The Role of Coaches during Recovery and Rehabilitation

THE INJURED RUNNER

Tommy Yule
CONSIDERATIONS...

- Training process and its modification
- Complexity and team effort
- Common goals and milestones
- To-do’s
- Opportunity and risk
- Exercises and Loadings
THE TRAINING PROCESS

TRAINING EXERCISES

Quality
Execution
Loadings
Organisation

Improved
Specific Skill

Improved
physical abilities

Monitor

Understanding &
Individualisation

Improved
Performance
Capacity
COACH INTEL

- Necessary before rehab plan can be completed
- Provide information relating to athlete and injury
  - Provide information relating to training volumes, intensities and densities
  - Observations on movement patterns
  - Key competitions
  - Non-negotiable’s relating to preparation for peak performance
PLAN B

- Can’t simply miss part and expect to pick up where they left off or at where they should be now
- Part changed or missing = Process changes = New Process
REHABILITATION – START OF PLAN B

- Coach is responsible for training process, therefore, they must be observed throughout its application.
- If rehab returns athlete to ‘normal’ training then end phase is very event specific.
  
  => *Coach needs to observe, understand and evaluate it.*

- Arriving after a stage of rehab:
  - Only sees finished result
  - Can’t understand the program and therefore how it leads into subsequent phases
  - Won’t fully appreciate if elements of rehab should be maintained in program
Tissue Specific

Running Specific

Training Stimulus

Total Loading Volume

Healing Stimulus

Injured tissue

Health tissue

Inflammation

Proliferation

Remodelling

RUNNING

(1)
Complex systems consist of a large number of components interacting together.

The human body is a complex system.

The overall function cannot be explained by examining the components alone.
KEY MEMBER OF INTERDISCIPLINARY GROUP

- Challenge
- Debate
- Discuss

RUNNING

- Isolated strength
- Drills
- local co-ordination patterns
PERFORMANCE AND INJURY

Multi-faceted – no one fix

e.g. Passive foot contact results from lack of reactivity = lower back injury

- Stiffness / elasticity
  - Trunk, hip, hamstring, foot and calf
- Power and RFD
- Co-ordination
- Endurance
- Coach and ‘team’ need to what’s important and incorporate in rehab
BREAKING FORCES / HAMSTRING STRESS

FORWARD LEAN / ROTATION

POWER IN HIP EXTENSION

LOWER BACK ISSUES
GOAL ORIENTATED

“A perfection of means, and confusion of aims, seems to be our main problem” Einstein

- Goals have to be clear and agreed
  + What milestone have to be achieved?
  + E.g. Isokinetic test or 10x50m
  + Specific targets become increasingly important
  + Depends on phase of rehab, time of year & performance goals
  + Do performance goals need to change?
REHAB MILESTONES

- Assessment spectrum
  + From slow, low load, low skill, isolated
    × SL bridge
  + To fast, high load, high skill, integrated
    × Scissor bounds

- Everything has its unique neural patterns specific to the activity

- Essential to hone specific neural circuitry

- Improve ability to maintain function under changing or increasing stress

- Relevance of each exercise /assessment will change

- Who has the appropriate skill set to best assess?
During all activities a coach should be assessed and monitored:
- Posture
- Balance
- Alignment
- Range of Movement
- Co-ordination

Mechanical flaws eliminated

Training responses (tightness and pain) used to guide training intensities, volumes and densities.
FURTHER TO DO’S

- **Pre-session**
  - Have a session plan
  - Contingency and ‘what ifs’
  - Collect relevant information from ‘significant others’

- **During**
  - Affect learning / develop athlete insight & awareness

- **Post-session**
  - De-brief
  - Evaluate/Learn lessons
  - Broad ‘plan’ for next session
  - Communicate/feedback to the ‘team’
BRAIN RE-BOOT

- Motivate
  - Athlete motivation is not important, it is a requirement
  - Significant predictor of skill retention

- Explore activities
  - Drills to set up correct intent, focus and attention for running
IDENTIFY OPPORTUNITIES

- Being injured provides opportunity that wouldn’t otherwise exist in normal training
- Improve qualities that are difficult to normally move forward
- Development can take place at a greater rate than possible under normal training loads
- Based on athlete, developmental needs and time of year
Preparing for best performance involves decision making relating to

