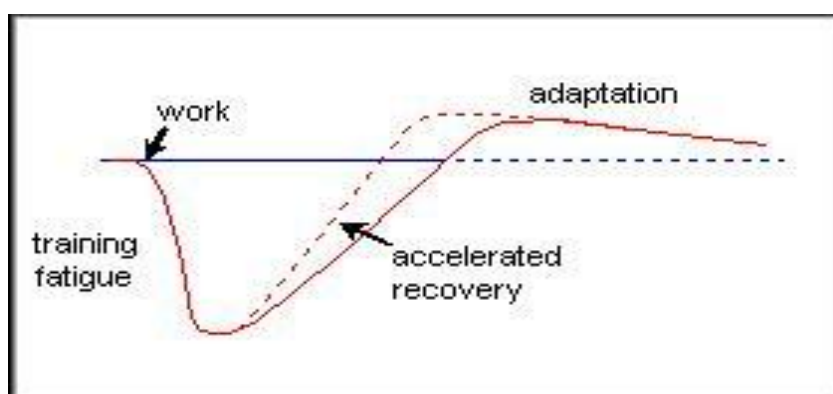


“RECOVERY - How to optimise adaptation and bounce back faster”

To be successful in any sport you need to work hard, push your body and mind to extremes but also be able to adapt to the tough work you do in the gym and when competing.

In many sports training hard and training smart do not always go hand in hand. Too often coaches and athletes can be guilty of focusing too much on the hard work and forget to match this training with recovery and regeneration. This can lead to conditions common to athletes such as over-training, overuse and burnout.

So, how can you train hard without getting injured or sick?



Work hard + recover well = best performance

The diagram above shows training load as the stressor which results in fatigue. Adaptation is accelerated by recovery practices which reduce fatigue and return the challenged systems (whether physical, psychological or neural) to normal as soon as possible.

Thus, the quicker you recover, the fresher you are to train/compete, the better your chances are to improve. The challenge for coaches and athletes is finding the balance between stresses and recovery which allows the athlete to recover and bounce back from heavy training

No two athletes will respond to a training load in the same way, so it is very important to individualise training loads and programmes. Programming of recovery into a microcycle (year), mesocycles (month/week) and macrocycles (day) will optimise performance and minimise overreaching (leading to burnout/overtraining).

Daily Monitoring is also important to understand how well the athlete is coping with and adapting to training and competition stressors, to identify which capacities are fatigued and to select appropriate recovery strategies to restore them.

Types of Fatigue

There are 5 types of fatigue you are likely to encounter:

1. Metabolic (energy stores) - Metabolic fatigue is evident after sessions longer than 1 hr, multiple session days, early fatigue or non completion of the session.

2. Neural (peripheral nervous system-muscles) – Peripheral nervous system fatigue is evident after high intensity sessions, the athlete demonstrates reduced force, slow feet, or poor technique.

3. Neural (central nervous system...brain) – Central nervous system fatigue is evident when low blood glucose is experienced, after high pressure training (decision making) or monotonous sessions or the athlete lacks drive/motivation.

4. Psychological/emotional – Psychological fatigue can be as a result of competition, squad and lifestyle pressures. This can be identified via low self esteem, poor interaction, negative body language or poor sleep patterns.

5. Environmental/travel – Environmental fatigue is a result of disrupted normal patterns/sleep, change of climate or long sedentary journeys. Factors that can identify environmental fatigue are, the athlete being slow to warm up, making unforced errors or early fatigue.

Identifying non-adaptation

The coach and the athlete both have a responsibility in ensuring adaptation is achieved. The coach can observe cues and signs that indicate how the athlete is coping with training, noting them in a daily log book, whilst the athlete can self monitor and provide important intrinsic feedback.

Warnings of non-adaptation:

- Sudden drop in body weight (more than 3%). Small fluctuations -hydration
- HR +20bpm above normal (+ 5bpm light training), 2-3 bpm normal
- Sleep disturbances (plus or minus 2 hours for more than 2 days)
- Low quality sleep for more than 2 days
- Feeling constantly tired. Feeling tired is normal but continuous fatigue = poor recovery (consider day off/lighter activity)

Crucial Markers for Athlete Self-Monitoring:

- Morning Body weight – before eating and toilet
- Morning resting HR – lying in bed (be consistent)
- Sleep patterns – record quality and quantity
- Attitude to Training

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Point West, 116 Cromwell Road
Kensington, London.

