



FUNCTIONAL REHABILITATION

(Modified from Alan Peppard, MS,PT/ATC, University of Rochester, New York with permission)

Functional rehabilitation involves the gradual accommodation of the limb to the stresses provided by walking, running, cutting, and jumping. When sufficient strength and range of motion have been obtained, it is important that the appropriate reflexes necessary for muscular control during locomotion be developed to protect the healing tissues.

Pain and Progression:

Progression within this program is dependent upon the level of pain with each stage of activity. **Benevolent pain**, as defined below, indicates that the athlete should progress to the next step within the program. **Semi-harmful and harmful pain**, as defined below, is treated by applying crushed ice, rest, and anti-inflammatory medications (Motrin or Aleve), until pain is absent with activity. Return to functional rehabilitation is then started at a step below where the pain occurred. There are five stages in this program. Once you are capable of finishing stage I in one setting, then progress to stage II. Once you are able to finish stage II in one setting, then progress to stage III. Each stage is designed to occupy one full work-out day; therefore, once you have progressed to stage II, you do not have to do stage I and once you have progressed to stage III, you do not have to do stage II. Distance runners should complete this program through stage III, while athletes involved in aggressive agility sports such as soccer, football, volleyball, and basketball should continue through stage

Benevolent Pain:

Phase I: Pain is present after activity, but is relieved by the next day.

Phase II: Pain is present after activity, but it is relieved by warm-up and it is absent during activity.

Semi-harmful Pain:

Phase III: Pain is present after activity and is partially relieved by warm-up. Pain is present during activity, but performance is not modified.

Harmful Pain:

Phase IV: Pain is present during activity and performance is reduced. The intensity is such that the athlete desires to decrease or modify activity. Pain is absent during rest.

Phase V: Pain is present with activity and performance is reduced. Pain is present even with rest.

V.

Frequency:

This program should be carried out daily. If warm-up does not reduce the pain and pain is present with running, utilize a day of rest to maximize progression.

Strength Training:

If strength training is normally a component of your training program, then you should continue a strength training program 3 times per week. On days that you perform strength training, complete the functional rehabilitation program before the strength-training program.

Ice Application:

Ice should be applied after each functional rehabilitation session (after strength training if included). The ice should be crushed and placed within a plastic bag with a small quantity of water. The ice should be held in place for 20-30 minutes on the healing area(i.e. knee, ankle, etc.). There should be a wet towel between the skin and the ice.

Fatigue:

If fatigue develops during a session, the exercise should be stopped.

FUNCTIONAL ACTIVITY PROGRESSION:

Stage I: WALKING TO JOGGING

1. walk 1 mile
2. walk 110 yards; jog 55 yds; walk 110 yds
3. walk 110 yds; jog 110 yds; walk 110 yds
4. walk 220 yds; jog 220 yds; walk 220 yds
5. walk 220 yds; jog 440 yds; walk 220 yds
6. walk 220 yds; jog 880 yds; walk 220 yds
7. walk 220 yds; jog 3/4 mile; walk 220 yds
8. walk 220 yds; jog 1 mile; walk 220 yds

Stage II: JOGGING TO RUNNING

RUNNING=3/4 SPEED[OF THE SPEED THAT WOULD BE RUN FOR A 1 MILE RUN]

9. jog 110 yds; run 110 yds; jog 110 yds; run 110 yds; jog for completion of 1 mile.
10. jog 110 yds; run 110 yds for 1/2 mile; jog for 1/2 mile.
11. jog 110 yds; run 110 for 3/4 mile; jog for 1/4 mile.
12. jog 110 yds; run 110 for 1 mile.
13. jog 110 yds; run 220 yds; jog 110 yds; run 220 yds; jog for completion of 1 mile
14. jog 110 yds; run 440 yds; jog 110 yds; run 440 yds; jog for completion of 1 mile.
15. jog 110 yds; run 880 yds; jog for completion of 1 mile.
17. jog 110 yds; run 1 mile; jog 110 yds

DISTANCE RUNNERS: continue to increase distance by 10%/week to desired daily distances.

Stage III: RUNNING TO SPRINTING

Distance running is completed as in step 17. Walk for 440 yards and then complete the sprint running as indicated in step 18. Complete a cool-down jog for 440 yards. Rest between intervals is completed by walking.

18. 110 yds x 2 with 5 minute rest
19. 110 yds x 4 with 5 minute rest
20. 40 yds x 6 with 3 minute rest
21. 40 yds x 10 with 2 minute rest

Stage IV: SPRINTING TO AGILITY

This stage is most important for the sports, which involve jumping and cutting. Complete a warm-up jog of 440 yds and then start the activity with exercise A, noted below. Complete one cycle of each exercise at 50% of full speed and then progress to one cycle at 75% and then one cycle at 100%. If there is no pain or only Benevolent Pain, then progress to the next exercise and continue.

A. **Figure of Eight running:** Run a figure of 8 pattern 30 yds long (length and width of a basketball court). Progress to 15 yds long figure of 8 pattern (1/2 basketball court). Then progress to 5 yds (length and width of the foul area and key). Complete each figure of 8 three times.

B. **Carioca:** Run sideways crossing legs in front and then behind the lead leg for 10 yds. Rest 5 seconds and return in other direction. Repeat 5 times for each cycle.

C. **Backward Running:** Run for 20 yds; rest 5 seconds and repeat 3 times for each cycle.

D. **Box Running:** Select an area and mark out a 5 yrd box for the run. Initiate the run by running the box 5 times clockwise and then 5 times counterclockwise.

E. **Vertical Jumping:** Jump with 50% effort and mark a spot on a wall. Repeat jumping to that mark 10 times. Change the mark to 75% and jump 10 times. Change the mark to 100% and jump 10 times. If the sport does not require jumping, do not include.

Stage V: AGILITY TO PRACTICE AND GAMES

Practice sessions are not initiated until Stages I through IV have been completed. Make sure to properly warm up for practices and games. Practice is initiated by completing 1/4 of practice activities. Progress to 1/2, 3/4 and the full practice as long as pain does not exceed "**Benevolent Pain**" noted above. When three full practices are completed without difficulty, competition is initiated.