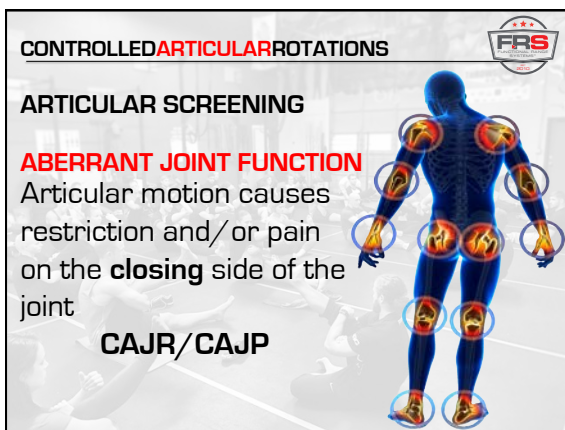
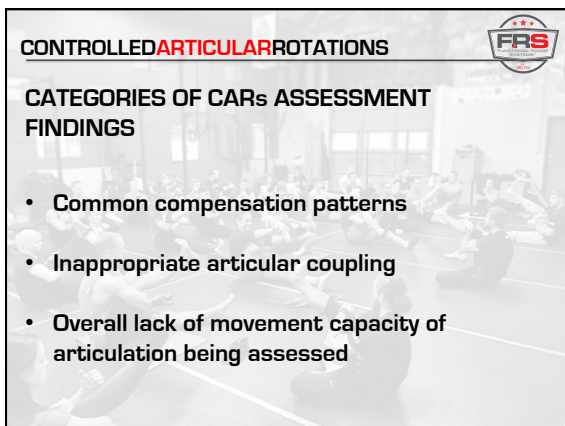


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CARs - Advanced Interpretation &
Application







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CONTROLLEDARTICULARROTATIONS 

FUNCTIONS & USES:

- ROM Maintenance
- Articular Health & Longevity
- Articular **Analysis/Diagnosis**
- Rehabilitation

CONTROLLEDARTICULARROTATIONS 

CARs ANALYSIS/DIAGNOSIS

- Analysis – “careful study about something to learn about its parts, what they do and how they are related to one another”
- Assessment – “the act of making a judgement about something”

CONTROLLEDARTICULARROTATIONS 

CARs ANALYSIS/DIAGNOSIS

- Identification of issues that contribute to movement limitation
- Contemplate their significance
- Identify options for dealing with the movement limitation
- **Determine a specific option which is the best fit for intervention**
- **Communicate results and feedback**

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CONTROLLEDARTICULARROTATIONS

CARs ANALYSIS/DIAGNOSIS

What do CARs represent?

- The most detailed, finite measurement of articular movement skill
- They are a BIOMARKER for physical capacity
 - Indicators of current physical state

CONTROLLEDARTICULARROTATIONS

CARs ANALYSIS/DIAGNOSIS

What do CARs give us?
FRS HQ Experience

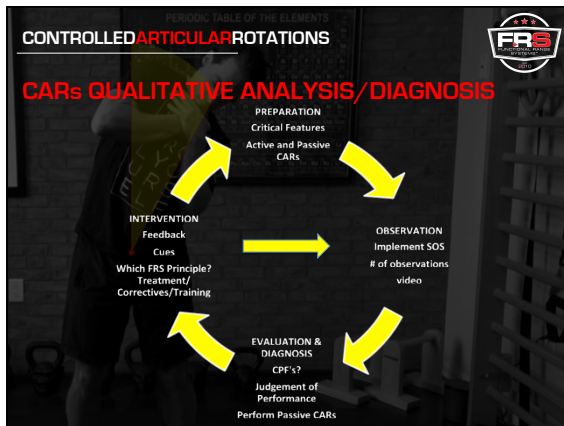
- Ability to identify asymmetry
- Ability to track improvement over time
- Appreciate individual movement skill
- A window for further diagnostics
- Opportunity to increase communication
- A common language of analysis
- Ability to collect relevant data

CONTROLLEDARTICULARROTATIONS

CARs QUALITATIVE ANALYSIS/DIAGNOSIS

- **Defined:**
"the systematic observation and introspective judgement of the quality of the *articular* movement for the purpose of providing the most appropriate intervention to improve performance"

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CONTROLLED ARTICULAR ROTATIONS

CARs QUALITATIVE ANALYSIS/DIAGNOSIS

- **The Workspace**
- "the maximum amount of strict articular motion able to be expressed"
- **Quality and Quantity**
- For training (skill acquisition) it defines:
Intrinsic Dynamics (ID) (coordination and attractors)

CONTROLLED ARTICULAR ROTATIONS

CARs: CRITICAL PERFORMANCE FEATURES

- Parts of the movement that can be the "least" modified for successful performance
- CARs are a closed skill – no variability accepted.
- **Positions**
- **Transitions**

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PERIODIC TABLE OF THE ELEMENTS
CONTROLLED **ARTICULAR** ROTATIONS 

CARs: CRITICAL PERFORMANCE FEATURES

- **Critical Performance Features: Positions**
- Relates to the end points of each individual ROM within the global ROM
- "Achieved" or "Not Achieved", amount of limitation
- "How much of the Workspace can this joint explore?"

PERIODIC TABLE OF THE ELEMENTS
CONTROLLED **ARTICULAR** ROTATIONS 

CARs: CRITICAL PERFORMANCE FEATURES

- **Critical Performance Features: Transitions**
- Relates to the normally synchronous movement between positions
- "Efficient" or "Inefficient"
- "How well can this joint move through the Workspace?"

