Physiological Issues Related to Fire and Rescue Personnel

Common Tasks for Wildland Firefighters

![Figure 17.9](image) Wildland firefighter building a fire line with a Pulaski hand tool.

![Figure 17.10](image) Wildland firefighter operating a hose line in arduous conditions.

![Figure 17.11](image) Wildland firefighter chainsawing with load.

![Figure 17.12](image) Wildland firefighter with pack in personal protective equipment.

shroud, and self-contained breathing apparatus (SCBA) (79, 81, 83, 89) (figure 17.1). For structural firefighters, the PPE and SCBA weigh approximately 22 kg (49 lb). SCBA packs with a carbon filter typically weigh 9.5 kg or 21 lb, although this may vary depending on whether a 30-, 45-, or 60-minute cylinder is used; other PPE weigh approximately 11 kg (24 lb) depending on differences in design and material (83). Wildland firefighters must carry their own supplies for the work shift in a gear pack. These packs typically weigh 10 to 22 kg (22-49 lb) with water, safety equipment, and any required special items. Along with their standard pack, wildland firefighters carry chainsaws (11 kg, or 24 lb), extra water (18 kg, or 40 lb), extra fuel (7-22 kg, or 15-49 lb), and other firing devices (7 kg, or 15 lb). All gear and body weight for a 20-person crew must be below 2,320 kg (5,115 lb), which equates to a maximum of 25 kg (55 lb) of gear per person (89). However, several pieces of equipment that must be lifted or maneuvered can weigh up to 40 to 45 kg (88-99 lb) (e.g., hose packs, water bags) (110). The positioning of PPE may also vary depending on the firefighting discipline.

PPE are designed to protect the wearer from environmental hazards, but there must be a trade-off with internal hazards, primarily heat stress produced by the body. An important consideration that affects the metabolic demands of firefighting