

Health

Unit 3 of 4

In this Unit we'll be exploring the unfortunate side of exercise - injury and pain. We will provide some methods that other people have found helpful in relieving pain. We'll also be talking about a different kind of exercise: relaxation! You'll read about various relaxation activities, as well as another meaning for relaxation, and you'll learn about the benefits of taking some time out of your day to truly RELAX.

Injury and Pain

Exercise and/or relaxation are often undertaken to deal with an injury, pain, or health problems.

1. Have you ever had lower back pain? Do you know what caused it?

I'm guessing most of you are going to answer YES because the amazing fact is that at least 80% of Americans will experience significant back pain during their lives. Along with headaches, it is the one type of pain everyone seems to have experienced. The two most common approaches to treating low back pain are to: (1) do flexion exercises and (2) do extension exercises. (Gee, isn't it great to have a straight answer?) Here are some more details about each approach:

Flexion exercises are meant to strengthen the *abdominals* (stomach muscles) and stretch out the muscles that extend the spine. Those small extensors can go into *spasm* when you lift too much or suddenly move the wrong way. "Spasm" is a muscle's way of getting so pissed off at being asked to do too much that it contracts tightly and won't let go. And it hurts! So slow trunk flexion (WITH KNEES BENT) is supposed to gently stretch out the extensors.

Extension exercises are aimed at *disks*. These are the pads that cushion and separate the vertebrae (back bones), and they each have a little bubble inside. When there is too much bending of the spine, the pressure can force that bubble to the back of the disk, and the bulge pushes on nerve endings. This hurts too! (When the disk "ruptures", the bubble pushes out far enough to leak or tear supporting tissue; this needs immediate attention due to potential neurological damage.) Extension exercises are supposed to gently put pressure in the other direction and push the disk structure back where it belongs.

2. Name one sport or exercise that could cause low back injury from too much flexing, and one that could cause low back injury from too much extending.

3. What is a job (in or out of prison) that incorporates too much flexion of the spine?

4. What is a job (in or out of prison) that incorporates too much spinal extension?

5. What is a job (in or out of prison) that incorporates too much relaxation?

6. What is a job (in or out of prison) that incorporates too much repetitive movement of a single joint?

7. Imagine the perfect job for your muscles and joints - it doesn't have to exist in the real world. Write a job description for a potential employee, including hours/week, starting time, coffee breaks, etc.

REMEMBER: When your body hurts, pay attention. There is no one perfect treatment -- everyone and every health problem is different.

Relaxing

Relaxation is not simply the opposite of exercise; it can be an exercise too. In fact, it can be hard work.

8. How would you define relaxation?

9. Why is it important to incorporate relaxation into an exercise program?

10. Give an example of when relaxation is an exercise.

11. Think of a way to relax your body or a body part in an upright position.

The reasons to relax vary as much as the reasons to exercise -- you could have a spasm in your calf, an aching back, feel tense all over, etc. The how-to-relax methods are equally varied. Here are a few methods used to achieve relaxation:

During a *massage*, your muscles may be gently kneaded in an attempt to get them to loosen up. Or a massage therapist may dig into the sorest part of a tight muscle (its "trigger point") so the treatment actually hurts.

12. When would the gentle method of massage therapy be effective? When would the more rigorous method be effective? Would either have an effect on anger control as well as muscle relaxation?

Here are some more relaxation approaches where you are your own therapist:

Self-Massage

Sit in a comfortable position (elbows supported on a table if possible) with hands on the muscle bulk between neck and shoulders. Massage gently for about thirty seconds, rest, and then do a more vigorous massage.

13. Which made the muscles feel more relaxed -- deep or gentle self-massage? Did one make you feel more relaxed overall?

Deep Breathing

A major muscle group for breathing is the "intercostals" which run between your ribs. They contract to pull the ribs up so your ribcage expands, pulling air into your lungs.

Put your hands near the bottom of your rib cage and take a slow, deep breath. Make your ribs push against your hands. Your hands should exert a steady pressure but allow the ribs to lift as far as they can. Hold that for a second, then let the air flow out by itself while you relax your arms. Because the ribs have to push against your hands, this is a way to actually strengthen those intercostal muscles and increase their efficiency.

14. How did you feel after taking about five deep, slow breaths? Why would this be an exercise to help with relaxation?

15. What muscle is contracting when you breathe out forcibly?

Contract-Relax

Use your hands to repeatedly, slowly, and strenuously grip and release an object (like a ball or towel). When a muscle is pushed to work extra hard, it relaxes to a greater extent. It's one more way to experience and control relaxation.