PERIODIC TABLE OF THE ELEMENTS
CONTROLLED **ARTICULAR** ROTATIONS 

CARs: SYSTEMATIC OBSERVATION STRATEGY

- Gather, organize, give meaning to visual information – can also use verbal information
- Scanning strategy – move from general to specific
- 90-degrees to movement.
- 4-8 repetitions – no standard

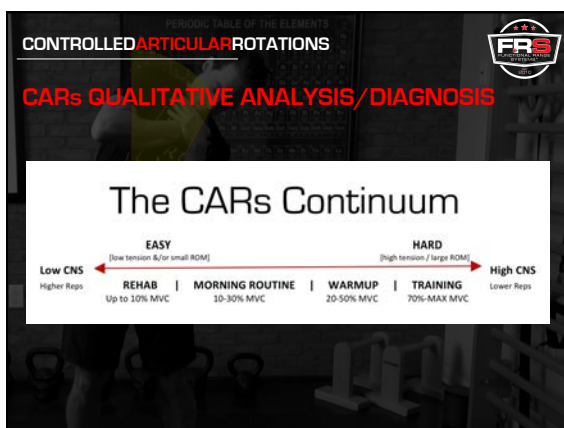
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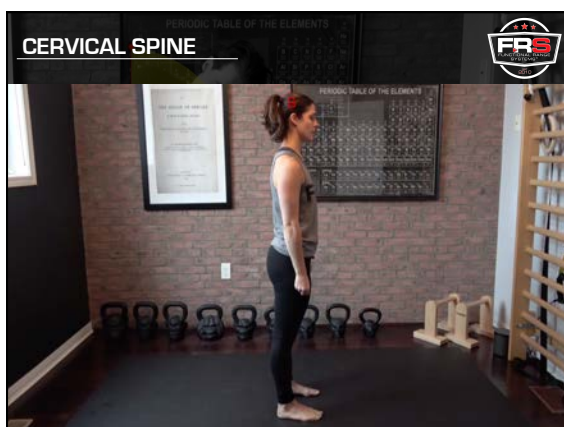
PERIODIC TABLE OF THE ELEMENTS

CONTROLLED ARTICULAR ROTATIONS

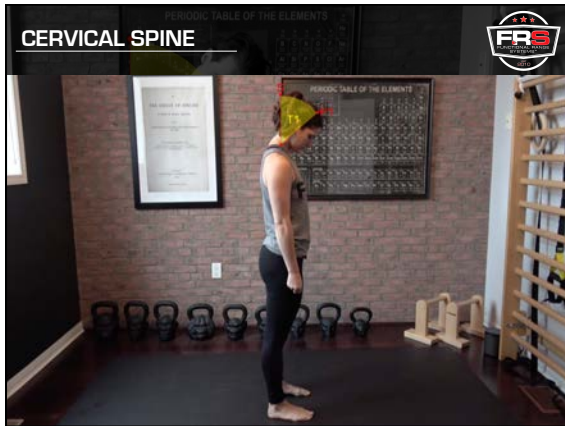
CARs QUALITATIVE ANALYSIS/DIAGNOSIS

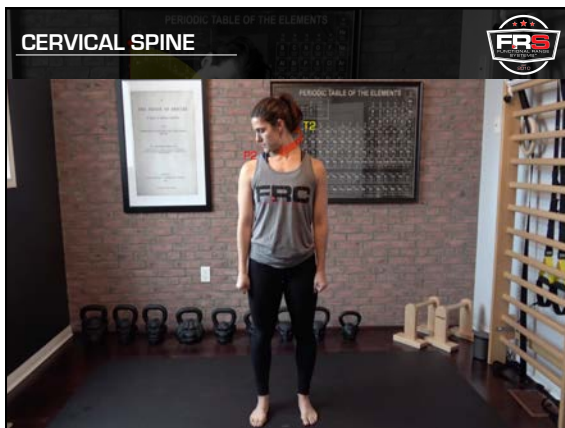
	Transitions			Positions		
	Efficient	Inefficient	Abnormal Coupling	Achieved	Not Achieved	Compensation
Glenohumeral	1			1		
	2			2		
	3			3		
Comments						

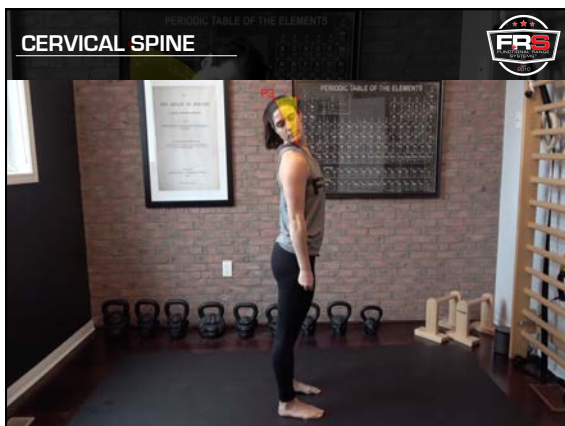




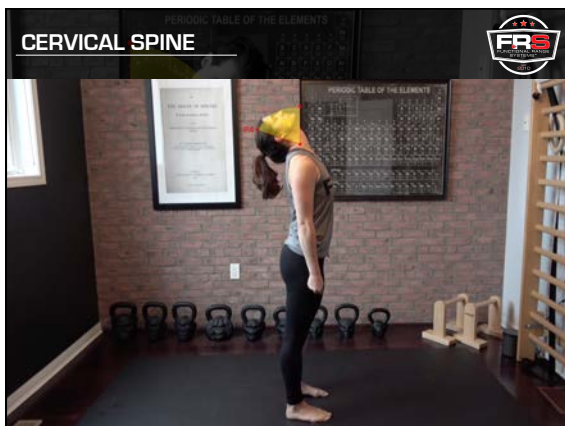
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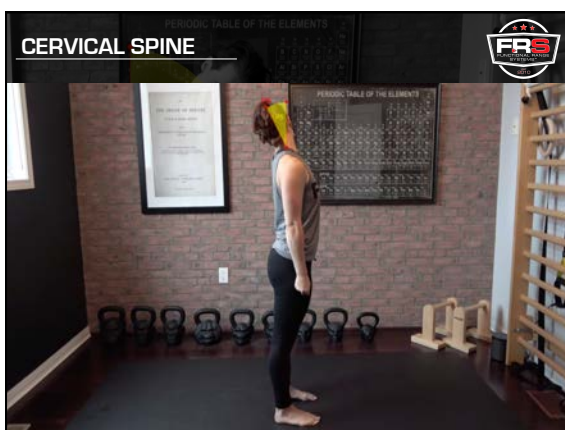


