

Combined method technique in recovery: Practical applications in pre, intra and post workout



組合恢復方法：在訓練前、中和後的實際應用

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Goal:

To be able to determine practical methods for recovery to be used in pre, intra and post workouts.

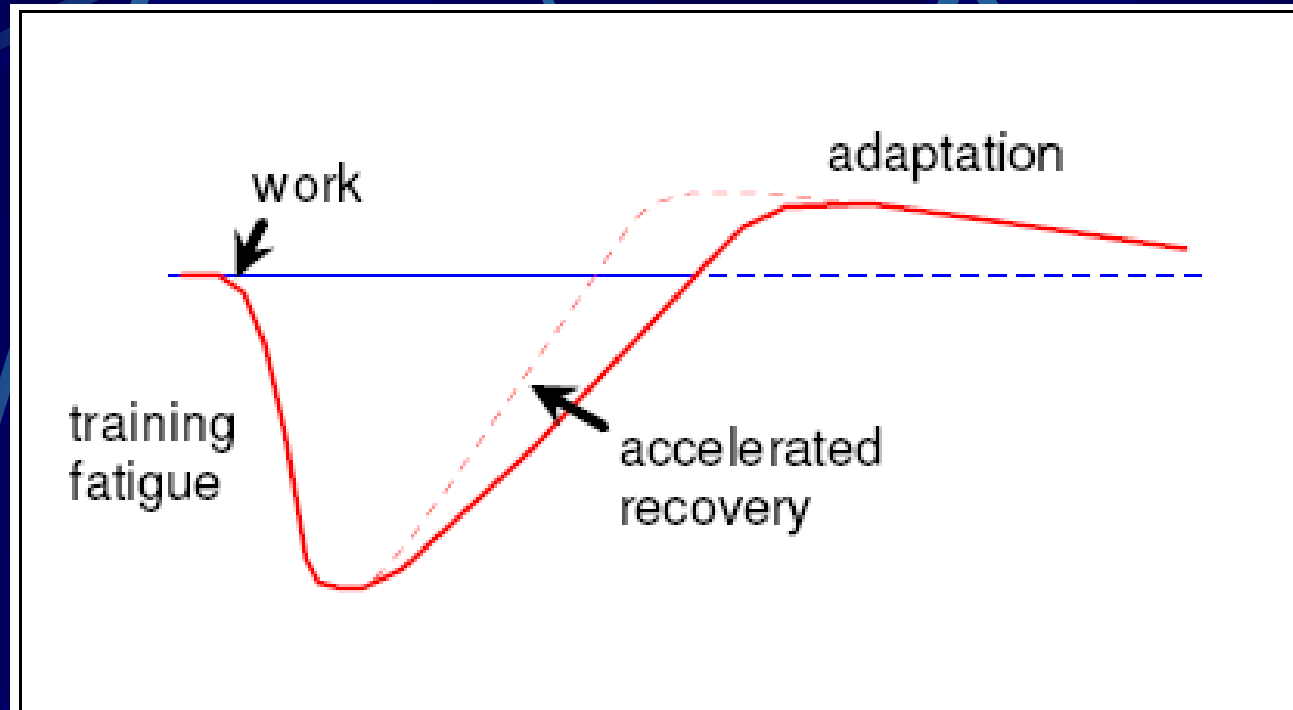
Model

Work Hard + Recover Well = Best
Performance

Rushall & Pyke 1990

... **recovery** is essential part of training
...to train without **adequate recovery**
from previous fatiguing work does not
produce any benefit to athletes, for
they merely learn to cope with fatigue
rather than improving in specific
aspects of performance...

Accelerated Recovery



Calder 2000

Certain strategies should be undertaken to achieve accelerated recovery

● Strategies

- Physiological
 - Physiotherapy
 - Sports Massage
 - Work/rest ratios
 - Active Recovery Methods
 - Cross training
- Nutritional
 - Fluid, Electrolyte and Fuel Replacement
- Psychological
 - Relaxation
 - Meditation
 - Visualization

Physical strategies for recovery can be done during training

- Active rest
- Cross training
- **Stretching**
- Hydrotherapies
- **Sports Massage**
- Acupressure and acupuncture

AIS Recovery Training Module 2000

Recovery time...the athlete is still in the gym...

System	Recovery time
ATP-PC replenishment	2-5 minutes
Removal of lactate	30-60 minutes (active recovery) 60-120 minutes (resting)
Muscle glycogen replenishment	Up to 48 hours

AIS Recovery Training Module 2000

Stretching

- General effect: Increased flexibility
- Different forms and applications
 - Static
 - Ballistic
 - Dynamic
 - PNF
- Recent studies revealed different results with different types of stretching applied during pre-performance
- There is lacking in studies on the effects of stretching between exercise sessions
- There seemed to be no study that suggest stretching between exercise sessions can have negative effects

Static Stretching

- Most common form of stretching
- Slow and constant, with end position is held for as long as 30 secs

Ballistic Stretching

- Bouncing type of movement
- Often used as pre-exercise warm-up
- Triggers stretch reflex that does not allow the muscles to relax, so it defeats the purpose of stretching

Dynamic Stretching

- Functionally based because it uses specific sports movements
- Also called mobility drills or movement prep

Proprioceptive Neuromuscular Facilitation (PNF) Stretching

- It was first developed as part of the neuromuscular rehabilitation program
- Usually needs partner to perform this type of stretching
- Makes use of different types of muscle contractions to initiate relaxation of the target muscle

Suggested applications

- Pre-workout
 - Dynamic
- Intra-workout
 - Ballistic(conservative)
- Post-workout
 - PNF
 - Static

Sports Massage

- Massage therapist
- Myofascial Release
- Muscle energy techniques (MET)
- Positional release techniques (PRT)
- Neuromuscular techniques
- Rolfing therapy
- Craniosacral
- Trigger points
- **Self application, self myofascial techniques**
 - Cheap, immediate, effective for pre, post workout

Background and basis of self myofascial release

- Myofascial meridians (Myers, 2009)
- Basic understanding of anatomical concepts
- Combination of stretch and self myofascial release
 - Timing, intensity, methods
- Application to the different type of sports
 - Short or long endurance

Background and basis of self myofascial release

- Application at different microcycles
 - Intensity, major muscle group based on the dominant mover
- Equipment
 - “Stick”
 - Foam roller
 - Tennis ball

“Stick”

- Timing of application
- Intensity of application
 - Rigidity of the “stick”
 - No. of repetitions
- Prior or after stretches

Foam roller

- Timing of application
- Intensity of application
 - Rigidity of the foam roller
 - No. of repetitions
- Prior or after stretches

Tennis ball

- Timing of application
- Intensity of application
 - Hardness of the balls
 - No. of repetitions
- Prior or after stretches

Effects of both techniques on suppleness

- “Massage may favor recovery from the transient immunosuppression state induced by exercise in healthy active women, of particular value between high intensity training sessions or competitions on the same day”.
- Methods: Myofacial & Craniosacral
 - Arroyo-Morales et al. J. Strength Cond Res 23(2): 638-644, 2009

Combination Method

- A combination of active recovery and massage during a 20-minute recovery period in cyclist, was better at maintaining maximal 5 km time-trial performance than active recovery, massage, and passive recovery alone...

Mondero J, Donne B. Int J Sports Med 2000

Future Considerations

- Conduct more studies on the effects of different types of stretching and massage during intra-workout
- Future studies should utilized trained or elite participants
- Study on different outcome from a workout with and without stretching and massage incorporated in it.