16. Why would an exercise involving the muscles of your hands make your upper body relax?

The Butterfly

We've saved the best for last because frankly this one strikes us as silly -- but we're willing to be proved wrong. It's called the "Butterfly Hug" and we wouldn't let anyone else see you try it because they'll think you've gone off the deep end. Stand and wrap your arms around yourself. Now wiggle your fingers for one minute.

17. Well -- how did this make you feel?

18. Why would someone be comforted and more relaxed after a butterfly hug?

There are many practices from different cultures built around the idea of relaxing your mind and body. Below are a few examples.

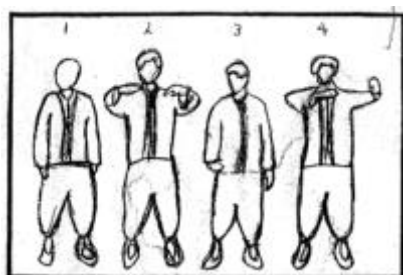
Yoga:

In yoga, you assume certain positions, many at the extremes of some joint ranges, such as sitting with legs crossed with feet up on the thighs (if you are flexible enough!). The idea is that holding yoga positions helps you focus on the body's "energy centers", releasing your own body's healing force.



Tai Chi

Tai Chi has the same goal as yoga, but instead of assuming static positions, you go through a series of very slow movements. CG member Willie M. has provided descriptions and drawings of Tai Chi positions below.



-
- #1: Stand relaxed with your feet about shoulder width apart.
 - #2: Bend your elbows slightly and lift your arms slowly to shoulder height in front with hands and fingers horizontal and relaxed. Concentrate awareness on your forearms.
 - #3: Slowly lower your hands to your thighs, with the fingers of your right hand pointing down and your left palm facing down.
 - #4: Raise your arms to shoulder height, with left elbow only slightly bent.

Reiki

Reiki involves promoting healing through "life force energy". This energy is believed to flow through the hands, and so Reiki can often involve someone else placing their hands on your body (usually a Reiki Master). However, Reiki also emphasizes that YOU must take an active part in your healing by promoting harmony and peace.



Meditation

This practice involves training your mind to focus on clearing yourself of stress and chaos. Yoga and Tai Chi fall under this broad category. Meditation can be practiced by anyone, almost anywhere (although you may get strange looks at some places.) Professionals have long talked about the benefits of meditation, including a sense of peace and balance. **Guided meditation** involves fixating on a mental image/place that you find relaxing, and really trying to immerse yourself in this image/place by experiencing the smells, sights, sounds, etc. **Mantra meditation** centers on focusing on a calming thought, phrase, or word. **Mindfulness meditation** is based on concentrating on the present moment, such as the flow of your breath.

These are just a few of many relaxation techniques. Do any pique your interest?

19. Have you tried any of these methods before? If so, did it help calm you? If not, would you consider trying these now?

20. Which method (yoga, tai chi, or Reiki) looks the most effective at de-stressing and relaxing you and why?

21. Think of your own relaxation technique and describe it.

22. Do you think relaxation is more, less, or equally important as exercising?

Another Kind of Relaxation

Anger makes relaxation very difficult. It's easy to tell yourself to stop being angry, harder to actually succeed. Calbraith (the incarcerated author of *Practical Reformation*) discussed relaxation and "serenity". This is how he approached his problem with anger:

"I'd historically regarded any theft of my goods, services, resources, security...as a hostile act, an act of war. When people and events conducted war against me, I'd felt obligated to engage in the conflict. In this respect, people and events ruled my life..."

23. If another prisoner steals from you, do you feel that same sense of being at war?

You would think that a prisoner who aggressively protested and went after the thief would be the one in charge.

24. Why would "engaging in the conflict" result in being ruled by others?

25. The last time you got angry, what was your reaction? Did your reaction make the situation better or worse?

CG members answering the question, "What do you do to relax and calm down?" have come up with many different approaches. Here is a recent answer:

"A good way to cool down your temper in here is to work out strenuously and deal with the stressful factor. Play a musical instrument. Strive to engage in intellectually stimulating correspondence and a positive interaction helping others."

26. Which of these activities would help you relax, and which would be least helpful? Explain. Can you think of other ways to relieve stress and calm down?