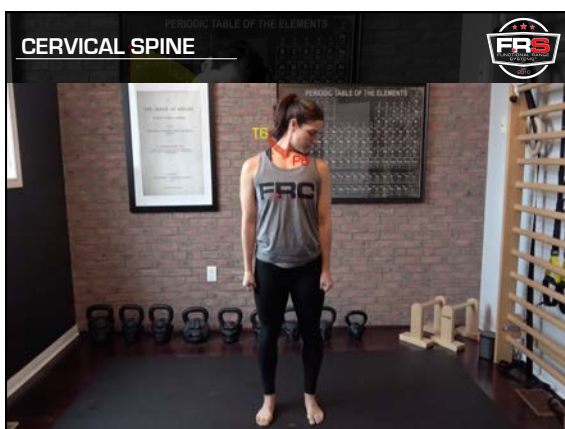




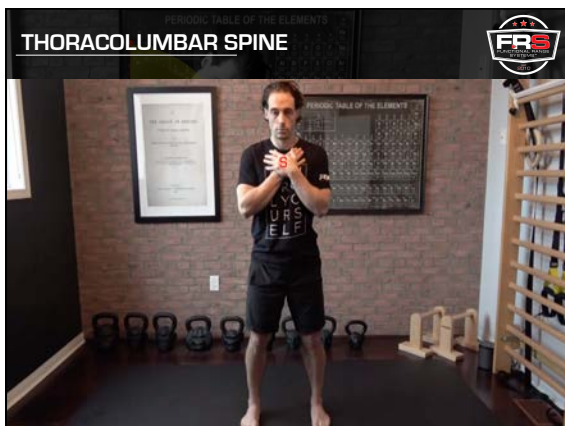
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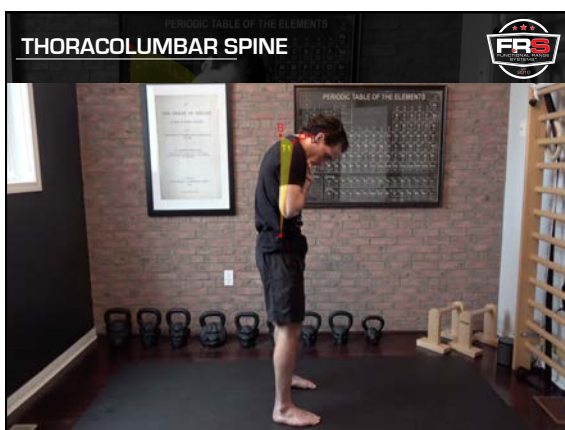


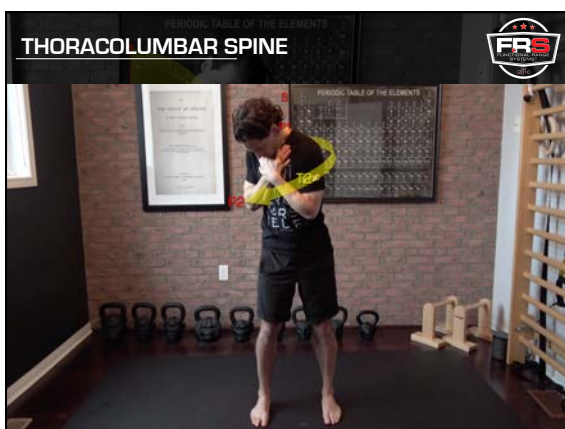




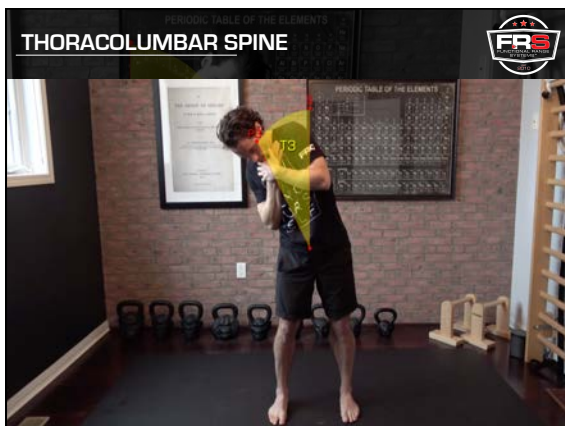
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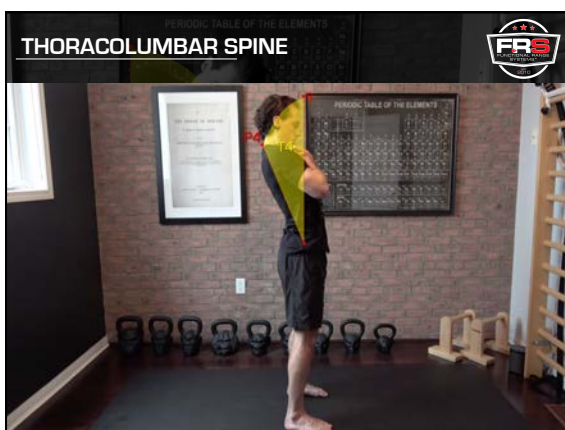


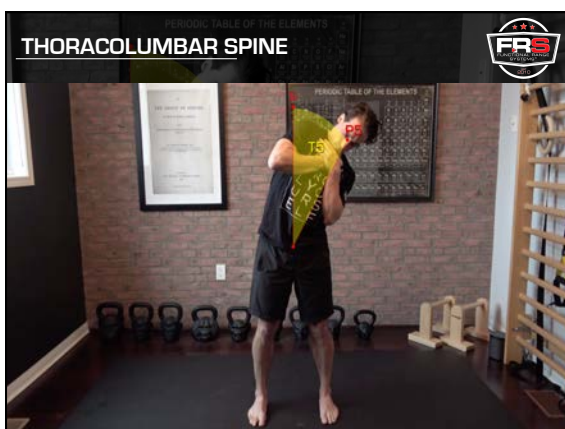




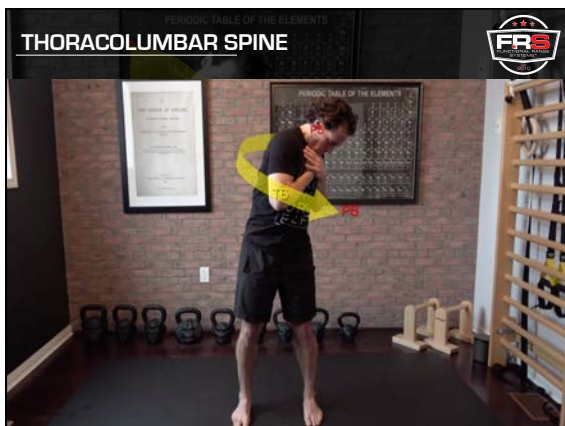
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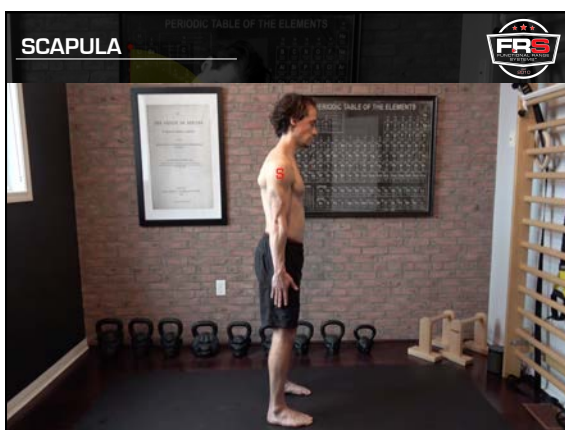


