

Dear Future Exercise Science Student,

Hello, my name is Dr. Philip Prins and I am the Chair of the Exercise Science department at Grove City College. It is a pleasure to be able to speak to you about our growing major and all the opportunities we offer within our department. We are an accredited program and our curriculum is based off the American College of Sports Medicine standards, which provides each of our students with courses in *anatomy, physiology, exercise prescription as well as nutrition, wellness, clinical populations, statistics, and sports performance*.

From a degree standpoint, we provide a Bachelor of Science in Exercise Science with an option of acquiring a concentration in one of the following: Pre-Physical Therapy, Pre-Occupational Therapy, Athletic Training, Personal Training, Coaching, Strength and Conditioning, and Physiological Sciences. Our students also have the opportunity to receive a minor in Nutrition.

All of our students also have the rare opportunity to conduct or be involved in extensive research, both with faculty and their own individual studies. We have an imbedded research sequence in which students design and implement their own research project. This year long sequence allows students to take research from an idea, to proposal, to implementation, and hopefully publication. In addition, students can participate in independent research studies with faculty or volunteer in the exercise science lab as research assistants. All student and faculty research is conducted in our human performance laboratory that includes state of the art equipment. Each of our seniors take a professional certification examination (either the Certified Strength and Conditioning Specialist Certification through the National Strength and Conditioning Association or the Exercise Physiologists Certification through the American College of Sports Medicine) prior to graduation that if obtained distance our graduates from those at other institutions. All of our students are also required to do a professional internship which can be done during the summer or school year depending on the desires and needs of the students. The professional internship experience is invaluable in fine tuning skills and helping each student solidify his or her calling. These opportunities (research, certification, and internship) put Grove City College Exercise Science students ahead of other students who receive their degrees at other institutions. As a supplement to our major, students are able to be involved in the Exercise Science Club which provides service-learning opportunities and organizes the annual exercise science symposium.

The vast majority of our students gain immediate employment upon graduation. In addition, many of our graduates continue their studies at a wide range of top professional and graduate programs all over the country. Currently we have students who are attending some of the top physical therapy and graduate schools as well as some who are working as coaches at the professional and various collegiate levels both in athletics and strength and conditioning. Simply put, our graduates are very well prepared for a number of jobs and top graduate programs.

The Exercise Science Department has articulation agreements with several academic institutions. Articulation agreements are formal understandings, or partnerships, between two colleges or universities. They provide a simplified process for Grove City College students to apply and have a preferential review of their application into a specific graduate program at the college or university. We have articulation agreements for Physical Therapy, Occupation Therapy, Athletic Training, and Physician Assistant studies. Institutions that we have articulation agreement with include: Mount Union University, Baylor University, Chatham University, Bloomsburg University, University of Pittsburgh, Duquesne University, Lake Erie College of Osteopathic Medicine, Campbell University, and Liberty University.

A major point of distinction within our program, when compared to other institutions, is that we are a Christian college with a student-centered learning approach. Students frequently comment very positively on the willingness of personnel “to go the extra mile”. Our Exercise Science Faculty is perceived as being committed to student success, especially with respect to applied learning and student scholarship.

If you have specific questions or would just like to talk about the wonderful opportunities here at Grove City College, feel free to contact me or the admissions office.

Sincerely,

Philip Prins

ALBERT A. HOPEMAN, JR. SCHOOL OF SCIENCE, ENGINEERING AND MATHEMATICS

DEPARTMENT FACULTY

Philip J. Prins, Ph.D.
*Department Chair
Assistant Professor of Exercise Science*

Dana L. Ault, Ph.D.
Assistant Professor of Exercise Science

Jeffrey D. Buxton, D.Sc.
Assistant Professor of Exercise Science

DEPARTMENT DESCRIPTION

The Department of Exercise Science at Grove City College prepares students to excel in a wide variety of graduate and professional programs and for diverse careers in health-related professions. Students earning a Bachelor of Science degree in exercise science complete coursework that prepares them for professional certification and careers in commercial- or community-based health and fitness, clinical exercise physiology, coaching or athletics. Offering a well-rounded curriculum that balances theory and practice, students have the opportunity to receive specialized instruction in exercise science, research methods, nutrition, anatomy and physiology, biomechanics, ethics and personal training.

MAJOR

Exercise Science

The Bachelor of Science degree in exercise science prepares students for health-related professions, physical therapy school, graduate studies, doctoral research and professional training. Students complete approximately 90 credit hours of course requirements in addition to the College core curriculum. Practical experiences are encouraged through internships. Students are required to take a professional certification exam to earn credentials from either the American College of Sports Medicine or the National Strength and Conditioning Association. Exercise science majors may also pursue a concentration in Pre-Physical Therapy, Pre-Occupational Therapy, Athletic Training, Personal Training, Strength and Conditioning and Physiological Sciences.

MINORS

Exercise Science

A minor in exercise science provides students with a foundational understanding of exercise science, including the requirements for professional certification, graduate school requirements and career options for both fitness and clinical fields. Students complete 23 credit hours of course requirements to minor in exercise science, receiving specialized instruction in anatomy and physiology and the acute and chronic effects of exercise on human systems.

Nutrition

A minor in nutrition provides students with foundational courses intended to increase knowledge of nutrition issues. The minor complements degrees related to exercise science, biology, chemistry, psychology, education, and medical or allied health fields. Students complete 15 credit hours in macronutrient and micronutrient basic chemistry, roles in the body, food sources and recommended intakes.

ACCREDITATION

Grove City College's exercise science program is accredited by the Committee on Accreditation of Allied Health Education Programs (CAAHEP). CAAHEP accreditation helps to assure potential students that an institution has met certain standards in terms of administration, resources, faculty and facilities.

UNDERGRADUATE RESEARCH OPPORTUNITIES & AREAS OF INTEREST

Students have the opportunity to conduct meaningful, relevant research alongside experienced and accomplished faculty and can do so in the Exercise Physiology Laboratory, a state-of-the-art multifunctional exercise physiology facility. All exercise science students are required to design, plan and execute a research project. In addition to Research Methods and Research Practicum requirements, students have the opportunity to become involved with research as professionals and subjects through independent studies and by working with professors on their research. Students can join the Campus Wellness Committee, the Exercise Science Club or assist College faculty and staff by providing personal training sessions.

INTERNSHIPS

Health and Fitness

Cool Springs Fitness and Aquatics
Specialty Orthopedics
Wise Physical Therapy & Sports Medicine

Strength and Conditioning

Pittsburgh Riverhounds
Speed Strength Systems
Redline Athletics

Physical Therapy

The Children's Institute
Tri State Physical Therapy
Advantage Rehab

CAREER AND GRADUATION OPPORTUNITIES

In addition to gaining immediate employment in health-related professions, many of our graduates continue their studies at a wide range of professional and graduate programs. Recent graduates have been admitted to Slippery Rock University (DPT program), University of Pittsburgh (DPT program), Mount Union (DPT program), East Carolina University (MS) and many more. The exercise science major can lead to careers in many health fields, including exercise physiology (clinical and nonclinical), cardiopulmonary rehabilitation, sports nutrition, physician, physical/occupational therapy, personal trainer, health and fitness educator, coaching, wellness director, clinical research scientist and sports psychology. Employment settings may include hospitals, outpatient clinics, medically supervised fitness centers, sports complexes, school systems, public health facilities, workplace fitness centers, government agencies, athletic programs, country clubs and resorts and centers for disease control.



CONTACT

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Chair and Assistant Professor of Exercise Science
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100 Campus Drive, Box 3057, Grove City, Pennsylvania 16127

Grove City College Status Sheet

Status Sheets are provided as a convenience for the student and may be helpful for recording completed courses. However, the College Bulletin is the controlling authority on all requirements. Questions should be directed to your academic advisor or the Registrar.

(WI)=Writing Intensive, (SI)=Speaking Intensive, (IL)=Information Literacy courses.

B.S. in Exercise Science Entering in 2020

(REVISED 03-01-2020)

Name: _____

ID# _____

Year of Anticipated Graduation: _____

Date: _____

Advisor: _____

TOTAL HOURS REQUIRED FOR THIS DEGREE-----128 HOURS

General Education + Elective Requirements-----34-37 HOURS

GENERAL EDUCATION REQUIREMENTS-----24 HOURS

HUMANITIES CORE-----15 HOURS

		Cr.	Sem. Taken	Grade
HUMA 102	Civ and the Biblical Revelation (IL)*	3	_____	_____
HUMA 200	Western Civilization	3	_____	_____
HUMA 202	Civilization and Literature	3	_____	_____
HUMA 301	Civilization and the Arts	3	_____	_____
HUMA 303	Christianity and Civilization	3	_____	_____

*The year-long sequence of RELI 211 and 212 may substitute for this course.

WRITING REQUIREMENT-----3 HOURS

WRIT 101	Found. of Academic Discourse (IL)	3	_____	_____
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STUDIES IN SCIENCE, FAITH, & TECHNOLOGY (SSFT)-----2 HOURS

Choose one course from the following:

COMP 205/SSFT 205	Ethics, Faith, and the Conscious Mind			
PHIL 243	Science and the Human: Inquiry, Design, & the Person			
SSFT 210	Science & Religion			
SSFT 212	Science, Faith, Technology, & Origins			
		2	_____	_____

FOUNDATIONS OF THE SOCIAL SCIENCES-----3 HOURS

Choose one course from the following:

ECON 120	Foundations of Economics	PSYC 101	Foundations of Psychology	
HIST 120	Foundations of History	PSYC 200	Cross-Cultural Psychology	
HIST 141	World Geography	SOCI 101	Foundations of Sociology	
HIST 204	Hist/Phil Foundations of Education	SOCI 103	Found. of Cultural Anthr.	
POLS 101	Foundations of Political Science	SOCW 101	Found. of Social Work	
		3	_____	_____

QUANTITATIVE/LOGICAL REASONING-----0 HOURS

College requirements met through major-related coursework.

NATURAL SCIENCES (with labs)-----0 HOURS

College requirements met through major-related coursework.

