

## PILLAR

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The consistently limited follow-up periods in Eldoa research represent one of the most significant methodological weaknesses preventing full understanding of the technique's long-term effectiveness. Most studies restrict follow-up to 6 weeks or less, capturing only immediate and short-term effects while leaving questions about durability completely unanswered. This limitation proves particularly problematic for chronic conditions where long-term management rather than cure represents the realistic goal. The absence of data on recurrence rates following initial improvement prevents clinicians from providing accurate prognoses or developing optimal maintenance protocols.

The contrast with other manual therapy research highlights this deficiency. Established techniques often demonstrate 12-month follow-up data showing maintenance of benefits, gradual decline requiring periodic treatment, or identification of patient subgroups with better long-term outcomes. Without similar long-term data, Eldoa cannot be properly positioned within treatment algorithms that consider both immediate effectiveness and sustained benefit. The practical implications extend to insurance coverage decisions, where demonstrating lasting benefit often determines reimbursement eligibility. Researchers investigating Eldoa should prioritize extended follow-up periods of at least 6-12 months to establish whether initial gains persist, what maintenance frequency optimizes long-term outcomes, and which patient characteristics predict sustained benefit versus recurrence.

## Football Applications

The biomechanical demands of American football create position-specific stress patterns that require equally specific Eldoa interventions. Offensive and defensive linemen face the most extreme spinal compression forces in sport, with L4-L5 segment compression reaching  $8,679 \pm 1,965$  Newtons during blocking maneuvers. These forces exceed established tissue fatigue thresholds, explaining the high rates of degenerative changes seen in retired linemen. Peak anteroposterior shear forces of  $3,304 \pm 1,116$  Newtons combine with lateral shear forces of  $1,709 \pm 411$  Newtons to create complex three-dimensional loading patterns that challenge the spine's structural tolerance. The repetitive nature of these impacts, with hundreds of collisions per practice and game, creates cumulative microtrauma that standard recovery methods struggle to address.

The injury patterns reflect these extreme demands, with 30.9% of football injuries involving the lumbar spine and 28% manifesting as disc herniations primarily at L4-L5 and L5-S1 levels. Quarterbacks face different but equally challenging demands, requiring significant trunk rotation for passing mechanics while maintaining cervical spine positioning for field vision. The self-selected throwing protocol produces 7 degrees greater lateral flexion than maximal speed attempts, suggesting that quarterbacks naturally develop compensatory patterns balancing power generation with accuracy demands. Skill position players experience stress patterns more similar to other cutting and sprinting sports, though the collision aspects of football add unique challenges. Eldoa protocols for football emphasize L4-L5 and L5-S1 decompression for managing axial loads, cervical protocols for impact force dissipation, position-specific adaptations recognizing vastly different demands, enhanced stability focus for unpredictable