CARTILAGE (p 134): Consists of cells embedded in a matrix consisting of fibers and ground substance firm gel matrix, intermediate between dense connective tissue and bone to which it is related

Traits  
Avascular, no nerves (!)
nourished by diffusion from: **perichondrium**, dense irregular CT, well vascularized
(Heals very slowly for this reason)

**FIBERS**  
*lots* of collagen, elastic cartilage has significant elastin

**GROUND SUBSTANCE** (proteoglycans, mostly glycosaminoglycans: GAGs with peptides)
Complexed with protein: called **mucopolysaccharides** (glycan = polysaccharide)

**Chondroitin sulfate**: gel-like polysaccharide derivative sol, fills in cartilage matrix
Monomers: N-acetylglucoseamine, βglucuronic acid, N-acetyl galactoseamine
disaccharides polymer (NAG-glucuronic H+, or NAGal-glucuronic H+)
GAG chondroitin sulfate molecules extend from hyaluronic acid
very hydrophilic, cause high hydration level in tissue.

**Hyaluronic acid**  
alternating β 1,4 NAGal to β 1,3 to glucuronic acid: no SO₄
lubricant in synovial joints and thickens vitreous humor

**CELLS**  
chondrocytes, pairs occupy holes in the matrix called **lacunae**

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<table>
<thead>
<tr>
<th>Type of Cartilage</th>
<th>Characteristics</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hyaline cartilage</strong></td>
<td>most common, translucent matrix</td>
<td>gristle articular cartilage models for bone support nose, larynx</td>
</tr>
<tr>
<td><strong>Elastic Cartilage</strong></td>
<td>same as hyaline, but with elastic fibers give yellowish tinge</td>
<td>found in auditory tubes external ear epiglottis</td>
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<tr>
<td><strong>Fibrocartilage</strong></td>
<td>more similar to dense irregular connective tissue small amount of ground substance chondrocytes squeezed between collagen bundles Lacks perichondrium always associated with hyaline cart or dense irreg con tis it is compressible, resists tension, absorbs shock</td>
<td>vertebral discs, menisci (cartilages of knee) pubic symphysis</td>
</tr>
</tbody>
</table>

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hyaline cartilage:  
Elastic cartilage:  
fibrocartilage: