

Common Sense Rehabilitation Guidelines

Boo Schexnayder, LSU

1. In the initial stages of rehabilitation, you are trying to gain as much strengthening as possible with as few repetitions as possible. This is to strengthen surrounding musculature while minimizing the number of flexion/extension maneuvers. Basically, the goal is to achieve the highest possible ratio of strengthening to performed work. This dictates lower repetition numbers as follows.

2. Weights used in resistance exercises should be significant enough to elicit fatigue in the 4-8 repetition range, with more sets employed if volumes must be increased. High repetitions mandate working at lower intensities, which is contrary to strength development guidelines. Improper performance of the exercise is not permitted however, and inability to perform the exercise correctly would indicate too much resistance.

3. Extremely high repetition schemes increase the aerobic component of the exercise, which is detrimental to strength development as well. This causes improper cellular adaptation and shifts to slower myosin types.

4. Also, the number of repetitions performed is the best guideline as to the intensity of the exercise. Inability to perform the dictated number of reps indicates excessive weight and intensity, ease in performing the dictated number of reps indicates insufficient weight and intensity.

5. Postural musculature is always weakened and postural musculature usage patterns are always altered by surgery. Limping and crutch usage contribute further to this effect. Therefore, strengthening the joint is necessary prior to any extensive work. Attempting high volumes of work (extensive jogging, pool work, etc.) overfatigue the postural musculature and set up improper firing of kinetic chains because of the lack of postural anchoring. This tends to compound the problem and produce others. Bikes are better because the sitting position minimizes postural demands.

6. Aerobic and anaerobic activity interfere with the body's adaptation to strengthening exercises because the training stimulus is not clear to the adaptive process. This is especially true when done in the same session.

7. Proprioceptive work should be done in a manner that does not overly fatigue the postural musculature. Doing so results in the aforementioned problems. This basically again dictates lower repetitions and increased sets.

8. Proprioceptive work must be constantly altered. When certain proprioceptors are fatigued, the body is forced to be more resourceful and use others. Altering the proprioceptive work constantly via exercise choice and differing training orders fosters varied proprioceptive patterns.

9. In accordance with the overload principle, intensity must be progressively increased throughout the rehabilitation period. In order to increase strength, increasing intensity of exercise must be used as the overload tool. Increasing volume as an overload tool, except in the very first stages of rehabilitation, creates the aforementioned complicating associated with aerobic work.

10. When aerobic and/or anaerobic work are essential to an athlete's sport, this work should be scheduled a least 24 hours away from any strengthening sessions, to avoid interference and an unclear



11. Exercise science research tells us that human adaptations to exercise are practically complete in 21-28 days. Further repetition of a program, then, beyond this time frame is nonproductive. This time frame seems to be accelerated somewhat in rehabilitation situations due to the healing process. Therefore, it seems most rehabilitation should be arranged in two week cycles, with short rest phases between these cycles.

12. Beware the athlete's responses as to the difficulty of the rehabilitation. Extensive aerobic/anaerobic work may be very taxing to the athlete metabolically, while practically no stimulus is being applied to the nervous system. This gives the impression to the trainer that the intensity of work is high, while actually it is insufficient to cause progress.

13. Flexibility must be fostered in surrounding musculature to avoid unwanted tensions and misfiring of kinetic chains. The need for this is compounded by limping, concentrated localized rehabilitation activities, and inactivity of other body parts. Static and dynamic flexibility exercises, massage of adjacent musculature are mandated in these situations. Distal limb segments (lower leg and arm) seem especially prone to loss of flexibility during rehabilitation, so eccentric work is preferred over concentric work with these body parts.

14. Adjacent muscle support and Q angles dictate the exact nature of the rehabilitation exercises and joint angles which can or cannot be trained at various stages of the rehabilitation. Knowledge of these can reveal numerous functional exercises which can assist the athlete attain competitive condition earlier.

15. Using bilateral, as opposed to unilateral exercises can enable the athlete to achieve higher intensities and higher degrees of functionality.

16. The neuromuscular component of training should be begun as soon as possible, even if modified, to the affected body part. Failure to do so limits the effectiveness of the strength development aspects of the program. This is because rate coding ability of the central nervous system seems to erode rapidly during detraining. Neuromuscular training of unaffected body parts should continue as normal, unless muscle balance issues arise. Unsupported sprinting and single leg jumping are excellent ways to accomplish this.

17. Soft tissue injuries require exercise. There will be some formation of scar tissue and gentle exercise minimizes this. Gentle exercise within the confines of pain is advisable.

18. Soft tissue injuries result from excessive tension, so excessive tension in the rehabilitation situation is normally counterproductive and leads to excessive inflammation. For this reason, stretching of injured tissue or even chronically tight tissue is counterproductive. It may give an initial sensation of relief because the muscle spindles have been deadened, but this practice actually increases inflammation and weakens the tissue further because of the weakened proprioceptive response.

19. Most chronic muscle tightness is produced by adhesions and tightness in adjacent musculature. Stretching and massage of these adjacent tissues, rather than the affected ones, are appropriate in these situations.

20. Rehabilitation is not a total pass-fail situation. As the athlete becomes functional in certain areas, the rehabilitation for those areas should be eliminated. Replication in the rehabilitation and training programs is likely to cause excessive fatigue. An athlete who is training functionally needs no rehabilitation.