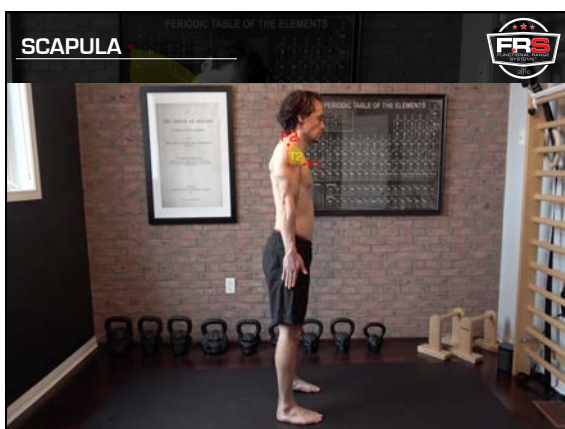




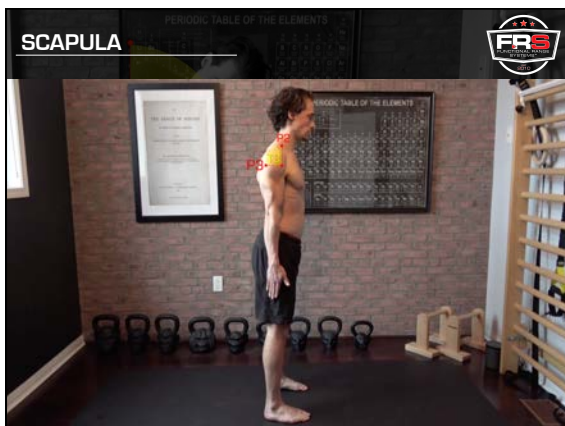
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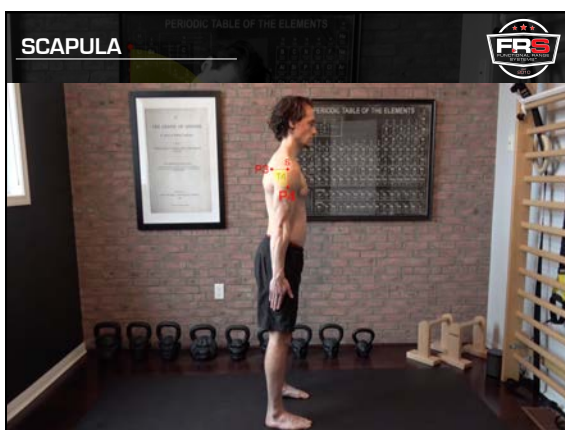


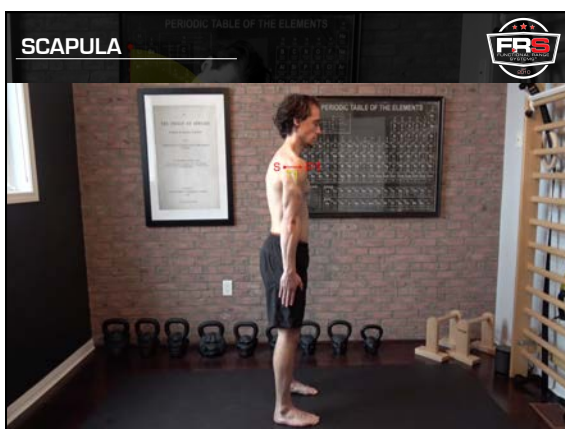




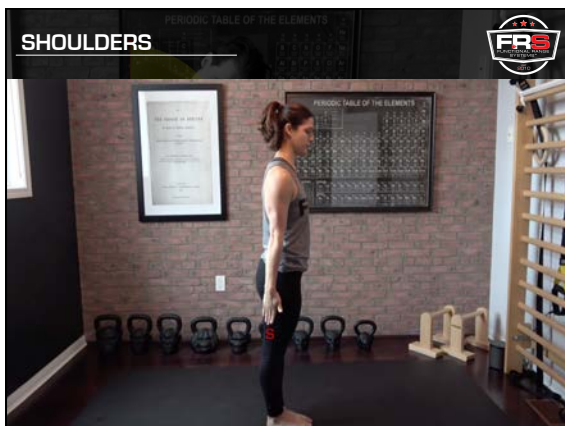
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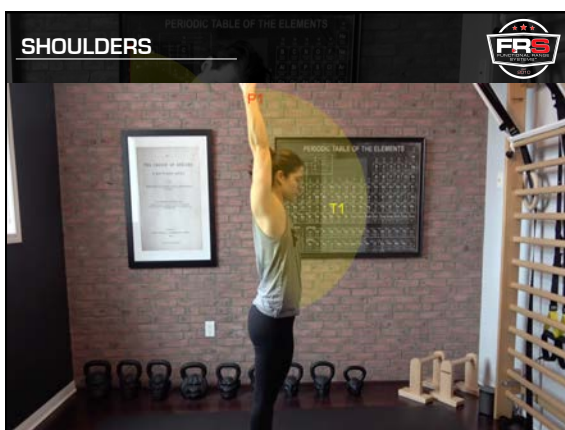


