

# The Importance of Monitoring Hydration Status in Our Clients



BY Chris Fraser

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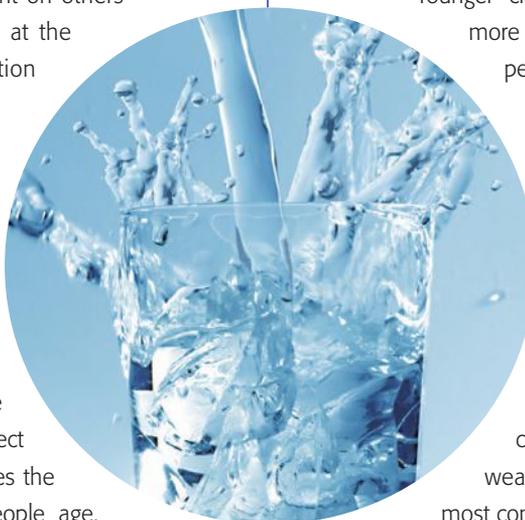
**M**ost people do not think of water as a nutrient, but it is! In fact, water is the most essential of all nutrients. The average adult body can live for weeks without food, but for only days without water.

Dehydration is a risk factor for impaired skin integrity, and the presence of a wound can predispose a client to dehydration and malnutrition, resulting in a vicious cycle of skin breakdown, malnutrition, and dehydration.

Clients who are dependent on others for eating and drinking are at the highest risk for malnutrition and dehydration.

## Dehydration in the Older Adult

Dehydration is among the most common reasons for hospitalization in older adults. Physiological changes occur during the aging process that can affect fluid balance, which increases the risk for dehydration. As people age, total body water decreases, resulting in a decreased fluid reserve. Decreased ability of the older kidney to concentrate urine, decreased thirst sensation, changes in hormonal levels that affect the kidney and hydration status, effects of medications such as diuretics, changes in mobility, cognition and independence, and self-imposed fluid restriction because of fear of incontinence or nocturia are just some of the other factors that increase the risk of dehydration in the older adult.



## Hydration Status = Intake minus Output

It is essential that as health-care providers we closely monitor our clients' fluid intake, compare intake to assessed fluid requirements and be aware of the potential signs and symptoms of dehydration. The recommended fluid intake for hydrated clients without abnormal losses is generally 27–30 mL per kilogram of body weight. The minimum fluid consumption for older adults is 1,500 mL per day.

Younger clients may need 35 mL or more per kilogram of body weight per day.

It is equally imperative that routes and extent of fluid losses be identified and considered. Even small fluid losses equalling three to six per cent of body weight (e.g., a 1.7–3.4 kg [3.75–7.5 lb] loss in a 56.8 kg [125 lb] client) can cause fatigue, weakness and confusion. The most common routes of fluid loss are:

- the gastrointestinal tract, with excessive losses occurring with frequent loose stools/diarrhea, overuse of laxatives and vomiting
- the urinary tract, with excessive losses occurring with diuretic use and uncontrolled diabetes
- fever/sweating
- wound exudate
- negative pressure therapy and air-fluidized beds
- the respiratory tract, with greater losses occurring with conditions that elevate the respiratory rate

### Parameters of Hydration Status

A client's hydration status can be measured via several parameters.

**Weight**—mild to severe dehydration can manifest as a rapid five to over 10 per cent loss in body weight.

**Blood pressure**—low blood pressure or orthostatic hypotension (a rapid drop in blood pressure when going from lying to sitting or from sitting to standing) may indicate dehydration.

**Urine output**—a reduction in urine production from typical volumes generally indicates a decrease in fluid intake.

**BUN:serum creatinine ratio**—an elevated blood urea nitrogen (BUN) level with a normal or low serum creatinine level may indicate under-hydration; however, an elevated BUN alone may not be an accurate indicator of hydration status, especially in clients with renal impairment. A BUN:serum creatinine ratio greater than 20:1 is a red flag for dehydration.

**Serum sodium**—an elevated serum sodium level may indicate dehydration; however, because other factors may impact the serum sodium level this should not be used alone to identify dehydration.

When dehydration has been identified and a rehydration plan has been initiated, it is important to monitor the client's alertness, urine output, blood pressure, pulse and daily weight.

