Staphylococcus aureus

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The Organism:

Staphylococcus aureus (commonly referred to as "staph") is part of the natural microflora of humans. The bacteria grow to higher numbers in pimples, sores and when we have a cold. The bacteria grow best at our body temperature. Staph can multiply rapidly in food held at room temperature and the toxin can be produced by the microorganism growing in the food. This toxin is called an enterotoxin because it causes gastroenteritis or inflammation of the lining of the intestinal tract. Thorough cooking destroys the *Staphylococcus aureus* bacteria, but the toxin is very resistant to heat, refrigeration, and freezing.

Sources of the organism:
- Humans (skin, infected cuts, pimples, nasal passage, throat)

Associated foods:
- Salads (egg, tuna, chicken, potato, macaroni)
- Bakery products (cream-filled pastries, cream pies, eclairs)
- Ham

Microorganism Characteristics: Gram-positive facultative aerobic spherical bacteria that produces a very heat stable toxin.

Growth conditions:
- Temperature range: 4-46°C (39-115°F) for growth and toxin production
- Optimum Temperature: 37°C (98.6^{o}F)
- pH range: 4.8-8.0
- Lowest reported A_W for growth: 0.86
- Salt tolerance: 10-20 %
- Sugar tolerance: 50-60 %
- Tolerance to nitrites

The Disease:

Staphylococcal food intoxication results from consuming food contaminated with the toxin produced by *Staphylococcus aureus.*

Symptoms include:

Severe abdominal cramps	Nausea
Diarrhea	Vomiting

Onset time:
- 1-6 hours

Infective Dose:
- The toxin is produced when the *Staphylococcus aureus* populations exceed 10^6 CFU/ gram of food. Less than 1.0 microgram of the toxin in food will produce staphylococcal intoxication symptoms.

Duration of symptoms:
- 1-2 days

Control:

- Proper hand washing techniques when handling food.
- Proper sanitation of food contact surfaces and utensils.
- Refrigerate and hold foods at 41°F or below.
- Chill food to 41°F within 4 hours.