



## Water and Healthy Ageing Hydration Best Practice Toolkit for Care Homes

### Hydration best practice – useful references

#### **NHS Direct**

You can avoid dehydration by drinking eight large glasses of water a day and increasing your intake of water if you are ill with sickness and/or diarrhoea. When exercising, you should drink up to one litre of water per hour of exercise on top of your normal daily amount. This should be increased if you are exercising in warm conditions as you will dehydrate more quickly. In hot weather you will sweat more and lose fluid from your body. Make sure you are drinking enough water to replace lost fluids.

*Extract from NHS Direct web advice on the causes and symptoms of dehydration and suggested methods of prevention.  
<http://www.nhsdirect.nhs.uk/en.asp?TopicID=149&AreaID=1794&LinkID=1397>*

#### **Royal Society for the Promotion of Health**

The risk of falls increases with age and falls in older people can result in injury and death, often as a result of fractures. Dehydration has been identified as one of the risk factors for falls in the elderly. This may arise as a result of reduced water intake, e.g. due to a diminished thirst response, or as a side effect of diuretic medication. Dehydration can lead to deterioration in mental state resulting in dizziness and fainting. Dietary interventions have been aimed at reducing injuries from falls via vitamin D and calcium supplementation. Indeed, a number of trials have shown that oral vitamin D and calcium can be effective in reducing the number of fractures in elderly who are at risk of falling. However, the maintenance of adequate levels of hydration in the elderly could also be effective in preventing falls, particularly if it was incorporated as part of a multifactorial falls prevention strategy, such as recommended in the British Geriatric Society Guidelines for the prevention of falls in older persons.

*Extract from the Royal Society for the Promotion of Health website 'A draft report of the scientific literature on the impacts of water on health'.  
<http://www.rsph.org/water/survey.asp>*



## World Health Organization

Water is a basic nutrient of the human body and is critical to human life. It supports the digestion of food, adsorption, transportation and use of nutrients and the elimination of toxins and wastes from the body (Kleiner, 1999). The human body requires a minimum intake of water in order to be able to sustain life before mild and then severe dehydration occurs. Adverse health effects have been noted from both mild and severe dehydration and the latter can be fatal. Mild dehydration has been associated with a number of adverse health effects, including increased risks in susceptible groups to urinary stone formation, increased risks of urinary tract cancer and poor oral health.

*Extract from WHO 'Domestic water quantity, service level and health' [http://www.who.int/water\\_sanitation\\_health/en/Age\\_Concern](http://www.who.int/water_sanitation_health/en/Age_Concern)*

The composition of the whole body changes during ageing. There is a decline in the amount of lean body tissue, and increase in body fat and a decrease in the percentage of body water. This means that older people can have impaired temperature regulation, starting to shiver later in response to cold. They are thus more vulnerable to hypothermia. The reduced renal function (meaning that urine cannot be as concentrated) and the decline in the thirst mechanism puts an older person at greater risk of dehydration. Older people thus need to drink plenty of fluids even if they do not feel thirsty.

*Extract from 'Nutritional Care for Older People, A guide to good practice', by June Copeman, Age Concern Care Professional Handbook Series*

## Help the Aged

Much of the information on health and ageing we come across is common sense. On the other hand, rigorous scientific research also has a unique contribution to make to our understanding of ageing. It can shed light on the links between lifestyle and genes, and develop pioneering treatments that can help us in later life. Our nutritional needs change as we age - but the link between a good diet and staying healthy remains. This is because every process in our bodies requires a specific mix of proteins, carbohydrates, fats, vitamins, minerals, trace elements and water to work correctly. Fluid is vital for digestion, regulation of body temperature, elimination of waste products, lubrication of joints and eyes. Try to take care - it's almost impossible to drink too much.

*Extract from the Help the Aged 'Health and Care' section of the website, 'Healthy Ageing, Healthy Eating' [http://www.helptheaged.org.uk/Health/HealthyAgeing/\\_default.htm](http://www.helptheaged.org.uk/Health/HealthyAgeing/_default.htm)*



### **Worshipful Company of Cooks**

It has been estimated that to be well hydrated, an average sedentary male must consume at least 2,900 ml, and an average female, 2,200 ml of fluid per day in the form of drinks and other liquids. Dehydration by as little as 2% loss of body weight results in impaired physiological and performance responses (Kleiner, 1999). In extreme cases, mental confusion which has been interpreted as the onset of senility has been reversed by adequate hydration (Thomas, 1993).

