

## Perspectives on Tube Feeding

### Historical

Over the centuries, there have been many attempts to administer nutritional fluids to those unable to swallow. The ancient Egyptians used reeds and animal bladders to feed patients with a mixture of wine, broth, and raw eggs. In 1881, President James Garfield was shot and physicians kept him alive for 79 days with a mix of beef broth and whiskey injected rectally before he died as the result of infection and internal bleeding from the lodged bullet.

Before the 1940s, there was a danger of infection whenever surgery was performed to insert feeding tubes, as antibiotics were not yet available. In the 1950s, a powdered formula for tube feeding came on the market.

However, tube feedings were rarely used before the 1970s. During that decade, many types of liquid formulas were developed. There are currently at least 90 different preparations commercially available.

### Use of Tube Feedings Today

Feeding patients through a tube is now a common procedure, particularly for those with neurological problems such as brain injury or dementia as well as many types of cancer. Additionally, many formulas have been developed for specific conditions including: kidney disease, diseases of the digestive tract, diabetes, liver failure, respiratory diseases, allergy sensitivities, and immune deficiency syndromes such as AIDS.

Formulas that contain fiber have been proven useful in patients who have problems with constipation or diarrhea, as fiber is able to both absorb excess liquid from loose stools and soften hard feces by providing bulk. Fiber supplements can also be added to a tube feeding when needed, but these should be prescribed by a physician and administered by a trained clinician to minimize danger of the tube becoming blocked.

### Administration of Feedings

Formulas may be given in three ways:

#### 1. Continuous Feeding

Formula is slowly dripped without interruption over 12 to 24 hours.

#### 2. Intermittent Feeding

The total amount of formula needed in a day is divided into three to six feedings.

Each is given over a 60- to 90-minute period of time.

#### 3. Bolus Feeding

A meal-size amount of formula is given in 15 to 30 minutes. This is faster and uses less equipment, but increases risk of complications like bloating and diarrhea.

## Common Problems

Problems associated with tube feeding, for the most part, fall into one of two categories:

### 1. Adverse Reactions

- a) Sometimes a patient's body chemistry cannot tolerate a certain composition of nutrients. In this case, the physician will prescribe an alternate product.
- b) Inappropriate formula, lactose intolerance, or drug interactions sometimes cause digestive problems such as nausea or vomiting, diarrhea, or constipation.
- c) Diarrhea is the most common side effect and this can usually be improved by changing formulas or giving less at a time.

### 2. Mechanical Dysfunctions

- a) A tube can become displaced, blocked, or it can break. Sometimes a tube gets out of place without being noticed and this can result in the formula traveling to where it is not intended, resulting in many types of potentially serious complications.
- b) Patients and caregivers are advised to learn techniques to detect improper tube placement, such as measuring and marking the length of the tube outside of the body, and should check for displacement before administering formula.
- c) It is also important to recognize situations in which the tube is likely to become displaced, such as violent coughing, vomiting, and large body movements which may dislodge the tube.
- d) To reduce risk of the tube becoming blocked, it is vital to adequately flush it with 60 to 120 ml water (1/4 to 1/2 cup) after every time the patient takes in food or medication. If at all possible, meds should be given by another route or be provided in liquid form.

## Homemade Formula

Homemade blended formula may be a combination of commercial formula and foods or only pureed food. To minimize the risk of blockage, it's important to strain blended foods before putting the homemade formula through the tube.

### Advantages to Homemade Feedings:

1. A far greater variety of foods can be offered and consequently the patient can receive optimum nutrition.
2. Home-blended formulas typically contain more fiber than commercial formula.
3. Many patients derive satisfaction in knowing that they are receiving "regular food" through their tube. The aroma of favorite foods is one factor in psychological appeal.
4. Food from the supermarket costs less to purchase and prepare than store bought formula.

### **Disadvantages of Homemade Feedings:**

1. Home-blended formulas tend to be too thick to easily flow through a gravity drip or pump feeding system. Also, it is not safe to hang pureed food in a bag at room temperature for the number of hours required for a drip feeding. Therefore, the patient must be on bolus feedings and able to handle larger volumes of food.
2. Feeding must be closely monitored. Giving food too rapidly or overfilling the stomach can lead to gagging, retching or vomiting.
3. Homemade feedings are more time consuming to make and administer.
4. There is a greater risk of contamination with homemade blended formula.

Although homemade feedings have more to offer in terms of nutrition and can be lower in cost, they are not the best choice for all patients because of their other limitations. A possible option for those who want to give homemade feedings, but do not have time for it every day, is a combination of some commercial formula feedings and some homemade. Haven's dietitian and nursing staff are available to assist patients and caregivers in both determining best choices and in carrying them out.

## **Dietary Intake and Body Weight Data**

When caring for a patient at home, monitoring daily food and fluid intake plus changes in body weight can be the most useful pieces of information for evaluating the success of the feeding regimen. It is highly recommended that the caregiver keep an ongoing record of the patient's daily intake and weekly weight checks. With proper care, planning and monitoring, people can live and even thrive on tube feeding for many years.

### *Resources for Perspectives on Tube Feeding*

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