Foaming
Similar in some respects to emulsification.
Denaturation of protein at an air-liquid interface. Hydrophobic groups inter the air, hydrophilic amino acids remain in the water.

Lipids
Presence of lipid interferes with formation of foams. For high fat products, must have one type of protein to form the emulsion and another to incorporate air.
Low fat foams are often made with egg white, while high fat foams are often produced with casein.

Foam Stability
Factors that decrease foam stability:
Gravitational Drainage
Capillary Pressure Drainage
Mechanical Disturbances
Factors that increase foam stability:
Surface viscosity
Gibbs-Maragoni effect
Electric double layers

Overrun of Egg and WPC

Sample	Overrun(%)	After Heating
Egg	1350	1400
C Whey	1100	350
Exp. 1	300	300
Exp. 2	400	350
Exp. 3	750	700

Fiber spinning
Mechanism: Protein generally made up to 10 - 50% protein at pH values in excess of 10.
High pH causes protein to unfold and mixture to become viscous.
Protein is extruded through a die with openings of from 0.002 to 0.006 inches in diameter
Causes an alignment of protein chains which then are placed into an acid-calcium bath.

Extrusion
Method of protein modification - simpler than spinning.
Does not give well defined fibers, but rather, fibrous particles
Goal is to achieve mouthfeel similar to meet.
Can use either defatted or full fat meals.

Protein is dispersed at high temperature and pressure. Extruded from high pressure to atmospheric.
Water flashes off and product swells creating large voids. Often other proteins utilized to give better texture.

Dough Formation

Dough - An extensible, viscoelastic protein network formed upon the mixing of an appropriate amount of water to cereal proteins:

- Wheat
- Rye
- Barley

Proteins may be added as a source of the enzyme, lipoxygenase, used to bleach flower and to "age" it.

Some flours of low protein content will produce a better product if protein is added.

If NFDM, must be high heat product.

Generally, addition of oil seed protein will decrease loaf volume and give poor crumb structure.