Ageing is said to alter the ability to regulate water balance (Rolls & Phillips, 1990) and older people are unable to concentrate their urine in response to water deprivation (Morrisson, 1997). A number of studies have shown that older people have difficulty in 'defending their fluid balance' under conditions such as thermal stress and that they can readily become dehydrated as a result of mild stress and with fluid restriction (Castro, 1992). In a series of studies, 262 adults (age range 20-80 years) monitored their food and fluid intake and other subjective factors over a seven-day period. No differences were found in overall fluid intake, subjective thirst, social stimuli and stomach factors. However, in the younger groups, fluid was ingested increasingly in bouts during the day whereas it declined in the older groups. The author concluded that under ad libitum conditions, older individuals are able to obtain normal levels of fluid by ingesting both fluid and solid food. (Castro, 1992). Similarly, adequate intakes have been shown to be achievable in an older person's residential home (Chidester & Spangler, 1997). However, these results are contradicted by studies in the USA where dehydration in the elderly is considered a common problem, being one of the 10 most frequent diagnoses (Warren, et al., 1994). In a follow-up study, data from 'Medicare' files were used to calculate rates of hospital admissions with dehydration. Results show that dehydration in older people is a serious problem that may have gone unrecognised to date. In 1991, 6.7% (731,695) of 'Medicare' admissions listed dehydration as one of the five reported diagnoses, a rate of 236.2 per 10,000. These admissions are associated with an increased risk of death, particularly for older men (Warren, et al., 1994).

*Extracts from 'Feeding Older People in the Community' by courtesy of The Worshipful Company of Cooks Research Centre at Bournemouth University; John S.A. Edwards, PhD Professor of Food Service and Director of the Research Centre with H.J. Hartwell and A.P. Smith.*



## Royal College of Physicians

Increased awareness of the hazards of under and over nutrition has brought clinical nutrition to the fore during the last decade, as shown by the large number of publications produced on the subject. Nutritional screening of all patients should be an integral part of clinical practice. Screening is a rapid process that will identify patients who are over nourished or under nourished. If an abnormality is detected, further assessment and a specific management policy should follow. Primary care, hospitals, nursing and residential homes should develop explicit protocols and standards to cover the whole process of nutritional management. Those responsible for clinical governance should identify nutrition as an important aspect of clinical practice that involves caterers and many health care disciplines. The inadequate provision of nutritional care has both medico-legal and ethical implications.

*Extracts from the executive summary and recommendations of 'Nutrition and patients - A doctor's responsibility', a report of a working party of the Royal College of Physicians, 2002.*

## Nutritional Consultants

Dehydration is common in elderly people. Sometimes you just 'forget' to drink, especially the healthiest drink, water. When you remember, you tend to drink tea or coffee, both of which dehydrate the body. The fear of incontinence can also stop you from drinking. As distressing as incontinence can be, dehydration can cause serious health problems, such as kidney failure.

Constipation is often a worry for older people. It is partly caused by the gradual slowing down of the metabolism, but is undoubtedly exacerbated by dehydration (see above) and the failure to drink enough water. Taking laxatives may seem the obvious solution, but it would be far better to correct constipation by increasing your fibre and water intakes.

*Extracts from the 'Problems of Ageing' section of 'Body Foods for Life, Feel Good, Look Good, Stay Good', by Jane Clarke BSc (Hons), S.R.D.*



Probably the most important and often overlooked nutrient, especially in geriatric patients, is water. Amongst the elderly, dehydration, the identification of which is difficult, is the most common fluid and electrolyte disorder (Lavizzo-Mourey, Johnson & Stolley, 1988). Unrecognised and untreated dehydration can also complicate chronic medical problems and increase morbidity. Four factors are associated with inadequate fluid intake: speech difficulties, visual impairment, infrequent opportunities for water ingestion, and reduced time of availability of water during any 24-hour period (Mahowald & Himmelstein, 1981).

