

# Refeeding Syndrome in Severe Eating Disorders

## What is Refeeding Syndrome?

*Increasing caloric intake quickly in individuals with anorexia nervosa and ARFID without frequent monitoring of blood tests and electrolyte replenishment can lead to a life-threatening complication marked by a shift in fluids and electrolytes within the body.*

For severely underweight patients with anorexia nervosa and ARFID, nutritional rehabilitation is a primary and essential intervention. During the process of refeeding, food is reintroduced based on the metabolic needs of the patient in order to reverse the serious medical consequences of progressive starvation and malnourishment and effectuate consistent weight gain. However, it is critical that patients be closely monitored by experienced medical professionals during this initial phase of treatment to prevent—or address—a potentially fatal complication known as refeeding syndrome.

Refeeding syndrome is characterized by a dangerous shift in fluids and electrolytes within the body, and occurs in a small subset of patients when calories are introduced quickly and lab tests are not checked and abnormalities treated. When the body is starved or severely malnourished, the heart muscle may atrophy causing diminished cardiac output, and the body begins to break down its own tissues—including fats and muscle—in an attempt to create the energy needed to maintain basic bodily functions. These changes can affect the body's major electrolytes, including phosphorus, potassium and magnesium. When food is reintroduced during the refeeding process, there is an abrupt shift from fat and muscle metabolism back to carbohydrate metabolism, increasing the body's uptake of phosphorus and other key electrolytes into newly developed cells and decreasing levels of these electrolytes in the blood. This sudden change in the balance of electrolytes causes the atrophied heart to work harder to manage a higher blood volume, which can cause irregular heartbeat, muscle damage, weakness, seizures and even death.

Along with low levels of phosphorus in the blood, another symptom of refeeding syndrome is edema, or swelling in the lower extremities. During refeeding, the body secretes insulin and the kidneys retain salt and water. This weight gain and visible changes in body size associated with severe water retention can be particularly distressing for patients that fear weight gain or suffer from body image concerns and/or body dysmorphia. Edema will generally resolve with continued management of refeeding.

This life-threatening complication of caloric initiation is usually preventable when refeeding is administered by eating disorder experts. However, most medical providers are not trained to identify or address refeeding syndrome in patients with extreme anorexia and ARFID. This unfortunate reality underscores the need for severely underweight patients to begin the refeeding process in an inpatient medical setting capable of treating the most serious eating disorders.

**ACUTE Center for Eating Disorders at Denver Health** has unmatched expertise and treatment capabilities when it comes to preventing—or addressing—refeeding syndrome in patients with eating disorders. In fact, ACUTE founder and Executive Medical Director Dr. Philip Mehler is widely considered the world's foremost expert in medical complications of eating disorders. Dr. Mehler has published more than 460 scholarly pieces on this potentially fatal complication and other medical issues related to anorexia, atypical anorexia, bulimia and ARFID. Read a recent article Dr. Mehler authored on this important topic, titled [\*\*Anorexia nervosa in adults and adolescents: The refeeding syndrome.\*\*](#)



## Refeeding Syndrome Symptoms & Warning Signs

**Guidelines help identify patients at elevated risk for developing this life-threatening complication of reintroducing calories in the early stages of anorexia nervosa treatment.**

The risk for developing refeeding syndrome correlates directly with the extent of weight loss that accompanies anorexia nervosa. In other words, the lower a patient's weight, the higher their risk for this complication during refeeding. While there is no single definitive marker to identify which patients will develop refeeding syndrome, the *National Institute for Health and Clinical Excellence (NICE)* has published two sets of criteria for identifying patients at heightened risk for this complication. According to these guidelines, patients at the highest risk for refeeding syndrome meet one or more of the following criteria:

- Body mass index (BMI) under 16;
- Weight loss of more than 15 percent of his or her body weight in the past 3 to 6 months;
- Little to no food for the past 10 or more consecutive days; or
- A blood test that reveals low levels of phosphorus, potassium or magnesium.

Patients with anorexia nervosa or ARFID may also have significant risk for refeeding syndrome if they meet two or more of the following criteria:

- BMI under 18.5;
- Weight loss of more than 10 percent of his or her body weight in the past 3 to 6 months;
- Little to no food for the past 5 or more consecutive days; or
- A history of alcoholism or misuse of certain drugs, such as insulin, chemotherapy drugs, diuretics or antacids.

In addition, chronic alcoholism, cancer, uncontrolled diabetes or recent surgery may place a patient with anorexia at elevated risk for developing refeeding syndrome.

It is important to note that only a subset of patients with heightened risk will develop this life-threatening complication during nutritional rehabilitation. However, treatment providers should regularly monitor at-risk patients for symptoms of refeeding syndrome, including:

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|------------------------|-----------------------|
| ■ Fatigue              | ■ Seizures            |
| ■ Weakness             | ■ Irregular heartbeat |
| ■ Confusion            | ■ Edema               |
| ■ Difficulty breathing | ■ Heart failure       |
| ■ High blood pressure  | ■ Coma                |

Refeeding syndrome symptoms and warning signs typically appear early in the refeeding process, and require immediate medical intervention upon observation. Its development is completely predictable. Therefore, it is important for all patients with extreme forms of anorexia and ARFID to initiate nutritional rehabilitation in an inpatient medical setting that specializes in preventing, identifying and managing this potentially fatal complication.

**ACUTE Center for Eating Disorders at Denver Health** is your partner in assessment, referral and treatment for patients at risk for refeeding syndrome, as well as those experiencing other dangerous medical complications of malnutrition, purging and excessive exercise. ACUTE is the only dedicated inpatient medical stabilization program in the country with the resources, environment and experience to treat the most medically severe cases of eating disorders. This life-saving care is covered by medical insurance, which preserves valuable behavioral health benefits for patients as they continue the recovery process. When they are medically stable, patients discharge to the appropriate next level of care, typically with their established eating disorder care team or referring IP/RES program.

**In general, ACUTE's admission criteria includes:**

- All gender expressions, 15+ years of age
- Severe medical complications associated with anorexia nervosa, atypical anorexia nervosa, bulimia nervosa, ARFID or as a comorbidity of an infection or from cancer
- In need of safe detoxification from laxatives, diuretics or self-induced vomiting, to treat/prevent severe edema formation, prior to inpatient or residential treatment
- At risk for refeeding syndrome
- Patients experiencing severe weight disruption, with any or all of the following medical issues:
  - Weight less than 70 percent of ideal body weight or BMI < 15;
  - Unstable vital signs such as low or irregular heart rates;
  - Cardiac disturbances such as abnormal heart rhythms or heart failure;
  - Loss of consciousness due to low blood pressure;
  - Patients with malnutrition caused by non-tuberculosis mycobacterium (NTM, aka MAI), cancer, HIV or other infections
  - Atypical anorexia nervosa with rapid massive weight loss

ACUTE's admissions team facilitates all logistics for patient travel needs, including arranging air ambulance transport if needed. Medical stabilization on the 30-bed telemetry unit is augmented with multidisciplinary care overseen by Philip S. Mehler, MD, FACP, FAED, CEDS, the world's foremost expert in effective medical treatment of severe eating disorders.

For more information about refeeding syndrome in the treatment of severe anorexia nervosa and ARFID, please contact the **[ACUTE Center for Eating Disorders at Denver Health.](#)**

