

# **PRESENTER'S GUIDE**

## **"SAFE LIFTING IN CONSTRUCTION ENVIRONMENTS"**

**Part of the Construction Safety Kit Series**

# **OUTLINE OF MAJOR PROGRAM POINTS**

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The following outline summarizes the major points of information presented in the program. The outline can be used to review the program before conducting a classroom session, as well as in preparing to lead a class discussion about the program.

- **Lifting and carrying is something we do all the time, and we normally don't think twice about it.**
  - But there are good reasons to consider how we lift and carry things, because there are right ways and wrong ways to do it.
  - What you don't know about them can hurt you.
  
- **Did you know that your back does most of the work when you're lifting and carrying?**
  - It coordinates your motion and bears the weight.
  - When everything's working correctly, your back does this easily, making its contribution out of sight and out of mind.
  
- **The problems come when we ask our back to do too much, or try to use it the wrong way.**
  - That is when we're reminded that our actions have consequences, and bad lifts can do some damage.
  
- **We've all experienced back pain at one time or another, and it probably resulted from lifting something incorrectly.**
  - Maybe the load was too big, or too heavy, or we lifted from an awkward position.
  - But the bottom line is if we want to avoid pain and injury, we need to make sure we use our back the right way.
  
- **What are the right ways and wrong ways to lift and carry?**
  - To answer those questions, we must understand the back's structure and how it works.

- **When we refer to our "back", anatomically we're talking about our spine.**
  - This is what gives our body structure and support.
  - It allows us to move about freely and to bend flexibly.
  - The spine also supports and protects the nerve tissue of our spinal cord, and the roots of the nerves that lead away from it.
  
- **Although we often refer to our spine as "the backbone", it actually consists of 33 smaller bones, called "vertebrae".**
  - The vertebrae are stacked on top of each other to create the spinal column.
  - They are held together by groups of ligaments, tendons and muscles.
  
- **The spine has three specialized sections:**
  - The cervical spine carries the weight of the head, and allows it to move.
  - The thoracic spine connects to the ribs, and forms a part of the rear wall of the ribcage.
  - The lumbar spine, the lowest portion, bears most of the body's weight...and the weight of anything that we lift.
  
- **The lumbar spine is also the area where most of our movement takes place.**
  - That's why lower back pain is so common.
  - The lumbar spine is a very hardworking part of our body.
  
- **Strained muscles and sprained ligaments are the most common causes of back pain.**
  - With proper treatment these will usually heal within a few weeks.
  - This relatively short-lived condition is called "acute" back pain.
  
- **If the pain persists or frequently reoccurs, it's called "chronic" back pain.**
  - This may indicate that something is wrong with the spine itself.

- **The goal of safe lifting is to keep your back free from both these types of pain and injury.**
- **When your spine is "at rest", it naturally makes a curve that's shaped like an "S".**
  - This shape helps your back distribute and carry weight more evenly, and better withstand physical stresses.
- **Through the "S" Curve, your spine unites the strength of its cervical, thoracic and lumbar sections into a stronger whole.**
  - To lift safely, we need to concentrate on maintaining that shape.
- **How do we maintain the "S" Curve? Here's a simple rule of thumb for keeping the back in shape.**
  - Just stand up straight.
  - When we are walking, standing or sitting up "straight," our spine is in its strongest position.
- **Imagine drawing a line from your shoulder to your hip. Now draw another line from the top of your breastbone to your navel. These two lines should be your guide.**
  - Keep them both straight, and you'll be keeping your spine right where it should be when you lift and carry.
  - When we say "keep your back straight," this is what we mean.
- **When you're on the job it's easy to feel that you have to lift and carry something "right now."**
  - But hurrying a lift can be a really bad idea.
  - To stay injury-free you need to think things through before you lift.
- **First, "listen" to your back.**
  - If it feels stiff or painful, don't pick anything up.
  - A back that's hurting is a weaker back, which makes it more prone to trouble.
  - Putting more stress on it will only make it worse.
  - It's easier to injure a back that has been injured before.