PHYSICAL EDUCATION-----1 HOURS

PHYE 100	Healthful Living	1	_____	_____
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GENERAL ELECTIVES-----10-13 HOURS

MAJOR-RELATED REQUIREMENTS-----18-19 HOURS

BIOL 101	General Biology I	4	_____	_____
CHEM 111	General Chemistry I	3	_____	_____
CHEM 113	General Chemistry I Lab	1	_____	_____
MATH 111	Pre-Calculus <u>OR</u> MATH 161 Calculus I	3 - 4	_____	_____
PHYS 121	College Physics I	4	_____	_____
PSYC 201	Statistical Methods	3	_____	_____

Minimum CQPA and MQPA required for graduation-----CQPA: 2.00; MQPA: 2.50

MQPA Courses-----EXER

Major Requirements-----91-94 HOURS

EXERCISE SCIENCE CORE REQUIREMENTS-----58 HOURS

		Cr.	Sem. Taken	Grade
EXER 101	Introduction to Exercise Science	2	_____	_____
EXER 203	Exercise and Sport Psychology	3	_____	_____
EXER 230	Introduction to Exercise Program Design	3	_____	_____
EXER 244	Nutrition and Health	3	_____	_____
EXER 253	Anatomy & Physiology I	4	_____	_____
EXER 254	Nutrition in Sports and Exercise	3	_____	_____
EXER 256	Physiology of Exercise	4	_____	_____
EXER 258	Anatomy & Physiology II	4	_____	_____
EXER 304	Exercise Testing	3	_____	_____
EXER 306*	Exercise Leadership	2	_____	_____
EXER 307	Exercise Prescription (SI)	3	_____	_____
EXER 309	Biomechanics	3	_____	_____
EXER 310	Functional Kinesiology	3	_____	_____
EXER 312	Clinical Exercise Physiology	3	_____	_____
EXER 313	Advanced Exercise Physiology	3	_____	_____
EXER 377	Research Methods in Exercise Science (WI)(IL)	3	_____	_____
EXER 404*	Professional Certification and Seminar	1	_____	_____
EXER 407	Research Practicum	3	_____	_____
EXER 480*	Internship	5	_____	_____

EXERCISE SCIENCE ELECTIVES-----15-17 HOURS

Choose 15 hours from the following Exercise Science electives listed below or choose to complete one of the following concentrations:

Athletic Training (16 hrs): EXER 215, 237, 249, 251, 261, & three additional hours from the courses listed below.

Coaching (15 hrs): EXER 201, 205, 251, 305, MNGT 312, & three additional hours from the courses listed below.

Personal Training (16 hrs): EXER 220, 221, 240, 235, 402, & three additional hours from the courses listed below.

Physiological Sciences (15 hrs): EXER 237, 242, 245, 344, & three additional hours from the courses listed below.

Pre-Occupational Therapy (16-17hrs): PSYC 209, 211, SOCI 101, EXER 215, 250, & one of BIOL 102 or PSYC 312.

Pre-Physical Therapy (16 hrs): BIOL 102, CHEM 112 and 114, PHYS 122, EXER 250, & one of PSYC 209 or 211.

Strength & Conditioning (15 hrs): EXER 221, 240, 261, 403, & three additional hours from the courses listed below.

EXER 102	Faith and Fitness	EXER 240	Dietary Supplements
EXER 134	Introduction to Nutrition	EXER 242	Prev/Treatment Chronic Diseases
EXER 201	Ethics in Sports	EXER 245	Exercise Neurobiology
EXER 205	Introduction to Sports Ministry	EXER 250	Introduction to PT and OT
EXER 210	Fitness Swimming	EXER 251	Prevention and Care of Injuries
EXER 215	Medical Terminology	EXER 261	Corrective Exercise Strategies
EXER 220	Wellness Promotion and Programming	EXER 305	Basic Principles of Coaching
EXER 221	Personal Training	EXER 344	Life Cycle Nutrition
EXER 223*	Red Cross Lifeguard Training	EXER 402	Certified Exercise Physiologist
EXER 235	Facility Management	EXER 403	Prin. of Strength and Conditioning
EXER 237	Special Topics in Exercise Science		

* An additional fee is required for EXER 223, 306, 404, and 480.

SAMPLE FOUR-YEAR PLAN for the BACHELOR OF SCIENCE IN EXERCISE SCIENCE

Freshman Year

<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	<u>Credits</u>
EXER 101 Introduction to Exercise Science.....	2	EXER 203 Exercise and Sport Psychology.....	3
Exercise Science Elective.....	3	Exercise Science Elective.....	3
BIOL 101 General Biology I.....	4	MATH 111 Pre-calculus.....	3
CHEM 111 General Chemistry I.....	3	Foundations of Social Science Course.....	3
CHEM 113 General Chemistry I Lab.....	1	WRIT 101 Foundations of Academic Discourse.....	3
HUMA 102 Civ and the Biblical Revelation.....	<u>3</u>	PHYE 100 Healthful Living.....	<u>1</u>
	16		16

Sophomore Year

<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	<u>Credits</u>
EXER 230 Introduction to Exercise Program Design.....	3	EXER 256 Physiology of Exercise.....	4
EXER 244 Nutrition and Health.....	3	EXER 258 Anatomy & Physiology II.....	4
EXER 253 Anatomy & Physiology I.....	4	EXER 306 Exercise Leadership.....	2
HUMA 200 Western Civilization.....	3	Exercise Science Elective.....	3
PSYC 201 Statistical Methods.....	<u>3</u>	HUMA 202 Civilization and Literature.....	<u>3</u>
	16		16

Junior Year

<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	<u>Credits</u>
EXER 307 Exercise Prescription.....	3	EXER 304 Exercise Testing.....	3
EXER 377 Research Methods in Exercise Science.....	3	EXER 310 Functional Kinesiology.....	3
General Elective.....	3	EXER 407 Research Practicum.....	3
PHYS 121 College Physics I.....	4	Exercise Science Elective.....	3
SSFT Course.....	<u>2</u>	HUMA 301 Civilization and the Arts.....	<u>3</u>
	15		15

Summer

EXER 480 Internship.....5 hours

Senior Year

<u>Fall</u>	<u>Credits</u>	<u>Spring</u>	<u>Credits</u>
EXER 254 Nutrition in Sport and Exercise.....	3	EXER 312 Clinical Exercise Physiology.....	3
EXER 309 Biomechanics.....	3	EXER 404 Professional Certification and Seminar.....	1
EXER 313 Advanced Exercise Physiology.....	3	Exercise Science Elective or General Elective.....	3
Exercise Science Elective.....	3	HUMA 303 Christianity and Civilization.....	3
General Elective.....	<u>3</u>	General Elective.....	<u>4</u>
	15		14

A total of at least 128 credits of coursework are required for graduation.

Exercise Science Research Projects

[Pre-season Changes in Performance in Collegiate Women Tennis Players](#) (Published in the Journal of Sport and Human Performance)
Prins, P., McMillan, J., Joyner, B., Scott, M., Roorda, A., & Rossi, S

The Effect of Lower Body Power Training on the Speed, Strength and Agility of Amateur Level Fencers
Caleb Thrasher, Baylie Jones, Khalil Ervin, Bowen Dyson and Faith Gregorchik

Comparing the effects of self-myofascial release and dynamic stretching in collegiate basketball players' flexibility
Ashley Sealander, Jane Kramer, Christian Locher, Mitch Marmelstein

Effect of Kinesio Taping on Force Production during Isometric Contraction of the Biceps Brachii (Presented at the American College of Sports Medicine Mid Atlantic Regional Conference)
Hannah Arisman, Chris Curran, Cayley McClean, Bethany Nelms

The Effects of Hydration Status on Rating of Perceived Exertion
Richie Kocur, Megan Rowley, Fleming Saunders, Bobby Schmidt

Acute effects of an intense anaerobic exercise on cognitive performance in college aged students as measured by the Stroop Test
Matthew Jockers; Brandon Miller; Tiffany Yost

The Effects of a Caffeine Deception on RPE, Affect and Time In a Time To Exhaustion Test
Sarah Trisler, Natalie Sorek, and Mark Barakat

The Effects of Chocolate Milk on Bicep Recovery Post Resistance Training
Kaitlin Stewart, Lauren Cassano, Maddie Zajicek, Johnny Hansen, Ausinette Rodriguez

The Acute Effect on Cognitive Function After Light, Moderate, and High Intensity Aerobic Exercise in College-aged Students
Erica Gmuer, Jocelyn Hinkle, Garret Keibler, and Aaron Putinski

Leg Press Rest Intervals of One, Three, and Five Minutes in Collegiate Basketball Players (Presented at the American College of Sports Medicine Mid Atlantic Regional Conference)
Keegan Reed, Caleb McKusick, Marie Carroll, Ellen Glenn

Effects of Strength-Based Versus Hypertrophy-Based Lower Body Exercise Programs on Vertical Jump and 40 Yard Dash
Robert Rollick, Jake Johnston, Hayden Faust, Jason Glacken

[Energy Drinks Improve Five-Kilometer Running Performance in Recreational Endurance Runners](#) (Published in the Journal of Strength and Conditioning Research)
Philip J. Prins, Fredric L. Goss, Elizabeth F. Nagle, Kim Beals, Robert Robertson, Mita Lovalekar, Gary L. Welton

Effects of caffeine ingestion on sport specific field tests of anaerobic power
Laura Smith, Josh Hodges, Tyler Campbell, Nate Weiland

Using the Functional movement screen to evaluate the effectiveness of different recreational training modalities
Claudia Bennett, Alex Jewell, Joy Weingartner, Adam Shick, Nick Weigle

The effect of music genre on 5-km running performance
Jenna Craft, Isaiah Reeves, Kate Albers, Kara Attleson, Alexis Brooks

The Effect of Two Carbohydrate Supplementation Protocols on 5-km Running Performance
Slater Simek, Lukas Toburen, Dave Hall, Chad Knox

The effects of fasting vs non-fasting in the one mile
Mary Frank, Jessica Rolando, Ethan Turner

The effects of HIT (high intensity training) on mood
Grace Majchrowicz, Nikki Enas, Holly Kennell

The effects of powerlifting on vertical jump in basketball and volleyball players
Luke Brancato, Jeremy Kim, Josh Walter

[Observer Estimation of OMNI Scale RPE during Fire Suppression Using Video-Graphic Analysis](#) (Published in the Journal of Sport and Human Performance)
Philip Prins, Gary Welton, Fredric Goss

[Reliability and Accuracy of a Standardized Shallow Water Running Test to Determine Cardiorespiratory Fitness](#)
Nagle, EF, Sanders, ME, Gibbs, BB, Franklin, BA, Nagle, JA, Prins, PJ, Johnson, CD, and Robertson, RJ.

[Effects of Energy Drink Functional Ingredients on Running Performance](#) (Published in the Journal of Exercise and Nutrition)
Philip J. Prins, Gary L. Welton, Edward J. Ryan, Catherine G. Majchrowicz, Jessica C. Althausen, Julie A. Fijal, Natalie X. Sorek, and Teresa M. Dallatore, Dana L. Ault

[The Effect of Differing Fluid Replacement Strategies on Running Performance](#) (Presented at the American College of Sports Medicine Mid Atlantic Regional Conference)
Jake Gordon, Meghann Healey, Erin Koehler, Marisa Tonkovich, and Stef Wendelschaefer

[The Effects of Various Self Myofascial Release Modalities on Anaerobic Sports Performance and Functional Movement in NCAA Division III Soccer Players](#) (Presented at the American College of Sports Medicine Mid Atlantic Regional Conference)
Jessica Althausen, Teresa Dallatore, Julie Fijal, Kara Heckman, Lydia Keiper

Examining the relationship between dietary behaviors and cardiorespiratory fitness on body composition and metabolic syndrome among NCAA Division III football players
Kristen Broadt, Charity Gibbs, Rachel Kenney, Kelly McCosby, and Joanna Schwab

Effects of Dynamic Stretching and Proprioceptive Neuromuscular Facilitation on Lower Body Performance
Linowski, H., Niehaus H., Nunkovich N., Rogalski J., Zajicek M.

