Severe burn injuries are stressful to the body. The injury causes an increase in the patient’s metabolism, therefore, patients need higher amounts of calories, protein, vitamins and minerals than normal to help wound healing and prevent extreme weight loss. Depending on the severity of the burn injury, this increase in metabolism can last weeks to months. Adults may experience increased metabolism up to six months after the burn and children up to a year and a half after the burn.

Once admitted to the burn center, if the patient is able to eat by mouth, a high calorie, high protein diet is necessary to meet increased energy and protein demands. A Registered Dietitian (RD) uses information such as height, weight and percent burn to determine the proper amount of calories and protein to help healing and prevent weight loss. For example, the average adult usually needs 1,800-2,000 calories per day, but after a burn, the patient may need more than 2,500 calories. If a patient is unable to consume enough food to meet the increased energy needs, a liquid nutritional supplement may be added to their meal plan. Ideally, these liquid nutritional supplements should be consumed between meals to allow the patient to consume as much food as possible from his/her breakfast, lunch, and dinner meals. Food from home is welcomed, but should be prepared and transported carefully to avoid food poisoning. As for beverages, water, coffee, tea, soda, and juice are discouraged due to their lack of nutrients. Beverages such as milk, smoothies, milkshakes, and liquid nutritional supplements should be consumed instead.

A calorie count is often used to assess the patient’s food and beverage intake. The process includes posting the patient’s daily menu at their bedside every morning and recording the percent of food or drinks the patient consumes at each meal and/or snack for a 24 hour period. This information is collected by the RD who calculates the number of calories and protein consumed and compares the results to the patient’s estimated nutrition needs. This information is provided to the physicians daily. The goal is for the patient to meet more than 70% of his/her nutritional needs.

If a patient is admitted to the burn center and cannot consume food by mouth, a nasogastric (NG) tube is inserted through the nose and down into the stomach to provide nutrition. Liquid feeding in the gastrointestinal (GI) tract is nourishing, helps fight infection, and is better for burn patients than feeding through the vein. A high calorie, high protein nutritional formula is provided through the tube 24-hours a day to meet the patient’s nutrition needs. If the patient is on a ventilator (machine to assist breathing), a Metabolic Monitor can be attached to the ventilator to measure the amount of calories the patient is using over a 24 hour period. The nutritional formula is then adjusted to meet the patient’s caloric needs. Once the patient is able to eat by mouth, the tube feeding may be decreased to night-time feedings. Patients may not have an appetite initially so the tube feeding at night provides nutrition until the patient’s appetite returns.
The patient’s weight is obtained daily in the Burn Intensive Care Unit and then once a week in the Burn Special Care unit. During the first two days after the burn, extra fluids are given to the patient, which will cause a temporary weight gain. As the patient improves, this fluid will be lost and the patient will return to his/her usual body weight. Even with adequate nutrition, patients may experience additional weight loss. This is not uncommon in burn patients. To prevent further weight loss, the patient should continue to eat a well-balanced, high calorie, high protein diet. The patient’s weight should be checked once a week after discharge from the hospital. If the patient is experiencing loss of appetite or weight loss, refer to the “High Calorie, High Protein Snacks” list to incorporate additional food into the patient’s meal plan as well as letting his/her doctor know at his/her next clinic appointment.

During the patient’s admission to the Burn Center, vitamin and mineral supplements are given to the patient to help the healing process.

One of the temporary effects of a burn injury is extreme thirst, which is not usually quenched by drinking fluids. Because too much fluid can be harmful, the medical staff may limit the number of drinks allowed per day. Sucking on hard candy, chewing gum, or eating foods that are moist may help.

Occasionally, patients may experience GI problems such as constipation, diarrhea, nausea or vomiting. Constipation can be a side effect of pain medication and bed rest. Stool softeners may be given to help prevent constipation. Consuming adequate fluids and including food sources high in fiber such as fruits, vegetables, whole grains, prune juice, and bran can also help. Medications are available to relieve nausea, vomiting or diarrhea.

**High Calorie, High Protein Snacks & Shakes**

- Peanut butter: Add to fruit, crackers or bread with or without jelly. Melt into hot cereal.
- Cheese & crackers
- Sandwich (peanut butter & jelly, meat and cheese, tuna, egg or chicken salad)
- Cold cereal with milk
- Buttered popcorn with Parmesan cheese
- Dried fruit, nuts and granola
- Ice cream, yogurt or sherbet with topping
- Cottage cheese and fruit
- Muffin or bagel with cream cheese
- Apple slices with cheese or peanut butter
- English muffin with butter or jelly
- Grilled cheese sandwich
- Gelatin with whipped cream
- Granola bar
- Cinnamon toast and milk

Chapter 7
Nachos cheese
Pop-tart and milk
Powered Milk: Add 2-4 tablespoons to 1-cup milk. Mix into puddings, potatoes, soups or cooked cereals
(Carnation) Instant breakfast: Add to milk or puree fruits to make milkshakes

**Dairy Products**
Add cheese, cream cheese, mayonnaise, whipped cream, half-&-half or sour cream to food like scrambled eggs, cereal, refried beans or sandwiches. Add ice cream to milk.

**Oils and Margarine**
Add canal, olive, and vegetable oil margarine to casseroles, sandwiches, crackers, vegetables, cereals, soups or eggs.

**Fruits and Vegetables**
Avocados are high in calories. Add oil, margarine, cheese and cream sauces to vegetables. Crumble graham crackers into applesauce, pureed fruits or puddings.

**Single Serving Shake Recipes:**

<table>
<thead>
<tr>
<th>Milkshake</th>
<th>Smoothie</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 cup ice cream</td>
<td>1 cup banana yogurt</td>
</tr>
<tr>
<td>1/2 cup whole milk</td>
<td>10 strawberries</td>
</tr>
<tr>
<td>1 1/2 tablespoon chocolate syrup</td>
<td>1/2 cup whole milk</td>
</tr>
<tr>
<td>400 calories, 10 gram protein</td>
<td>350 calories, 14 grams protein</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fruit Shake</th>
<th>Raspberry Delight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2 cup vanilla ice cream</td>
<td>1 cup raspberry yogurt</td>
</tr>
<tr>
<td>1 pkg. Vanilla instant breakfast drink</td>
<td>1/2 half &amp; half cream</td>
</tr>
<tr>
<td>1/2 cup canned in syrup fruit</td>
<td>1/2 cup cranberry juice</td>
</tr>
<tr>
<td>1/2 half &amp; half cream</td>
<td>463 calories, 12 grams protein</td>
</tr>
<tr>
<td>518 calories, 10 grams protein</td>
<td></td>
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</tbody>
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