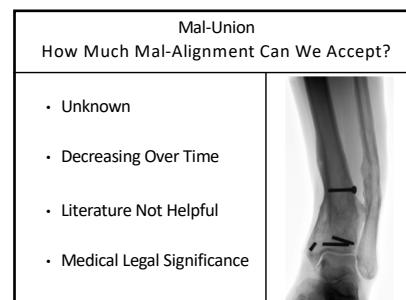
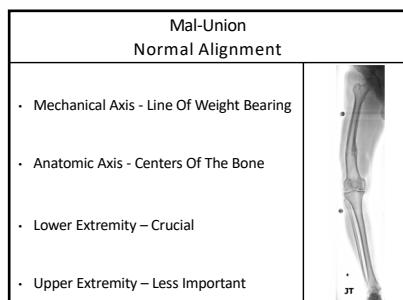
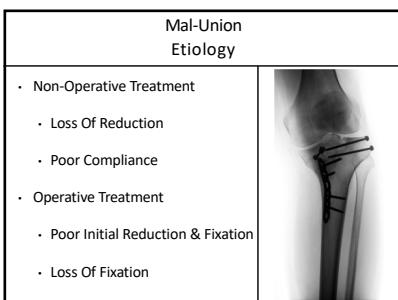
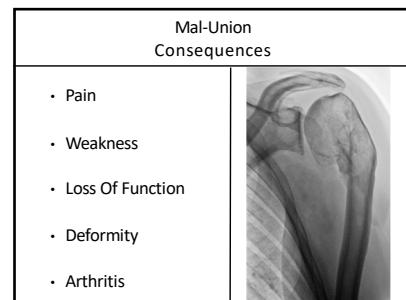
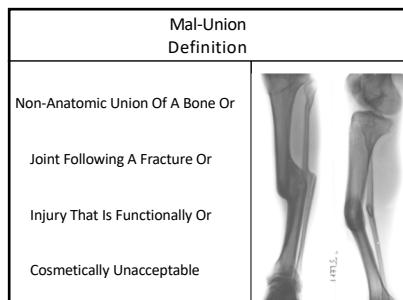
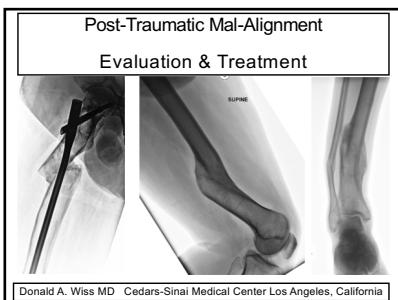
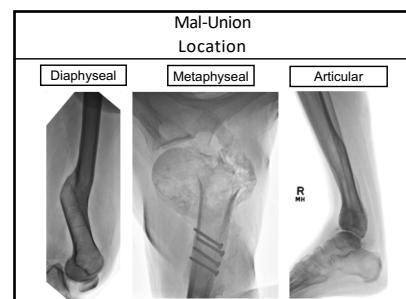
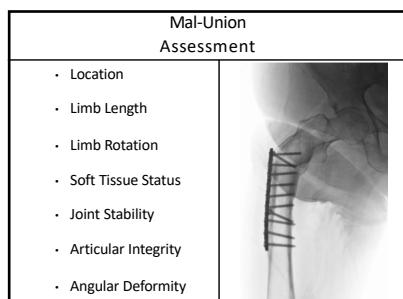


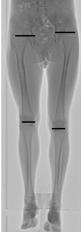
2018 OTA Boot Camp



Mal-Alignment Guidelines

	Angulation	Shortening
Femur	5° -7°	< 12 mm
Tibia	5° -7°	< 12 mm
Humerus	10°-15°	< 20 mm
Forearm	< 5°	< 10 mm



Mal-Union Assessment	
<ul style="list-style-type: none"> • Location • Limb Length • Limb Rotation • Soft Tissue Status • Joint Stability • Articular Integrity • Angular Deformity 	

Mal-Union Length Assessment	
<ul style="list-style-type: none"> • CT Scan Gold Standard • Precise To The Millimeter • Easy To Do • Assess Rotation Same Time 	

Mal-Union Assessment	
<ul style="list-style-type: none"> • Location • Limb Length • Limb Rotation • Soft Tissue Status • Joint Stability • Articular Integrity • Angular Deformity 	 Best Done In The Prone Position

Mal-Union Rotational Assessment	
<ul style="list-style-type: none"> • More Difficult To Assess • Observation • Walking / Gait • Physical Exam • Seated Foot Position • Computed Tomography 	

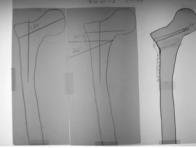
Mal-Union Assessment	
<ul style="list-style-type: none"> • Location • Limb Length • Limb Rotation • Soft Tissue Status • Joint Stability • Articular Integrity • Angular Deformity 	

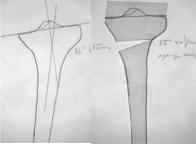
Mal-Union Assessment	
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Mal-Union Assessment	
<ul style="list-style-type: none"> • Location • Limb Length • Limb Rotation • Soft Tissue Status • Joint Stability • Articular Integrity • Angular Deformity 	

Mal-Union Angulation Assessment	
<ul style="list-style-type: none"> • Rarely Single Plane Deformity • Multi-Planer Deformity • Difficult To Measure On X-Ray • Assessment Affected By: <ul style="list-style-type: none"> • Limb Shortening • Translation • Rotation 	

Mal-Union Management	
<ul style="list-style-type: none"> Define The Deformity Patient Check List Pre-Operative Plan Corrective Osteotomy <ul style="list-style-type: none"> Stable Internal Fixation Circular Ring Fixation 	<p>Pre-Op Plan</p> 

Mal-Union Osteotomy	
<ul style="list-style-type: none"> Location <ul style="list-style-type: none"> Diaphyseal Metaphyseal Articular Open Or Percutaneous Single Or Multi-Plane <ul style="list-style-type: none"> Open Or Closing Wedge <ul style="list-style-type: none"> Transverse Oblique Dome 	<p>Pre-Op Plan</p> 

Mal-Union Fixation Options	
<ul style="list-style-type: none"> Acute Correction <ul style="list-style-type: none"> Plate Nail Gradual Correction <ul style="list-style-type: none"> External Fixation Nail Stability Essential !!! 	