Welcome to the Human Biomechanics & Physiology Laboratory

YOUR TOUR STARTS HERE

FACILITY HIGHLIGHTS

WELCOME TO EXTRAORDINARY!

The combination of faculty, facilities, equipment, and esprit de corps make the Department of Physical Therapy's Human Biomechanics & Physiology Laboratory (HBAPL) the finest facility of its type in the world! Just for comparison, know that most labs of this type are between 1500 and 8000 sq ft while the HBAPL is 13,500 sq ft. What makes this facility even better is that it is an inspiring teaching and experiential learning lab for High Point University's students!!

The faculty that work within this facility are from multiple disciplines including physical therapy, biomechanics, physiology, exercise science, and athletic training, to name a few. They are gathered together under one umbrella called the Institue for Human Health and Sports Science. As a team, they are all committed to the highest quality teaching, to research that prevents injury, and to clinical care that restores movement and function and helps active people reach new heights!

State-of-the-art does not do justice to the quality and precision of the equipment in this lab. Some highlights for your tour might be:

- Strengthening equipment that uses either air (Keiser) or body-weight (TRX) resistance
- The golf simulator which allows the beautiful ocean views of Pebble Beach
- The motion capture area with sophisticated, motion tracking cameras and force plates
- The environmental chamber that can be set to freeze you or heat you up at sea level or at up to 14,000 feet above sea level
- The gravity-altering treadmill (AlterG) that uses air to change a person's body weight

PLEASE WALK STRAIGHT AHEAD AND ENTER THE FUNCTIONAL ANALYSIS AND TRAINING AREA

24
of the most sensitive cameras in the world which allow researchers to study and improve human movement so that injury is prevented and movement is enhanced

1
of the biggest, baddest treadmills in the world allowing the study of high performance individuals

20
championship courses featured on our golf simulator which allows swing analysis under life-like conditions

500+
people who benefit from the use of this facility as students, athletes, patients and research partners each year

The Functional Analysis and Training Area
Cooler than Cool!

Court and Turf Area

As you stand on the basketball court or in the middle of the turf area, you are standing in one of the truly unique places in the world! As you look up, you will see motion analysis cameras mounted on a truss system. When our researchers want to study truly functional human movement for either injury prevention, rehabilitation, or performance improvement, athletes are fitted with reflective markers that produce a skeletal re-creation of the athlete that can be analyzed or put on the big screen in the Motion Capture Area which you will see after the weight room.

Weight Room

As you approach the weight room, it looks like any other weight room you've seen but looks can be deceiving. This weight room has some of the most advanced equipment available including:

- The vibration plate which helps people strengthen faster and better than when lifting weights on a regular floor
- The slide board which trains complementary and vital muscles of the hips to help prevent injury
- The Keiser equipment powered only by air allowing people to train safely at high speeds to simulate athletic events
- The Pit Shark squat machine which takes the pressure of squatting off of the spine and helps teach good squatting form
- The TRX body weight training system
- The Shuttle MVP and Vertimax for plyometric training to help improve jumping and landing technique

PLEASE WALK TO YOUR LEFT AND ENTER THE MOTION CAPTURE AND GOLF SIMULATOR AREAS

The Motion Capture and Golf Simulator Areas Inspiringly Advanced!

Motion Capture Cameras

This space is the center of the facility for a reason. As you stand in the center facing the big screen, recall that this screen is where the skeletal reproduction of any athlete captured anywhere in the facility can be seen. Note that this area is surrounded by a truss system and 18 of the best motion capture cameras in the world! Recall also that when combined with the cameras in the *Functional Analysis and Training Area*, the Lab has 24 total cameras which compares ot a norm in most labs of 8. These extra cameras give our researchers the ability to do enchanced movement analysis.

Motion Hub

All of the data from the motion capture areas, from treadmills to cameras and forceplates are collected for analysis in the Motion Hub. This is also the area where you will frequently glimpse faculty members and undergraduate students side-by-side giving the students a chance to experience hands-on learning they might not experience at other universities until they entered graduate school!

Golf Simulator

The simulator does the same thing for golfers that our turf and court areas for athletes that compete on those surfaces: creates an environment that is as much like real life as possible. With 3 high speed cameras and a built-in launch monitor, the simulator has the unique capability to measure all critical ball and club parameters including: ball speed, club speed, launch angle, club face angle, ball spin and spin axis at high accuracy. This technology plus the availability to play any one of 20 championship courses makes the HD Golf Simulator a favorite of tour pros and instructors.

The Cardiovascular Testing Area
High Performance and High Tech!