Effects of different exercise modalities, and a comparison of gender, on executive cognition function (Presented at the American College of Sports Medicine Mid Atlantic Regional Conference)
Dana Ault, Ph.D., Philip J. Prins, Ph.D., Kris Homan, Ph.D., Erin Koehler, Rachel Kenney, Ethan Turner, Stefani Wendelschaefer, Nathanael Sprunk, Jessica Rolando

[Effects of an Exogenous Ketone Supplement on Running Performance](#) (Presented at the American College of Sports Medicine Mid Atlantic Regional Conference; Published in the Journal of Human Kinetics)
Philip Prins, Andrew Koutnik, Dominic D'Agostino, Christopher Rogers, Jacob Seibert, Jillian Breckenridge, Daniel Jackson

[The Effect of Caffeine Alone or as Part of a Multi-ingredient Pre-workout Supplement on Muscular Endurance in Recreationally Active College Males](#) (Published in the Journal of Exercise and Nutrition)
Phillip J. Prins, Edward J. Ryan, Nathanael J. Sprunk, Erin M. Green, David M. Jeffries, Jeffrey D. Buxton

The Effect of a three-week 16/8 Time-Restricted Feeding Protocol on Executive Functioning, Body Composition, and Cardiometabolic Health in Apparently Healthy Normal Weight Individuals (Presented at the American College of Sports Medicine Mid Atlantic Regional Conference)
Lauren Hughes, Mary Shannon, Christy Zimmerman

Association between Macronutrient Intake, Cardiometabolic Profile, and Telomere Length among Overweight and Obese Adults
Philip Prins, Ph.D., Dana Ault, Ph.D., Heather Barton, Ph.D., Gary Welton, Ph.D., Daniel Jackson, Nicholas Ninkovich, Kate Albers, Jake Gordon, Christy Zimmerman, Kara Heckman, Joanna Schwab, Lauren Hughes, Meghann Healy, Erin Koehler

[The Effects of a Low Carbohydrate Ketogenic Diet versus a High Carbohydrate Diet on Physical Performance, Exercise Metabolism, Cardiometabolic Health, and Cognitive Function in Male Recreational Endurance Runners](#) (Published Journal of Sport Science and Medicine)

Philip Prins, Ph.D., Timothy Noakes, MBChB, MD, DSc, PhD, FACSM, FFSEM; Dana Ault, Ph.D.; Jeff Buxton, MS, NASM, PES, ACE, CPT, FMS; Gary Welton, Ph.D.; Amy Raabe, MS, RDN, LDN; Ellen Albers; John Gould; Katharine Lonergan; Rachel Martin; Mary Shannon; Joshua McElrone

[Dose Response Effects of an Exogenous Ketone Supplement on Running and Cognitive Performance](#) (published in the journal of Nutrition and Metabolism)

Philip Prins, Andrew Koutnik; Dominic D'Agostino; Christopher Rogers; Jeff Buxton; Dana Ault, Emilia England; Sarah Haley; Samuel Henson

The Effects of a Novel Ground-based Movement Training Program on Functional Movement, Range of Motion, and Muscular Strength and Endurance (published in the Journal of Strength and Conditioning Research)

Jeff Buxton, Mike Miller, Philip Prins, Anthony Moreno, Adam Atwell, Tirzah Talampas, Gretchen Elsey, Joseph Meola, Caleb Bish

The Effects of Fasting on Anaerobic Power Performance in College Football Players

Jackie Abraham, Nicolette Anton, Rachel Martin, Tyler Rose

Comparing the Acute Durational Effects of Static Stretching and Banded Joint Distraction on Ankle Range of Motion

Ellen Albers, Grace Keibler, Kate Lonergan, Jacob Ross

Acute Effects of Maximal Long Duration Yielding Isometric and Dynamic Training on Brain Activity

John Gould, Jackson Miller, Quinn Walker, Tabitha White

Exogenous Ketone Bodies' Metabolic and Cognitive Impact in Acute Hypoxic Conditions

Philip Prins, Andrew Koutnik; Dominic D'Agostino; Christopher Rogers; Jeff Buxton; Dana Ault

Grove City College Internship Affiliate List

Our Exercise Science students had the great opportunity to intern at the following institutions listed below.

Advantage Rehab

Denton, MD 21629

The Children's Institute

Pittsburgh, PA 15127

Community and Recreation Center at Boyce

Mayview Park
Upper St. Clair, PA 15228

Cool Springs Fitness Aquatics

Mercer, PA 16137

Drees Performance Training

Burnsville, MN 55337

Grove City YMCA

Grove City, PA 16127

Health and Wellness Center at Hazelton

Hazelton, PA 18202

Institute of Athletic Development

Hanover, PA 17331

Kamwenge Secondary Vocational School,

Ugandan Water Project
Kamwege, Uganda

Redline Athletics

Colorado Springs, CO 80907

Results Therapy and Fitness Center

Chambersburg, PA 17201

Robert Morris University Strength and Conditioning

Moon Township, PA 15108

Rocky River Recreation Center

Rocky River, OH 44140

Specialty Orthopedics

Hermitage, PA 16148

Speed Strength Systems Inc.

Eastlake, OH 44095

Tri State Physical Therapy

Pittsburgh, PA 15238

True Athletic Performance

Chantilly, VA

X Shady Side

Pittsburgh, PA 15237

**Western PA Sports Medicine and Rehabilitation Clinic
Inc.**

Johnstown, PA 15904

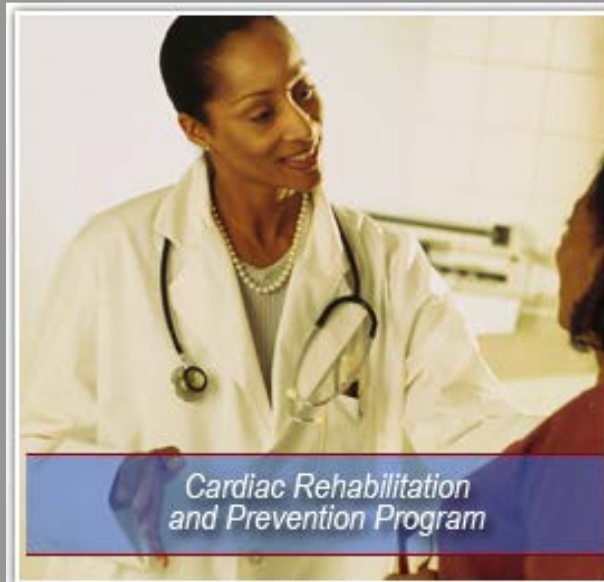
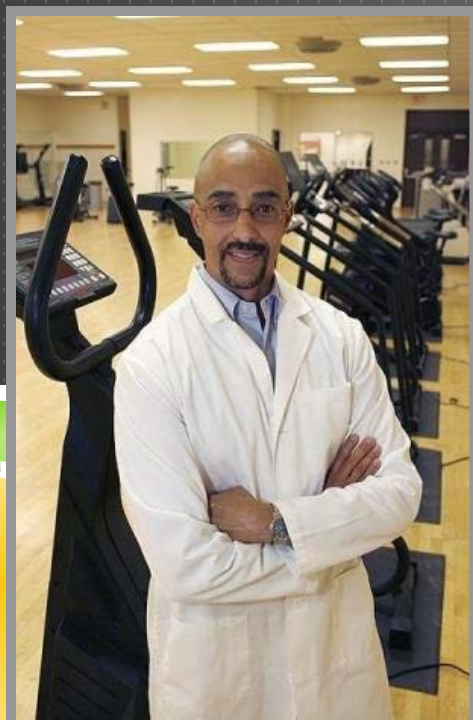
Wise Physical Therapy and Sports Medicine

Grove City, PA 16127



CAREERS IN SPORTS MEDICINE AND EXERCISE SCIENCE

What Can I Do With My Degree?



BACHELORS DEGREE



EMPLOYEE FITNESS DIRECTOR (EFD)

- ▶ Employee fitness programs are common in the workplace, especially in the corporate, commercial, and hospital setting
- ▶ EFD may be trained as a wellness specialist to provide broad-based health promotion and wellness education programs
- ▶ EFD conduct exercise programs and supervise all fitness staff

GROUP EXERCISE INSTRUCTOR (GEI)

- ▶ GEI leads exercise sessions for a group of participants
 - ▶ Circuit Training, Boot Camp
 - ▶ Land or water-based classes
 - ▶ Dance/step/floor aerobics
 - ▶ Senior Fitness/chair aerobics
 - ▶ Spin Cycling
 - ▶ Yoga/Pilates
 - ▶ Youth Fitness/Gymnastics



STRENGTH (SPORT) AND CONDITIONING COACH (SCC)

- ▶ Sport teams at the high school, college, and professional levels employ SCC to develop and supervise specific conditioning programs to increase athletic performance
- ▶ National Strength and Conditioning Association (NSCA) certification

PERSONAL TRAINER (PT)



- ▶ PT typically works 1-on-1 with an individual
- ▶ PT focuses on client's goals
- ▶ Where:
 - ▶ In home
 - ▶ The trainer's place of employment or business
 - ▶ A third-party fitness facility

MASTERS DEGREE



ATHLETIC TRAINER (AT)

