



01/2010

**EXSC 501 – SPORTS MEDICINE PATHOLOGY AND PHARMACOLOGY**  
**MWF 9:00-10:50 AM – WINTER 2010**

**Aaron Wells MEd, LAT, ATC**

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**Office Hours:** TTH 8:30 a.m. – 10:00 a.m. or by appointment

**Course Description**

This course is designed to discuss pathological condition and associated pharmacological interventions for students in a variety of allied health professions. .

**Required Texts**

- Mangus BC, Miller MG. Pharmacology Application in Athletic Training. Philadelphia, PA:FA Davis 2005
- O’Conner DP, Fincher AL. Clinical Pathology for Athletic Trainers. Thorofare, NJ, Slack Inc, 2008.

**Course Objectives**

After completing this course, the student will:

1. Synthesize basic knowledge of human anatomy and physiology to develop knowledge of the causes, pathophysiology, and clinical features of the various conditions affecting the body. Considering you have completed a physiology course you will be required to recall that information,
2. Analyze relationships between inflammation, repair, regeneration, and healing as they relate to pharmacological intervention.
3. Evaluate clinico-pathological signs and symptoms for specific medical conditions that assist the sport medicine/allied health care clinician in correlating findings in determining the course of action for illness and disease.
4. Understand clinical use of various prescription and nonprescription agents associated with the treatment and relief of symptoms from illnesses and injuries.
5. Synthesize patient information for prescription and nonprescription agents associated with the treatment and relief of symptoms from illness and injuries.
6. Understand basic pharmacokinetics and pharmacodynamics principles.
7. Understand advantages and disadvantages of common routes used to administer medications.
8. Describe proper maintenance and documentation of records for the administration of prescription and nonprescription drugs.
9. Utilize reference sources for pharmacological information.
10. Describe basic concepts of organizing and coordinating a drug testing and screening program.
11. Identify sources of current banned-drug lists published by various associations.

## Presentation

Developing and conducting a lecture presentation is done in order to synthesize course concepts and enhance your oral communication skills. Your presentation may be as a group (3 people max), but the individual responsibilities must be outlined. Presentation will be at least 30 minutes in length, thus divide the length of time between each individual accordingly. You may use PowerPoint, transparencies ... or whatever you feel necessary (ask if you need help).

- When preparing your presentation the focus should be on the content you are discussing.
  - You are expected to be well prepared. Know the material.
  - You are expected to treat these professionally.
  - A professional presentation:
    - Does not use multiple different background designs, transitions or sounds or other noises when transitioning through bullets or slides.
  - Each group member will complete an honest evaluation for each other member of the group. Grades will be partially dependant on the evaluation of each group member.
- **Topics must be approved by 1/15.**

## Topic Areas

1. Muscle building supplements used in sports
2. Natural and synthetic ergogenic aids used in sports (may not describe muscle building supplements)
3. Stimulants used in sports
4. Social drugs used in sports
5. A general medical condition or set of conditions
6. Current advancements in general medical diseases

*If you choose 1 you must include the following sections in your and presentation*

- Detailed description of 8 **completely different** muscle building supplements
- How each supplement works physiologically (be detailed)
- How consumed (IV, oral, sublingual,...)
- Pharmacokinetics & pharmacodynamics
- Which athletes in which sports are prone to consume the supplements? Why?
- Reported benefits/effects
- Physical signs and symptoms of someone using the supplements
- Immediate (short term) side effects
- Long term (10 yrs post) side effects
- Pharmaceuticals to minimize, mask, or hide the side effects

*If you choose 2 you must include the following sections in your presentation*

- Detailed description of 8 **completely different** natural (4) and synthetic (4) ergogenic aids.
- How each ergogenic aid works physiologically (be detailed)
- How are each consumed (IV, oral, sublingual,...)
- Pharmacokinetics & pharmacodynamics
- Which athletes in which sports are prone to consume the supplements? Why?
- Reported benefits/effects
- Physical signs and symptoms of someone using the drugs
- Immediate (short term; <10 yrs) side effects
- Long term (>10 yrs) side effects
- Pharmaceuticals to minimize, mask, or hide the side effects

*If you choose 3 you must include the following sections in your presentation*

- Detailed description of 8 **completely different** stimulants used in sport
- How each stimulant works physiologically (be detailed)
- How are each consumed (IV, oral, sublingual,...)
- Pharmacokinetics & pharmacodynamics
- Which athletes in which sports are prone to consume the stimulants? Why?
- Reported benefits/effects
- Physical signs and symptoms of someone using the stimulants
- Immediate (short term) side effects
- Long term (10 yrs post) side effects
- Pharmaceuticals to minimize, mask, or hide the side effects

*If you choose 4 you must include the following sections in your presentation*

- Detailed description of 8 **completely different** social drugs used in athletics
- How each social drug works physiologically (be detailed)
- How are each consumed (IV, oral, sublingual,...)
- Pharmacokinetics & pharmacodynamics
- Which athletes in which sport/s are prone to consume the social drug? Why?
- Reported effects
- Physical signs and symptoms of someone using the drugs
- Immediate (short term) side effects
- Long term (10 yrs post) side effects
- Pharmaceuticals to minimize, mask, or hide the side effects

