Athletes Self-Monitoring - Leo Isaac

There are multiple benefits for athletes to keep a log or diary of their session-to-session training activities and, importantly, record a regular self-evaluation of their performance and well-being.

These benefits include:

- Optimising the prescription of training load

Training logs assist in gathering information about the athlete's physiological and psychological adaptive response to training stress and this enables the coach and the athlete to make more informed decisions about the prescription of training load with a view to preventing overtraining syndrome[1].

- Recording personal best performances

Training logs completed in situ on a session-to-session basis provide a means to accurately record the athlete's performances and in particular this enables both the coach and athlete to have full knowledge of the athlete's best performances on every individual training activity, exercise or drill. This information is greatly important in determining exercise prescription and heightens the athlete's awareness of targeted training activities[7].

- Identifying problems that interfere with performance

Training logs assist the coach to gain an accurate representation of problems interfering with performance[4]. For example, a training log may enable the coach (and the athlete) to identify problems such as lack of sleep, failure to warm-up, injury or soreness, illness and failure to adhere to training prescription[7].

- Assisting the athlete to develop more self-knowledge

Training logs allow the athlete to review previous training and gain an insight into how they managed previous training prescription. This can assist the athlete to maintain motivation through brief but difficult training periods[7] and improve their own self-regulation.

There are a number of practical matters to be considered when asking athletes to record their daily training activity and adaptive response. It is necessary to consider the athlete's level of motivation, experience and maturity in setting the complexity of record keeping required. There is a time impost in record keeping, not only in the writing of the log book but also in keeping it safe and ready to use each training session. For younger age athletes it may be wiser for the coach to distribute and collect log books during each training session whereas for more mature and/or higher level athletes, it may be more useful for log books to be taken home so that further reflection on training can be added and/or symptoms of adaptation or non-adaptation recorded.

One of the important benefits of recording actual training performed in a log book, is that the coach can examine the athlete's adherence to good warming up practice. Issues that commonly arise in warm-up include failure to start sufficiently light (low-intensity), insufficient number of light warm-up sets and large increments in weight between sets. These issues can significantly impact on the athlete's skill learning, muscle fibre recruitment and flexibility. Thus if an athlete fails to perform sufficient warm-up sets and takes large "jumps" in weight, it is likely their performance will be diminished in terms of weight lifted and/or technique.

Another very important benefit that can be accrued through accurately kept training logs is the recording of failures. This information is vital in determining the training prescription. Failures may occur as a result of many factors, or combinations of factors, that may be physiologic, psychologic

and technical in nature. For whatever reason, it is potentially damaging if an athlete experiences failure on a frequent basis. The coach, through the existence of a well-kept log by the athlete, can monitor the frequency of failures and determine their likely causes. This assists the coach to reset training load parameters to reduce the incidence of failure.

Monitoring Adaptive Response to Training

Adaptive response is the ability of the body to maintain an internal state during strenuous exertion as close as possible to the resting state and to restore bodily systems as promptly as possible after the disturbance caused by strenuous exercise[3]. *Adaptive response to training* is the ability of the body to better resist stress damage by prior exposure to a lesser amount of stress[2].

While it is greatly important for the coach and athlete to monitor training load in terms of volume, intensity and failures, a training log also provides an opportunity to gather information about the athlete's adaptive response to exercise. This is particularly important when the coach is not always able to be present during the athlete's training.

In situations where athletes have high ranking on a world level, their adaptive response to the training prescription can be measured according to a wide range of physiologic and psychologic variables. For example, such variables can be measured through the laboratory testing of the athlete's blood and urine chemistry[6] and/or the recovery-rest questionnaire (REST-Q)[5].

For the great majority of athletes, however, measures of adaptive response need to be simple, immediately achievable and cost free if they are to be effective. On this basis, the following measures (criteria) might be appropriate for use within a training log for weightlifting:

- Energy level
- Hours of sleep
- Food intake
- Muscle soreness
- General satisfaction with training.

The rationale for selecting the above criteria for self-monitoring by the athlete is explained below:

Table 1: Criteria for simple monitoring of adaptive response to training

Criteria	Rationale
Bodyweight	In Weightlifting, falling bodyweight is generally indicative of problems with training, life stresses, and ill-health. Bodyweight is normally expected to slowly increase in weightlifters 15-25 years as a result of hypertrophy.
Energy Level	This criterion aims to assess the general mood, readiness and desire of the athlete for a training session. In reality, "energy" is a misnomer and actually physiologic energy is not the variable to be measured. Nevertheless use of the term "energy" may suffice to gauge the athlete's general want to train.
Hours of Sleep	Lack of sleep is an increasing phenomenon in society and needs to be considered when assessing the athlete's recovery from training load.
Food Intake	Athlete's often arrive at training with little food intake, particularly on Saturday when training is early but also on days where they have been engaged in lectures or work without a break since lunch time. This measure enables the coach (and athlete) to take food intake into account in diagnosing possible causes of

	problematic training performance that is ongoing.
Muscle Soreness	Muscle soreness is a dominant and obvious factor that decreases training performance. While athletes may experience muscle soreness frequently in training, it becomes an issue of greater significance when soreness does not dissipate after one or more days of lighter training load.
General satisfaction	The athlete's overall satisfaction with each and every training session is a probable factor in their ongoing motivation. This criterion enables the coach to pre-emptive in regard to training prescription by monitoring for frequency of dissatisfaction.

The monitoring of training load and adaptive response over a period of time (i.e. weeks, months) is the most fundamentally important reason for the athlete to keep a training log. Over time, the training log has the potential to yield much useful information provided the coach and/or athlete have the inclination to go looking. This useful information falls into two main categories (a) Adaptive response (b) Trends in training performance.

References

1. Calder, A. 2006. "Performance Recovery – Monitoring Strategies for Tennis". Medicine and Science in Tennis; 11(2): pp 6-7.

2. Crawford D. and Davies K., 1994, Adaptive response and oxidative stress, Environ Health Perspect., 1994, December; 102 (Suppl 10): 25–28.

3. Darling, R., 1947, in Brooke J. and Knowles J, 1974, A review of physiological adaptation to physical training for endurance with special reference to rugby football, British Journal of Sports Medicine, Vol8, Issue 2-3, pp. 140 - 147

4. Gardner, F., & Moore, Z. (2006). Performance impairment-II (PI-II). In F. Gardner & Z. Moore (Eds.), Clinical sport psychology (pp. 157–170). Champaign, IL: Human Kinetics.

5. Kellmann, M. and Kallus, W., 2001, The recovery-stress questionnaire for athletes : user manual Human Kinetics, Champaign, IL :

6. Mackinnon, L. and Hooper, S., 1994, Training logs: An effective method of monitoring overtraining and tapering, Sports Coach, July-Sep, pp 10-12

7. Young, B., Medic N., & Starkes, J., 2013, Effects of self-monitoring training logs in behaviours and beliefs of swimmers