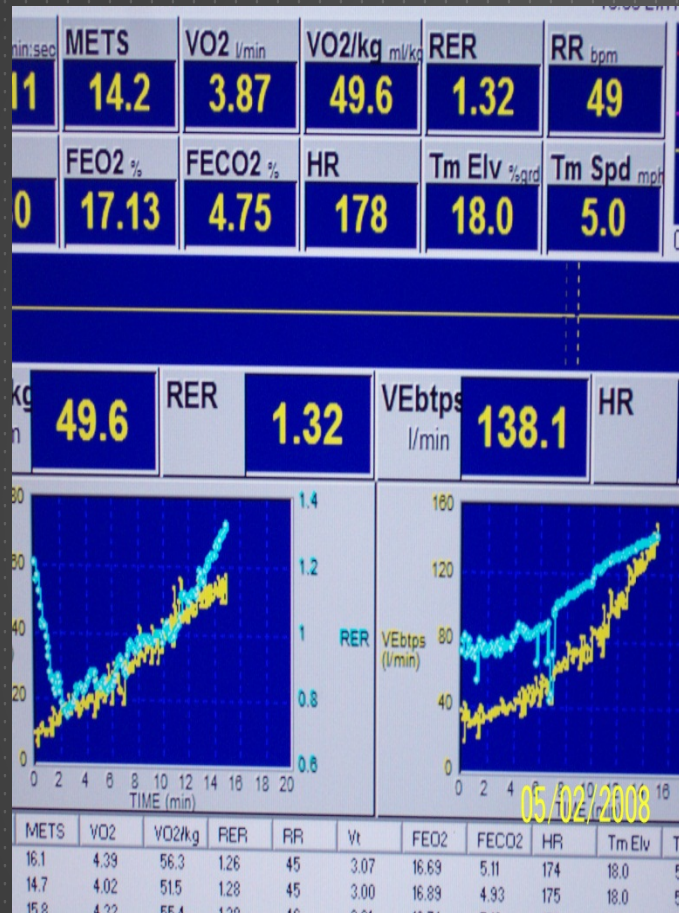
- ▶ AT are health care professionals and work with team physicians, exercise physiologists, physical therapists, and coaches in the care and prevention of illness and injuries related to active people
- ▶ AT work with patients and clients in high school, college or professional sports, sports medicine and rehabilitation clinics, physician offices, hospitals, military, performing arts and commercial locations
- ▶ National Association of Athletic Training (NATA) Certification

REGISTERED DIETICIAN (RD) / SPORTS NUTRITIONIST (SN)

- ▶ RD or SN study dietary patterns in order to maximize performance and prevent disease and improve health
- ▶ Places of employment may include hospitals, clinics, sports complexes, school systems, and public health facilities
- ▶ www.eatright.org



CARDIOPULMONARY REHABILITATION SPECIALIST (CRS)



- ▶ CRS is responsible for providing exercise education regarding disease management, lifestyle modification, and psychosocial support to patients with cardiac and/or pulmonary disease
- ▶ Clinical settings generally include hospitals, outpatient clinics, and medically supervised fitness centers

PHYSICAL (PT) / OCCUPATIONAL THERAPIST (OT)

- ▶ PT helps people recover from injuries or diseases of the muscles, joints, nerves, or bones
- ▶ Areas of specialization in PT including cardiopulmonary rehabilitation, sports medicine, and biomechanics
- ▶ OT works with fine motor skills and dexterity to improve the performance of workers by preventing or rehabilitating workplace injuries
- ▶ Redesigning work environments to fit the worker
- ▶ Skills for independent daily living

PH.D. OR PROFESSIONAL SCHOOL



EXERCISE PHYSIOLOGIST (EP) / RESEARCHER



- ▶ EP studies the acute and chronic physiological responses and adaptations resulting from physical activity
- ▶ Applied Research
- ▶ Basic Research

TEAM PHYSICIAN / MEDICAL DOCTOR

- ▶ Residency Specialty: Primary Care Sports Medicine, Orthopedic Surgery, or Cardiology
- ▶ Medical School
- ▶ MCAT Exam





Careers in Sports Medicine and Exercise Science

Careers in Sports Medicine and Exercise Science

Career decisions are always difficult to make, especially when you need answers to questions you cannot easily put into words. The American College of Sports Medicine hopes this guide will assist you in making these difficult career decisions.

What is Sports Medicine and Exercise Science?

Sports Medicine is the field of medicine concerned with injuries sustained in athletic endeavors, including their prevention, diagnosis, and treatment. The purpose of injury prevention and treatment is to maintain optimal health and maximize peak performance. Traditionally, sports medicine was the sole domain of the team doctor, who worked mostly with college, professional, and Olympic athletes. Today, however, the sports medicine team is comprised of many disciplines including, for example, athletic training, biomechanics, exercise physiology, and nutrition. Sports medicine specialists also work with non-professional athletes and those participating in various recreational activities, for example children involved in youth sports or older adults training for foot races.

Exercise Science is the study of movement and the associated functional responses and adaptations. In this context, an exercise scientist must understand the scientific basis underlying exercise-induced physiological responses. The field of exercise science involves a range of disciplines similar to those in sports medicine; consequently, it is common for exercise science professionals to work in sports medicine facilities. The field of exercise science, however, is typically much broader than sports medicine, ranging from the study of how organ systems work at the cellular level when confronted with disease, to improving the biomechanical efficiency of an employee working on an assembly line.

Strict categorizing of a specific discipline (for example, exercise physiologist, dietitian, biomechanist) to either sports medicine or exercise science is difficult. It simply depends on the emphasis and application of the setting in which one works. What is important to understand is that many different disciplines comprise what is called sports medicine and exercise science. And they work together as a team in order to understand and ultimately improve the health and performance of the whole individual. Without this multidisciplinary approach to the whole person, the end result tends to be less than optimal. A rigorous training program, for example, may have little impact on the health or performance of an individual if nutritional considerations are neglected.

What Can I Do With a Degree in Sports Medicine or Exercise Science?

The list below is not all-inclusive, but does identify and discuss some of the most common fields of study, career and job opportunities, and specialty areas under the umbrellas of sports medicine and exercise science. Typical employment opportunities and minimal educational requirements are included.

Aerobics/Group Exercise Instructor

An aerobics instructor leads exercise sessions for a group of participants. The group may be heterogeneous, including individuals with different fitness levels, medical concerns and ages, or homogeneous, with individuals who have similar characteristics such as arthritis, frail and elderly, or pregnancy. Examples of group exercise instruction include land- or water-based dance/step aerobics, chair aerobics, and cycling. Aerobics instructors can be employed in a variety of settings including commercial fitness centers, employee fitness programs, or hospitals. Minimal requirements are an undergraduate degree and some type of recognized certification, such as that from the American College of Sports Medicine.



Sports Medicine is the field of medicine concerned with injuries sustained in athletic endeavors, including their prevention, diagnosis, and treatment.



Athletic Trainer

Athletic trainers work with team physicians, exercise physiologists, physical therapists and coaches in the care and prevention of illness and injury related to sports and exercise. An undergraduate degree from an accredited program by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) is required to sit for the National Athletic Trainers' Association (NATA) certification examination beginning in the year 2004. In most states licensure is required. One of the requirements for licensure is to successfully pass the NATA certification examination. Athletic trainers typically work with athletes at the high school, college, or professional level. They might also be employed in sports medicine clinics.

Biomechanist

Biomechanics is the study and explanation of the laws of physics as applied to physical activity, exercise and sport. Biomechanics can be used to explain how muscles, bones, and joints are injured under certain conditions and to improve performance using motion analysis techniques. Biomechanists are typically employed in research settings and clinical sites, but future growth appears to be in industrial ergonomic settings. Minimal requirement is a master's degree.

Cardiopulmonary Rehabilitation Specialist

This exercise specialist provides both immediate and long-term guidance for the physical rehabilitation of individuals who have one or more cardiac or pulmonary-related conditions or diseases, such as heart attack, heart surgery, or emphysema. A major component of this physical rehabilitation is to administer and supervise exercise testing and training sessions. Hospitals hire exercise specialists and require at least an undergraduate degree. However, opportunities for employment improve with an advanced degree and some type of recognized certification, such as that by the American College of Sports Medicine.

Dietitian/Sports Nutritionist

Dietetics is the study of nutrient intake and how foods are digested and metabolized in order to provide the necessary energy to fuel muscular activity. Dietitians also study dietary patterns in order to maximize performance and to prevent disease and improve health. To become a registered dietitian, you must complete an undergraduate degree in dietetics, complete a nine-month American Dietetics Association (ADA) approved internship and pass the ADA certification examination. Dietitians can be employed in a variety of settings including hospitals, clinics, school systems, and public health facilities.

Employee Fitness Director

Employee fitness programs are common in the workplace, especially in large companies. Along with conducting

exercise programs, the exercise scientist may also be trained as a wellness specialist to provide broad-based health

promotion and wellness education programs. These may include stress management and nutrition education programs. Traditionally, workplace exercise programs have been for healthy individuals only. However, to reduce health care costs, employee fitness centers are becoming more clinically based in terms of exercise training all employees, including those with cardiac, pulmonary or musculoskeletal problems. At least an undergraduate degree is required. It is also recommended to obtain a recognized certification, such as that by the American College of Sports Medicine.

Exercise Physiologist

An exercise physiologist studies the acute and chronic physiological responses and adaptations resulting from physical activity. They can apply this knowledge to improve or maintain health, fitness or performance. Traditionally, exercise physiologists worked and studied only with athletes to improve performance. Today, however, exercise physiologists also work and study in commercial, clinical, and workplace settings to increase health, fitness, and quality of life of the general population. For example, an exercise physiologist may work as a cardiopulmonary rehabilitation specialist, a personal trainer, or direct an employee fitness program. At least an undergraduate degree is required.

Medical Physician

A medical physician is highly trained in the art and science of the diagnosis and treatment of disease and the maintenance of health. Medical schools require a minimum of four years after a basic college degree. Beyond medical school there are many specialties to choose from in order to be part of a sports medicine or exercise science team. Such specialties might include primary care sports medicine, orthopedic surgery, or cardiology. Each specialty has from three to five years of intern and residency training and perhaps an additional one to two years of fellowship training. Most medical doctors are employed in clinics or hospitals.

Occupational Physiologist

Occupational physiologists work with many different professionals to improve the performance of workers by enhancing their health and occupational abilities, preventing or rehabilitating workplace injuries, and redesigning the work environment to fit the worker. They may also develop and administer pre-employment physical capacity tests to determine if the worker is fit to perform the job. An advanced degree beyond the undergraduate level is typically required, and it is helpful to be certified by the Board of Certification in Professional Ergonomics.



Exercise Science is the study of movement and the associated functional responses and adaptations.



Personal Trainer

A personal trainer typically works one-on-one with an individual and is generally paid by the hour or exercise session. The exercise session can take place at the client's home, the trainer's place of employment or business, or at a third-party fitness facility. In reality, all exercise scientists who work with exercising adults are personal trainers because of the individual exercise prescription that is given to each client based upon their health status, goals, and the like. At least an undergraduate degree and recognized certification, such as that by the American College of Sports Medicine, is recommended.

Physical/Occupational Therapist

A physical therapist helps people recover from injuries or diseases of the muscles, joints, nerves or bones. An occupational therapist works more with fine motor skills and dexterity. Both therapists use various physical modalities and exercise, focusing on movement dysfunction. There are many areas of specialization in physical therapy including cardiopulmonary rehabilitation, sports medicine and biomechanics. Most physical and occupational therapy schools require two to three years after a four-year undergraduate degree. Following formal training one must pass a national examination to become a licensed physical or occupational therapist. Most employment opportunities are in hospitals and clinics.

Researcher

Researchers conduct studies from either a basic or applied scientist's perspective. Basic researchers usually conduct studies with a focus on the cellular and molecular levels, such as how organ systems work, adapts or respond to various factors. Sometimes this is referred to as bench research, especially if animal models are used. Applied researchers usually conduct studies with a focus on more practical questions that appear to be more applicable for immediate use, such as ways to increase athletic performance or how to improve health and reduce disease. Either career requires getting a terminal degree, such as a Ph.D., which involves at least four to five years beyond the undergraduate level. Most researchers are employed in universities and hospitals.

