Physical Capability Strength Test:  
One Component of the Selection Process

One aspect of the Power Systems Institute selection process is to successfully complete and achieve a passing score on a physical capability strength evaluation. The physical capability evaluation (PCE) is commonly referred to as the IPCS evaluation.

The evaluation is performed on an isokinetic machine. You are not asked to lift or carry any weight. The resistance comes directly from the machine based on how hard you push and pull against the machine. The machine will literally match its resistance to your strength level.

The evaluation focuses on the major muscle groups of the shoulders and legs since strength in these two areas is very important when performing the essential functions of the job. The evaluation will take about 20 to 40 minutes. But it is important to understand that each component of the evaluation involves a push pull movement. During these movements it is critical to push and pull as hard as possible. Bottom line is that your goal is to overpower the isokinetic machine.

The physical capability strength evaluation is offered only once during the selection process. The pass/fail results are sent to the applicable recruiter. The test administrators will not provide the results to you. If you achieve a failing score, you will be notified by phone or letter and will not be permitted to take the evaluation again during that year’s selection process.

The photo below shows a typical isokinetic machine. Some of the machines have two chairs side by side and others are single chairs as shown below.

Please visit [www.ipcs-inc.com/videos](http://www.ipcs-inc.com/videos) to watch a test being administered and an instructional video.
Strength Training

Recent research clearly shows that individuals from all age groups and both genders can dramatically enhance their health by lifting weights or doing some form of strengthening exercises on a regular basis.

Using 8-12 repetitions for one set as a guide, the amount of weight you select to lift should allow you to do at least eight repetitions with the 11th and 12th repetitions providing some difficulty. Initially, you might be able to complete only nine repetitions before the weight becomes too heavy to lift. Once you can complete 12 repetitions, then it is time to add more weight. How much weight is added at that time will depend on the exercise being performed. It might be a couple of pounds or it could be more. Add enough weight to at least allow you to do eight repetitions again. It is critical to use a weight or resistance that is substantial enough to reap the benefits described previously.

You should have at least one day of rest between workouts that involve strengthening exercises. Skipping a day between strength workouts allows the muscle to rebuild. Remember one of the benefits of a strength training program is increased protein metabolism. This means that muscle breaks down during strength training exercises and the muscle needs time to rebuild to become stronger. This is why it is recommended to skip a day between workouts. We suggest that you strength train no more than three times per week. This pattern forces you to skip two consecutive days once a week. Research clearly shows that lifting weights three days per week will provide you with many benefits, as mentioned above.

In your home, strength training exercises can be done with body weight, dumbbells, tubes or bands. They can also be done by using plastic shopping bags (like the ones you might get from a grocery store) with handles and using canned goods for resistance. Make sure equal weight is placed in each bag. Resistance can be increased or decreased by using different size cans or number of cans.

There are several key safety principles that must be followed In order to reduce the risk of injury.

1. Never hold your breath while lifting a weight.
2. Never do an exercise that causes pain- especially a sharp pain.
3. Always be aware of your surroundings. Make sure you have room to move freely through the full range of motion.
4. Always warm up before beginning exercise and always cool down by stretching following an exercise program.
5. Make sure the object you are lifting is secure. You do not want the object you are lifting to come loose or break during the lift.

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Strength Training Exercises

**Push-ups:** (back of upper arms, chest, upper back)
- Start in the prone position with arms extended directly under shoulders.
- Keep body straight and bend elbows to lower body toward the ground.
- Remain slightly elevated, body should not touch the floor.
- Slowly return to starting position by straightening arms.

**Bent Over Row:** (upper back)
- Start with arm straight, holding weight in hand, palm facing your leg, body forward, back flat, one knee bent, resting on a bench or seat of a chair.
- Pull weight to chest, bending elbows and shoulders, squeezing shoulder blade back.
- Slowly return to start position. Repeat on other side.

**Upright Row:** (upper back and shoulders)
- Start with arms straight down in front of body with back flat and knees slightly bent.
- Pull weights to shoulder height, bending elbows.
- Slowly return to start position, keeping back flat and knees slightly bent.

**Shoulder Press:** (shoulders and upper back)
- If using tubing, anchor the tube under back foot in a stride stance, one foot ahead of the other.
- Weights or tube handles should start at shoulders. Arms bent at elbows, back flat and knees slightly bent.
- Press straight up by straightening the arms. Do not lock the elbows.
- Slowly return to start position, keeping back flat and knees slightly bent.
Front Raises: (front and back of shoulders)

- Start with tube under feet and handles at sides or weights at sides, feet shoulder-width apart, arms straight, back flat and knees slightly bent.
- Keep arms straight, move band or weights forward, no higher than parallel to the floor, with palms facing the floor. Do not lock elbows.
- Slowly return to start position. Keep arms straight, back flat, knees slightly bent.

Lateral Raises: (middle of shoulders, upper back)

- Start with weights at sides, feet shoulder-width apart, back flat, knees slightly bent.
- Raise arms to the sides, parallel to the floor, elbows bent at 90 degree angle.
- Slowly return to start position.

Curls: (front of upper arm)

- Start with weights at sides, arms straight, feet shoulder-width apart, back flat and knees slightly bent.
- Bending at elbows, lift weight to shoulder level. Keep back flat.
- Slowly return to start position.

Triceps Extension: (back of arm)

- Start with weight at chest, bending elbow close to the body, body forward at waist, back flat, one knee bent and resting on a bench or the seat of a chair.
- Straighten arm and lift weight toward rear of body.
- Slowly return to start position, keeping back flat. Repeat on other side.

Dips: (back of arm, upper back and shoulder)

- Start with body straight, arms straight and hands placed on chair, feet on the floor. Do not lock elbows. Be sure to secure the chair so it won’t tip.
- Bending at the elbow, slowly lower body. Keep elbows facing the back of the chair.
- Slowly return to start position, straightening the body.

* Beginner-start with knees bent at a 90 degree angle
**Advanced-place feet on elevated surface
**Wall Squats**: (thigh muscles, front of hips, buttocks)

- Start with the back straight, leaning against a wall with feet slightly ahead of the body. (Option-hold weights in hands by sides.)
- Lower body by bending at knees, until thighs are no lower than parallel to the floor. Keep knees in line with toes.
- Return to starting position keeping back straight at all times.

**Knee Raise**: (thigh muscles, front of hips)

- Use a step, bench or other sturdy box that will hold your body weight.
- Look straight ahead, back straight. Hold weights in hands at sides.
- Step up on box, bringing other leg up toward chest.
- Alternate the leg you step up with.

**Leg Curls**: (back of thigh and buttocks)

- Anchor exercise tubing or band to a sturdy object.
- Start in the prone position, lying on your stomach.
- Attach tubing to one ankle, leg straight.
- Bend knee, pulling heel towards buttocks.
- Slowly return leg to the start position. Repeat on opposite leg.

**Abdominal Curls**: (abdomen)

- Start by lying flat on the ground, arms behind the head or across the chest, knees bent, feet flat on the floor.
- Lift upper body by curling the trunk. Raise to a 45 degree angle. Keep arms behind head or across the chest.
- Slowly return to the floor by un-curling the body.
  *Alternative-during the up phase, twist the trunk. Alternate right/left with each curl.*