



Neurology Care Line

PADRECC Pathways

Houston Parkinson's Disease Research, Education and Clinical Center

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Dehydration and Parkinson's Disease

Dehydration:

Dehydration is a term derived from ancient Greek, where "hydros" stands for water. Literally speaking, it means "removal of water." Medically, it is a condition in which the body contains an insufficient volume of water for normal functioning.

Water constitutes approximately 75% of the human body. All of our organ systems rely on an optimal water balance to function properly. Water deficiency can cause several symptoms that generally reflect improper functioning of the different organ systems. These include dizziness, palpitations, weakness, blurred vision, headache, poor attention and concentration, and constipation. Parkinson's disease patients are especially vulnerable to dehydration. Although we do not know the exact cause, we do know that PD patients "naturally" do not feel thirsty and have a tendency to drink less fluid. Research suggests that deterioration of brain cells, localized to a specialized brain region called the **substantia nigra**, could be the likely cause. This area is the primary site of disease in PD. The nerve cells and fibers from this region, including their chemical messenger called "dopamine," are believed to be critically involved in drinking behavior. Damage to these cells reduce thirst and therefore drinking.

In PD, difficulty in swallowing also contributes to poor drinking. Individuals with PD drink 30% less water, on average, than their healthy peers.

PD patients also have a tendency to lose more water than those without the disease. They sweat, urinate and drool excessively as a direct result of the disease. They may experience excessive nausea and vomiting or occasionally diarrhea as a side effect of medication(s) or due to changes in the gut associated

with PD, resulting in excessive water loss.

With advancing disease, deterioration in mental faculties and motor function and increasing difficulty in personal care contributes to the tendency to become water depleted.

The consequences of dehydration in PD patients are more serious than in healthy individuals. Water deficiency can manifest as worsening disease with increasing stiffness and slowness. It can result in low blood pressure, appearing as weakness and dizziness, especially when standing. Dizziness can cause gait instability and result in falls. Dehydration can worsen memory, leading to confusion, and may trigger hallucinations.

Water deficiency can cause or significantly worsen constipation. Severe constipation can result in complete blockage of the colon, requiring emergency intervention. Other symptoms include, poor appetite leading to nutritional deficiency and unwanted weight loss. Water deficiency can worsen the adverse side-effects (such as dyskinesias) of PD medications.

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Aliya Sarwar, MD, Associate Clinical Director of the Houston PADRECC, is board certified in both neurology and sleep disorders. After graduation from medical school in Pakistan, she came to Houston and completed her neurology residence at Baylor College of Medicine before joining the PADRECC staff.



Dehydration cont from page 1

(cont from page 1) Preservation of normal water balance in Parkinson's disease is important, and physicians should deal with this aggressively. Dehydration can be prevented by:

- a) Increasing fluid intake.
- b) Reducing fluid losses.

Increasing Fluid Intake:

- i) The first step in prevention of dehydration is a conscious resolve to drink adequately. A voluntary effort is needed since the **"natural desire to drink"** is diminished.
- ii) Water intake can be increased by including water (1-2 glasses) at all meals and also at medication times. Adding a natural flavor to the water based upon preference makes the water more tasty and easier to drink.
- iii) Incorporating healthy drinks, e.g.: milk, natural fruit/vegetable juices, smoothies and water rich foods (juicy fruits/vegetables, soups and stews) to meal adds to our daily water intake. This also improves the nutritional aspect of the diet and is generally well-accepted.

Reducing Fluid losses:

- i) Aggressive management of excessive salivation, urination, and sweating can limit water loss.
- ii) Avoiding excessive sustained exposure to a hot, dry environment.
- iii) Avoiding medications that work by water and salt loss (diuretics). Changes in medication should only be attempted in consultation with a patient's physician.

Additional helpful strategies customized to patients' needs should also be sought through health care providers. There are no ideal ways to assess for adequate water intake in this group of patients. The best strategy is to replace what is believed to be lost in a 24 hour period and then some. This usually amounts to drinking at least 70-80 oz of liquid in 24 hours. One helpful indicator that suggests good water balance is: **"your feeling of doing well."**

Aliya I. Sarwar, M.D.

Associate Clinical Director, Houston PADRECC

Avoid Dehydration

- ◆ Drink at least 70-80 oz of liquids a day
- ◆ Flavor the water to improve taste
- ◆ Thicken the liquids to help swallowing
- ◆ Consume water-rich foods (vegetables, juicy fruits)
- ◆ Avoid exposure to dry, hot weather for prolonged periods
- ◆ Avoid medications causing excessive water loss (diuretics)
- ◆ Talk with your doctor about issues causing excessive water loss through urination & sweating

Summary of PD Research Studies from the PADRECC

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- ◆ When treating patients with PD who are taking the medication pramipexole (Mirapex), physicians should look for the presence of other illnesses, especially when patients sleep too much, their feet swell (edema), and they see things that are not present (hallucinations).
- ◆ Changes in thinking and memory (cognitive slowing) may be similar to the motor slowing in PD due to changes in the circuits of the brain areas affected.
- ◆ Freezing is a problem for persons with PD, especially for those who have had the illness a long time and who are in more advanced stages.
- ◆ Researchers suspect a link between PD and narcolepsy (daytime sleep attacks, nighttime insomnia, and fatigue) due to changes in brain chemicals found in both illnesses.
- ◆ Individual cognitive behavioral therapy (CBT) may be helpful when treating depression and other psychological conditions in patients with PD.

