

Implementation of Recovery Strategies: 100-Point Weekly Recovery Checklist

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To maximize performance, athletes require a delicate balance between training stress and recovery. An expansive review by Smith,¹ titled *A framework for understanding the training process leading to elite performance*, highlights that peak athletic performance is a multidimensional phenomenon, with key factors identified as the balance between stress, fatigue, and recovery, termed the

stress/fatigue state. The stress/fatigue state has been described by Kentta and Hassmen² as a psycho-socio-physiological phenomenon. Therefore, identification of the source of stress (psychological, social, and/or physiological) and the type of resultant fatigue athletic trainers and therapists (ATs) experience is needed

athletic performance, it is often inadequately addressed and/or overlooked. Jeffreys³ highlights that “time devoted to planning the training is often far disproportionate to the time spent planning the recovery.” Consequently, ATs are continually searching for ways to implement practical recovery strategies that can optimize recovery from training and competition, as this will benefit the subsequent training session and performance period.⁴

KEY POINTS

- ▶ Optimal training adaptation requires balancing training stress and recovery.
- ▶ Athletes must be proactive in the recovery process.
- ▶ Self-initiated, proactive recovery strategies assist athlete compliance.
- ▶ 100-point weekly recovery checklist is a useful athlete education tool.

to develop appropriate recovery strategies and to assist athletes with implementation of such strategies. This suggests that we must monitor our athletes to determine their current stress/fatigue states and implement strategies to maintain balance between stress, fatigue, and recovery. Despite the importance of optimization of recovery on

Optimizing Recovery

It has long been recognized that without adequate recovery, an athlete will not achieve his or her full performance potential^{2,5,6} due to the accumulation of progressive fatigue, often termed overtraining syndrome.⁷ Therefore, optimizing recovery is an essential component of the overall training plan. Recovery strategies such as compression therapy,⁸⁻¹⁰ nutrition and hydration,¹¹⁻¹³ hydrotherapy and water immersion,¹⁴⁻¹⁶ massage and myofascial release,¹⁷⁻¹⁹ athlete self-monitoring, and lifestyle factors²⁰⁻²² have been recommended. The purpose of this report is to describe the implementation of a 100-point weekly recovery checklist. Readers are referred to other reviews for aspects of recovery that are not addressed by this report.^{2,3,21}

100-Point Weekly Recovery Checklist

The 100-point weekly recovery checklist was developed for the Indonesian Olympic Team to use during preparation for the Beijing Olympic Games. The training philosophy employed by the national coaches was that of high volume, which was consistent among the coaches of 16 sports (archery, swimming, diving, taekwondo, boxing, weightlifting, cycling, shooting, indoor volley, beach volley, canoeing, rowing, sailing, tennis, badminton, and athletics). An example of a high-volume weekly training schedule is outlined in Table 1. Little emphasis was placed on optimizing athlete recovery, due to a lack of recovery knowledge, facilities, and equipment. The primary goal was to develop a “practical approach to recovery” that could easily be implemented by ATs. A weekly recovery checklist was developed that gave a numerical recovery goal per week (i.e., 100 points) to motivate the athletes to engage in self-initiated, proactive recovery strategies. Proactive recovery has been defined as self-initiated recovery strategies that are a planned and systematic part of the training program.⁵ Following consultation with sports medicine clinicians, four proactive recovery focus areas were adapted from the work of Jeffreys²³ and implemented (Table 2). Clinician involvement in the process of selecting the recovery focus areas helped to educate them and facilitated successful implementation of the program.

Education Process

A three-part education process involved (a) ATs, (b) strength and conditioning coaches, and (c) athletes. Emphasis was placed on development of knowledge and practical skills for identification of signs and symptoms of overtraining (red flags) and factors that contribute to achieving balance between stress, fatigue, and recovery. The education process incorporated a variety of learning and teaching strategies for knowledge acquisition (i.e., visual, auditory, and kinaesthetic). Initial education sessions involved small groups of ATs and consisted of 20-minute interactive presentations on overtraining, athlete monitoring, and practical application of recovery strategies. These sessions provided opportunity for group discussion. Strength and conditioning coaches were given education materials and were provided with instruction for implementation of each recovery strategy. The education process was complicated by the need for translation, because English was a second language for the majority of staff. To facilitate comprehension, all information was presented in both English and Bahasa Indonesia, with an emphasis on practical demonstrations. An athlete’s daily recovery score was recorded in a training diary, which was reviewed by a strength and conditioning coach prior to the beginning of each training session. This facilitated discussion with the athlete about his or her stress/fatigue state and recovery status. When “red

TABLE 1. WEEKLY TRAINING SCHEDULE: INDONESIA ARCHERY TEAM

Training days per week:	6	Recovery sessions per week:	0
Training sessions per week:	16	Average session duration:	2 hrs,48 min
Total arrows per week:	1410	Average arrows per session:	235
Bow-draw strain per week:	49,350 lbs	Average draw strain per session:	8225 lbs
Strength training:	3 sessions per week	13 exercises; 3 sets/10 repetitions	
Strength training volume:	1170 units/week	390 units/session	

Note: Bow-draw weight = 35 pounds (lbs). Training volume = sum of sets × repetitions.