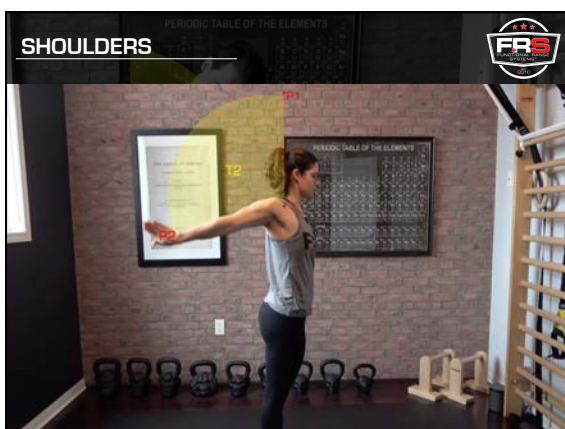




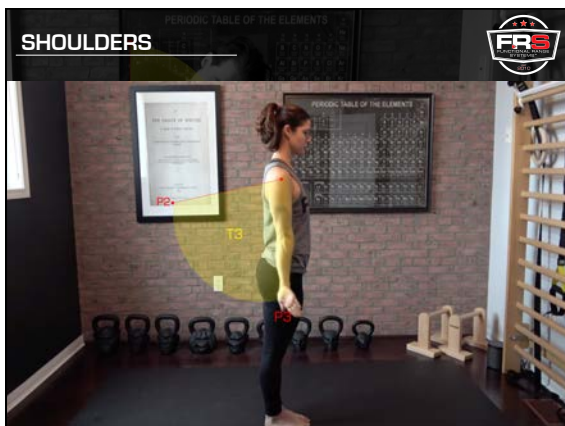
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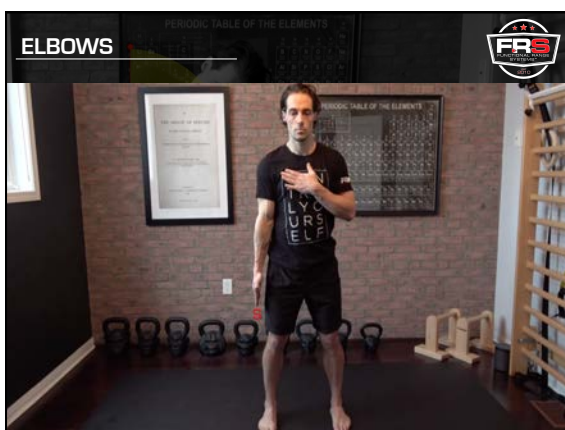


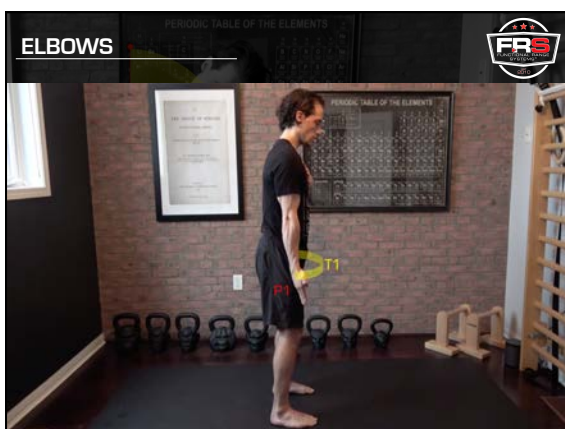




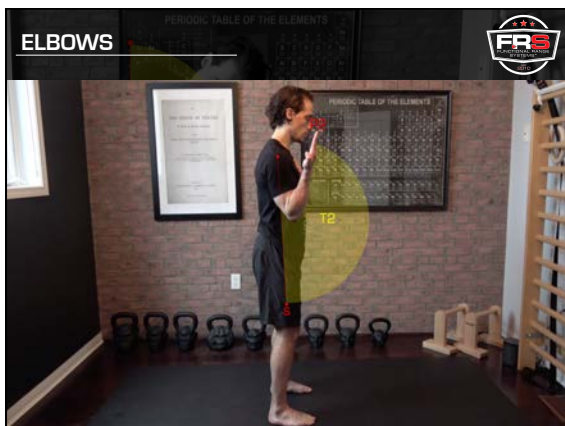
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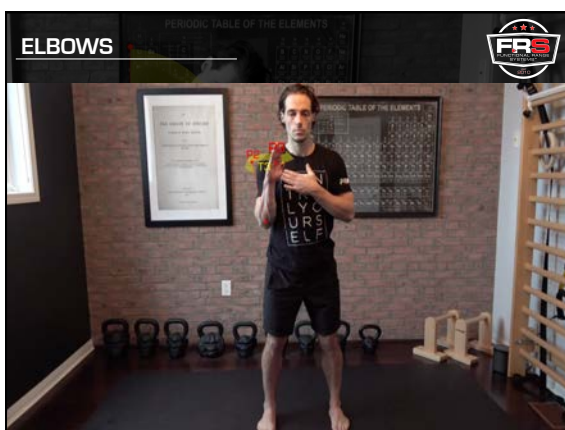


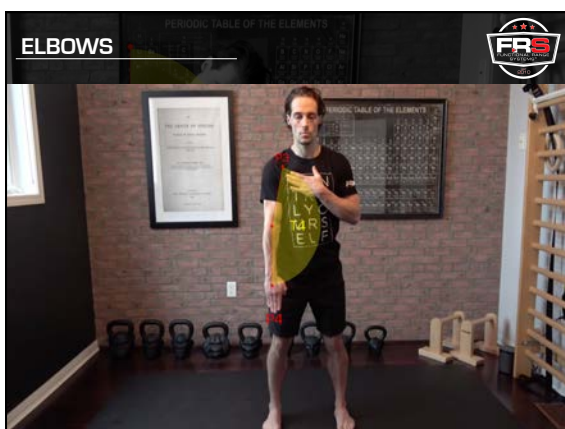




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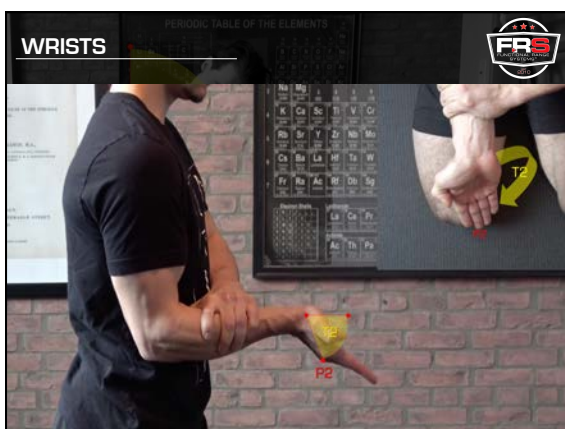