*Extract from 'Hydration in Hospice Care Needs, Strategies, Ethics', by Charlette Gallagher-Alred and Madalon O'Rawe Amenta, Section ref: Mark A. McCamish and Nancy J. Crocker, Specifics of Nutrition Support*

### **Water is among the most important nutrients for the maintenance of life.**

Dehydration is a frequent etiology of morbidity and mortality in elderly people. It causes the hospitalisation of many patients and its outcome may be fatal. Indeed, dehydration is often linked to infection, and if it is overlooked, mortality may be over 50%. Older individuals have been shown to have a higher risk of developing dehydration than younger adults. Modifications in water metabolism with ageing and fluid imbalance in the frail elderly are the main factors to consider in the prevention of dehydration. Particularly, a decrease in the fat free mass, which is hydrated and contains 73% water, is observed in the elderly due to losses in muscular mass, total body water, and bone mass. Since water intake is mainly stimulated by thirst, and since the thirst sensation decreases with aging, risk factors for dehydration are those that lead to a loss of autonomy or a loss of cognitive function that limit the access to beverages. The prevention of dehydration must be multidisciplinary. Caregivers and health care professionals should be constantly aware of the risk factors and signs of dehydration in elderly patients. Strategies to maintain normal hydration should comprise practical approaches to induce the elderly to drink enough. This can be accomplished by frequent encouragement to drink, by offering a wide variety of beverages, by advising to drink often rather than large amounts, and by adaptation of the environment and medications as necessary

*Extracts from 'Strategies for Ensuring Good Hydration in the Elderly', a nutrition review by Monique Ferry, International Life Sciences Institute and Nutrition Foundation, June 2005. Provided by ProQuest Information and Learning Company.  
[http://www.findarticles.com/p/articles/mi\\_qa3624/is\\_200506/ai\\_n13644377/print](http://www.findarticles.com/p/articles/mi_qa3624/is_200506/ai_n13644377/print)*



## Medical Organisations

Dehydration is the most common fluid and electrolyte disorder of frail elders, both in long term care settings and in the community. Data from the 1996 National Hospital Discharge Survey show that 208,000 patients 65 years of age and older were discharged from short stay hospitals with a primary diagnosis of dehydration. Since the average length of stay for people 65 and older was 6.5 days in 1996, and the average cost of care per day was \$1,006, the cost of hospitalization for dehydration in that year was £1.36 billion. Although inadequate hydration, along with malnutrition, is one of the most long standing and pressing problems in nursing homes, there is little research on the prevalence either of borderline or overt dehydration. Elderly people who do not receive adequate fluids are more susceptible to urinary tract infections, pneumonia, decubitus ulcers and confusion and disorientation. In addition, life threatening electrolyte imbalances (i.e. hypernatremia and hyperkalemia) can occur. Mortality rates for untreated dehydration may be very high.

*Extracts from 'Malnutrition and Dehydration in Nursing Homes: Key Issues in Prevention and Treatment' [http://www.nccnhr.org/pdf/burger\\_mal\\_386.pdf](http://www.nccnhr.org/pdf/burger_mal_386.pdf)*

When staffing is inadequate and supervision is poor, residents with moderate to severe dysphagia, severe cognitive and functional impairment, aphasia or inability to speak English, and a lack of family or friends to assist them at mealtime are at great risk for dehydration. Adequate fluid intake can be achieved by simple interventions such as offering residents preferred liquids systematically and by having an adequate number of supervised staff help them to drink while properly positioned.

*Extracts from 'Factors contributing to dehydration in nursing homes: inadequate staffing and lack of professional supervision'. Kayser-Jones J, Schell ES, Porter C, Barbaccia JC, Shaw H. Department of Physiological Nursing, UCSF Medical Center, University of California, San Francisco 94143, USA. PMID: 10522951 [http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list\\_uids=10522951&dopt=Abstract](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10522951&dopt=Abstract)*



Elderly people are at greatest risk for dehydration and its potentially life-threatening consequences. Elders aged 85–99 are six times more likely to be hospitalized for dehydration than those aged 65–69. More than 18% of those hospitalized for dehydration will die within 30 days, and associated mortality increases with age. Men appear to dehydrate more often than women. The incidence of dehydration is probably underestimated quite seriously, because dehydration is often masked by other conditions. Once dehydration becomes a problem, the entire health care team must be involved in its resolution, and specific dehydration management strategies must be included on the resident's care plan. The simplest and most effective strategy is to ensure that all residents consume adequate volumes of fluid.