### Consequences of Dehydration

Dehydration is one of the most common nutrition-related problems in long-term care; it can be life threatening and may result in the following:

- decreased physical and cognitive functional abilities, lethargy and confusion
- impaired balance and increased risk for falls and fractures
- increased risk for urinary tract and other infections
- decreased skin turgor and elasticity resulting in skin tears, shear injuries and pressure ulcers
- constipation and fecal impaction/obstruction
- ischemia and myocardial infarction
- renal failure
- death

### Signs and symptoms that your client is dehydrated

- Decreased urine output
- Dark, concentrated and/or strong-smelling urine
- Frequent urinary tract infections
- Dry lips/mouth and thick, stringy saliva
- Constipation
- Dizziness when sitting up or standing
- Confusion or change in mental status
- Weight loss of 1.5 kg (3.5 lb) in less than seven days
- Fever
- Decreased skin elasticity, such as on the arm that, when gently pinched, does not spring back into place but remains "pinched up" when released
- Sunken eyeballs

### Fluid Needs for Health

Most people need at least eight cups of non-caffeinated fluids daily. Drinks that contain caffeine, such as coffee, tea and cola, should be taken in moderation only. The best way to ensure that your client consumes at least eight cups of fluids daily is to make available and encourage intake of water, juices, milk, broth and other non-caffeinated beverages.

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### Risk factors or "clues" that your client may be at risk for becoming dehydrated

- Dysphagia (swallowing difficulties), especially with thin fluids
- Refusal of fluids at meal/snack times (this may be seen with dysphagia)
- The need for assistance with eating and drinking
- Lack of or blunted thirst sensation
- Inability to communicate thirst and other needs
- Memory problems/forgetfulness
- Presence of an illness that increases fluid lost from the body (e.g., vomiting, diarrhea, fever with sweating, uncontrolled diabetes)
- Fluid losses (e.g., from urine, diarrhea, vomiting, sweating, drooling) are greater than fluid intake
- Regular use of medications such as diuretics, laxatives or enemas
- Intentional fluid restriction for fear of bladder incontinence/nocturia

TABLE 1

## The approximate fluid provision from common foods

Food	Serving size	Approx. fluid provided
Jelly dessert/gelatin	125 mL (1/2 cup)	120 mL
Pudding	125 mL (1/2 cup)	100 mL
Ice cream/sherbet	125 mL (1/2 cup)	60 mL
Popsicle	1 popsicle	90 mL
Yogurt	125 mL (1/2 cup)	90 mL
Canned fruit	125 mL (1/2 cup)	100 mL
Soup	375 mL (1 1/2 cups)	165 mL

Some foods—such as jelly dessert, pudding, ice cream, soup and canned fruit—contain or are made with enough fluid that they can significantly contribute to a client's fluid needs (Table 1).

### Dysphagia (swallowing problems)

Some clients may not be able to safely drink thin (regular) liquids. If your client has been appropriately assessed and advised to avoid thin fluids, it may be recommended that the following fluids and food items be avoided:

- water, ice cubes, ice chips
- soft drinks, all juices
- milk
- tea/coffee
- broth and cream soups
- liquid supplements/meal replacements
- ice cream, sherbet, milkshakes, jelly dessert

Individual recommendations and/or exceptions may be made based on individual client assessment. Ice cream, sherbet, milkshakes, jelly dessert, ice cubes and ice chips may not seem like thin fluids, but if they sit out at room temperature or are held in the mouth before swallowing they will melt and become thin, and are therefore considered thin fluids.

Table 2 shows a sample plan giving the number and volume of fluid products of pudding consistency that are needed throughout the day to provide approximately eight cups (2 L) of available fluid to meet a client's fluid needs.

Please note that this is just an example, and may not apply to your client on thickened fluids. It is recom-

mended that a registered dietitian be consulted to individualize a thickened fluid plan to meet a client's hydration needs. ☞

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TABLE 2

## A sample thickened fluid plan

This sample thickened fluid plan specifies fluid provision only and does not include foods consumed in meals and snacks; foods are over and above the fluid sources indicated.

Meal/snack	Thick fluid	Serving size
Breakfast	Thick juice	250 mL (1 cup)
	Pureed fruit	125 mL (1/2 cup)
	Thick, set-style yogurt	250 mL (1 cup)
Morning snack	Thick juice	250 mL (1 cup)
	Pudding	125 mL (1/2 cup)
Lunch	Thick strained soup	250 mL (1 cup)
	Thick juice	250 mL (1 cup)
	Thick milk or pudding	125 mL (1/2 cup)
Afternoon snack	Pureed fruit	250 mL (1 cup)
Dinner	Thick soup	250 mL (1 cup)
	Thick juice	125 mL (1/2 cup)
	Pureed fruit or pudding	125 mL (1/2 cup)
Evening snack	Thick juice	125 mL (1/2 cup)

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