Environmental Chamber

As you move into this area of the lab, the first thing that catches your attention is the environmental chamber. This chamber allows researchers to literally study the effect of exercise on people in different environments. How different? This chamber can be set for temperatures below freezing and above 100 degrees Fahrenheit, for humidity from 0-95%, and for elevations ranging from sea level to 14,000 feet above sea level- the same elevation as Pikes Peak in Colorado! This type of chamber is a rare feature indeed.

Treadmills

Alter G

As you turn left away from the environmental chamber, you will see on your left, a row of 3 awesome and unique treadmills. The first is the Alter G, which allows the user to seal the plastic bubble and fill it with air changing the weight of the person inside! Weighing less is a great service for those who, for example, might run with leg pain at full body weight but are able to run pain free at a lesser body weight.

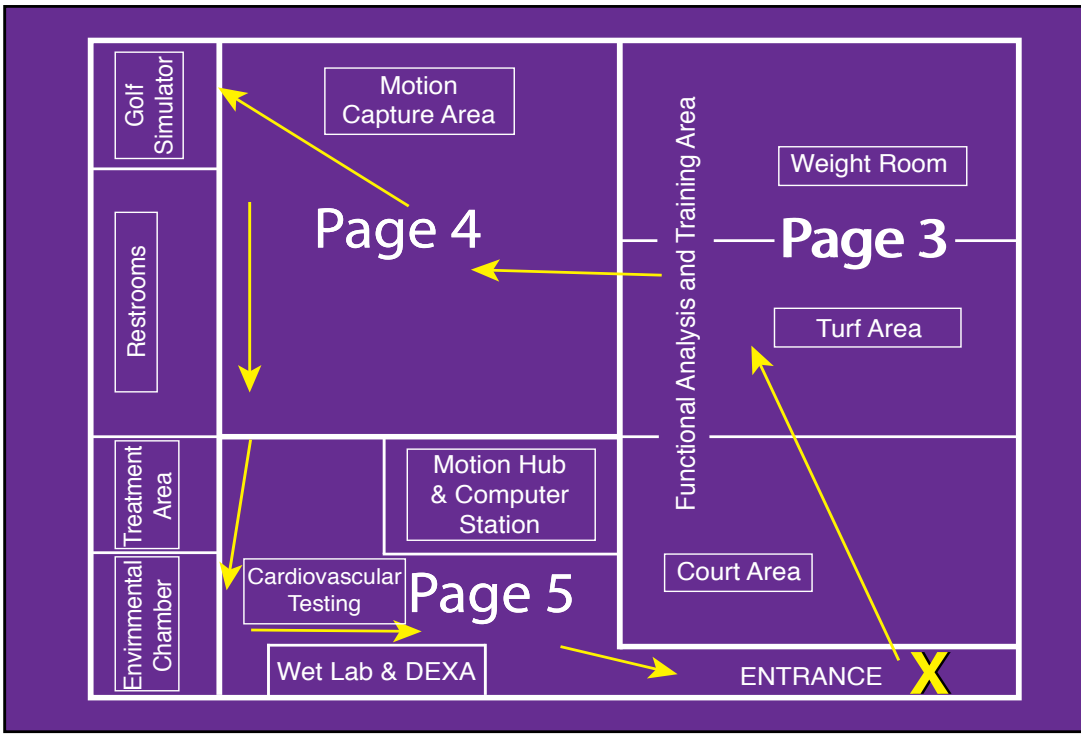
Curve

The second treadmill you will see is the Woodway Curve, a totally manual treadmill with a patented “tank track” belt which makes running a breeze- all this while burning 30-50% more calories than a regular treadmill!.

ELG

The last treadmill on the left is the Woodway ELG that might just be the biggest, baddest treadmill on the planet. With a maximum speed of 25 mph, only the fastest human in the world can outrun this treadmill- until we elevate it 35%- the equivalent of running one of the fastest 100 meter times ever up the steepest residential street on record (Baldwin Street in Dunedin, NZ)!

FACILITY MAP



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Want To Be A Part of This Extraodinary Place?

Visitors often ask how they can be a greater part of the Lab and the Institute. There are two ways:

- Call or e-mail to set up and appointment for injury prevention, rehabilitation, or performance enhancement
- Give a gift today! These gifts will be put toward student scholarships and seed money for research that benefits the community and our students

Please make a check payable to "High Point University TEAM" for the amount of your choosing. Every little bit helps!

www.highpoint.edu/physicaltherapy

High Point University
Institute for Human Health & Sports Science Research

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