

## Leave the Launch Behind



Rowing is often regarded as one of the most physically strenuous sports, and it's not without credence...

Aerobic metabolism provides up to 75% of the energy required during a 2000m race. It's not surprising then that the aerobic power,  $VO_{2max}$ , of a rower is critical. The remaining 25% is derived from anaerobic metabolism. Therefore, rowers also need an exceptionally high tolerance to lactate accumulation. Further, peak power, power endurance and muscular endurance are needed to rip the boat across the water.

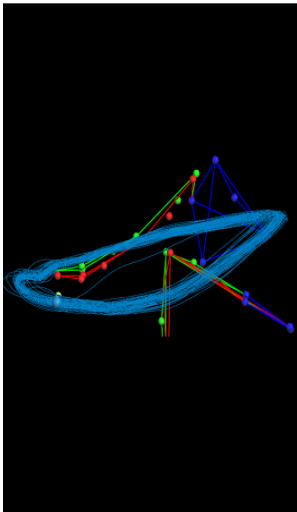
At POTENTRx, we understand the specific demands required for rowing and how to help you maximize your athletic potential. This is why we have created the Rowing Combine. The Rowing Combine is designed to determine where you are, where you need to be and how to get there by using the latest technology and scientific methodology. The POTENTRx Rowing Combine includes the following services, spread across two separate sessions:

### Day One | Testing Session

- 1-hour musculoskeletal exam with our physical therapist to determine any limitations with your mechanics
- 1-hour 3-D motion capture analysis of your rowing mechanics and technique with our biomechanist
- 1-hour testing session with our exercise physiologist to assess your rowing fitness and performance potential

### Day Two | Follow-up Session

- 1-hour consultation with our biomechanist who provides a written and video summary of your stroke with recommendations, tips, and drills for striking modifications that will help you 1) acquire consistent and efficient rowing mechanics; 2) increase stroke power; and 3) reduce the likelihood of injury.
- 1-hour consultation with our exercise physiologist who provides written and illustrated results of your musculoskeletal exam and rowing fitness with training recommendations to help you develop 1) endurance, 2) lactate tolerance, 3) flexibility, 4) strength, and 7) power for optimum rowing performance and to reduce the risk of injury associated with poor rowing mechanics and/or poor physical fitness.



Rowing-Specific Services | Available through our combine or on an individual basis

### Physiological Fitness

#### • AEROBIC CAPACITY

Is the maximum capacity of your body to transport and utilize oxygen during incremental training, which reflects your level of physical fitness. This is important in determining your capacity to perform sustained training and when correlated to heart rate, it can be used to develop training zones. Having a high aerobic capacity can help reduce the effect of fatigue throughout your 2000m race.

#### • BODY COMPOSITION

Provides an accurate measure of fat and lean mass, both of which are vital aspects of rowing performance. To ensure accuracy and reliability, the staff calculates body composition through three different methods – girth and proportionality, a four-site skin fold measurement with calipers, and bioimpedance.

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- **THRESHOLD TESTING**

Because rowers are forced to race at or above their lactate threshold, it's critical to know where that is. This test is designed to determine the aerobic and anaerobic thresholds. The aerobic threshold is the point at which anaerobic pathways begin to contribute to the energy demands of the activity being performed. The anaerobic threshold is where lactate accumulation arises dramatically and the point at which you will experience rapid fatigue or the onset of fully anaerobic activity. These thresholds can be directly determined through blood lactate samples or indirectly through gas exchange.

- **ROWING-SPECIFIC ANTHROPOMETRICS**

Anthropometrics is the comparative study of human body measurements. Changes in lifestyles and nutrition lead to changes in the distribution of body dimensions. Regular updating of these data plays an important role in optimizing body development. The rowing-specific anthropometric measurements include height, sitting height, weight, arm span and skin-fold. These measurements are used as training metrics and are compared to standardized data. nvolves

- **FLEXIBILITY**

The sit and reach test is used as a baseline to determine the degree of stretching that the rower will need to improve performance and reduce injury.

- **HAND DYNAMOMETRY**

A hand dynamometer is used to determine overall grip strength and muscle fatigue which is critical to overall performance for rowers.

- **MUSCULOSKELETAL EXAM**

Using observation, palpitation, and selected functional tests, a physical therapist conducts a 65-point assessment of posture, balance, reflex mechanisms, muscular strength symmetry, range of motion (flexibility) in all three planes, dynamic capacity and kinetic chain stability that result in a clear understanding of your musculoskeletal integrity.

## Biomechanical Optimization

- **3-D MOTION ANALYSIS**

A computerized six-camera system is used to analyze rowing mechanics. By placing reflective markers on the joints, the cameras provide the computer with the data to set up a 3-D model. When combined with force, pressure, acceleration and muscle activation technologies, we can track joint positioning, velocity, acceleration and trajectories, calculate joint angles, track the center of mass distribution and determine the muscle sequencing and frequency. This data gives our staff precise information to make finite but critical adjustments to reduce injury and improve performance.

- **2-D ANALYSIS**

Using a 2-D video camera and specialized editing software, our staff will film you from several different angles while you row and review your movements, looking for abnormalities that are creating problems or are caused by a problem. Our staff then creates an illustrated and annotated video file that outlines modifications that can help you reduce pain and improve your rowing technique.

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For more details about the services listed in this flyer, please call (206) 432-9436



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## POTENTRx Affiliates

American Council on Exercise (ACE) • Bainbridge Fire Department • Club ZUM • Cosmed • Pocock Rowing Foundation • Precor • Rainier Vista Boys & Girls Club • Seattle Fire Department • Seattle Sockeye • Seattle Thunderbirds • Seattle University Athletic Department • Skillshow • Snohomish Fire Department • Technogym USA • USA Rowing • USA Rugby • Vicon • Washington Athletic Club • Waypoint Outdoor • YMCA of Greater Seattle