- **Next, consider what you're wearing.**
  - Make sure nothing will get in the way or restrict the free motion of your arms and legs.
  - Will your shoes provide the support, traction and protection you'll need?
  
- **Take a good look at the object you want to lift.**
  - You have to be realistic about your capabilities.
  
- **Ask yourself the following questions:**
  - Is the object too heavy or too large for me to lift by myself?
  - Is it hard to hold?
  - Is it unbalanced or unstable?
  - Will I be able to see where I'm going after I lift it?
  
- **If you have doubts about any of the answers, you probably shouldn't make the lift alone.**
  - The goal here is safety, and sometimes safe lifting means not lifting by yourself.
  - For instance, you may be able to pick up an awkward piece of equipment, but if it gets out of control while you're carrying it, you're liable to drop it, or hurt your back trying to recover.
  - It's the same with carrying multiple objects at once, such as a bunch of hand tools. If they get loose you can end up doing a juggling act, and that type of sudden, unplanned motion is bad news for your spine.
  
- **The lifting and carrying of liquids can pose special challenges.**
  - When you lift a half-full container and move with it, the liquid will slosh around.
  - Don't let the shifting balance doesn't take you by surprise.
  
- **A 55-gallon drum doesn't have any handles, but since a full one can weigh hundreds of pounds, lifting it by yourself is pretty much out of the question.**
  - You'll need a specialized dolly, or even a forklift for this job.

- **A large jug of water may have a handle, but it can weigh more than 40 pounds. Should you lift it?**
  - That handle might encourage you to try and carry the jug with one hand.
  - That would be a seriously unbalanced load, however, and it's a back problem just waiting to happen.
  - But imagine trying to use both hands on that handle. That would be a pretty awkward lift, as well.
- **Of course, if you pick up a jug with each hand, that's a balanced load.**
  - But now you're trying to lift more than 80 lbs. How does your back feel about that?
  - A dolly might be the right answer here as well.

**Now consider a 50 lb. bag of cement. How would you move this?**

- The bag has no handles, it's flexible and can tear, and the load inside it can shift.
  - In this case, a "flat-bed" cart could be the best solution.
  - You'll also need someone to stabilize the cart while you load it up.
- **Thinking before you lift means that you take the time to recognize the lift's requirements, anticipate its difficulties, and plan accordingly.**
  - **If the load's oversized or hard to handle, don't risk carrying it by yourself.**
    - Ask for help, or use a hand truck or dolly to give you an "assist".
  - **Whether you're by yourself, or have help, how you pick up the load is the most critical factor in safe lifting.**
    - So remember this, if you set up to lift from an awkward position, you're setting yourself up for trouble.

- **Do your lifting with a straight back. Do not lift when your body is:**
  - Bent over.
  - Turned.
  - Leaning to the side.
  - Hyper-extended, reaching upward or forward.
  
- **When you lift from an awkward position, you're flexing or twisting your spine and you're asking it to support the weight of the load**
  - That's a bad combination, and a recipe for a backache if there ever was one.
  
- **Take a load that's at waist level, such as on a counter. It's the simplest type of lift.**
  - First, position the object close to the edge.
  - Grasp the object, keeping your arms close to your sides.
  - Keep your back straight, and step back.
  
- **It can be tempting to simply reach forward and lift the object before you slide it closer to you, but don't do it!**
  - Even that small movement stresses your back, and puts excessive weight on your spine.
  
- **Always position an object as close to you as possible, and then lift. It's much easier this way!**
  
- **Now let's look at a tougher kind of lifting, over your head.**
  - This classic "awkward position" is extremely stressful to your neck and lower back.
  - Avoid reaching with your arms raised above your shoulders when you're lifting something up or taking it down.
  - Instead of reaching up, use a sturdy ladder or mobile stairs to put yourself in a better position before making the lift.
  
- **The most dangerous lift is when you're handling an object that's "below the waist."**
  - In fact, it's even possible to hurt your back just by bending over.
  - You don't have to be lifting anything at all!



