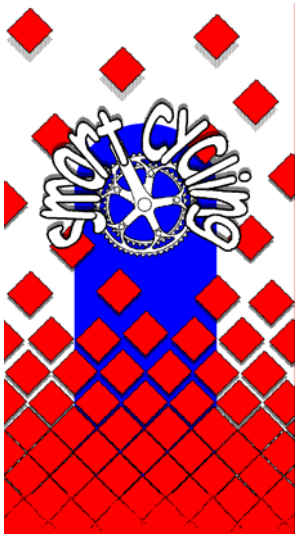

Smart Cycling, Inc.
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Training Terminolgy

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One of the real benefits of the latest bicycle science is the development of useful equipment for tracking an athlete's progress. Advances in computer technology and composite materials make sophisticated monitoring equipment affordable and more accessible. However, while many cyclists have obtained the latest equipment, they are not always clear on the real benefits that can be derived from their use. They collect a lot of numbers, but are not really sure where those numbers came from or what they mean. There is also the lack of understanding when discussing the training factors that relate to 'work' done on and off the bike. Here are some excerpts from the Basic Athlete Fitness Testing and the Training Sessions manuals that may help explain some of the ideas about the numbers you are collecting.

We will start with a sample training session. In this case we are having the athlete train their tolerance for lactic acid by riding at a steady state. There are additional instructions for doing this training session on a CompuTrainer. The outline for the session is as follows;

Lactate Tolerance Session	Zone 4	Intensity 80	**Lt4**
	Lt4#1	**Lt4#2**	**Lt4#3**
Total Number of Efforts:	2	3	4
Time of Each Effort:	25 minutes	20 minutes	20 minutes
Cadence of Effort:	105 rpm	110 rpm	115 rpm
Heart Rate per Effort:	Zone 4	Zone 4	Zone 4
Recovery Time Between Efforts:	10 minutes	10 minutes	10 minutes
Recovery Time Between Sets:	n/a	10 minutes	10 minutes
Recovery Heart Rate Range:	Zone 2	Zone 2	Zone 2
Number of Efforts per Set:	2	2	2
Number of Sets per Session:	1	2	2

Instructions for Session: The object of this session is the same as Lt3. However the duration of the intervals is greater and the heart rate is in Zone 4. This session consists of 2, 3 or 4 continuous efforts on a flat or slightly graded stretch of road. Focus should be on keeping as even a tempo as possible in order to develop a natural rhythm for solo race efforts. This session should be done seated, with hands in the drops and maintaining as aerodynamic a position as possible. The recovery between efforts should be at the top end of Zone 2.

CompuTrainer Instructions for Session: Using the Spin Scan program, follow the instructions above and increase resistance by increasing gradient. Using the Challenge PC-1 software, a simple course of gentle repeated hills can be simulated to create the ideal format for this session. If you are not using the Challenge PC-1 software, find the desired resistance by increasing the watt load in manual mode with F2 function.

No matter who the coach may be, they will give their athlete a clear set of instructions to follow. The purpose of any training session should be fully understood by the athlete in order for it to be executed properly. The athlete must have a clear understanding of all terminology and the terminology should be as standardized as possible. Here is a brief description of the session above.

Session Name: Generally the name indicates the training to be done. In example - Lactate Tolerance Session - the focus of the session is to help train the rider to deal with lactic acid in the blood stream.

Heart Rate Zone: This refers to the target heart rate range for the session. In this example, the target heart rate range is Zone 4, This does not mean this is the only range the rider will be in for the session, but simply the desired range getting the greatest benefit from the training.

Intensity Level: This refers to the amount of work being done at the target heart rate range. The primary purpose for assigning an intensity factor to a session is to quantify the amount of energy being expended by the body at a given heart rate. In the example session, the intensity level is 80.

Session Name Abbreviation: All training sessions are abbreviated down to two or three letters in order to simplify listing them in the training log.

