

Back pain caused by a muscle strain or a ligament sprain will normally heal within a short time and may never cause further problems.

As early as the 1930s, researchers pointed out that 80-90 percent of all accidents result from the "unsafe acts of persons" as opposed to "unsafe mechanical or physical conditions." Human failure, they indicated, is the primary cause of accidents. People must assume the responsibility to prevent them.

Human failures are in three major areas:

- Cognitive: thoughts, attitudes, and opinions.
- Psychological: feelings and emotions.
- Physiological: strength, reaction times, and health.

Combining these human failures compounds the risk of injury. If we "think" (cognitive) that lifting a bulky, 100-pound object is safe, if our "macho" ego emotion (psychological) encourages us to prove it, but our strength (physiological) fails, the result can be a serious back injury, caused not by the heavy object, but by human error. Our beliefs, our feelings, and our own physical limitations get us in trouble.

Poor physical condition, poor posture, lack of exercise, and excessive body weight contribute to the number and severity of sprains and strains. Degeneration of the spine, due to aging, is also a major contributor to lower back pain, but it is frequently misdiagnosed as a sprain or strain. Only four percent of all serious back injuries are true sprains, strains, or

fractures. Most are the results of degeneration of the spine caused by aging and self-abuse. Most back injuries, however, occur in people 24 to 40 years old.

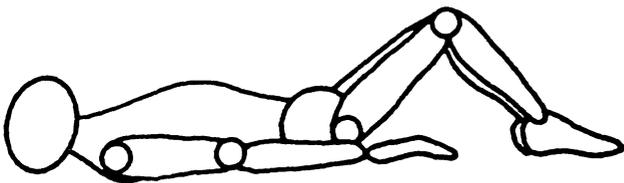
There is little evidence that heavy vs. light work affects back problems. Indeed, it appears that individuals who regularly do heavy work have fewer back problems. Dr. David Imrie, a noted back specialist, in his book *Goodbye Backache* said, "If you go to underdeveloped countries where people work much harder physically than we do, you hardly hear of backaches. You have to wonder if the problem is not that people these days do too much, but too little." Execution and body maintenance are more important than how much the body lifts or moves. It seems that back injuries, sprains, strains and degenerative problems are associated more with physical conditioning and body mechanics. Back injuries can be minimized by 1) better physical conditioning, resulting in stronger muscles to hold the spine in proper alignment and 2) less body weight for the back to support.

Another cause of strains and sprains is the practice of lifting, pushing, or pulling when muscles are stiff or at rest. Athletes never participate in rigorous activity without first loosening up and stretching. They call it "warming up." They are "waking up" their muscles and increasing the blood flow to these muscles. Workers should wake up their muscles before they begin work.

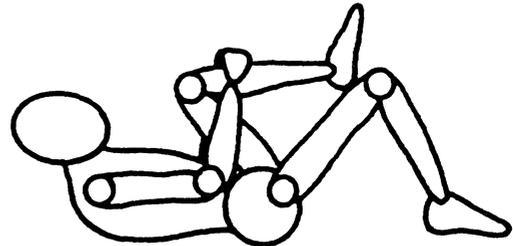
The design of work stations is another cause of sprains, strains, and back pain. Workers should be a-

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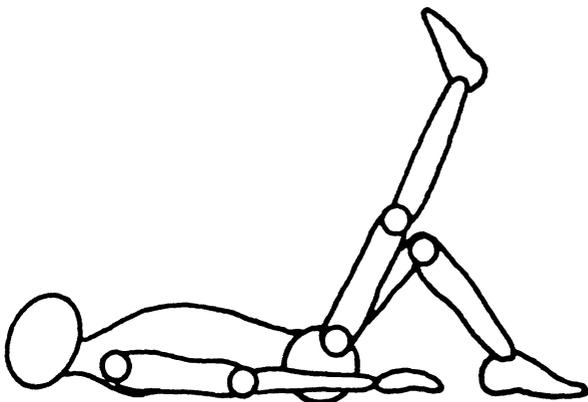
## Exercises t



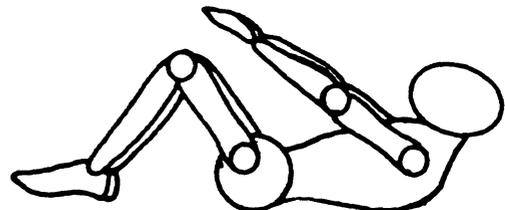
**Pelvic tilt:** Lie on your back with knees bent. Keeping your back flat, firmly tighten your buttock muscles, hold for five seconds, relax. Repeat this exercise five times.



**Knee-to-chest raise:** Again lie on your back with the knees bent. Raise your right knee to your chest, hold for five seconds, return the leg to the starting position. Repeat the exercise five times with each leg. Then repeat the exercise five times raising both legs at the same time.



**Single leg raise:** Lie on your back, knees bent. Slowly raise your right leg while straightening it out, raise it as far as you can. Hold for five seconds, then slowly return the leg to the starting position. Repeat the exercise five times with each leg.



**Half sit-up:** Assume the same position: on your back, with your knees bent. Slowly raise your head and neck till your chin touches your chest. Continue raising, stretching your hands to your knees. Hold for five seconds and then slowly return to the starting position. Repeat the exercise five times.