

Fatigue and Recovery

*Drawn from the work of Shona Halson, PhD. Previously Head of AIS recovery facility.
Fatigue and Recovery. Interventions and Practical Applications in Sport. Cycling Australia 2010*

Adequate recovery has been shown to result in the restoration of physiological and psychological processes

Recovery is complex

Dependent on nature of exercise

Dependent on outside stressors

These may include-

Training and competition

Nutrition

Psychological stress

Lifestyle

Health

Environment

Athletes often over-train

But frequently under recover

Can occasionally consciously over-train but need to then have good recovery

The Science

Recognised as extremely important component of athletic performance

Recommendations are done on limited scientific investigation

The importance of anecdotal reports of elite cyclists are also considered.

The Essentials

1. Active recovery
2. Stretching
3. Nutrition
4. Sleep

For our Elite/Serious Athletes

1. Compression
2. Massage
3. Hydrotherapy
4. Supplements
5. Psychological recovery

Active Recovery

Low intensity exercise- cycling at low sub-maximal intensity

Believed to be integral component of physical recovery

Anecdotal evidence suggests a reduction in post exercise muscle soreness and Delayed onset muscle soreness (DOMS)

Most common form of recovery- used by most athletes

Stretching

Most commonly used recovery interventions

Rational- to reduce soreness, stiffness, relax muscle, prevent injury

Stretches

- Gluteals

- Lower back

- Hamstrings

- Calves

- Quadriceps

- Triceps

- Pectoralis

Sleep

The quality and quantity of good sleep depends on sleep habits

Aids reaction time, coordination, concentration, memory, motivation and mood

Aids in repair and regeneration of muscle and tissue

Need 7-8hrs each day. Those involved in high levels of exercise need more.

How to get a good sleep

Keep it dark quiet and good temperature- especially if visiting a hot climate

Comfortable mattress and pillow- Take your favorite

Sleep Routine

- Start about 30 minutes prior to bedtime

- Turn off TV and reduce lighting- do not watch TV, DVD, U tube in bed

- Check diary for next day schedule and jot any thoughts

- Have a shower/ bath, toilet and clean teeth

- Set alarm(if necessary) turn off lights

If you cannot get to sleep-it normally takes up to 20-30 min to fall asleep

- If getting anxious do something different like read

- Remove clocks from the bedroom

- Do not do exercise

- Caffeine should be avoided 4-5hrs prior to sleep

- Avoid sleeping tablets as they impair concentration, coordination and alertness

- If napping during day limit to less than 1hr and should not be within 30 minutes of training

- Hi Gi foods may promote sleepiness- white rice, pasta, bread, cornflakes, potatoes, carrots- takes about 2-4hrs to have an effect.

Compression Clothing

Reported that compression clothing

- Increase venous return

- Increase venous blood flow

- Reduced swelling

- Reduce muscle soreness

- Reduce feeling of muscle fatigue, heavy arms/legs

Manufacturers claim that as a result of above there is an increased removal of lactic acid and markers of muscle damage e.g. CK

There is little evidence supporting their claims

Practical Applications of Compression Clothing

Use post exercise

Wear compression for as long as you can post exercise

Get fitted compression garments

Full length tights or lower limb garments are most effective

Athletes should travel in medical grade compression

Wash in warm water in laundry bag- no fabric softener, no dryer, put them on with care

Massage

Decrease in muscle tension and stiffness

Increased healing rate of injured muscle and ligaments

Reduced muscle pain, swelling, spasm

Increase range of movement

Decreased anxiety,

Increased relaxation, enhanced immune and endocrine function and performance

(Despite widespread use and anecdotal evidence there is little quality evidence to support or contest these claims)

Hydrotherapy

Cold water immersion(CWI)

Hot water Immersion (spa)

Contrast Water Therapy (hot/cold) (CWT)

CWI vs HWI vs CWT

CWI and CWT improved recovery from high intensity cycling when compared to HWI and passive recovery.

Practical Recommendations of Hydrotherapy

Full body immersion is best- vs partial body

10-15minutes of hydrotherapy appear effective

10-15 degrees cold effective- 15 degrees helped compliance

Importance of hydrotherapy is to reduce core body temperature CWT should be at a 1:1 ratio.

HWI in isolation should be avoided

All athletes respond differently

Practical Application of Hydrotherapy Recovery

Contrast Showers (hot/cold)

Plunge pool and cold walk through pool (14 degrees)

Spa pools (38 degrees)

Pools or beach proximity will depend where you are- c.f. Wakatipu vs surfers paradise

Ice towels/ cold drinks

Application

Immediate Recovery

Post training/Competition

5-10min warm down immediately after

Complete 5 minutes of stretching

Nutrition- refuel, rehydrate, rebuild

Post recovery

Hydrotherapy

Compression clothing
Massage
Recovery Nutritional plan

Psychological recovery

Feelings of Relaxation
Re establishment of sense of well being
Positive mood

Debriefing

Debriefing of all performances in a consistent manner win or loose.
Can be more difficult to manage the emotion after a highly successful performance

Relaxation

Reduce tension, promote better arousal control and breaking stress cycle
Deep breathing
Progressive muscle relaxation
Other activities away from sport- study, work, yoga, meditation

Nutrition

Recovery- Immediate
Post recovery-

Overall Summary

Have rest days
Have Active Recovery days
Stretch post exercise
Wear compression on your legs
Use CWI or CWT
Eat properly
Massage may help with Delayed onset muscle soreness
Value your sleep
Spend some time relaxing and doing stuff outside of cycling