

Muscle Strength/Muscle Endurance

Both of these components are important in taking care of the back:

- **Muscle strength:** refers to the ability of a muscle to generate force for a short time.
- **Muscle endurance:** refers to the ability of a muscle to perform work over time.

It is obvious that strength in the legs, arms, back, and abdominal muscles can make it easier to lift an object. A four-cylinder car and an eight-cylinder car, pulling a trailer up a hill, are pulling the same weight but it is easier for the eight-cylinder car because it has more "strength" or pulling power. The same is true with people.

Muscle strength is related to body position and work best when they are in the neutral or power position.

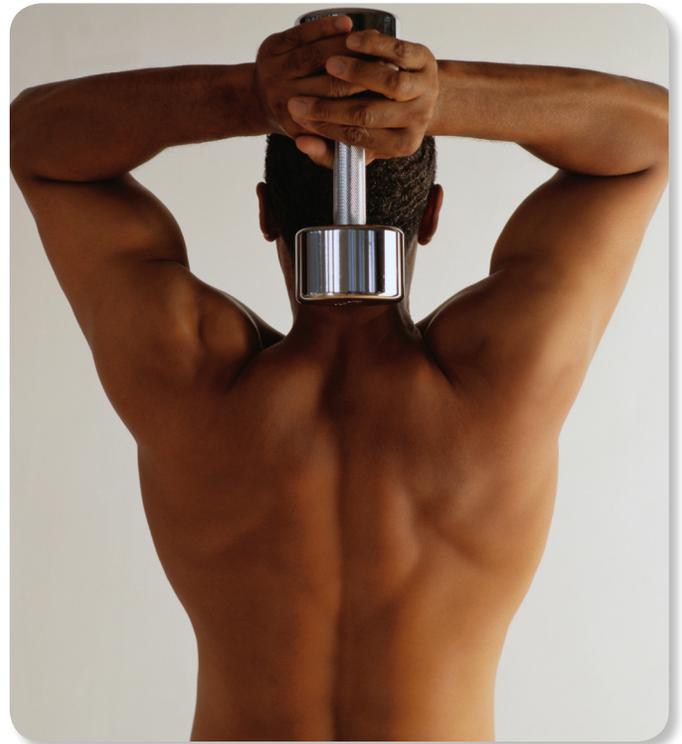
- For the legs, this position is with a slight bend in the knees.
- For the back, it is with the three natural curves of the spine.

The muscles that run along the spine are designed to provide the most strength in this position and the more people move out of these positions, the less force the back muscles can generate.

Muscle Endurance

Muscle strength is enough if a job requires only one lift a day. The problem is that most jobs involve many lifts, pulls, and pushes. For this reason, it is important to have good muscle endurance as well as strength. Watch a person holding onto something tightly. Tell them to keep holding with all their strength. Notice that gradually their ability to keep holding is diminished, and at some point, they will be forced to ease up or release their grip altogether. This is because the muscles have fatigued.

Muscle strength and muscle endurance work together. People need strength to perform heavy work and endurance allows the individual to perform work activities throughout the day. If a person is strong, but has poor muscle endurance, their risk of injury increases as the muscle fatigues. Stretching briefly throughout the day can reduce the accumulation of fatigue and allow the muscles to work as effectively at 3:00 in the afternoon as they did at 8:00 in the morning.



MUSCLE STRENGTH/MUSCLE ENDURANCE

Talking Notes

POINTS TO REVIEW

1. Your strength directly impacts the demands of any activity you perform.

There is a variety of demands that we encounter during the day. These demands are affected by the strength of the individual performing the task. Increasing or at least maintaining our strength is one way of minimizing the demands we face.

2. Muscle strength is directly affected by the position in which you use it.

No one tries to hold something that is very heavy at full arm's length. Why? In this position, the muscles are weaker. Using your muscles in a power position, with the back in the three natural curves and legs slightly bent, insures that you will be able to use all the available strength in the muscles.

3. Your muscle endurance impacts the demands of any activity you perform.

If everyone was asked to hold their arms out to the side for a long period of time, many would be unable to do it for more than a minute or two. Oxygen is having a difficult time getting to the working muscles and this leads to muscle fatigue. Many jobs require numerous repetitions of a task. The better the endurance in the muscles, the easier it is for the individual to use their muscles for a longer period of time.

QUESTIONS FOR DISCUSSION

1. What is the difference between muscle strength and muscle endurance?

2. How does position affect strength?

3. How can a person maintain muscle endurance throughout the day?

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