

**Chapter 4**

**PHYSICAL CONDITIONING**



**LESSON PLAN OUTLINE**

**PROGRAM: SMOKEJUMPER**

**LESSON: PHYSICAL CONDITIONING**

**OBJECTIVES:** This lesson plan is designed to assist the jumper in maintaining the physical fitness level needed to meet or exceed the minimum smokejumper fitness standards.

**INTRODUCTION:** A continual physical training program is essential to perform smokejumping safely and efficiently. The trainees will accomplish this goal by participating daily in a physical conditioning program. All basic muscle groups are to be exercised when selecting a program. The body can be divided into four muscle groups for conditioning.

- A. Arms and Shoulders
- B. Abdominal and Back
- C. Hips and Legs
- D. Cardiovascular System

Stretching and strength exercises should be selected for each muscle group from those programs in the Appendix or other suitable fitness reference sources. An excellent cardiovascular conditioning program can be built around the basic exercises required in the Smokejumper Minimum Physical Standards. Alternate aerobic exercises can be used to balance out the conditioning program and reduce long-term wear and tear on the trainee. Voluntary conditioning programs can be instituted and have proven to be successful. For maximum benefit, a conditioning program should be started well before entering into jump training or fire fighting duties.

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## I. PHYSICAL TRAINING AND CONDITIONING

### A. Minimum Smokejumper Physical Standards

1. 7 pull-ups or 7 chin-ups.
2. 45 sit-ups
3. 25 push-ups
4. 1 1/2 run in 11 minutes or less.
5. Pack out – 110 pound pack for 3 miles in 90 minutes or less.
6. Standard firefighting pack test for U.S. Forest Service.

The test must be passed before making the first training or refresher jump. Except for the packout and 1 1/2 run, the test shall be performed during one established time period with a break of not less than 5 minutes, nor more than 7 minutes between events. Prior to the 1 1/2 run, employees shall be given a reasonable warm-up period. Experienced jumpers will be allowed up to 3 opportunities to pass the test during the time frame allotted for pre-jump training. A failure of any one exercise will require retaking the entire test.

- a. A conditioning program based on these standards has several advantages.
  - (1) The exercises can be done anywhere and no specialized equipment is necessary.
  - (2) These standards are easily measured both by the trainers and for smokejumpers measuring their own progress.
  - (3) The muscle groups and endurance being tested are necessities in the smokejumping job and the test is an indication of how well a candidate will perform the job.

### B. Fitness and Conditioning Programs

1. Stretching exercises.
  - a. Designed for stretching (lengthening) and warming muscles, cartilage, ligaments, and tendons before high intensity exercises.
  - b. Will help provide maximum flexibility.

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- c. Will aid in the prevention of injuries due to improper warm-up before strenuous exercise or improper parachute landings.

### **2. Strength exercises.**

- a. These exercises are designed to build the strength of the upper and lower body.
- b. Benefits include: Increased strength, cardiovascular improvement, and significant gains in endurance.

### **3. Cardiovascular exercises.**

- a. These exercises are designed to develop the lower body, the respiratory system, and improve cardiovascular activity.
- b. Improvements can be gained in both coordination and agility.
- c. Reduction of stress and tension.

### **4. Running Exercises**

- a. Running promotes improvements in motor fitness.
- b. No extra equipment or facilities are needed for running exercises.
- c. Both interval and distance training can give maximal results in the improvement of physical condition if the degree of difficulty is adequate.
- d. Reliance on running as the sole cardiovascular exercise may create physical problems.

### **5. Alternative aerobic exercises**

- a. Exercise biking, road or mountain biking, swimming, x/c skiing, etc.
- b. Develops the cardiovascular system without contributing to the cumulative wear and tear that running has on some people's bodies.

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- c. Cross training balances the cardiovascular development.
- d. Alternative programs are recommended by Sports Medicine doctors who have examined the orthopedic problems of smokejumpers.

### **C. Weight training**

- 1. Weight training is designed to increase endurance and muscle strength.
- 2. Endurance training using a high number of repetitions increases the availability of energy producing materials to the muscles.
- 3. Strength training, using heavy load and low repetitions, will increase the size of muscle fibers.
- 4. Indirect benefits include strengthening of the joint fibers, improvement of the cardiovascular system, and increased coordination.
- 5. Weight training has shown excellent results in restrengthening muscles, ligaments, and tendons following injuries to the joints.
- 6. Progressive resistance exercises such as weight training do not decrease flexibility, especially if done in conjunction with a stretching program.

### **D. Job performance exercises.**

- 1. These exercises are designed to directly benefit and improve on the job physical and technical performance.
  - a. All terrain packouts.
  - b. Tree or pole climbing.
  - c. Obstacle course.
  - d. Fireline construction.

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### **E. Injury prevention exercises.**

1. Sports Medicine specialists have studied the job of smokejumping and recommended specific exercises which may reduce the chance of injury. The additional strength and flexibility these exercises promote may prevent an injury from occurring or decrease the likelihood of another injury to a previously injured joint. ( see appendices).
2. Sample training program (see appendices).

## **II. PHYSICAL CONDITIONING EVALUATION PARAMETERS**

- A.** All Experienced smokejumpers must pass the Physical Fitness Test before making the first training or refresher jump. All new recruit smokejumpers must pass the Physical Fitness Test during the first week before being allowed to participate in further recruit training. Failure to maintain a high level of fitness will result in smokejumpers being removed from operation jump status and may result in removal from the program.
- B.** All smokejumpers must report each year in good physical condition as do the new recruit candidates prior to report date for training. It should be pointed out that the programs outlined here are meant to be used merely as guidelines. Since requirements for each base, group, or individual PT program are different, it cannot possibly be a final authority on physical conditioning. Unlike some of the other topics in the Training Guide, physical conditioning is not a field exclusive to smokejumpers and our organizations are not the final experts in this field. It is recommended that local specialist be consulted and utilized in developing the conditioning program at each base. New programs or combinations of programs which enhance the physical development of the smokejumper should be encouraged. Recent advances in the field should be communicated at all levels so that smokejumpers may take full advantage of them.