

## Anatomy and Physiology III: Research Project

### Outcomes:

After completion of this Research Paper and Presentation you will be able to:

- identify and obtain a primary research article related to Anatomy and Physiology;
- summarize the scientific article in your own words;
- apply the scientific information in the article you chose to your knowledge in Anatomy and Physiology;
- work collaboratively to choose one article to present to your classmates;
- work collaboratively to develop a presentation about one of your articles and its application to your knowledge in Anatomy and Physiology;
- work collaboratively to develop 1-2 power point slides describing key points of the article you chose; and
- present information in the article in a clear and concise presentation to your classmates.

### Process:

1. Working in groups of 2 or 3, decide on an Anatomy and Physiology topic (examples included).
  - a. Sign up for the topic with your instructor. The names of all group members must be listed under the topic.
  - b. **Due at beginning of your lab time on Week 2.**
2. *Individually* (each group member) find **one** primary research article related to the topic your group chose.
  - a. Examples of primary research articles are posted on Blackboard.
  - b. Your article should be current – no older than 2010.
  - c. Please see the information on the next page for a description of a primary research article.
  - d. Email the instructor, or bring a hard copy to lab.
  - e. Have the instructor check off your article to ensure it is primary research.
  - f. **Due at beginning of your lab time on Week 4.**
3. Together with your group, choose **one** of the articles you will *each* write a paper on, and will ultimately all present together.
  - a. Give a hard copy of the chosen article to the instructor.
  - b. **Due at beginning of your lab time on Week 4.**
4. Write **your own** individual paper summarizing your group's chosen article, **using your own words**.
  - a. The paper should be typed, 2 double spaced pages *maximum*.
  - b. Your paper should be completed by yourself and should be unique. Papers too similar to other group members will not be accepted.
  - c. Email the instructor, or bring a hard copy to lab.
  - d. **Due at beginning of your lab time on Week 6.**

Your individual paper should include:

- a. A summary of primary research **in your own professional words**.
    - i. Include introduction, methods, results, and conclusion sections of your article.
  - b. Integration of the article's research with your knowledge of anatomy and physiology.
    - i. How does it relate to topics discussed in class?
    - ii. How does content from class help you to understand your article?
    - iii. What organ systems are associated with your article?
  - c. Works Cited page
    - i. Include your research article and any additional resources used (textbook, online resources, other articles, etc.)
    - ii. Use APA or MLA format
    - iii. Online resource for APA:  
<https://owl.english.purdue.edu/owl/resource/560/01/>
5. As a group, **write an outline** of the presentation you will give, and **develop one or two** PowerPoint slide(s) you will use to present your research.

**Outline:**

- a. Bullet point format
- b. Should include intro, methods, results, conclusion of article, how article relates to A & P, and who will be presenting which part of the presentation
- c. Email the instructor, or bring a hard copy to lab.
- d. **Due at beginning of your lab time on Week 8.**

**PowerPoint slides:**

- a. If you make two slides, one should include tables/figures from your chosen article, and/or images to help your peers understand background information or procedures of your article.
  - b. Email the slide(s) to your instructor.
  - c. **Due at beginning of your lab time on Week 8.**
6. Together, present the information from the primary research article in lab.
- a. Your presentation should be 5-10 minutes long.
  - b. All group members must be part of the presentation.
  - c. You may use video clips if they are relevant to your presentation and are less than 1 minute long.
  - d. **Due at beginning of your lab time on Week 9.**

**What is a Primary Research Article?** The following was excerpted from the Dartmouth Biomedical Library Website defining the types of science literature and Zelda Ziegler, COCC Chemistry Professor.

- **Primary literature:** contains original data and ideas and are generally the first published record of an investigation. Examples include research articles, research monographs, preprints, patents, dissertations, and conference proceedings. These are usually hard to find on the web using standard search engines.
- **Secondary literature:** contains information about primary sources, usually a compilation or synthesis of various ideas and data. Secondary sources may rearrange or modify data and include such sources as indexes to the primary literature, reference works derived from primary research, and reviews. Examples include encyclopedias (including Wikipedia\*), review articles (these usually have 50-300 references and are very long, many are government reports), handbooks, bibliographies, and abstracts/indexes.
- **Tertiary literature:** These articles discuss science rather than contribute to it. Examples include textbooks, directories, and literature guides, popular science journals and *news reports on science*.
- **General news sources:** Newspapers and magazines that are not specifically devoted to science topics. Good examples are newspapers, wire service (AP, UPI, etc.) bulletins, or news magazines, or web versions of these publications.
- **Opinion Pieces:** Published accounts discussing some individual's or group's unsolicited, unreviewed and not necessarily substantiated opinion on science—which could very well be incorrect or misleading. Examples include personal web pages, letters, magazine articles, or reports or articles that either cite references not considered authoritative (not primary literature), frequently use the phrase “people say” or cite no references by name at all. Beware of authors who are paid agents of one particular viewpoint. Bias towards one viewpoint is a hallmark of a fringe source.

\* Note on Wikipedia. This is an excellent place to learn the rudiments of a topic and to get a feel for some of the controversies surrounding it. However, WIKIPEDIA IS NOT A PRIMARY LITERATURE SOURCE! This is an open source website. The entries can be changed by anyone who is registered, and they can change frequently.

Notes:

- Finding Primary science articles takes some specialized skills.
- Primary articles are generally not available on the Internet for free.
- You are NOT expected to pay to get a primary article!
- Your COCC student status will help you access many articles through the library for free. **Don't hesitate to contact use the resources of the research librarians for assistance.** This might require using Interlibrary Loan which takes some time (so you may want to start early!).

<b>System</b>	<b>Specific topic example</b>
Integumentary	Wound healing advancements Vitamin D and sun exposure New treatments for skin pathologies (ex: skin cancer, psoriasis, rosacea)
Skeletal	Osteoporosis prevention Treating bone diseases (e.g., osteogenesis imperfecta) Bone marrow stem cells treating diseases
Muscular	Hypertrophy vs. hyperplasia Creatine phosphate supplementation & strength training Spastic muscle vs. normal skeletal muscle Effects of botulinum neurotoxins on skeletal muscle
Nervous	Neurophysiology of decision making Stem cell therapy to treat spinal cord injury/TBI Post-traumatic stress influence on brain areas
Endocrine	Endocrine disruptors Effects of hGH on muscle development
Cardiovascular	Fish oil and heart disease Women and heart attacks
Lymph/Immune	Hookworms to treat allergies/autoimmune diseases Vaccine safety Hepatitis C treatment options
Respiratory	Lung cancer screening Extensively drug resistant tuberculosis
Digestive	Celiac disease Microbiome, probiotics Diet and cancer
Urinary	PSA testing Are we over treating blood pressure?
Reproductive/ Early development	Infertility Genomic research