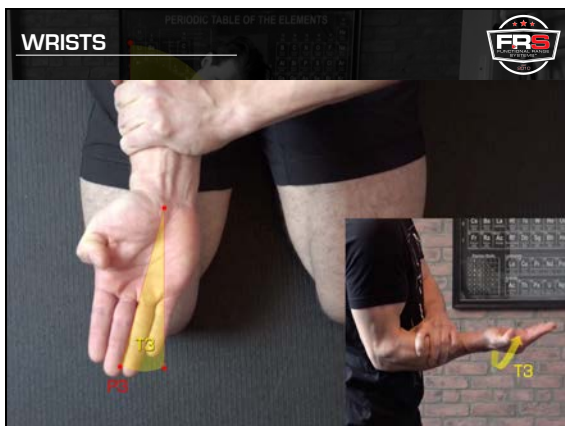
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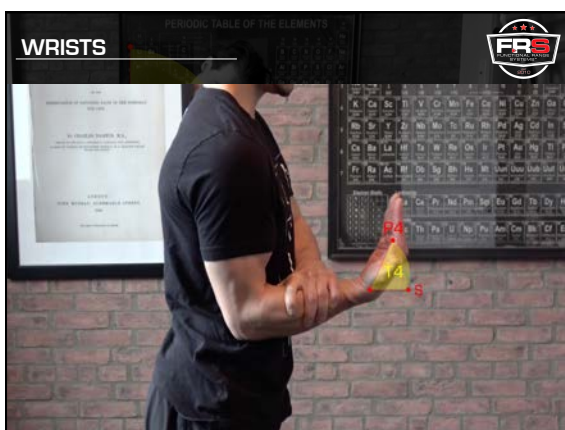


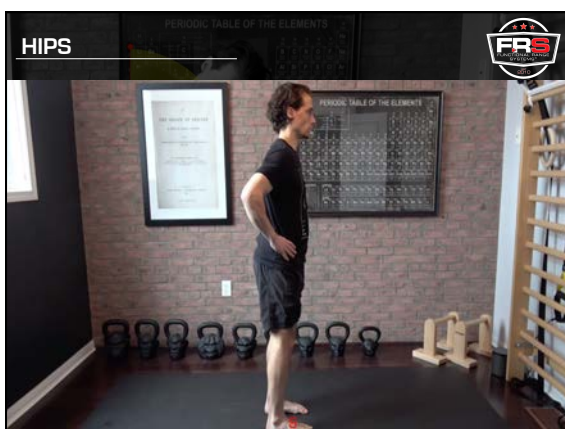




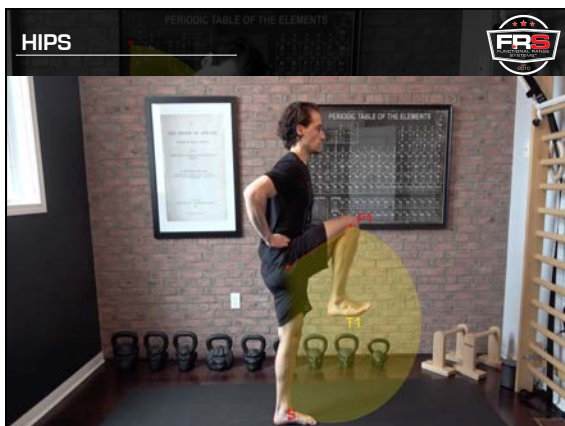
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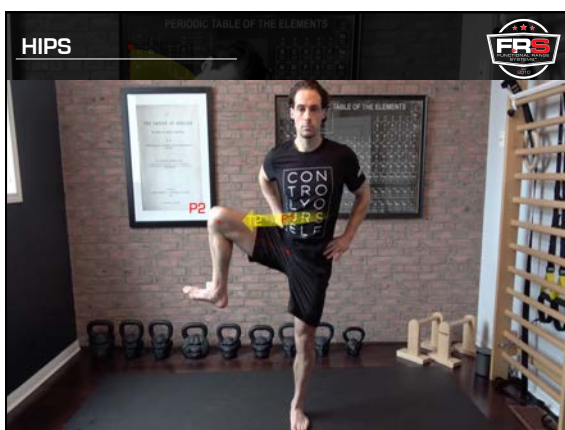


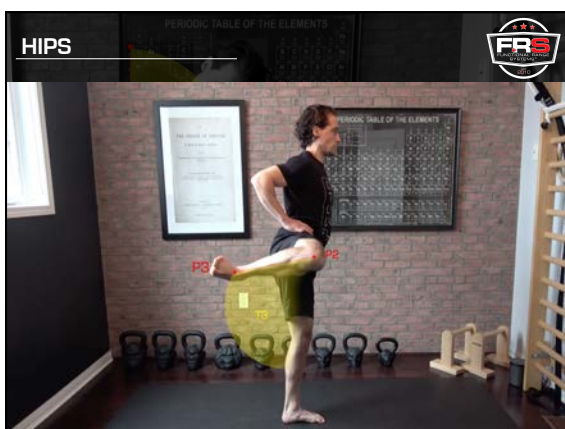




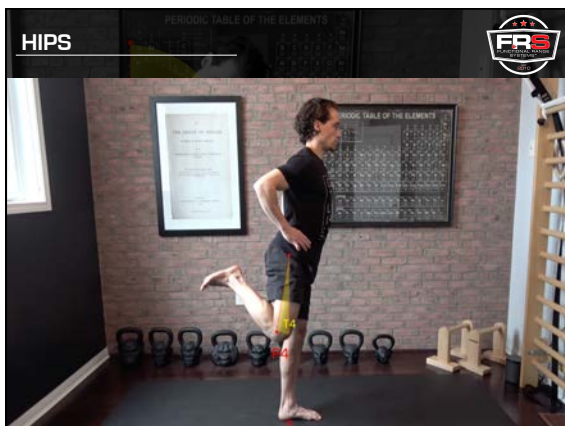
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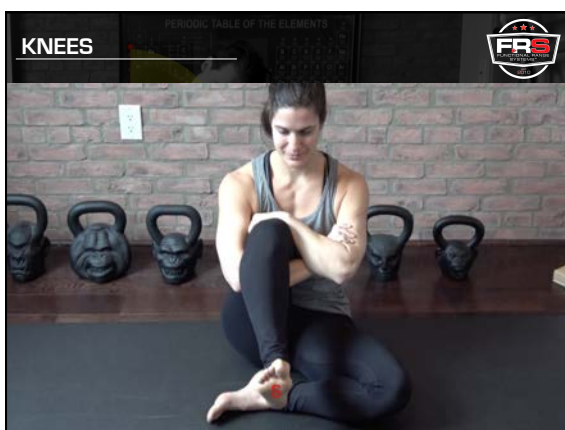