Strength (Sport) and Conditioning Coach

Sports teams at the high school, college and professional level employ strength and conditioning coaches. Their role is to develop and supervise specific conditioning programs to increase athletic performance such as speed, agility, strength, endurance, flexibility and power. Positions usually require a master's degree and certification by the National Strength and Conditioning Association.

Teacher

Teachers can be employed at the elementary through college level. If you desire to teach physical education or

coach at the elementary or secondary level, an undergraduate degree is required, and you must be certified by

the state in which you teach. With a master's degree you may be able to teach at a college or university, especially if coupled with practical experience. However, these opportunities are limited. In higher education, it is customary to hire those with a terminal degree, such as a Ph.D., which is four to five years beyond the undergraduate level. Teachers at the college or university level often conduct research.

As you can tell from this partial list there is a diversity of career and job opportunities, fields of study, and specialty areas in sports medicine and exercise science. What may be of importance to you is that most undergraduate degrees in the sports medicine or exercise science field require a strong background in the basic sciences. This provides a strong foundation to meet the requirements for an advanced degree or for a professional school (for example, to become a physician assistant or physical therapist). Check with schools that interest you to identify the specific requirements for admission to these type of advanced or professional-degree programs.

What Starting Salary Can I Expect?

With an undergraduate degree and no experience, a starting salary of \$18,000 to \$30,000 per year is probably a good guess. However, understand that the starting salary for sports medicine and exercise science professionals is difficult — nearly impossible — to predict because of such factors as experience, geographic location, employment setting and market demand. It can also depend upon licensure and certification. An advanced degree may pay more. The best way to gauge what salary you can expect is to speak with professionals who currently work in your field of interest. Since geography can heavily dictate salary, it is important that you speak with those who work where you are job seeking. Again, it is important to emphasize that many factors, including those mentioned above, can impact this salary range.

Attaining A Career in Sports Medicine or Exercise Science

Now that you know a little more about sports medicine and exercise science, how do you know whether a career in this profession is for you? Answering the questions and following the advice provided below may be helpful.

1. Assess your interests.

Do you enjoy and participate in exercise as it relates to health, fitness or athletics? Are you interested in any of the specialty areas, career opportunities or fields of study mentioned in the previous section such as medicine, teaching, research or leading exercise classes? Have you enjoyed classes in high school or college such as physical

fitness, health and wellness, or nutrition? Do you enjoy reading health and wellness magazines? Do you enjoy helping and working with people? When you read job opportunities and job descriptions in sports medicine or exercise science classifieds, do you get excited about the possibility of working in these environments?

2. Determine your career goals and the education requirements necessary to achieve them.

Where do you see yourself in five years? Are you willing to commit to the necessary education, academic training and professional preparation that is required? Can you afford it financially? Will you enjoy taking courses in anatomy and physiology, chemistry, physics, and math? How about courses such as exercise physiology, nutrition, behavior modification, kinesiology and exercise prescription? Do the colleges and universities that are of interest to you offer the coursework and preparation that will help you to achieve your goals? (You can purchase a copy of the ACSM's *Directory of Undergraduate Programs in Sports Medicine and Exercise Science* or ACSM's *Directory of Graduate Programs in Sports Medicine and Exercise Science* from the American College of Sports Medicine to assist you in finding a program that meets your needs).

3. Volunteer, observe, and ask questions.

Have you talked to people who currently work in your field of interest, including college professors who teach in sports medicine or exercise science degree programs? You can also ask your teachers or guidance counselors to invite sports medicine or exercise science professionals to your school's career fairs. Have you volunteered or observed at least 50 hours in various sports medicine or exercise science settings? If not, ask your teachers, guidance counselors, parents, relatives or friends to arrange for you the opportunity to shadow sports medicine and exercise science professionals.

4. Enroll in an "Introduction to the Profession" survey course.

Most degree programs in sports medicine and exercise science have an "introduction to the profession" survey

course. They are usually open to any student enrolled at the institution and can be taken during the freshman year. The course will provide much more information about the field than what can be given in a brochure such as this one. More than likely, you will be required to volunteer and observe at various sports medicine and exercise science facilities in the area. You will also become knowledgeable about the degree program at that school in terms of coursework, specific degree requirements, minors or tracks of specialization that are offered, and much more. You will also be able to ask a lot of questions and get them all answered by a sports medicine or exercise science professional.

Getting Started

Sports medicine and exercise science are exciting and growing career paths. If you are interested in pursuing a career in these areas, the best advice is to obtain as much information as you can about the profession. Reading this brochure is a start. Only then can you decide which of the many specialties closely match your needs, talents and expectations. Good luck!

For More Information Contact:

American College of Sports Medicine • P.O. Box 1440
Indianapolis, IN 46206-1440 USA • Tel.: (317) 637-9200
Web Site: www.acsm.org



**AMERICAN COLLEGE
of SPORTS MEDICINE®**

Written by the American College of Sports Medicine
Public Information Committee Members and approved by the
American College of Sports Medicine

**AMERICAN COLLEGE
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Mailing Address: P.O. Box 1440 • Indianapolis, IN 46206-1440 USA

Welcome to Grove City College!



Exercise Science Department

FACULTY INTRODUCTIONS



STUDENT INTRODUCTIONS



1. Name?
2. Where are you from?
3. Future objectives?
What are you planning
on doing with your
degree?

Major Distinctions of our Program

- 1. Christian College**
 - 2. CAAHEP Accredited**
 - 3. BS in Exercise Science with the option of 6 concentrations**
 - 4. Research (student and faculty)**
 - 5. Professional Certification Exam**
 - 6. Internship Experience**
 - 7. Portfolio Requirement**
 - 8. Articulation Agreements**
 - 9. Student-centered Learning Approach**
 - 10. High employment rate post graduation**
-



DEPARTMENT OF EXERCISE SCIENCE

ALBERT A. HOPEMAN, JR. SCHOOL OF SCIENCE, ENGINEERING AND MATHEMATICS
DEPARTMENT FACULTY

Philip J. Prins, Ph.D.
Department Chair
Assistant Professor of Exercise Science

Dana L. Ault, Ph.D.
Assistant Professor of Exercise Science

Jeffrey D. Buxton, D.Sc.
Assistant Professor of Exercise Science



DEPARTMENT DESCRIPTION

The Department of Exercise Science at Grove City College prepares students to excel in a wide variety of graduate and professional programs and for diverse careers in health-related professions. Students earning a Bachelor of Science degree in exercise science complete coursework that prepares them for professional certification and careers in commercial- or community-based health and fitness, clinical exercise physiology, coaching or athletics. Offering a well-rounded curriculum that balances theory and practice, students have the opportunity to receive specialized instruction in exercise science, research methods, nutrition, anatomy and physiology, biomechanics, ethics and personal training.

MAJOR

Exercise Science

The Bachelor of Science degree in exercise science prepares students for health-related professions, physical therapy school, graduate studies, doctoral research and professional training. Students complete approximately 90 credit hours of course requirements in addition to the College core curriculum. Practical experiences are encouraged through internships. Students are required to take a professional certification exam to earn credentials from either the American College of Sports Medicine or the National Strength and Conditioning Association. Exercise science majors may also pursue a concentration in Pre-Physical Therapy, Pre-Occupational Therapy, Athletic Training, Personal Training, Strength and Conditioning and Physiological Sciences.

MINORS

Exercise Science

A minor in exercise science provides students with a foundational understanding of exercise science, including the requirements for professional certification, graduate school requirements and career options for both fitness and clinical fields. Students complete 23 credit hours of course requirements to minor in exercise science, receiving specialized instruction in anatomy and physiology and the acute and chronic effects of exercise on human systems.

Nutrition

A minor in nutrition provides students with foundational courses intended to increase knowledge of nutrition issues. The minor complements degrees related to exercise science, biology, chemistry, psychology, education, and medical or allied health fields. Students complete 15 credit hours in macronutrient and micronutrient basic chemistry, roles in the body, food sources and recommended intakes.

ACCREDITATION

Grove City College's exercise science program is accredited by the Committee on Accreditation of Allied Health Education Programs (CAAHEP). CAAHEP accreditation helps to assure potential students that an institution has met certain standards in terms of administration, resources, faculty and facilities.

UNDERGRADUATE RESEARCH OPPORTUNITIES & AREAS OF INTEREST

Students have the opportunity to conduct meaningful, relevant research alongside experienced and accomplished faculty and can do so in the Exercise Physiology Laboratory, a state-of-the-art multifunctional exercise physiology facility. All exercise science students are required to design, plan and execute a research project. In addition to Research Methods and Research Practicum requirements, students have the opportunity to become involved with research as professionals and subjects through independent studies and by working with professors on their research. Students can join the Campus Wellness Committee, the Exercise Science Club or assist College faculty and staff by providing personal training sessions.

INTERNSHIPS

Health and Fitness

Cool Springs Fitness and Aquatics
Specialty Orthopedics
Wise Physical Therapy & Sports Medicine

Strength and Conditioning

Pittsburgh Riverhounds
Speed Strength Systems
Redline Athletics

Physical Therapy

The Children's Institute
Tri State Physical Therapy
Advantage Rehab

CAREER AND GRADUATION OPPORTUNITIES

In addition to gaining immediate employment in health-related professions, many of our graduates continue their studies at a wide range of professional and graduate programs. Recent graduates have been admitted to Slippery Rock University (DPT program), University of Pittsburgh (DPT program), Mount Union (DPT program), East Carolina University (MS) and many more. The exercise science major can lead to careers in many health fields, including exercise physiology (clinical and nonclinical), cardiopulmonary rehabilitation, sports nutrition, physician, physical/occupational therapy, personal trainer, health and fitness educator, coaching, wellness director, clinical research scientist and sports psychology. Employment settings may include hospitals, outpatient clinics, medically supervised fitness centers, sports complexes, school systems, public health facilities, workplace fitness centers, government agencies, athletic programs, country clubs and resorts and centers for disease control.



CONTACT

Philip J. Prins, Ph.D.

Chair and Assistant Professor of Exercise Science

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100 Campus Drive, Box 3057, Grove City, Pennsylvania 16127



Accredited Program

Grove City College's Exercise Science program is accredited by the Committee on Accreditation of Allied Health Education Programs (CAAHEP).

Our Curriculum is based off of the ACSM standards

Courses include: anatomy, physiology, exercise prescription as well as nutrition, wellness, clinical populations, statistics, and sports performance



Bachelor of Science Degree

The Bachelor of Science degree in Exercise Science prepares students for health-related professions, graduate studies, doctoral research and professional training .