- Exercises
- Organisation

Both influence risk of injury

Reduce risk of injury in all aspects of training

- Anticipate and evaluate risk
- Mitigate risk
Low Risk Programming from Coach

- Exercises away from injury
  - Strength training
  - Bike, aqua, cross trainer, nordic skier
  - Maintenance of fitness
    - Biochemical properties stable
    - Influence neuromuscular pathways
    - Cardiovascular function
    - Hormonal responses
Technical
- Skill acquisition
- Co-ordination
- Body awareness

Physical
- Weakness
- Mobility
- Body dimensions
- Posture

Psychological
- Focus
- Intent
- Effort
- Experience
- Where is the greatest stress seen in the exercise?
  + Area of body
  + Position
- Can the exercise be modified to reduce risk?
  + Reduce loading of valuable area
- If not, are there alternative exercises?
- Depending on injury and athlete a permanent alternative may have to be found
Front Squat

100kg

A  191
K -392
H  446

Low Bar Squat

132.5kg

A  143
K -406
H  575

High Bar Squat

132.5kg

A  81
K -438
H  489

½ Squat

180kg

A  90
K -576
H  411
EXAMPLE: LOWER BACK

- Positions and posture very important
- Reduce loading through lower back reduces risk
  - Step ups, SL squat, Front squat
  - Hip snatch
- Ankle mobility will affect exercise choice
- Develop correct movement patterns (physical & psychological learning)

Progressions
- Pulls from blocks – AK & DB Snatch/SL Snatch before OL lifts
- Low load slower full ROM co-ordinated movement, e.g. muscle snatch 1st
- Slow lifts to fast lifts

Order within a session
- Slower heavier, controlled loading before explosive lifts e.g. Pulls from blocks before hang snatch
NOT ALL PARTS ARE EQUAL

- Level of difficulty through the body not equal
  + Power athletes lower body abilities have developed and may have left their back behind in terms of the qualities required for explosive lifting

- Relative stress greater at vulnerable areas
  + E.g. planned 6x3 80% - 18 reps at 80% for legs and hips, but this may be 18 reps at 95% for lower back capabilities

- Risk can increase further
  + what state is the lower back pre weights?
  + Technique?
ORGANISATION OF TRAINING

OVERWHELMED
Sure, I CAN HANDLE THE LOAD. NO PROBLEM.
ORGANISATION OF TRAINING

- All stressors are additive
- What is a significant increase in load?
- Rest and recovery
  + Better to load a muscle or rest it?
  + Combining running with heavy tissue loading?
- What are the best ways to manipulate volumes, intensities and densities?
- Prioritise sessions /exercises
  + Awareness and agreement of priorities
  + Ensure less important sessions are not adversely reducing tolerance / capacity
LOADING CONSIDERATION IN THE GYM

- Manage a gradual increase in load
- Don’t compromise correct posture and technique for load
- Design progression around weakest part not on what they have lifted before
- Undulate loading through week – L, M, MH, H, VH
- Match stress from weights with stress and training response from track sessions
- Consider 12x2-3 once intensity is >70 to 75%
  + Rediscover/develop correct motor patterns
  + Maintain strength volume but reduced fatigue per set in vulnerable areas
- Clusters - 5 to 10 x 1 undulating
- Drop down sets to achieve desired volumes
  + Heightened neuromuscular function
  + Reinforce and enhance correct patterns
TRAINING RESPONSES TO WEIGHTS

- Areas that need to be addressed post weight
- May have implications for future track sessions
- A lot of weight exercises will cause stiffness in thoracic, lower back, hip flexors and quadriceps
- Without considering these responses injury risk/time to return from injury may be increased
COMPETITION PERIODS

- Agreed goals
  - Injury free on start line may not equal performance
  - Coach has to identify key periods of essential development in order for successful performance
  - Can something be worked out?
SUMMARY

- Process is multi-faceted and complex
- Coaches are integral throughout
- Awareness of risks throughout whole program
- Coach to work with team and to seek opportunities
- Coach has to maintain leadership
  
  "Leadership is ultimately about creating a way for people to contribute to making something extraordinary happen." (Alan Keith)
(1) Matt Lancaster – Running injuries: how to approach recovery training. Peak Performance