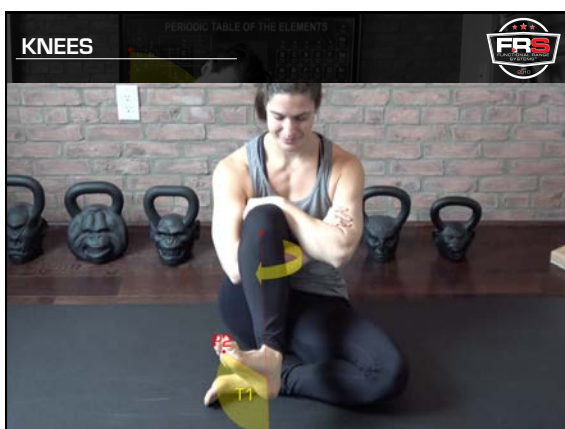




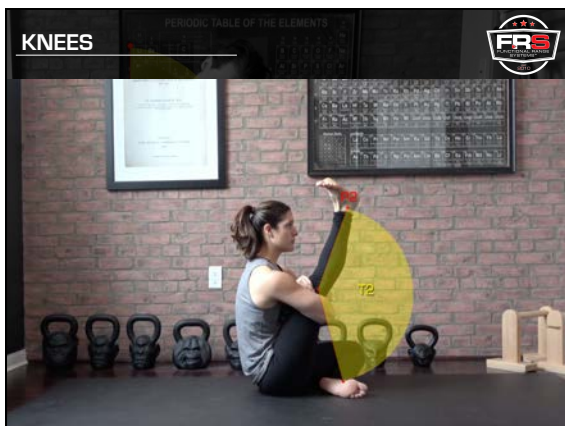
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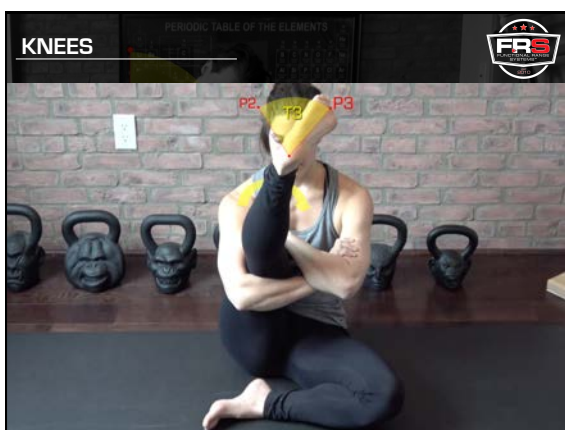


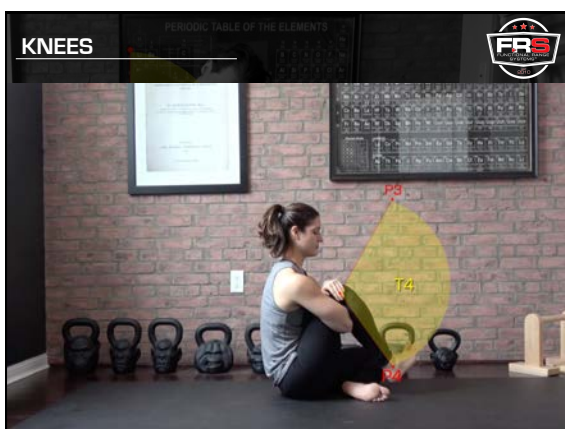




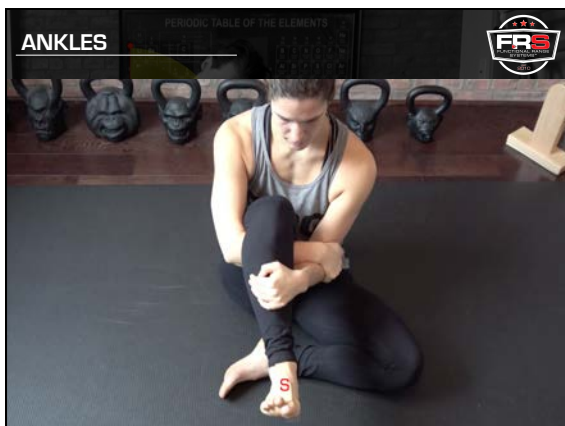
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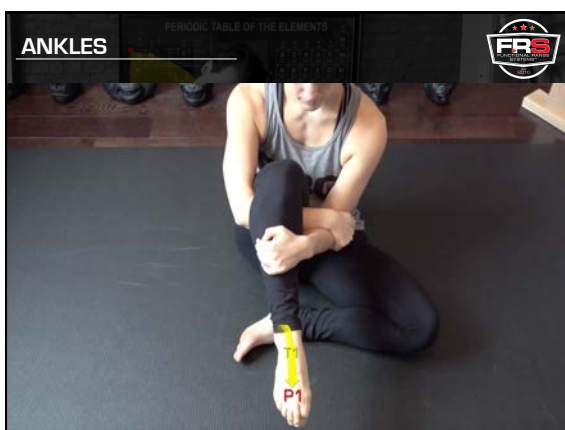


