

12 reasons to choose BioRow

1. BioRow know WHAT should be measured in rowing and HOW

Our BioRow telemetry system is a result of 30 years of continuous development, made for rowers by a former Olympic rower and rowing scientist. Other rowing systems are produced by technology people from other industries (from motorsport, aero-space, etc.). In those systems they introduce their technology and then try to use them in rowing without a clear understanding of rowing biomechanics. Our expertise based on many years of purely rowing-specific research has gone into identifying exactly WHAT needs to be measured and HOW.

2. BioRow measures rowing correctly.

Without rowing-specific knowledge and expertise, very often, rowing is measured in the wrong places: e.g. the very popular Peach system measures pin force fixed in the direction of the boat movement, which they call a “propulsive” force. However, the real propulsive force is applied to the blade, not to the pin, but this pin force is affected by axial oar force, which is not transferred to the blade and is cancelled out at the foot-stretcher (this means power readings can potentially be increased by a rower simply ‘pressing’ the oar outwards into the gate). As a result, the force curve is skewed, and if this system is used for comparative analysis between rowers, it may produce up to 20% error in power calculation and give misleading outcomes.

The correct method of power measurements in rowing must be based off of oar force, which is the only thing actually transferring energy from the rower to create a propulsive power at the blade. Similar problems could be seen with other rowing measurements: say, with interpretation of “the boat check”, etc.

3. BioRow is the most accurate and reliable measurement system, opened to data verification and quality control.

It is an important part of our professional duty to provide accurate and reliable information to our clients. Therefore, we have developed an efficient method to calibrate dynamically every oar after the installation of the force sensor using a highly accurate load cell. While in other systems force is calibrated with hanging weights, which gives 2/3/5 data points only, we get hundreds of points for each oar, which allows analysing with quality: taking into account the linearity of the response and hysteresis (energy damping).

4. BioRow measures the most essential rowing variables and presents the most comprehensive analysis of rowing biomechanics.

Other rowing systems measure only basic variables: oar angle, force curve, boat speed and acceleration. BioRow does as well, and adds other very important areas of rowing technique: profile of the blade work in the water, rowing style - coordination of body segments, synchronisation in crew boats.

5. BioRow won't let you get drowned in the data

Unique BioRow data analysis method produces average patterns from many stroke cycles, which allows a clear, accurate and representative analysis. Rowing is a cyclic sport, where more than 200 strokes occur in a race. Which one should be analysed? In other measurement systems, the user has to scroll over many strokes to choose one for analysis (WEBA system), or data from many strokes is overlapped with messy curves (Peach system). BioRow have developed a unique algorithm of averaging stroke

cycles, where the data accuracy is preserved and compressed into one typical stroke cycle, which provides a clear and unambiguous representation of the rowing samples.

6. BioRow produces not only information – it gives you a knowledge

The most common questions after observing rowing data is “What does it mean? How do we compare to the others? What should we do to go faster?” BioRow has done a lot of work to answer these questions. We are the only company in the world, which not only produces rowing measurement equipment, but also does the measurements itself: thousands of rowers and crews were measured over the last 30 years, and all that information was used to build our model for the evaluation of rowing technique. BioRow system can evaluate your data and compare it to gold standards based on millions of measurements of thousands of rowers, including many Olympic and World champions.

After testing, each rower receives what we call an “evaluation page”, where the measured data is compared with targets in numerical and graphical formats. The targets are based on our biomechanical models, which uses two main methods: mechanical modelling for the main variables (say, speed – power – stroke rate - force – stroke length), and statistical analysis based on millions of measurements. So, much like rowing times can be compared to Gold Standard times, various technical variables can be compared to Gold Standard targets.

7. BioRow allows easy data comparison and presents it in the most meaningful and understandable way.

The reports are structured and present data in various different aspects (see the report examples below):

- feedback for a crew as a whole based off of various samples,
- individual feedback for one rower (in the crew) at various stroke rates,
- a comparison of rowers in the crew in each sample,
- evaluation of an individual rower in one sample (usually at racing stroke rate) and a comparison with targets.

The data can be easily managed and various samples compared: longitudinally for each rower – if our services have been used several times, then comparisons can be made to observe potential improvement, i.e. the current data compared to 4 months ago, 1 year ago etc., rowers from various crews and boat types (say, to see the difference between rowing in 1x and 4x for the same rower), and between the whole boat as an average.

8. BioRow system is quick to install and is absolutely transparent for rowers.

Installation time of BioRow system on a boat vary from 15min for 1x to one hour for 8+ (including time for calibration of each oar), and it can be removed virtually in seconds after testing. It does not alternate rigging settings (gate pitch, height, etc.) is very lightweight and creates no obstacles for rowers.

9. BioRow is cost effective for you

Biomechanics information in rowing can be compared with X-rays in medicine: it gives the coach (“a doctor”) invisible information about the athletes (“patients”). How often a doctor needs to do X-rays for effective treatment? Definitely not every day. Do you really need to buy expensive equipment and become an X-ray professional to get that information?

BioRow provides very cost effective solutions for your rowing information needs: testing your squad 2-3-4 times a year would cost you a small fraction of an investment in equipment. Included are very reliable and accurate measurements, professional data evaluation and advice. There is no mess of cables in your boathouse, and waste of your time on equipment installation, removal and maintenance.

10. BioRow information is absolutely confidential.

This is our strong policy: we never disclose your personal data to anyone else without your permission. We clearly understand that rowing is a highly technical and competitive sport and nobody wants give anything away to their competitors.

BioRow works across the world with rowers from more than 30 countries, which would not be possible unless we create trusting and confidential relationships with our clients.

We may use your data for research and analysis purposes together with the data of thousands of other rowers, but this is a nature of science, which we are a part of. However, we will never expose your data directly, and this could be legally affirmed with the NDA.

11. BioRow is always open-minded.

Though we are confident with our scientifically proved principles and targets, we do not dictate them to rowers and coaches, so everyone could give their own interpretation to the data and find something useful in it. We can talk to rowers directly and give them clear directions, or we can discuss it with a coach only, and then a coach can give his own interpretation of the obtained data.

If your principles and understanding of rowing technique is different from ours, we can discuss them on scientific basis, which may help you to understand our concepts better. If your arguments are reasonable enough, they could be a topic of further rowing research to prove them. Finally, we may agree with you, change our mind on our models and principles of effective rowing technique and thank you.

We firmly believe that a firm addiction to some concepts and ideas is the end of the science, and new challenging information and open minded discussion is the only way to move it forward.

12. BioRow is always positive.

We are here to show how good you are, and to help you to become even better. Firstly, we produce positive points of your rowing technique; secondly, we give you a few clear points to be improved.

We understand the importance of psychology and positive mindset for achievement of better performance in all areas, and rowing biomechanics is one of them.

Still in doubts? Please contact us for more information:



Dr. Valery Kleshnev
Biorow Ltd.
Mob: +44 7756 271 726
e-mail: valery@biorow.com
www.biorow.com