

Writing Training Programs

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Principle 1: Programs need to be athlete-centred

For best effect training programs need to be athlete-centred, that is focussed on the actual needs of the individual athlete. While it is possible to develop and obtain *some* advantage from generic programs, in reality every athlete will present a unique situation for the coach. It is likely that, in any group of athletes, there will be a great many differences between individuals in terms of:

- Strengths and weaknesses in physique
- Technical development
- Time available for training
- Flexibility (range of movement)
- Training and competition experience
- Level of fitness / adaptation to training
- Injury status
- Goals and motivation

For these reasons the use of generic programs can lead to unsatisfying and possibly damaging results. Nevertheless, coaches will frequently make use of generic programs that are either developed by themselves, downloaded from the internet or borrowed from other coaches. This is because it is far less time expensive to develop one generic program for use by several individuals than it is to develop a program specially tailored for each individual. Athletes tend not to understand or appreciate the amount of time involved in writing programs which, for some coaches, may amount to many hours per week.

Principle 2: Programs never convey sufficient information

Even well-documented training program will have gaps in the information it presents. For this reason, athletes need to be educated in how to interpret and use a program that has been developed for them.

For example, this athlete education might include:

- Using the program as a rough guide rather than a rigid set of rules
- How to make changes to the program if there are injury concerns
- What to do if you miss a session
- What happens when you suffer fatigue or soreness
- What the athlete should be thinking about as they undertake a particular exercise
- How the athlete should utilise lighter sets to work on technique, speed and flexibility
- What course of action to take if technical errors creep into training

This athlete education makes all the difference. It is quite possible to give exactly the same program to two individuals who have very similar attributes and see complete different results. One athlete may thrive on a particular program while another will think it highly ineffective. Therefore an important skill for coaches to acquire is to be able to constantly adapt training programs to the ever-changing situation of the athlete.

Principle 3: Programs need to maximise the value of time expended

When developing programs, the first factor to be considered is time. It is important to know how much training time, in terms of frequency and duration of sessions, is appropriate for the athlete. Training

needs to fit in with the athlete's study or work commitments, family and social life, and their training goals. While coaches might naturally want the athlete to commit significant hours per week to training, it is not always in the athlete's best interests to do so. Training for sport needs to have a beneficial effect on the athlete's life experience or else the athlete will soon disengage in training. Each athlete (or in the case of children, their parents) will determine how much time they can afford for training so as to not cause a deleterious effect on other aspects of life. If the athlete becomes keenly interested in developing a high level of performance, this will become evident to the coach. The athlete may enquire about additional training sessions, expanding training time or requesting ideas for additional work they can do at home.

What is important for the coach to consider is that whatever time is available for training results in the best possible value for the athlete. This should not be interpreted as meaning that the athlete must be caused to work as hard as possible during the time available. Value is created when the athlete is:

- Learning about training
- Enjoying their training and is motivated by their training experience
- Making progress with the technical development
- Improving in levels of fitness
- Developing confidence in their abilities
- Strengthening friendships with others in the training environment

Principle 4: Programs should provide continual variations of training stimuli

Training is a systematic and controlled process that causes physical and mental changes in the athlete as a result of the application of various training stimuli. Table 1 below provides some examples of what is meant by training stimuli in the sport of Weightlifting.

Table 1: Examples of training stimuli in Weightlifting

- The selection of exercises performed by the athlete
- The weight on the bar
- The number of times (repetitions) the bar is lifted in a session
- The range of movement e.g. full squat, partial squat
- The number of repetitions per set
- The proportion of training focussing on skill development
- The proportion of training focussing on strength development
- The amount of work done on improving or maintaining flexibility
- The focus on speed development
- The amount of work done on cardiovascular fitness
- The active recovery training e.g. other forms of sport and exercise

By controlling the above stimuli, the training process can be adjusted so that it is appropriate for the athlete and produces the desired adaptation. Novice athletes will tend to respond to low levels of training stimuli and therefore training programs need only be simple at first to cause a general improvement in fitness and skill. As an athlete adapts to their training, however, further progress becomes increasingly limited until one or more of the above training stimuli is changed in type and/or increased in severity and frequency. Ultimately, a position is reached after many years whereby training stimuli cannot be increased or advanced to a higher level because the athlete either physically or psychologically cannot adapt further. It is always difficult to judge the level to which an athlete can reach given the best possible coaching and support. However, the limit of the athlete's capacity may

become apparent when chronic injuries appear and further changes to the program appear to have no beneficial effect in performance or injury reduction.

From an athlete's first session until their last, therefore, there is a need for constant variation of training stimuli to promote further adaptation. Whereas everyone understands the need for the athlete to pursue improvement in the weight lifted, there is less understanding about how to vary other stimuli. There is always a tendency on the part of athletes and coaches to think in terms of training stimuli as a formula. Traditionally, great attention is usually paid to the intensity of work done, and the number of sets and repetitions. But there is no formula for success, only principles of training, and this is one of the main reasons for writing this paper. Developing training programs therefore needs to be athlete-centred rather than a formularised approach (the use of generic training programs).

It is the skill and knowledge of the coach that is of paramount importance in making the changes to the athlete's training program. There will always be some aspect of technique to work on and therefore a myriad of possible changes to make to the exercise schedule. If an athlete needs to work on the finish of the pull, there is a large number of exercise variations available involve lifting from different positions above the knee, performing full lifts or "power" lifts, and including a range of pull-only exercises. Further variations can be also achieved by halting at different positions and by altering the speed of the pull and the duration the athlete remains in any position (e.g. the receiving position).

It would be an error to think that progress can only be made by increasing the overall severity of training stimuli i.e. more weight, more sets, more reps. It is often the case that athletes figure that attempting to lift heavier weights as often as possible is the road to success. However constant variation of training stimuli can be achieved by trying new exercises, or trying old exercises in new ways, or changing the volume of lifts, or by changing the proportion of time spent on particular exercises. It is even worth considering that training in different locations with different coaches can promote further learning and increased motivation, and this has a beneficial effect on adaptation.

Principle 5: Programs need to avoid injury

A chronic injury is an injury that happens over a period of time, and is sometimes referred to as an "overuse injury". Chronic injuries can significantly hinder the rate of progress of an athlete over their entire career and in some cases can be the final factor that ends the career of the athlete and imposes a ceiling on the performance that they can achieve.

Chronic sport injuries often begin as a minor irritation that the athlete ignores. A good example is a small amount of soreness in the patella tendon just above or below the knee. This type of injury, if treated early, can be resolved within weeks. If ignored, and the athlete continues to train, this injury can become increasingly debilitating and can take months to resolve. Another common chronic injury is soreness in the wrist joint, particularly around the Scaphoid bone (on the thumb side of the wrist). Early intervention by ceasing snatches and reducing loading in other overhead work for 1-2 weeks will often resolve the injury. However, if the athlete continues to train with Scaphoid soreness, the injury may result in a stress fracture and need immobilising for many weeks.

In dealing with injuries therefore, it is important to take action early, obtain appropriate medical advice and think about the long-term consequences of pushing on with training when an injury becomes apparent.