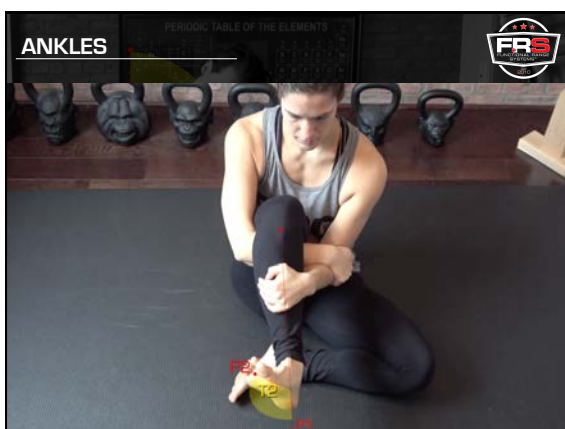




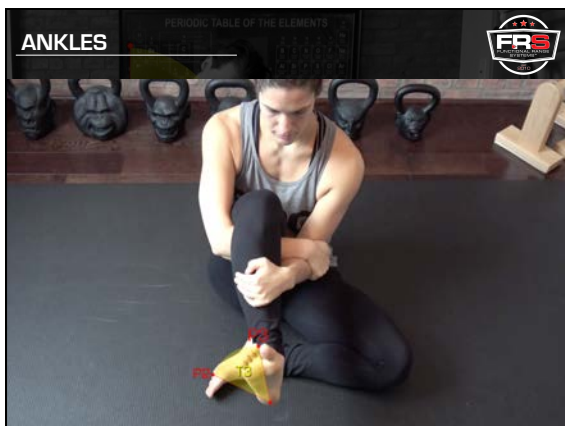
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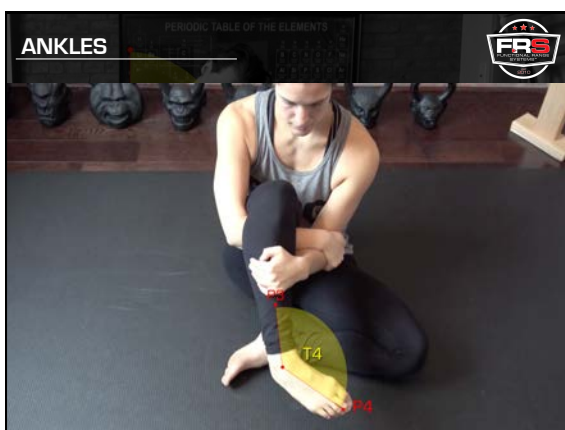


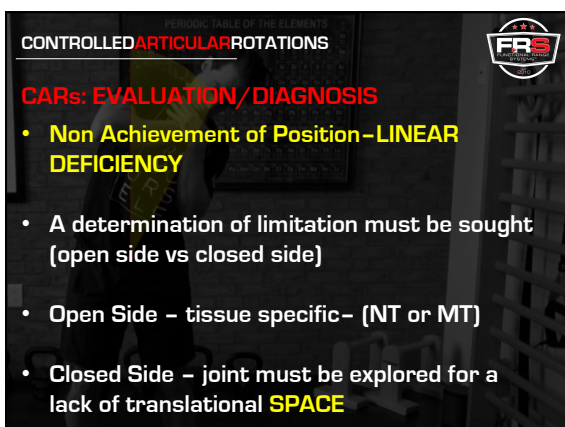




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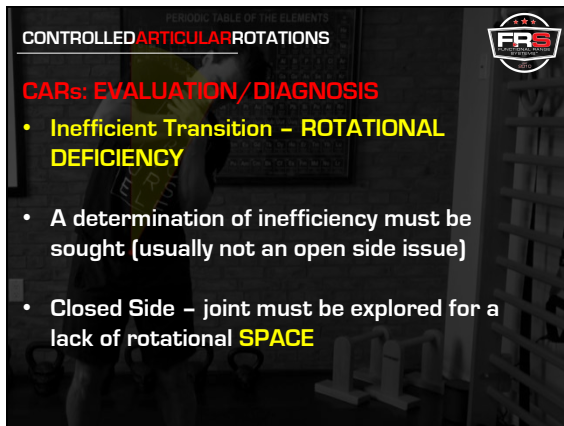


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PERIODIC TABLE OF THE ELEMENTS
CONTROLLED **ARTICULAR** ROTATIONS

CARs: EVALUATION/DIAGNOSIS

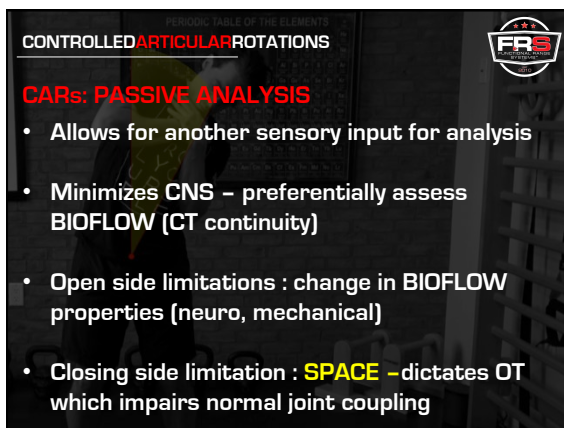
- Inefficient Transition – **ROTATIONAL DEFICIENCY**
- A determination of inefficiency must be sought (usually not an open side issue)
- Closed Side – joint must be explored for a lack of rotational **SPACE**



PERIODIC TABLE OF THE ELEMENTS
CONTROLLED **ARTICULAR** ROTATIONS

CARs: PASSIVE ANALYSIS

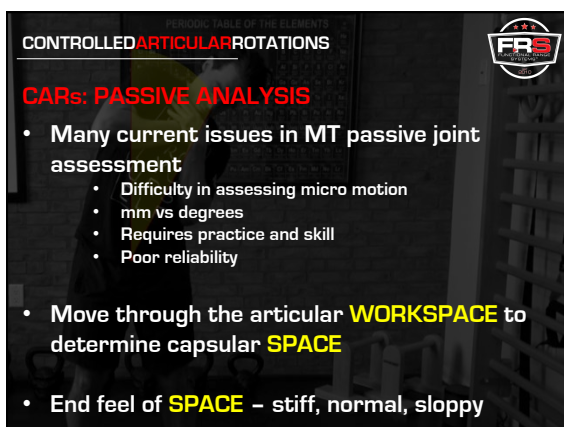
- Allows for another sensory input for analysis
- Minimizes CNS – preferentially assess BIOFLOW (CT continuity)
- Open side limitations : change in BIOFLOW properties (neuro, mechanical)
- Closing side limitation : **SPACE** –dictates OT which impairs normal joint coupling



PERIODIC TABLE OF THE ELEMENTS
CONTROLLED **ARTICULAR** ROTATIONS

CARs: PASSIVE ANALYSIS

- Many current issues in MT passive joint assessment
 - Difficulty in assessing micro motion
 - mm vs degrees
 - Requires practice and skill
 - Poor reliability
- Move through the articular **WORKSPACE** to determine capsular **SPACE**
- End feel of **SPACE** – stiff, normal, sloppy



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PERIODIC TABLE OF THE ELEMENTS

CONTROLLED ARTICULAR ROTATIONS

INTERVENTION

- Begins Skill Acquisition
- Intrinsic Feedback & Augmented Feedback
- Knowledge of Performance
- Cueing
- FR/FRC – address individual limitations appropriately