*If you choose 5 or 6 you must include the following sections in your presentation*

- Detailed description of the condition(s) and how it relates to athletics
- How the condition adversely effects anatomy and physiologically (be detailed)
- How are the condition may be treated: Pharmacokinetics & pharmacodynamics
- Which athletes in which sport/s are prone to the condition? Why?
- Reported research endeavors
- Physical signs and symptoms
- Prognosis: Current Research (#6)

### **Presentation Application**

Using your group project as background, individually write a 1 – 2 page paper which you could give to a parent teacher organization, high school team, college team, or allied health colleagues on your chosen topic. The paper should be written in such a way that it is scholarly sound (include appropriate references as needed), yet easily understood by a lay population. Whereas your presentation will contain a lot of detail, the purpose of this assignment is to be broader so as to get the information out there. Use the comments received in class to fill in gaps from your presentation. The paper must be:

- Double spaced in Times New Roman 12 point font with 1 in margins
- Include page numbers in upper right corner

## **Presentation Comments**

In order to help your classmates understand their given topics better, you will be asked to be present in class and make comments on each of their presentations. These comments will help to improve the presentation application assignment. You will be asked to address the following questions with each presentation:

- What was the take home message of the presentation?
- What 3 things do you now understand better having listened to this presentation?
- What 3 questions do you now have having listened to this presentation?

## **Final Examination**

The final examination will include all material (reading assignments, discussion board case studies, and presentations) covered in the course. It will include multiple choice, true/false, matching, and possibly a couple short answer/essay questions. It will be administered during finals week.

## **Attendance**

Attendance is required at each Monday and Wednesday class session. Both presentation days and challenge the modules days should be worth attendance. Once modules are complete, professional behavior dictates using your knowledge to assist others. Absences can be excused for team travel or other circumstances. Please contact me prior to class if you need to miss. Makeup work is a student responsibility.

## **Honor Code**

It is a violation of the Honor Code for a student to represent someone else's work as his or her own. Also, as a condition of attending BYU, you affirmed that you would help others obey the Honor Code. We view violations of the Honor code with extreme seriousness. It is a department policy that those who cheat on examinations or plagiarize the work of another are given a failing grade for the course.

## **Dress and Grooming**

We will follow BYU Honor Code related to dress and grooming with the understanding that evaluation processes and athletic training technique practice may require athletic attire. Modesty will be maintained at all times.

## **Cell Phone Policy**

Students are not allowed to use cell phones in classes in the Department of Exercise Sciences. Please turn them off as you enter the classroom and keep them stored out of sight in your backpack, purse, or pocket.

## **Grading**

Grading will be achieved through quizzes, tests, and a group project. Quizzes will be unannounced and will typically be 5 points. Tests will be comprised of multiple choice and essay questions.

## **Grade Breakdown**

94 - 100% = A	90 - 93% = A-	87 - 89% = B+	84 - 86% = B	80 - 83% = B-	77 - 79% = C+
74 - 77% = C	70 - 73% = C-	67 - 69% = D+	63 - 66% = D	60 - 62% = D-	Below 60% = E

## Tentative Schedule

Date	Topic	Item Due
01.04	Introduction	
01.06	Athletic Training and Pharmacology	
01.08	Concepts of Pathophysiology	
01.11	Concepts of Pathophysiology	
01.13	The Immune Response	
01.15	The Immune Response	
01.18	<i>No class – Martin Luther King Day</i>	
01.20	Intro to Pharmacology	
01.22	Intro to Pharmacology	
01.25	Anti-Inflammatory Meds	
01.27	Muscle Relaxants	
01.29	Analgesics and Local Anesthetics	
02.01	<b>Examination #1</b>	
02.03	Oncology	
02.05	Cardiovascular Disorders	
02.08	Cardiovascular Disorders	
02.10	Cardiovascular Meds	
02.12	<b>Presentation #1</b>	
02.15	<i>No class</i>	
02.16	<b>Monday instruction – Presentation #2</b>	
02.17	Pulmonary Disorders	
02.19	Pulmonary Disorders	
02.22	Respiratory Meds	
02.24	<b>Presentation #3</b>	
02.26	GI Disorders	
03.01	GI Disorders	
03.03	GI Meds	
03.05	<b>Presentation #4</b>	
03.08	Renal and Urogenital Disorders	
03.10	Renal and Urogenital Disorders	
03.12	<b>Test #2</b>	
03.15	<b>Presentation #5</b>	
03.17	Endocrine Disorders	
03.19	<i>No class</i>	
03.22	Endocrine Disorders	
03.24	<b>Presentation #6</b>	
03.26	Diabetes Meds	
03.29	Neurological Disorders	
03.31	<b>Presentation #7</b>	
04.02	<b>Presentation #8</b>	
04.05	Neurological Disorders	
04.07	<b>Presentation #9</b>	
04.09	Anabolic Aids	
04.12	<b>Presentation #10</b>	
<b>04.20</b>	<b>Final Exam 2:30 – 5: 30</b>	