

### 5.1.3

## Membrane fluidity

The amount of lipids and how they are “packed” within the membrane can have a major impact on the viscosity or fluidity of a given membrane. The biggest impact on membrane fluidity is the type of fatty acids (saturated or unsaturated) found in the phospholipid structure. Saturated fatty acids lack double bonds and are therefore linear which allow them to be packed more tightly thereby decreasing fluidity. Unsaturated fatty acids contain one double bond which kinks the chain forcing fatty acids to spread out thereby increasing fluidity. Other factors that change membrane fluidity include cholesterol (explained above) and temperature (explained above).

Note: Fluorescent Recovery After Photobleaching (FRAP) – is an experiment used to test the fluidity of membranes. To use this technique a membrane phospholipid or protein (explained below) is chemically tagged with a light sensitive dye. The light sensitive dyes are then bleached (destroyed) using a focused light beam. The cell is then observed to see how long it takes for the bleached region to diffuse away. The diffusion time is then used to equate a fluidity value of the membrane.



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