

# Swallow Reflexes in Normal Infant Development

Infant swallowing is a highly coordinated process. The relationship between sucking, swallowing, and breathing is interrelated because the structures for these three functions are very close together and they share neurologic innervations. The infant has many reflexes and responses that serve to protect the airway. These reflexes are triggered by receptors in the nose, nasopharynx, upper airway, and lungs. The reflexes can be triggered by chemical receptors (e.g., water, milk, secretions) or mechanical receptors (e.g., touch or pressure). These reflexes and their relationships to swallowing are summarized in the chart below.

Reflex	How to Stimulate	Cranial Nerves	When does it disappear/integrate with cortical control?	What does it mean for swallowing?
gag	touch posterior tongue or pharynx	IX, X	remains in adults, though 30% of adults don't have a gag reflex  diminishes at 6 months of age (seen in utero at 26-27 weeks gestation)	protective mechanism to keep infant from swallowing something too large  diminishes at 6 months of age, about the time chewing solids occurs
phasic bite (rhythmic up-and-down jaw movement)	apply pressure to gums	V	9-12 months	allows early munching patterns
tongue protrusion	touch front of tongue	XII	4-6 months	can begin to introduce solids on a spoon when reflex disappears
transverse tongue (tongue moves to stimulus)	trace lower gum ridge and brush sides of tongue	XII	6-8 months	child can volitionally move food to chewing surfaces
rooting (head turns toward stimulus)	touch corner of mouth	V, VII, XI, XII	3-6 months (may gain some voluntary control at 1 month)	helps infant find nipple
suckling (may not be purely reflexive)	put nipple in mouth or stroke top of tongue	V, VII, IX, XII	6-9 months (seen in utero at 13-24 weeks gestation)	allows infant to take liquid into the mouth  when reflex diminishes, it allows the child to move toward cup drinking and eating from a spoon
swallowing	bolus of food in pharynx	V, VII, IX, X, XII	remains in adults	allows food to travel safely through pharynx to the esophagus

To learn more about the evaluation and treatment of pediatric dysphagia, see The Source® for Pediatric Dysphagia Second Edition.

Adapted from The Source® for Pediatric Dysphagia Second Edition by Nancy B. Swigert  
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