The Lodge, Parkside Hospital
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Recovery strategies

Once we have identified which systems are fatigued the next step is to select appropriate recovery strategies to restore them. Below are a number of recovery strategies and some ideas of how to best implement them.

Passive Rest - Maintaining regular sleep/waking and eating times/habits is important for optimal recovery, as disruptions to sleeping patterns can increase fatigue and delay adaptation.

Sleeping tips:

- Practice relaxation techniques before going to bed (relaxing music, muscle relaxation, breathing exercises, visualisation)
- Lie down to sleep ONLY when you are sleepy and if you don't fall asleep within 30 minutes after turning out the light get up and do some relaxation work
- If you wake up in the night and can't go back to sleep do some relaxation work
- Get up at the same time each day to develop a positive sleep/wake strategy

Things to avoid in the evening:

- Caffeine (e.g. Coffee, tea, coke, chocolate)
- Nicotine
- Alcohol
- High protein and high fat meals
- Large meals within 2 hours before sleep

Active Rest - Active rest is an effective means of recovery post training, on the day after competing or on a 'rest day' in your training week.

Post training:

- A light swim, bike or walk to aid recovery of the lactate system and physiological state.
- Stretching to return postural efficiency and aid musculoskeletal recovery.

Post Competition or on rest days:

- A pool recovery session or light aerobic work will act as a form of psychological and physical recovery.

Fluid and fuel for recovery - It is important to balance fluid and fuel intake with expenditure

Hydration:

- A body weight loss of 2% or more can result in measurable physiological changes
- Hydration is best measured through pre and post training weighing or urine colour (it should be copious and a pale straw colour)
- Fully re-hydrate (150-200% of fluid lost). Every kg of bodyweight lost = 1L of sweat
- Sports drinks to replace glycogen and electrolytes

Fuel:

- Consume a snack containing 1.5g per Kg bodyweight of high GI carbohydrate and 0.1-0.3g/kg bodyweight of quality protein immediately (within 30 minutes) after exercise.
- Post training snack ideas – Sports drink (with protein), energy/protein bar, meal replacement food/meals
- Repeat every 2 hours until you have a balanced meal

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Physical Recovery Strategies

Hydrotherapy

Warm water – hydrotherapy in warm water is supportive and non-weight bearing, therefore ideal to stretch and self massage.

Contrast bathing – Contrast aids in the removal of lactic acid through vasoconstriction/dilation and stimulates the central nervous system.

Guidelines for Contrasting bathing;

- Alternate heat treatment (e.g. Sauna, Spa or bath) for 3-5 minutes with a cold whirlpool or a shower for 30-60 seconds. Repeat 3 times.
- Alternate 30 seconds in a hot and 30 seconds in cold shower. Repeat 5 times.
- The temperature of the hot and cold treatments should be between 10-15°C and 35-37°C respectively.
- All contrasting treatment should begin and end with cold water.
- Ensure you take on fluid throughout contrasting.
- Contrasting can be used post training or at the end of the day.

Ice Bath Immersion – An ice bath has an analgesic (pain relieving) effect, significantly reducing muscle spasm

Guidelines for Ice bath immersion

- 1-15 minute immersion
- Can be used post training and end of day

Massage

Benefits:

- Increased blood circulation and lymphatic flow
- Aids treatment of muscle adhesions, trigger points or micro trauma
- Improves Flexibility
- Uses the nervous system to relax tissues and reduced pain

When to use massage:

- Pre – Competition/Competition day – light or soft tissue release
- Post exercise – removes waste and stretches fibres
- Restorative – reduces tension. 2 x a week in heavy training
- Can perform self massage using a foam roller
- Individual preference

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Psychological Recovery Strategies

Progressive Muscle Relaxation

- Involves tightening and relaxing specific muscle groups.
- Helps the athlete recognise and reduce muscle tension
- Best post training or end of day

Imagery and Visualisation

- Use mind to create vivid scene which evoke feelings of comfort and relaxation
- Useful to switch off before sleeping

Breathing Techniques

- Help to relax tense muscles

Meditation

- Control the central nervous system by reducing noise of stimulation to the brain
- Can lower blood pressure, HR, breathing, calm the central nervous system and relax muscles

Social Recovery – Getting away from it all

- Encouraging other interests (e.g. Hobby, future career, socialising) provides a release

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If you have any specific questions about improving recovery or any other training concerns please contact us on **0870 2000 878** or reception@puresportsmed.com