

MOVEMENT FUNCTIONS	DESCRIPTORS
Motor reflexes	Involuntary reflexes: involuntary contractions of muscles automatically induced by stretching
Involuntary movement reactions	Postural, body adjustment, and supporting reactions
Control of voluntary movement	Eye-hand and eye-foot coordination, bilateral integration, crossing midline, fine and gross motor control, oculomotor control
Gait patterns	Movements used to walk

intent or involvement. The stretch reflex is utilized during activities in which muscles are stretched to end ranges. Our stretch reflexes prohibit stretching the muscles too far. Yoga is an example of when this protective reflex is utilized, during movements requiring deep stretches. This function will be utilized only if there is a chance of muscles being stretched to great lengths. For many sporting activities, this reflex often prevents injuries.

The asymmetrical tonic neck reflex (ATNR) is a primitive reflex that is present in infants and disappears by 3 to 4 months of age. This reflex serves a good purpose in those first few months of life in that it prevents an infant from rolling over before it is motorically and neurologically ready (*Mosby's Dictionary of Medicine*, 2006). When the head is turned to one side, the extensor tone on the side toward which the person is facing increases and the flexor tone on the opposite side increases (Preston, 2009). So, if an infant turns its head to the right, the right arm will extend and the left will flex (Figure 6-28). The occurrence of this reflex in an adult is not normal and can interfere with functional movements. Thus, ATNR will not be needed for the activities of an adult and will only be utilized only as a protective reaction in infants up to 4 months of age.

The symmetrical tonic neck reflex (STNR) is also a primitive reflex that is helpful only in infants and recedes after the first year of life. The STNR causes two different actions with head flexion and extension. With head flexion, the upper extremities go into flexion and the lower extremities into extension. When the head is extended, the upper extremities go into extension and the lower extremities into flexion (Preston, 2009). This is often called the *crawling reflex*, which allows infants to get into the crawling position (*Mosby's Dictionary of Medicine*, 2006). This reflex



**Figure 6-28.** A baby exhibiting the ATNR reflex.

does not allow for actual crawling but lets an infant get into the quadruped position. This factor will be functional for infants only during the first year of life.

## *Involuntary Movement Reactions*

### Postural Reactions, Body Adjustment Reactions, and Supporting Reactions

Our bodies have natural reactions that are designed to protect us and allow us to restore our bodies to a natural upright position. When we sense that our balance is threatened or that we might be falling, our bodies automatically react to restore alignment of the trunk by increasing tone in the trunk or limbs (WHO,