- **When you bend at the waist, your spine becomes an unbalanced "lever", with the "fulcrum" at the lower two lumbar vertebrae, the main weight-bearing portion of your spine.**
  - This creates a 10:1 "lifting ratio."
  - If your upper body weighs 100 pounds, bending at the waist puts approximately 1,000 pounds of pressure on your lower back.
  - If you try to pick up a 50 pound object from this position, you're now putting 1,500 pounds of pressure on the weight-bearing portion of your spine, 1,000 lbs. from your own body and 500 lbs. from the object you're lifting, because its weight gets multiplied by 10, too.
  
- **Here's how you make a "below the waist lift", by the numbers.**
  - **One**... get close to the object you want to pick up and lower yourself by bending at the knees.
  - **Two**... keep your shoulders level, centered and facing the same direction as your hips. Keep your back straight.
  - **Three**... take a secure hold of the load, keeping your arms close to your body.
  - **Four**... lift slowly and steadily with your legs.
  
- **Of course, picking something up safely is only the first part of the job.**
  - The next stage is carrying it to its destination.
  - Here your posture should be the same as when you lift... keep your back straight.
  
- **As you move, your shoulders should be centered and your arms should be at your sides.**
  - Keep your head up.
  - Watch where you're going.
  - Be aware of where you're putting your feet.

- **What if you have to change direction? What's the right way to turn a corner?**
  - Don't turn your upper body while your feet are still moving straight ahead.
  - That twists the lumbar portion of your spine and puts a lot of strain on your back.
  - Instead, change direction smoothly, with your feet, keeping your legs and torso aligned.
  
- **To complete a lift we eventually have to put the load down.**
  - Remember not to rush this final stage just because you're almost done.
  - You can hurt yourself as badly putting an object down as you can picking it up.
  
- **The "setting down" stage uses what we already know about safe lifting, but now we're doing it in reverse.**
  - Keep your back straight.
  - Hold the load close to your waist.
  - Lower it with your legs.
  
- **When we talk about safe lifting, people often ask about "back belts".**
  - Do they work?
  - If they work, why make such a big deal out of safe lifting?
  
- **No product that is currently available has been proven to prevent back injuries.**
  - Plenty of people buy "back belts", but that doesn't necessarily mean that they work.
  - In fact, many back specialists say "back belts" don't provide any real protection at all.
  
- **The bottom line is, why risk relying on a "gadget" to protect you?**
  - The best "safety devices" are the techniques we've just covered.
  - Following safe lifting practices does work, and it's easy.

- **Moving an object to a new location safely also requires eliminating the "guesswork" from the process.**
- **Before you start a lift you need to scope out your route.**
  - Find out what to expect, and where, and proceed with caution.
  - Make sure your path is unobstructed, nothing to bump into or trip over.
  - Look for wet and slippery surfaces and avoid them too.
- **Don't compromise your grip on the load by having to open doors single-handedly.**
  - Prop them open ahead of time.
  - Or ask a coworker to run interference for you.
- **Tripping or slipping on steps and stairs can ruin your whole day.**
  - Locate them before you begin and make sure they are free of objects and debris.
- **Low light increases the risk of an accident, too.**
  - Make sure the lights are on before you begin your trip.
- **Where you put the load down is critical as well.**
  - Identify where you're going to land before you take off.
  - Trying to improvise under pressure can lead to trouble.

**\* \* \* SUMMARY \* \* \***

- **"Listen" to your back.**
  - Don't lift if you're hurting.
- **Think before you lift.**
  - Estimate the load's weight.
  - Evaluate its shape and size.
  - Does the container require special handling?

- **Know how you're getting from point A to point B.**
  - Make sure the route doesn't include any surprises.
- **Know your limits.**
  - Ask for help, or use a hand truck, dolly or other equipment when necessary.
- **Use correct technique.**
  - Keep your back straight.
  - Bend at the knees.
  - Lift with your legs.
- **Turn corners with your feet, not your back.**
- **Put the load down like you would pick it up.**
- **Lifting and carrying don't have to be a "pain-in-the-neck."**
  - By using "safe lifting techniques" you can work better, healthier and pain-free!