Individual Session Name Abbreviations: Training sessions are usually broken down into specific levels based on the level of effort, cadence or speed required for the focus of the training. In the example session, the sessions are broken down by duration of effort and cadence.

Total Number of Efforts: This is the total number of times the work must be done during the session.

Time of Each Effort: This refers to the duration of each effort.

Cadence of Effort: The speed at which the bicycle is to be pedaled.

Heart Rate Per Effort: This refers to the heart rate zone at which the effort is made. In the example session - Lactate Tolerance Session - the time of the effort does not begin until the rider has reached Zone 4. The goal of every session is to perform the effort at the desired heart rate zone, pedaling the listed cadence, in the gearing suggested.

Recovery Time Between Efforts: This is the amount of time designated for recovery before starting the next effort. In the example session, the rider has 1 minute in which to lower their heart rate into Zone 2 before starting the next effort.

Recovery Time Between Sets: This refers to the amount of time designated for recovery before starting the next set. In the example session, the rider has 3 minutes in which to lower their heart rate into Zone 2 before starting the next set.

Recovery Heart Rate Range: The heart rate range that will help the rider recover as quickly as possible in relation to the goals of the session.

Number of Efforts per Set: The training sessions follow a pattern similar to weight training sessions. The work is done as individual efforts within a set. Some sets have only one effort, while others may have multiple efforts. The sample session has two efforts, each lasting 20 minutes.

Number of Sets per Session: The training sessions follow a pattern similar to weight training sessions. The work is done as individual efforts within a set. Some sessions have only one set, while others may have multiple sets. The sample session has only one set.

Instructions for Session: This is the description of the work to be done, along with an explanation of the goal of the session and any specific details concerning how the rider is to perform the efforts.

Instructions for using a CompuTrainer: At the Smart Cycling Team we try to keep up to date on the latest technology and most useful training equipment and techniques. We have determined that the CompuTrainer is the most sophisticated bicycle training apparatus currently in production. We not only advise our athletes to use CompuTrainers, but we design computerized session specifically for their use.

Sometimes a session like this may be used as a fitness test. Again the athlete has to have a clear understanding of the terminology and the method of the test. An athlete's performance is always directly related to their understanding of what is required of them. Over the years researchers have concluded that certain types of information is more valuable than others because of what that information can reveal about the athlete. The definitions used here are by no means complete. At this writing, the list of those areas of concern include:

Speed – The velocity at which the athlete propels their bicycle within a given time or set distance.

Distance – The measurement used to describe the length in part or whole of a test or race.

Time – The measurement used to describe the duration in part or whole of a test or race.

Gearing – The forward development created by the combination of a specific chain ring and cog.

Cadence – The number of rotations of the crank arms in one minute.

Heart rate – The number of times the heart beats in one minute.

Watt Load – The measurement used to describe the amount of power being developed by the athlete at a given moment, either at the crank set or the rear wheel. Remember that not all testing equipment measures watts the same way and there will be difference between these devices.

Blood Lactate Level – The measurement used to describe the level of lactic acid present in the athlete's bloodstream at a given time.

VO2Max – The measurement which describes the breathing capacity of an athlete and their body's ability to take up oxygen from the air breathed by the lungs.

Pedaling Efficiency – The level of efficiency the athlete demonstrates when pedaling the bicycle through all 360 degrees of rotation of the crank arms.

Overall Efficiency – The athlete's ability to combine their personal performance factors into the most efficient riding technique possible.

When you go out on a training ride, whether you are part of a group, or going it solo, you should always have a goal. You should also have an understanding of how to measure your success at reaching that goal. Too many athletes spend time and money getting the latest equipment to help them improve, but then will admit they aren't really sure what all the numbers mean. The way to start understanding the numbers is in knowing which numbers matter and which ones don't. The highest numbers don't always guarantee the highest results. Read up on the technology you use. Talk to your coach and fellow athletes and use your imagination. Good Luck!