*Extracts from the 'Prevention and Management of Dehydration' by Jeannete Y Wick, RPh, MBA American Society of Consultant Pharmacists*  
<http://www.ascp.com/public/pubs/tcp/1999/aug/prevention.shtml>

Dehydration is a common water and electrolyte disorder in long-term care residents. This study determined whether urine colour measured by a urine colour chart reflects hydration status. The study employed a repeated measures design with two observations during a 10-hour period. Urine colour was compared to the criterion standard of urine specific gravity and osmolality. The sample included 89 participants from two Veterans' Affairs facilities. Urine colour was graded on an eight-level colour chart. Urine specific gravity and osmolality, serum sodium and osmolality, hematocrit, blood urea nitrogen (BUN), and creatinine were measured using standard laboratory procedures. Significant positive associations existed between urine colour and both urine specific gravity and urine osmolality and between urine osmolality and serum sodium and the blood urea nitrogen to creatinine ratio. Although further testing is needed, the colour chart has potential as a low-cost technology to monitor dehydration.

*Extracts from 'Monitoring hydration status in elderly veterans', by Wakefield B., Mentis J., Diggelmann L., Culp K. Veterans' Affairs Medical Center, Iowa City, Iowa, USA. PMID: 11858345* [http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list\\_uids=11858345&dopt=Abstract](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11858345&dopt=Abstract)



Actual fluid intake in the institutionalised elderly was compared with three established standards to determine adequacy of fluid intake. When the standard of 30 mL/kg body weight is used, underweight residents have unrealistically low fluid recommendations. Standard 3, which adjusts for extremes in body weight, is more reasonable for patients whether they are of normal weight, underweight, or overweight. This standard more closely supports other recommendations of 1,500 to 2,000 mL fluid intake per day. Number and frequency of medications influences the amount of fluid residents obtain during non meal feedings.

*Extracts from 'Fluid intake in the institutionalised elderly', by Chidester J.C., Spangler A.A. Reid Hospital & Health Care Services, Richmond, Ind 47374, USA. PMID: 8990413 [http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list\\_uids=8990413&dopt=Abstract](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8990413&dopt=Abstract)*

Adequate hydration in older adults is a common yet complex problem requiring a comprehensive approach. Facility-wide involvement is critical for the success of a hydration program. This article addresses a systematic, three-dimensional strategy with administration, clinical staff, and in-service education activities. An assessment tool, administrative and education guidelines, and a “creative brainstorming” sheet are provided for the nursing home facility interested in initiating a program for the prevention of dehydration and promotion of adequate hydration.

*Extracts from 'A three-dimensional approach to hydration of elders: administration, clinical staff, and in-service education', Zembruski C.D. Wilcox College in Middletown, Conn., USA. PMID: 9060266 [http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list\\_uids=9060266&dopt=Abstract](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9060266&dopt=Abstract)*



According to the Health Care Financing Administration, dehydration was ranked one of the ten most frequent admitting diagnoses in a study on Medicare hospitalizations. Increasing age is one of the major risk factors for dehydration. In fact, those persons between the ages of 85 and 99 years are six times more likely to be hospitalized for dehydration. It is very important that healthcare providers in nursing homes recognize that elderly are at risk for developing dehydration. When a person is recognized as being at risk for dehydration, preventative measures should be taken from the offset to avoid dehydration. A person “at risk” for dehydration should have a hydration programme in place at the nursing home. A hydration programme would include assisting the person with drinking, offering fluids at mealtime and in between meals, looking for signs and symptoms of dehydration, notifying the physician if such signs and symptoms are present, recording the residents and intravenous fluid replacement when the physician deems it necessary.

*Extracts from ‘Negligence Related to Malnutrition and Dehydration’, from The Nursing Home Abuse Resource Center*  
<http://www.nursinghomeabuseresourcecenter.com/injured/malnutrition/>