

**ASSESSMENT AND TESTING PROCEDURES
STANDARDS AND QUANTITATIVE MEASURES**

Quantitative Testing

Physical testing shall be performed on the joint in question and if possible on the proximal and distal joint in relation to the injured area.

Testing shall be performed as soon as patient has reached a minimum of 75% of Active Pain Free Range of Motion (APFROM), or after the patient has graduated from the passive (acute therapy) plan.

Testing shall be performed prior to graduating to the subsequent stage in the rehabilitation process (Stage I, II, III, Release).

Testing shall be performed at the Force Under Discomfort (FUD) level of exertion.

Testing shall be performed and calculations made from values and documented to standards of normal for the joint in question, for the agonist / antagonist relationship, concentric / eccentric relationship, and to the opposing side.

Calculations and Standards to Consider

Agonist : Antagonist	1.2-3/1
Eccentric : Concentric	1.3/1
Contraction Curve (Testing)	.2 sec. Contraction / .3-.4 Relaxation
Exercise Contraction Curve	1 sec. Concentric / 2 sec. Eccentric
Quad / Ham Ratio (Sedentary Individual)	60% BW Quad / 40% BW Ham
Quad / Ham Ratio (Active Individual)	100% BW 1RM Quad / <= 20% deficit Ham
Right to Left (Dominant / Non-Dominant)	No greater than 10-15 % difference
JSR	<u>Strength Required</u>
	Strength Tested = Job Strength Rating
	1.5 Ratio Very High Risk
	1.0 Ratio High Risk
	.5 Ratio Low Risk

NIOSH Guidelines (Repetitive Trauma) Working at 40% of VO₂max or 1RM on an occasional basis for 6-8 hours a day for 4-5 weeks is directly related to back pain development

Immobilization Rules

1-1.5% of Atrophy per day after 5-6 weeks of immobilization

40-50% decrease of strength and endurance after 5 weeks of immobilization (non-activity)

Optimum Speed of contraction for Isokinetic Testing is 120 degrees per second

Optimum Speed of contraction for Isotonic Exercise is 12 inches or 60 degrees per second

Negative or Zero effect training is most optimum for mass and strength gains

Optimal Fat Loss	1-2 pounds of fat / week
Muscle Strength Gains	Exercise a minimum of 2 times a week at 65-75% of 1RM Exercise a minimum of 1 time a week at 80% of 1RM no longer than 3 weeks in order not to loose strength or endurance if necessary to remove irritation of an area
Joint Sheer Stress	Distal Placement of Force 20-30 degrees Safe Mid Lever Placement of Force 60 degrees Safe Proximal Placement of Force 90 degrees Sage
Plastic Deformation	Begins after 45 minutes of static / lengthened position