TABLE 2. PROACTIVE RECOVERY FOCUS AREAS

Neural recovery:	Massage and compression therapy
Muscular recovery:	Hydrotherapy and contrast water therapy
Substrate recovery:	Nutrition and hydration
Psychological recovery:	Athlete self-monitoring and lifestyle quality

Adapted from Jeffreys²³

flags” were identified, the athlete was referred to an AT. The athletes learned how to read body responses to training and to adapt recovery strategies accordingly. The education process is essential for both ATs and athletes to facilitate self-initiated, proactive recovery.³

Numerical Recovery Point Value

The numerical recovery point value for each recovery modality is presented in Table 3. Determination of point value was based on (a) the effectiveness of the recovery modality (research evidence supporting its use) and (b) the level of athlete engagement required for its implementation (self-initiated, proactive recovery). Thus, the numerical recovery point value represents a combination of evidence for modality effectiveness and degree of athlete engagement in implementation.

Checklist Instructions

To reduce the stress/fatigue state and to optimize recovery, the elite athletes were encouraged to achieve 100 points on the weekly recovery checklist. The athletes were encouraged to select two or more daily recovery strategies (Table 3), with strategies from each recovery focus area used at some point during the week. Checklist instructions are outlined in Table 4. An example of how an athlete may implement proactive recovery strategies to achieve 100 weekly recovery points is presented in Table 5.

Conclusion

Optimizing performance requires a balance between stress/fatigue and recovery, which is best achieved

TABLE 3. RECOVERY STRATEGIES, DESCRIPTIONS AND NUMERICAL RECOVERY POINTS

Recovery strategies	Description	Recovery points
Compression garments	Worn during travel	10 points
	Worn during sleep	15 points
Contrast water therapy <i>Hot/cold shower</i>	Alternate 1 minute hot / 30 sec cold Repeat 10 times	5 points
Hydrotherapy <i>Pool recovery session</i>	Alternate swim strokes, running drills, stretching. 20–30 minutes.	10 points
Hydration monitoring <i>Change in bodyweight</i>	Pre- and post-training bodyweight. Fluid ingestion = 1.5 × kg lost	5 points
Athlete self-monitoring <i>Training/Recovery diary</i>	Sleep, bodyweight, energy, muscle soreness, RHR, RPE	5 points
Massage and manipulation <i>Myofascial release</i>	Deep tissue massage (30 minutes)	15 points
	Self-Massage (tennis ball, foam roller) (15 minutes)	10 points
Nutritional supplementation <i>Nutrient timing strategies</i>	Pre, during, post-training nutrient ingestion	5 points

Abbreviations: RHR = Resting heart rate; RPE = Rate of perceived exertion

TABLE 4. CHECKLIST INSTRUCTIONS

Every time you use a recovery activity, the allocated points are added to your weekly total.
Use two or more recovery activities daily.
Strategies for each recovery focus area must be used during the week.
Write your daily recovery points in your training diary.
Your goal is to achieve 100 weekly recovery points.

TABLE 5. EXAMPLE OF PROACTIVE RECOVERY STRATEGIES TO ACHIEVE 100 WEEKLY RECOVERY POINTS

Recovery Strategies	Daily Recovery Points	Days Used Strategy	Weekly Recovery Points
Compression garments	10 points	0	0 points
Contrast water therapy <i>Hot/cold shower</i>	5 points	2	10 points
Hydrotherapy <i>Pool recovery session</i>	10 points	1	10 points
Hydration monitoring <i>Change in bodyweight</i>	5 points	3	15 points
Athlete self-monitoring <i>Training/Recovery diary</i>	5 points	7	35 points
Massage and manipulation <i>Myofascial release</i>	10 points	2	20 points
Nutritional supplementation <i>Nutrient timing strategies</i>	5 points	5	25 points
Total Weekly Recovery Points			115 points

when the athlete is proactively engaged in the recovery process. Neural, muscular, substrate, and psychological recovery strategies were utilized to develop a 100-point recovery checklist. A three-part education process (ATs[®] strength and conditioning specialists[®] athletes) was found to be effective. The 100-point checklist provides a useful tool for ATs to educate athletes about the importance of post-training and post-competition recovery, and to promote self-initiated, proactive recovery strategies for maximum performance. ■

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