Naomi Nelson, RN, PhD, Houston PADRECC Co-Associate Director of Education

Posture – Yesterday, Today, and Tomorrow – Part 2

Tall sitting posture – you just can't beat it for helping you look better, feel better, and improve your internal functions (specifically your breathing and digestive processes). But it does get harder to maintain as Parkinson Disease (PD) progresses. In the last issue we talked about postural correction and alignment designed to improve your awareness of good posture, so now it is time to begin an exercise program that will reinforce your efforts at improving and maintaining that good postural control. The exercise program has two phases – stretching and strengthening, so let's begin!

Activities (exercises) designed to stretch tight muscles in the head and trunk area:

- While sitting upright on a firm chair, begin by loosening the muscles around your neck:
 1. Slowly tilt your head forward and drop your chin in the direction of your breastbone gently stretching out the muscles along the back of your neck, followed by lifting your head up and back so that your chin points toward the ceiling and the muscles on the front of your neck get stretched. Repeat each movement 3 times.
 2. Starting with your head in neutral alignment (i.e., head is erect with ears positioned over the shoulder blades), slowly turn your head to the right to stretch the muscles on the left side of the neck followed by a full turn to the left, which stretches the muscles on the right side of the neck. Repeat each movement 3 times.
- Continue by stretching some muscles within your trunk and chest:
 1. Sitting upright on a firm surface in your best sitting alignment, begin by pulling your shoulder blades up toward your ears, back toward your spine, down toward your waist and forward toward your chest. Focus on moving your shoulder blades as far as possible in each direction. Repeat this rotation movement (up, back, down, and forward) 8-10 times. Finish by taking a deep breath and lifting your shoulder blades up and back.
 2. Progress to gently twisting your entire spine by rotating your ribcage to the right, bringing your right arm behind the chair that you are sitting in and your left arm reaching across your chest. Turn your head the same direction and hold that position to the count of 5 while feeling the stretch within your waist and spine. Slowly release from that position and rotate your upper body fully to the left placing your left arm behind the chair and your right arm reaching across the front of your body. Hold to the count of 5, and then repeat the twisting movements in each direction 2 more times.

Activities (exercises) designed to strengthen weak muscles in the head and trunk area:

- Do the following exercises while seated forward on a firm chair (NOTE: Whenever your hips are forward on a chair rather than all the way back, your spine is more flexible and ready to work harder):
 1. Start with your arms crossed at the wrists with your hands touching opposite knees (i.e., right hand is on the left knee and the left hand is on the right knee). Lift your arms up and over the top of your head uncrossing them as you go and taking a deep breath as your arms are lifting. Return your hands to their original positions while letting the air out of your lungs. Repeat this movement 10 times, lifting your arms as far overhead as possible and straightening your back with each arm lift.
 2. While sitting up with good postural alignment, lift your arms out to the side with the elbows bent so that your fist hands touch lightly at the level of your chin. Pinch your shoulder blades together and pull both arms behind your back while opening your chest as far as possible. Inhale while pulling the shoulders back and exhale while bringing the hands back together in the front. Repeat this movement 6-8 times while concentrating on keeping your upper back extended and straight.
 3. This last movement is in multiple parts, but take it slowly and you should be able to figure it out:

Houston PADRECC Director's Corner

Due to the establishment of the National VA PD Consortium Center Network (Consortium), more veterans with Parkinson's disease (PD) are receiving optimal care at 42 clinics staffed by movement disorder specialists at locations near their homes.

The Houston PADRECC neurologists have regular contact with physicians at Consortium sites in Topeka, Kansas City, Oklahoma City, Jackson, Little Rock, San Antonio, Milwaukee, and Chicago to discuss complex clinical issues and decide which veteran patients should be referred to our Houston Center for more specialized care and research programs.

Professional education features prominently in the Consortium. Our Houston Center is pleased to

be the first PADRECC to host a neurologist through the Consortium Outreach Training Program for Health Care Professionals. Dr. Prasunamba Amaraneni from Topeka spent two days learning about the management of PD patients from our PADRECC staff and movement disorder specialists—Dr. Hou, Dr. Sarwar, and myself. Our fall agenda includes training more professionals. The Consortium plays an important role in patient education, and each clinic receives support group and educational materials to distribute to their veteran patients.

As always, we're grateful for your participation in our PADRECC clinics and educational programs. If we can improve the quality of our care, please let us know.

Eugene C. Lai, MD, PhD, Houston PADRECC Director

(cont'd from page 3)

- Reach both arms over your head taking the time to straighten out your entire back
- Bend the elbows and bring your hands down to touch your shoulders while keeping your spine completely straight
- Next, straighten your arms to reach forward while beginning to bend at your hips and incline your trunk over your legs
- Continue to reach forward, bending at the hips and not the back, until your shoulders are over your knees
- Return to upright sitting, bringing your hands back to your shoulders and begin the process again by reaching up and overhead.

Repeat the reaching process 5 times while keeping the muscles aligned along your spine working hard to keep your back straight.

Sounds simple. Right? Four simple stretches and 3 activities to keep your back strong. So why not get busy and improve the muscles in your trunk, which in turn will help you control the movements of your arms and legs. But that will be another story!

(The above information is for educational purposes only and should not be considered as medical treatment or health-care advice. Readers should consult their own physician for individualized medical treatment and a physical therapist for an individualized exercise program.)

Betty MacNeill, PT, MEd Associate Professor

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PADRECC staff Eugene Lai, Naomi Nelson, Aliya Sarwar, Gabriel Hou, Brenda Wade and Diane Davis welcome Dr. Prasunamba Amaraneni (1st row center) from the Topeka, KS, VA Medical Center.

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