Our Exercise Science students also have an option of acquiring a concentration in pre-physical therapy, pre-occupational therapy, athletic training, personal training, coaching, strength and conditioning, or physiological sciences.

Grove City College Status Sheet

Status Sheets are provided as a convenience for the student and may be helpful for recording completed courses. However, the College Bulletin is the controlling authority on all requirements. Questions should be directed to your academic advisor or the Registrar.

(WI)=Writing Intensive, (SI)=Speaking Intensive, (IL)=Information Literacy courses.

Name: _____

ID# _____

Year of Anticipated Graduation: _____

TOTAL HOURS REQUIRED FOR THIS DEGREE----- 128 HOURS

General Education + Elective Requirements----- 34-37 HOURS

GENERAL EDUCATION REQUIREMENTS----- 24 HOURS

HUMANITIES CORE----- 15 HOURS

		Cr.	Sem. Taken	Grade
HUMA 102	Civ and the Biblical Revelation (IL)*	3	_____	_____
HUMA 200	Western Civilization	3	_____	_____
HUMA 202	Civilization and Literature	3	_____	_____
HUMA 301	Civilization and the Arts	3	_____	_____
HUMA 303	Christianity and Civilization	3	_____	_____

*The year-long sequence of RELI 211 and 212 may substitute for this course.

WRITING REQUIREMENT----- 3 HOURS

WRIT 101 Found. of Academic Discourse (IL) 3 _____

STUDIES IN SCIENCE, FAITH, & TECHNOLOGY (SSFT)----- 2 HOURS

Choose one course from the following:

COMP 205/SSFT 205	Ethics, Faith, and the Conscious Mind
PHIL 243	Science and the Human: Inquiry, Design, & the Person
SSFT 210	Science & Religion
SSFT 212	Science, Faith, Technology, & Origins

_____ 2 _____

FOUNDATIONS OF THE SOCIAL SCIENCES----- 3 HOURS

Choose one course from the following:

ECON 120	Foundations of Economics	PSYC 101	Foundations of Psychology
HIST 120	Foundations of History	PSYC 200	Cross-Cultural Psychology
HIST 141	World Geography	SOCI 101	Foundations of Sociology
HIST 204	Hist/Phil Foundations of Education	SOCI 103	Found. of Cultural Anthr.
POLS 101	Foundations of Political Science	SOCW 101	Found. of Social Work

_____ 3 _____

QUANTITATIVE/LOGICAL REASONING----- 0 HOURS

College requirements met through major-related coursework.

NATURAL SCIENCES (with labs)----- 0 HOURS

College requirements met through major-related coursework.

PHYSICAL EDUCATION----- 1 HOURS

PHYE 100 Healthful Living 1 _____

GENERAL ELECTIVES----- 10-13 HOURS

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

MAJOR-RELATED REQUIREMENTS-----18-19 HOURS

BIOL 101	General Biology I	4	_____	_____
CHEM 111	General Chemistry I	3	_____	_____
CHEM 113	General Chemistry I Lab	1	_____	_____
MATH 111	Pre-Calculus OR MATH 161 Calculus I	3 - 4	_____	_____
PHYS 121	College Physics I	4	_____	_____
PSYC 201	Statistical Methods	3	_____	_____

B.S. in Exercise Science Entering in 2020

(REVISED 03-01-2020)

Date: _____

Advisor: _____

Minimum CQPA and MQPA required for graduation-----CQPA: 2.00; MQPA: 2.50

MQPA Courses-----EXER

Major Requirements-----91-94 HOURS

EXERCISE SCIENCE CORE REQUIREMENTS----- 58 HOURS

		Cr.	Sem. Taken	Grade
EXER 101	Introduction to Exercise Science	2	_____	_____
EXER 203	Exercise and Sport Psychology	3	_____	_____
EXER 230	Introduction to Exercise Program Design	3	_____	_____
EXER 244	Nutrition and Health	3	_____	_____
EXER 253	Anatomy & Physiology I	4	_____	_____
EXER 254	Nutrition in Sports and Exercise	3	_____	_____
EXER 256	Physiology of Exercise	4	_____	_____
EXER 258	Anatomy & Physiology II	4	_____	_____
EXER 304	Exercise Testing	3	_____	_____
EXER 306*	Exercise Leadership	2	_____	_____
EXER 307	Exercise Prescription (SI)	3	_____	_____
EXER 309	Biomechanics	3	_____	_____
EXER 310	Functional Kinesiology	3	_____	_____
EXER 312	Clinical Exercise Physiology	3	_____	_____
EXER 313	Advanced Exercise Physiology	3	_____	_____
EXER 377	Research Methods in Exercise Science (WI)(IL)	3	_____	_____
EXER 404*	Professional Certification and Seminar	1	_____	_____
EXER 407	Research Practicum	3	_____	_____
EXER 480*	Internship	5	_____	_____

EXERCISE SCIENCE ELECTIVES----- 15-17 HOURS

Choose 15 hours from the following Exercise Science electives listed below or choose to complete one of the following concentrations:

Athletic Training (16 hrs): EXER 215, 237, 249, 251, 261, & three additional hours from the courses listed below.

Coaching (15 hrs): EXER 201, 205, 251, 305, MNGT 312, & three additional hours from the courses listed below.

Personal Training (16 hrs): EXER 220, 221, 240, 235, 402, & three additional hours from the courses listed below.

Physiological Sciences (15 hrs): EXER 237, 242, 245, 344, & three additional hours from the courses listed below.

Pre-Occupational Therapy (16-17hrs): PSYC 209, 211, SOCI 101, EXER 215, 250, & one of BIOL 102 or PSYC 312.

Pre-Physical Therapy (16 hrs): BIOL 102, CHEM 112 and 114, PHYS 122, EXER 250, & one of PSYC 209 or 211.

Strength & Conditioning (15 hrs): EXER 221, 240, 261, 403, & three additional hours from the courses listed below.

EXER 102 Faith and Fitness	EXER 240 Dietary Supplements
EXER 134 Introduction to Nutrition	EXER 242 Prev/Treatment Chronic Diseases
EXER 201 Ethics in Sports	EXER 245 Exercise Neurobiology
EXER 205 Introduction to Sports Ministry	EXER 250 Introduction to PT and OT
EXER 210 Fitness: Swimming	EXER 251 Prevention and Care of Injuries
EXER 215 Medical Terminology	EXER 261 Corrective Exercise Strategies
EXER 220 Wellness Promotion and Programming	EXER 305 Basic Principles of Coaching
EXER 221 Personal Training	EXER 344 Life Cycle Nutrition
EXER 223* Red Cross Lifeguard Training	EXER 402 Certified Exercise Physiologist
EXER 235 Facility Management	EXER 403 Pnn. of Strength and Conditioning
EXER 237 Special Topics in Exercise Science	

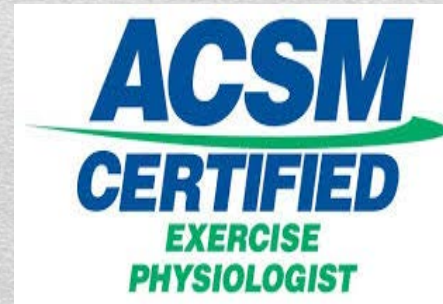
* An additional fee is required for EXER 223, 306, 404, and 480.

Professional Certification

Each of our Exercise Science seniors are required to take a professional certification examination prior to graduation.

Certification Options:

1. Certified Exercise Physiologist (EP-C)
2. Certified Strength and Conditioning Specialist (CSCS)





Internships In the Exercise Science Field

Every student earning a Bachelor of Science in Exercise Science at Grove City College is required to complete an internship.

(Check out the complete list of internship options in the informational folder.)

Recent In-State Internship Sites

- The Children's Institute
- Community and Recreation Center at Boyce Mayview Park
- Cool Springs Fitness Aquatics
- Grove City YMCA
- Grove City College Athletics
- Health & Wellness Center at Hazelton
- Institute of Athletic Development
- Results Therapy and Fitness Center
- Robert Morris University Strength and Conditioning
- Slippery Rock University Football Team
- Specialty Orthopedics
- Tri State Physical Therapy
- UPMC Centers for Rehabilitation Services
- UPMC Sports Health Center
- X Shady Side
- Western PA Sports Medicine and Rehabilitation Clinic Inc.
- Wise Physical Therapy and Sports Medicine

Recent Out-of-State Internship Sites

- Kamwenge Secondary Vocational School, Ugandan Water Project – Kamwenge, Uganda
- True Athletic Performance – Chantilly, Va.
- Speed Strength Systems Inc. – Eastlake, Ohio
- Advantage Rehab – Denton, Md.
- Cleveland Clinic Sports Health and Rehabilitation – Garfield Heights, Ohio
- Drees Performance Training – Burnsville, Minn.
- Lake County Captains, Minor League Baseball – Eastlake, Ohio
- Redline Athletics – Colorado Springs, Colo.
- Rocky River Recreation Center – Rocky River, Ohio
- Spire Institute – Geneva, Ohio





Faculty/Student Research

The Department of Exercise Science offers students the opportunity to conduct meaningful, relevant research alongside experienced and accomplished faculty. All Exercise Science students are required to design, plan and execute a research project.

Currently, 25% of Exercise Science Students are doing Independent Research

The majority of our research has even been published in journals!

