Creating a Needs Analysis for Sports Training Programs

The popularity of sports specific training has grown in recent years. Clients strive to improve in their sports and activities and look to personal trainers to help attain those goals. Many trainers though, are at a loss when it comes to creating sports specific programs because the dynamics of the training are completely different than that of weight loss and health attainment. The key to success is to match the demands of the activity with the exercise selection and programming variables. Applying traditional strength exercises is the most common error made when programming for sports performance enhancement because these exercises do not match the demands of the sport. Benching and squatting may assist in some fashion, but they are not very sport specific.

The first step in designing an exercise program is to create a needs analysis. For sport programming this requires an evaluation of the sport to determine what activities will transfer into actual improved performance. The evaluation process can be fairly laborious if it is done in a detailed fashion. Video review is often very effective for determining movement patterns, speed demands, and body segment requirements. Additional research may be required to perform an injury analysis, so that muscle balance is properly accounted for and preventative measures are appropriately taken.

To properly discern the unique characteristics of the sport or activity it is often easiest to split the evaluation into three segments. The first segment is the biomechanical analysis. The goal biomechanical analysis is to ascertain and evaluate the movements of the body, the muscles involved, and the factors that affect efficient coordination of the particular tasks required of the sport. The second segment, referred to as the physiological analysis, reviews the contractile properties and the energy systems that drive them. This includes analyzing the specific requirements for power, speed, strength, and related factors. The third analysis is injury prevention and looks at common injuries of the sport and the most common causes during participation and practice. Collectively, the information will identify the exercise selection, energy systems to be employed, and programming variables required for inclusion in the program matrix.

The second step in creating a sport specific program is to identify the relative factors of the athlete. Current fitness level, training status and experience, muscle balance, and previous injuries all contribute to the program component decision making process. For instance, simply using a Division I off-season training program found on the internet may be completely inappropriate for the client due to their relative capabilities and training experience. If the exercises cannot be done with proficiency or are beyond the client’s current level of fitness, then it makes little sense to include these exercises in the program, at least at that particular time in the training cycle.

Evaluation of the client or athlete suggests the need to test or assess them to see where they are and what they can or cannot do. Testing is another common area for error because many people do not fully grasp the details that support the decisions test selection is based upon. There are some important questions that one must ask themselves before selecting a test, because one size does not fit all. Here are some examples:
CREATING A NEEDS ANALYSIS FOR SPORTS TRAINING PROGRAMS

- What is the purpose of the test?
- What does the data provide?
- How will improvements related to the test data affect performance?
- Will it accurately track performance changes?
- Does it match the activity, sport or position?
- Is it metabolically consistent with important actions?
- Is it population appropriate?
- Does the athlete know how to perform the test?
- Is it safe?
- Is it valid and reliable?

Answering these questions will certainly help shape the test selection process. Testing should be meaningful, quantifiable, accurate, and repeatable. Deciding on the right group of tests can make a huge difference in the exercises selected, usefulness in tracking and predicting outcomes, as well as motivating and psychologically stimulating the athlete or client. When implementing testing protocols it is important to strictly adhere to the correct methodology and account for factors that may invalidate the data. To enhance the accuracy of testing a couple of steps should be taken to ensure a positive return on your time and effort. The following steps can help increase the accuracy of the tests used.

1. Make sure that you know the protocol and have all the necessary equipment.
2. Make sure the test subject is proficient in the movements of the test and is familiar with how to perform the test.
3. Make sure the equipment has acceptable discrimination in measurement.
4. Make sure the test subject is not influenced by any internal or external factors.
5. Make sure the test subject is appropriately motivated for the test.

Additional steps can also be helpful when retesting. Reliability is equally important for use of the data and to track progress and make future decisions.

1. Make sure the conditions can be duplicated including time, equipment, environment, and pretest recovery.

2. Insist on strictness to protocol.
3. Account for all pretest factors – warm-up and motivation.
4. Use the same tester and clearly define the scoring system previously used for testing.
5. Make sure the test is absolutely consistent in all regards with previous tests.

Employing these strategies will help ensure quality data is collected. Once the scores have been tallied, the data can be added to the needs analysis based on the findings. Identify strengths and weaknesses, performance capabilities, and any other relevant information that can be ascertained from the testing procedures and outcomes. At this point the needs analysis should have the supportive information for proper construction.

The easiest way to create the needs analysis is to simply list the needs as they are identified. You may want to break the needs down by categorical attributes or characteristics for organization and critical analysis. Once the list has been completed, identify the type of exercise that addresses the need. For instance, if ground based power in the sagittal plane is required, as it will be in many sports, than accelerated hip extension will be used to enhance this performance quality. Next to each need simply record the general remedy. Remedies can either be very specific or more generalized. Either way, once the remedy is identified the decision of how it will be implemented is the next step. Using the same example, powerful hip extension can be accomplished by Olympic lifts and both slow and high speed plyometrics. Therefore,
some decisions must be made to best select the exercises that are appropriate for the individual. If the athlete has never completed Olympic lifts, than obviously these are not appropriate yet, but using the plyometrics or teaching assistives may be useful. Identify one or more exercises that fit the need and move on to the next need.

You will find that by implementing this method a large selection of individual specific exercises will be identified. Once this has been accomplished, take the exercises and rank them by difficulty and by training cycle appropriateness. For instance, the power cleans may not be used in the first cycle because the athlete needs to possess a baseline level of muscular endurance and muscle balance before adding loaded power movements. In this case exercises, that better suit the needs of the initial phase of training would make more sense. Tailoring the movements to reflect the goal is relatively easy because guidelines already exist.

Once the exercises have been ranked and categorized they can be placed in the program matrix using universally accepted guidelines and applying the principles of exercise. Sets, reps and rest periods will reflect the training cycle goals. Intensity will be consistent with the repetitions, and the exercise order will be based on known ordering principles. Hard, fast, and heavy exercises first; slower, stable, lighter, and isolated exercises last.

If the physiological analysis is correct, the exercise program will match the energy system of the sport. If the biomechanical analysis is done correctly, the exercises will match the body movements and the muscles utilized during the sport. If the injury analysis was thoroughly completed the program will account for sport specific muscle balance, stability, healthy joint function and range of motion. And if the process was accurately individualized, the whole plan should cater to the exact needs of the athlete or client.

Tracking the program activities and modifying the variables to best account for adaptations will help ensure the program stays on track. Progressing the athlete through new challenges, while watching for new deficiencies is a critical role in ongoing success. For new programmers, some trial and error will occur, but using an intelligent decision-making process and applying prudent judgment goes a long way in safe and effective sports conditioning.