Qualitative, ATLASi
“Learning how to not-learn is an intellectual and social challenge; sometimes you have to work very hard at it. It consists of an active, often ingenious, willful rejection of even the most compassionate and well-designed teaching. It subverts attempts at remediation as much as it rejects learning in the first place.” In his essay titled “I Won’t Learn from You,” Herbert Kohl reminds educators to be cautious of misinterpreting lack of student participation, as the inability to learn. He argues that while the outcome of a student’s inability to learn and a student’s conscious refusal to learn is often similar, the approach to remedy the latter is not as easy as it may seem.

What strategies have you used to manage students who are not as eager to learn the material as you would like them to be? Provide specific examples.
Mentor Reflection Example

• Michael Wesch, a cultural anthropologist from Kansas State University, recently said that our huge knowledge machine (of the Internet) fundamentally changes the way in which we go about education. But the trick of the knowledge machine, he continued, is that “it only works with questions. If you have questions, you have the world’s largest distraction device.” (BYU Forum, 01/22/13)

• Teaching and learning, learning and teaching, is a circle of life, or at least of education. How does Dr. Wesch’s statement influence or impact the way in which you learn? How does it influence or impact the way in which you teach?
Student Reflection Example

• Week 4: Oral Cavity
  – List 10 foods that are in your refrigerator or pantry at home. Mark whether you think each food contains sugar. For each food that you think contains sugar, write down a food that you think contains less sugar and is a healthier option.
Student Reflection Example

• Week 2: Heart
  – Just like any other muscle in your body, your heart needs to be exercised in order for it to be strong and continue to pump blood throughout your body. Risk factors are qualities or habits that a person has that make them more likely to suffer from an injury or disease. Some of the risk factors for heart disease are being overweight, smoking, being physically inactive, and having high blood pressure.
  – Think of a person you know who has one or more of the risk factors for heart disease (underlined above). List the risk factors this person has.
  – For each risk factor that the person has, list one way that they can change their habits so that they don’t have that risk factor anymore. What can they do to be more healthy?
  – Do you have any of these risk factors? If so, what can you do to be more healthy and decrease your risk for heart disease?
Stella Middle Charter Academy

Gender
Race
Reduced or free lunch
ACGME Core Competencies

• In 1999 the Accreditation Council for Graduate Medical Education (ACGME) introduced six Core Competencies for which all residents, regardless of specialty, are expected to be competent.
  – Patient Care
  – Medical Knowledge
  – Practice-based Learning and Improvement
  – Interpersonal and Communication Skills
  – Professionalism
  – Systems-based Practice
Mentor Results (Summer 2012)

• Mentor responses to the Pre and Post Self-Evaluation Survey indicate that at least half of the mentors felt that they improved on all measures of instructor effectiveness after participating in Anatomy Academy.
  – 83.33% improved on content delivery (5/6)
  – 66.67% improved on student engagement (4/6)
  – 50% improved on classroom management (3/6)
  – 50% improved on level of professionalism (3/6)
• 12 Mentors Summer 2012
• 24 Mentors Fall 2012
• Over 160 Mentors in Winter 2013
• Over 235 Mentors in Fall 2013
Student Results (Summer 2012)

• 50% of students improved their perceptions of health and exercise self-efficacy
• 66.7% of the students either improved or maintained the same scores in the science knowledge assessment after participating in anatomy academy
• 13 Students Summer 2012
• 60 Students Fall 2012
• Over 390 Students in Winter 2013
• Over 565 Students in Fall 2013
Conclusions

• Experiential learning environment benefits all participants in the program
• Vertical and horizontal learning and mentoring experiences
• Exposure to all 6 core competencies
• We propose that AA, or similar programs, have an essential role in medical education
Acknowledgements

• Anatomy Academy Mentors
• Monica Salinas Fellowship
• Albert Schweitzer Fellowship
• BYU Mentoring Grants
  – McKay School of Education
  – College of Nursing
• Naomi Schmalz, Anatomy Academy Logistics Coordinator
Acknowledgements

• Partner schools
  – Stella Middle Charter Academy (Los Angeles, CA)
  – Salt Lake Arts Academy (SLC, UT)
  – Canyon Rim Academy (West Jordan, UT)
  – Harvest Elementary (Saratoga Springs, UT)
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Acknowledgements
Patient Care

• Provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.
Medical Knowledge

• Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences, as well as the application of this knowledge to patient care.
Practice-based Learning and Improvement

• Demonstrate the ability to investigate and evaluate care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning. Develop skills and habits to be able to meet the following goals:
  – Identify strengths, deficiencies, and limits in one's knowledge and expertise;
  – Set learning and improvement goals;
  – Identify and perform appropriate learning activities;
  – Systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement;
  – Incorporate formative evaluation feedback into daily practice;
  – Locate, appraise, and assimilate evidence from scientific studies related to patients' health problems;
  – Use information technology to optimize learning; and,
  – Participate in the education of patients, families, students, residents and other health professionals.
Interpersonal and Communication Skills

• Demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals. Interns, Residents, and Fellows are expected to:
  – Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds;
  – Communicate effectively with physicians, other health professionals, and health related agencies;
  – Work effectively as a member or leader of a health care team or other professional group;
  – Act in a consultative role to other physicians and health professionals; and,
  – Maintain comprehensive, timely, and legible medical records, if applicable.
Professionalism

• Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Interns, Residents, and Fellows are expected to demonstrate:
  – Compassion, integrity, and respect for others;
  – Responsiveness to patient needs that supersedes self-interest;
  – Respect for patient privacy and autonomy;
  – Accountability to patients, society and the profession; and,
  – Sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation.
Systems-based Practice

- Demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care. Interns, Residents, and Fellows are expected to:
  - Work effectively in various health care delivery settings and systems relevant to their clinical specialty;
  - Coordinate patient care within the health care system relevant to their clinical specialty;
  - Incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care as appropriate;
  - Advocate for quality patient care and optimal patient care systems;
  - Work in interprofessional teams to enhance patient safety and improve patient care quality; and
  - Participate in identifying system errors and implementing potential systems solutions.