Faculty/Student Research



Department of Exercise Science Research Projects

Current Research

Dose Response Effects of an Exogenous Ketone Supplement on Running and Cognitive Performance
Philip Prins, Andrew Koutnik, Dominic D'Agostino, Christopher Rogers, Jeff Buxton, Dana Ault, Emilia England, Sarah Haley, Samuel Henson

The Effects of a Novel Ground based Movement Training Program on Functional Movement, Range of Motion, and Muscular Strength and Endurance
Jeff Buxton, Mike Miller, Philip Prins, Anthony Moreno, Adam Atwell, Tirzah Talampas, Gretchen Elsey, Joseph Meola, Caleb Bish

The Effects of Fasting on Anaerobic Power Performance in College Football Players
Jackie Abraham, Nicolette Anton, Rachel Martin, Tyler Rose

Comparing the Acute Dural Effects of Static Stretching and Banded Joint Distraction on Ankle Range of Motion
Ellen Albers, Grace Ketibler, Kate Lonergan, Jacob Ross

Acute Effects of Maximal Long Duration Yielding Isometric and Dynamic Training on Brain Activity
John Gould, Jackson Miller, Quinn Walker, Tabitha White

Past Research

[Pre-season Changes in Performance in Collegiate Women Tennis Players](#) published in the Journal of Sport and Human Performance
Prins, P., McMillan, J., Joyner, B., Scott, M., Roorda, A., & Rossi, S

The Effect of Lower Body Power Training on the Speed, Strength, and Agility of Amateur Level Fencers
Caleb Thrasher, Baylie Jones, Khalil Ervin, Bowen Dyson and Faith Gregorchik

Comparing the Effects of Self-Myofascial Release and Dynamic Stretching in Collegiate Basketball Players' Flexibility
Ashley Sealander, Jane Kramer, Christian Locher, Mitch Marmelstein

Effect of Kinesio Taping on Force Production during Isometric Contraction of the Biceps Brachii presented at the American College of Sports Medicine Mid Atlantic Regional Conference
Hannah Arisman, Chris Curran, Cayley McClean, Bethany Naims

The Effects of Hydration Status on Rating of Perceived Exertion
Richie Kocur, Megan Rowley, Fleming Saunders, Bobby Schmidt
Acute Effects of an Intense Anaerobic Exercise on Cognitive Performance in College-Aged Students as Measured by the Stroop Test
Matthew Jockers, Brandon Miller, Tiffany Yost

The Effects of a Caffeine Deception on RPE, Affect and Time in a Time to Exhaustion Test
Sarah Trisler, Natalie Sorek, and Mark Barakat

The Effects of Chocolate Milk on Bicep Recovery Post Resistance Training
Katlin Stewart, Lauren Cassano, Maddie Zajicek, Johnny Hansen, Austen Rodriguez

The Acute Effect on Cognitive Function after Light, Moderate, and High Intensity Aerobic Exercise in College-Aged Students
Erica Gmuur, Jocelyn Hinkle, Garret Ketibler, and Aaron Putniski



Leg Press Rest Intervals of One, Three, and Five Minutes in Collegiate Basketball Players presented at the American College of Sports Medicine Mid Atlantic Regional Conference
Keagan Reed, Caleb McKusick, Marne Carroll, Ellen Glenn

Effects of Strength-Based Versus Hypertrophy-Based Lower Body Exercise Programs on Vertical Jump and 40 Yard Dash
Robert Rollick, Jake Johnston, Hayden Faust, Jason Glacken

[Energy Drinks Improve Five Kilometer Running Performance in Recreational Endurance Runners](#) published in the Journal of Strength and Conditioning Research
Philip J. Prins, Fredric L. Goss, Elizabeth F. Nagle, Kim Beals, Robert Robertson, Mita Lovalekar, Gary L. Walton

Effects of Caffeine Ingestion on Sport Specific Field Tests of Anaerobic Power
Laura Smith, Josh Hodges, Tyler Campbell, Nate Wetland

Using the Functional Movement Screen to Evaluate the Effectiveness of Different Recreational Training Modalities
Claudia Bennett, Alex Jewell, Joy Weingartner, Adam Shick, Nick Weigle

The Effect of Music Genre on 5 km Running Performance
Jenna Craft, Isaiah Reeves, Kate Albers, Kara Atileson, Alexis Brooks

The Effect of Two Carbohydrate Supplementation Protocols on 5-km Running Performance
Slater Smek, Lukas Toburen, Dave Hall, Chad Knox

The Effects of Fasting vs Non-Fasting in the One Mile
Mary Frank, Jessica Rolando, Ethan Turner

The Effects of HIT (High Intensity Training) on Mood
Grace Majchrowicz, Nikki Enas, Holly Kennell

The Effects of Powerlifting on Vertical Jump in Basketball and Volleyball Players
Luke Brancato, Jeremy Kim, Josh Walter

[Observer Estimation of OMNI Scale RPE during Fire Suppression Using Video-Graphic Analysis](#) published in the Journal of Sport and Human Performance
Philip Prins, Gary Walton, Fredric Goss
[Reliability and Accuracy of a Standardized Shallow Water Running Test to Determine Cardiorespiratory Fitness](#)
Nagle, EF, Sanders, ME, Gibbs, BB, Franklin, BA, Nagle, JA, Prins, PJ, Johnson, CD, and Robertson, RJ

[Effects of Energy Drink Functional Ingredients on Running Performance](#) published in the Journal of Exercise and Nutrition
Philip J. Prins, Gary L. Walton, Edward J. Ryan, Catherine G. Majchrowicz, Jessica C. Althausen, Julie A. Fijal, Natalie X. Sorek, and Teresa M. Dallatore, Dana L. Ault

[The Effect of Differing Fluid Replacement Strategies on Running Performance](#) presented at the American College of Sports Medicine Mid Atlantic Regional Conference
Jake Gordon, Meghann Healey, Erin Koehler, Marisa Tonkovich, and Stef Wendelschaefler

[The Effects of Various Self-Myofascial Release Modalities on Anaerobic Sports Performance and Functional Movement in NCAA Division III Soccer Players](#) presented at the American College of Sports Medicine Mid Atlantic Regional Conference
Jessica Althausen, Teresa Dallatore, Julie Fijal, Kara Heckman, Lydia Keiper

Examining the Relationship between Dietary Behaviors and Cardiorespiratory Fitness on Body Composition and Metabolic Syndrome among NCAA Division III Football Players
Kristen Broadb, Charity Gibbs, Rachel Kenney, Kelly McCosby, and Joanna Schwab

Effects of Dynamic Stretching and Proprioceptive Neuromuscular Facilitation on Lower Body Performance



Linoski, H., Niehaus H., Ninkovich N., Rogalski J., Zajicek M

Effects of Different Exercise Modalities, and a Comparison of Gender, on Executive Cognition Function presented at the American College of Sports Medicine Mid Atlantic Regional Conference
Dana Ault, Ph.D., Philip J. Prins, Ph.D., Kris Homan, Ph.D., Erin Koehler, Rachel Kenney, Ethan Turner, Stefani Wendelschaefler, Nathanael Sprunk, Jessica Rolando

Effects of an Exogenous Ketone Supplement on Running Performance presented at the American College of Sports Medicine Mid Atlantic Regional Conference and in review in the Journal of Strength and Conditioning Research
Philip Prins, Andrew Koutnik, Dominic D'Agostino, Christopher Rogers, Jacob Seibert, Jillian Brackenridge, Daniel Jackson

[The Effect of Caffeine Alone or as Part of a Multi-ingredient Pre-workout Supplement on Muscular Endurance in Recreationally Active College Males](#) published in the Journal of Exercise and Nutrition
Phillip J. Prins, Edward J. Ryan, Nathanael J. Sprunk, Erin M. Green, David M. Jeffries, Jeffrey D. Buxton

The Effect of a Three-Week 16/8 Time-Restricted Feeding Protocol on Executive Functioning, Body Composition, and Cardiometabolic Health in Apparently Healthy Normal Weight Individuals presented at the American College of Sports Medicine Mid Atlantic Regional Conference
Lauren Hughes, Mary Shannon, Christy Zimmerman

Association between Macronutrient Intake, Cardiometabolic Profile, and Telomere Length among Overweight and Obese Adults
Philip Prins, Ph.D., Dana Ault, Ph.D., Heather Barton, Ph.D., Gary Walton, Ph.D., Daniel Jackson, Nicholas Ninkovich, Kate Albers, Jake Gordon, Christy Zimmerman, Kara Heckman, Joanna Schwab, Lauren Hughes, Meghann Hoaly, Erin Koehler

The Effects of a Low Carbohydrate Ketogenic Diet versus a High Carbohydrate Diet on Physical Performance, Exercise Metabolism, Cardiometabolic Health, and Cognitive Function in Male Recreational Endurance Runners in review at the British Journal of Sports Medicine
Philip Prins, Ph.D., Timothy Noakes, MRCbB, MD, DSc, PhD, FACSM, FFSEM; Dana Ault, Ph.D.; Jeff Buxton, MS, NASM, PES, ACE, CPT, FMS; Gary Walton, Ph.D.; Amy Raabe, MS, RDN, LDN; Ellen Albers; John Gould; Katharine Lonergan; Rachel Martin; Mary Shannon; Joshua McElrone



Articulation Agreements

The faculty at Grove City College work closely with other institutions to provide students ease of transfer to either Physical Therapy, Occupation Therapy, Athletic Training, and Physician Assistant Schools:

- Mount Union University PT
- Baylor University
- Chatham University
- Bloomsburg University
- University of Pittsburgh
- Duquesne University
- Lake Erie College of Osteopathic Medicine
- Campbell University
- Liberty University



BAYLOR
UNIVERSITY

chatham
UNIVERSITY



University of
Pittsburgh

After Graduation

In addition to securing employment in health-related professions, many Grove City College graduates continue studies across a wide-range of professional and graduate programs. Recent graduates have been granted admission to:

- University of Medicine and Dentistry of New Jersey (DPT program)
- East Stroudsburg University of Pennsylvania (M.S. in Exercise Physiology)
- Slippery Rock University of Pennsylvania (M.S. in Adaptive Physical Education and the DPT program)
- University of Alabama, Birmingham (strength and conditioning graduate assistant)
- University of Pittsburgh (M.S. in Rehabilitation Counseling and the DPT program)
- California University of Pennsylvania (M.S. in Performance Enhancement and Injury Prevention)

Our graduates have secured employment in such organizations as:

- Health Corps (health coordinator)
- Valencell PerformTek Precision Biometrics
- Excursions Camps (program coach)
- Grove City YMCA
- T3 Performance
- Pittsburgh Riverhounds
- Slippery Rock University of Pennsylvania
- One on One Fitness



STUDENT INVOLVEMENT





Exercise Science Club

This organization is comprised with Exercise Science students who are active in promoting health and wellness around campus and within the local community.



Exercise Science Symposium

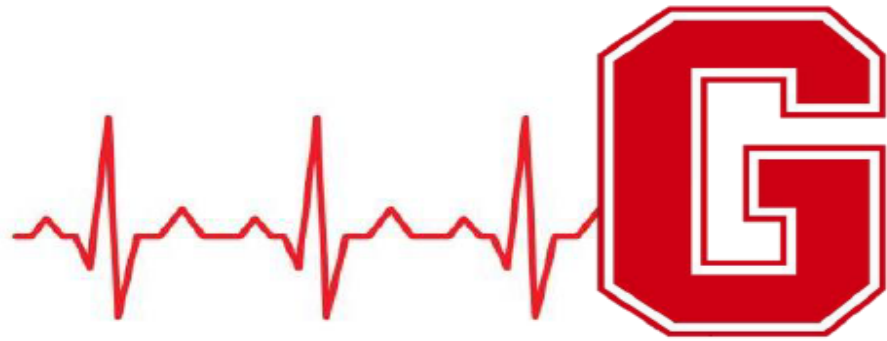
The symposium is hosted by the Grove City College Exercise Science Club, which aims to promote health and fitness efforts on campus and in the local community by providing events and education opportunities to students and community members. The event is open to the public beginning with the student research presentations.



Exercise Science Symposium

The Grove City College Exercise Science Symposium is a day full of presentations on current research, findings and developments in the field of Exercise Science.