Health Club

How's that exercise program going? Are you starting to look like a whole new person?! Whether you can see the results or not, even a small amount of physical exercise can improve your health. Since we just learned so much about relaxation, add some of these techniques to your exercise program. Many people like to do a small amount of relaxation and "center" their energy in the morning and at night – but do whatever works for you!

27. How has your exercise program been working? Was there anything you changed?

28. What does your exercise routine (with the new relaxation techniques) look like?

Remember: First names only & please let us know if your address changes

**Appendices
Health: Unit 3 of 4**

Citations:

- <http://drawingbooks.org/lutz1/source/images/000080.png>
- [http://www.clker.com/cliparts/e/2/e/b/11970905601565623445Gerald_G_Yoga_Poses_\(stylized\).svg.hi.png](http://www.clker.com/cliparts/e/2/e/b/11970905601565623445Gerald_G_Yoga_Poses_(stylized).svg.hi.png)
- http://classroomclipart.com/images/gallery/Clipart/Black_and_White_Clipart/Health/yoga_backbend_pose_outline.jpg
- [http://www.clker.com/cliparts/3/6/b/c/1197090563765487398Gerald_G_Yoga_Poses_\(stylized\)_1.svg.med.png](http://www.clker.com/cliparts/3/6/b/c/1197090563765487398Gerald_G_Yoga_Poses_(stylized)_1.svg.med.png)
- <http://wdie.wedding-dates.com/files/2013/06/downward-dog.jpg>
- http://4vector.com/thumb_data/v4l-126709.jpg
- <http://www.reikicyprus.com/wp-content/uploads/2014/10/chakra-diagram21.jpg>
- <http://portadelmar.com/wp-content/uploads/2010/06/Reiki-healing.jpg>
- https://www.bulletproofexec.com/wp-content/uploads/2015/03/meditation_sun.jpg

Feedback for Health Unit 2 assignments:

1. A ligament can't help a muscle move a joint, but a muscle can sometimes help a ligament stabilize a joint. Muscles can tense without causing movement – think of football players who lift weights to strengthen the quadriceps to support the knee joint as well as strengthen the muscle.

2-3. Tendons can clearly be seen at the wrists and tops of the feet. The Achilles tendon is the big one at the back of the ankle. (Achilles was a great warrior in ancient Greece. He was invincible except at the back of his ankle; eventually he was struck there with an arrow and died. A person's weak spot is often referred to as his/her "Achilles' heel.")

4-7. When your wrist bends backward it extends and the motion is called extension. Your wrist is in extension when holding the tray, and in flexion when eating mashed potatoes. Other examples for flexion are pointing to your stomach and buttoning a sweater, and for extension, writing and getting ready to throw a baseball.

8-9. The joints between your neck and hand are shoulder, elbow, and wrist; they are in flexion when you hold your nose. When your neck is in extension, you are looking at the ceiling or sky.

10. During a push-up, the elbow starts in flexion (when your chin is close to the ground), then moves into full extension.

12. **13-15.** Repeated weight lifting obviously results in increased strength of the muscles being worked. Initially, however, muscles can feel uncomfortable and tight, since they're not used to the demand being put on them. You would feel this in the forearm during wrist flexion exercises. Other muscles are involved, too. Focus on your fingers, elbow, and shoulder, even your neck, when you lift a weight using wrist flexors - can you feel any muscles tensing to support the wrist?



16. On your stomach, the hamstrings push against gravity when they bend the knee.

17. Even though the knee is bending, the quadriceps are still fighting gravity by controlling the movement – otherwise the leg would suddenly collapse with no control. The hamstrings may flex the knee, but they don't have to work at all when gravity is pushing the knee into flexion.

18-19. The quadriceps are the muscles working the whole time during a deep knee bend; the hamstrings would need to be in a position like prone (on the stomach) to push against gravity.

20. It is harder to fight gravity when there is weakness. An assistive device like a knee brace is one treatment option.

21. The quadriceps, because they straighten the knee and push the body up against gravity.

22. Examples: crutches for weakness of the quadriceps on both sides; a cane for hip pain on one side; a cast for a sprained ankle.

24. In addition to muscle power, strength can also mean will power, standing up for oneself, or enduring hardships.

26. Think of both meanings of strength here. In a practice such as yoga, holding difficult positions can make the muscles stronger. Staying still to meditate or "soul search" can bring you insight and the motivation to persevere.