**TAKE CONTROL OF YOUR HEALTH:
WELLNESS, EXERCISE AND
NUTRITION SYMPOSIUM**



**Grove City College
Exercise Science Symposium
April 6, 2019**

Grove City College
Exercise Science Symposium

**TAKE CONTROL OF YOUR
HEALTH: WELLNESS, EXERCISE,
AND NUTRITION SYMPOSIUM**

9-10 AM Yoga Workshop with Dr. Sally Sherman in PEW 25

10-11 AM ACL Injury Prevention Workshop with Dr. Paul Cialone in PEW 25

11-1 PM Pre-Recorded Interview with Dr. D'Agostino in STEM 51

11-1 PM Meet & Greet with Presenters in STEM ATRIUM

1-1:40 PM HITT on Cardio-Metabolic Health by Dr. Elizabeth Nagle in STEM 51

2-2:40 PM Necessity of Quality Sleep to Prevent and Combat Obesity by Dr. Chris Kline in STEM 51

3-3:40 PM Ketogenic Diets to Address Insulin Resistance in Diabetics by Professor Parker Hyde in STEM 51

APRIL 6TH, 2019

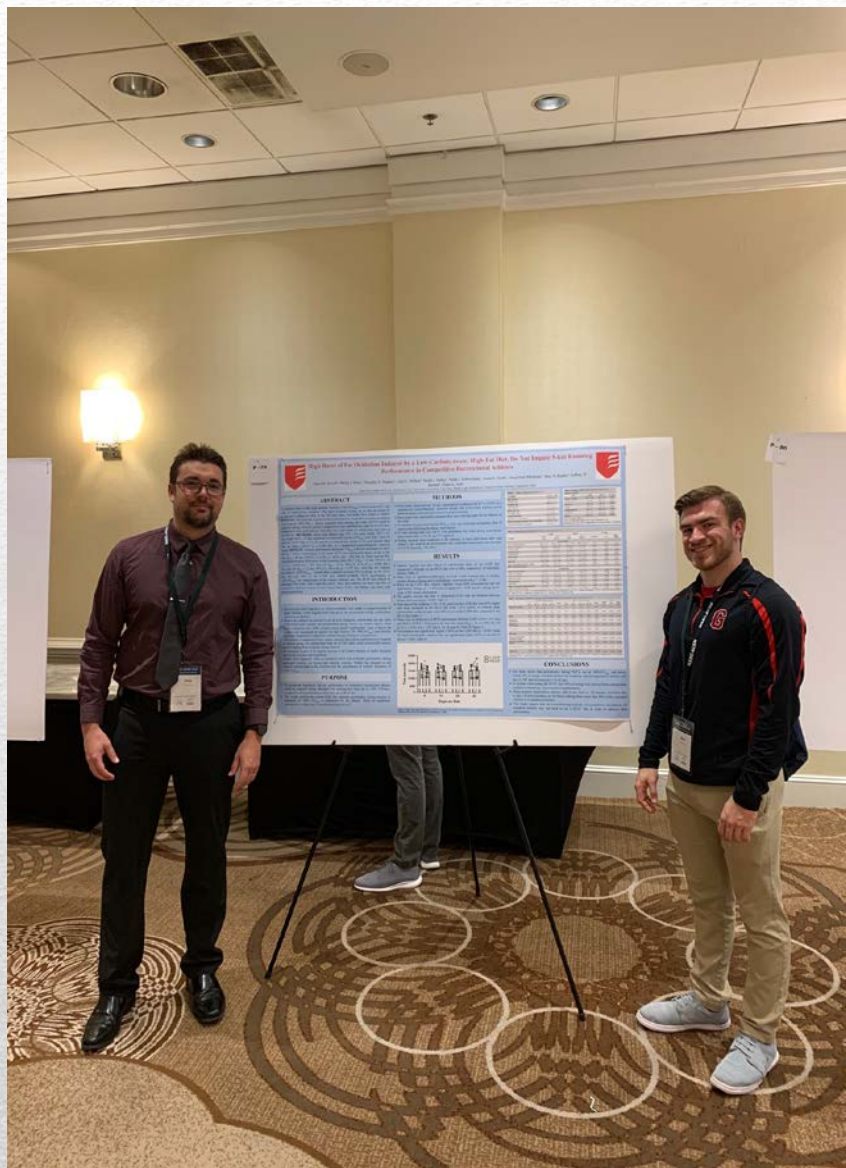
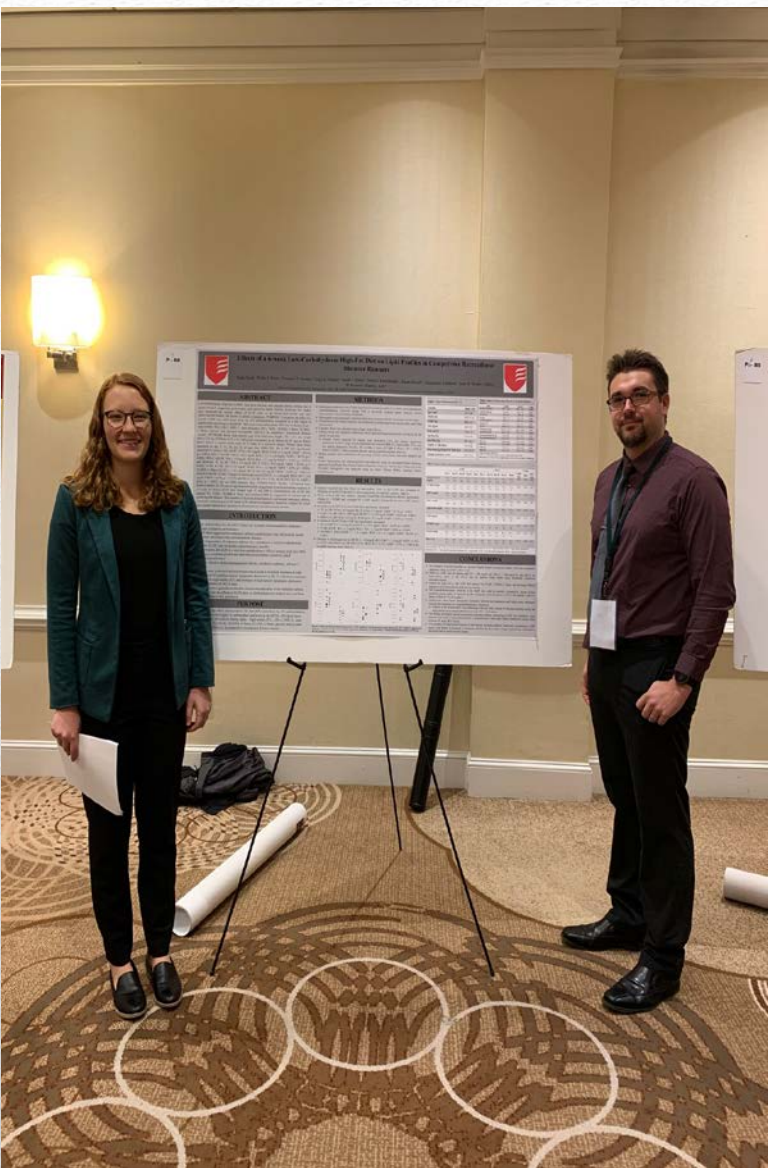


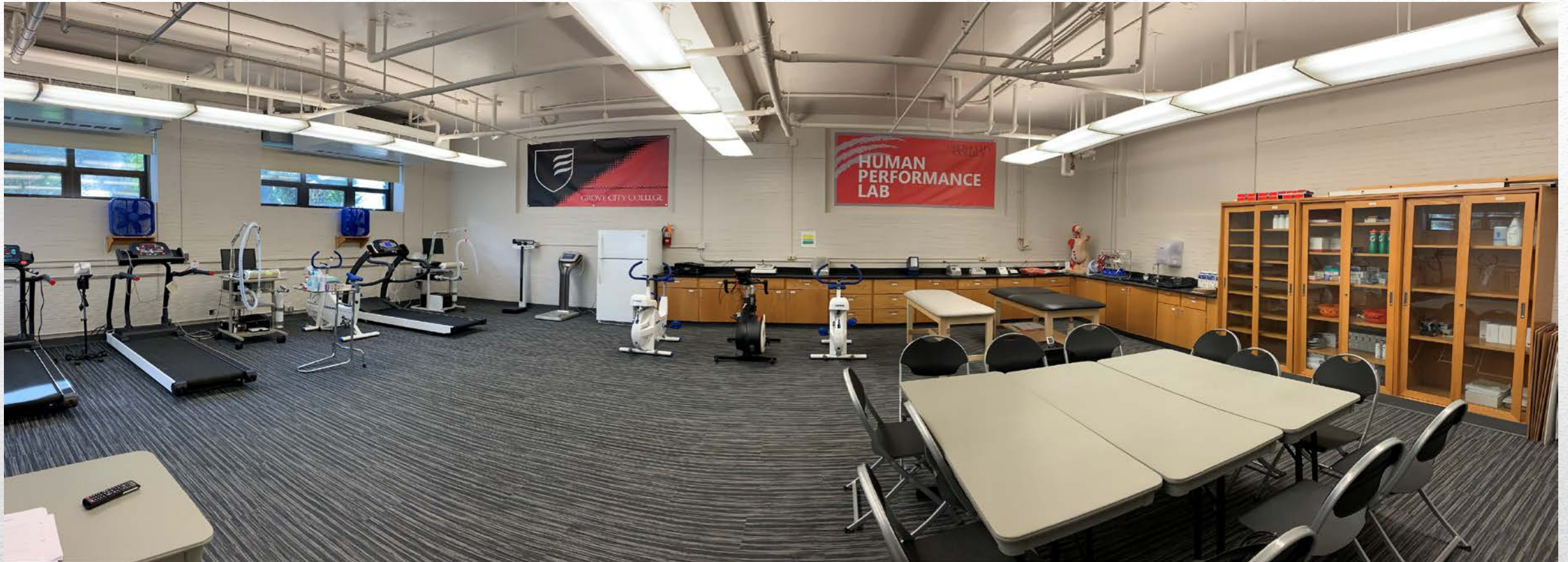
MARC-ACSM Conference

Each year our students have the wonderful opportunity to attend the Mid Atlantic MARC conference located in Harrisburg, PA. Here they are able to present their own research and/or listen to other professional's present research.



Some of our Exercise Science students who presented their research projects at the MARC-ACSM Conference





Exercise Science Laboratory

Our program provides students with classroom and laboratory experiences concentrating on the applied science of human performance and physical activity.



Careers in Sports Medicine and Exercise Science

- **Employee Fitness Director**
- **Group Exercise Instructor**
- **Strength and Conditioning Specialist**
- **Personal Trainer**
- **Athletic Trainer**
- **Physical Therapist**
- **Occupational Therapist**
- **Registered Dietician/Sports Nutritionist**
- **Cardiopulmonary Rehabilitation Specialist**
- **Exercise Physiologist**
- **Researcher**
- **Physician Assistant**
- **Medical Doctor**

