MPE TEAM CASE STUDY

Team Case Study: St. Laurence Vikings Baseball

Performance Improvement Through Motor Preferences

Season: 2025–26 | Burbank, IL | Prepared by Motor Preferences Experts

ST. LAURENCE VIKINGS

2025–26 Season | Burbank, IL | Illinois 4A

MPE Team Case Study — Performance Improvement

Head Coach: **Peter Lotus**

Director of Sports Performance: **Brad Leshinske Ph.D., CSCS*D, CPSS*D**

Testing Partner: **Mike Medici (Former Texas Rangers Scout)**

[Insert Team Photo]

#1 Illinois	#4 National	35-3
Entire 2026 Season	MaxPreps Top 25	Overall Record

Initial Challenge

What problem was the staff trying to solve?

The Core Question

The St. Laurence coaching and performance staff entered the 2025 off-season asking a question every high school program eventually faces: how do you truly develop each player and get the most out of them? Not just as a team, but as individuals. The staff wanted to maximize performance and win games — while also reducing injury risk and taking care of the athletes in their program. The answer they found was to stop applying the same approach to everyone and start understanding how each player is wired to move.

> *Why do identical training inputs yield vastly different results?*

— The question that led St. Laurence to Motor Preferences

Motor Preferences Profile

What the assessment revealed — 28 varsity baseball players

17

Terrestrial

Anterior chain dominant. Flexion-based movers. Naturally load into the ground with high force output. Hardwired for absolute strength — squats, deadlifts, and grinding movements are their native language.

High Force, Moderate Velocity

11

Aerial

Posterior chain dominant. Extension-based movers. Naturally rebound off the ground with speed and elasticity. Hardwired for explosive velocity — sprint times and reactive power are their native language.

High Velocity, Moderate Force

Study Design & Methodology

How the research was structured — Brad Leshinske Ph.D., CSCS*D, CPSS*D | Saint Xavier University

SAMPLE	DURATION	STATISTICAL ANALYSIS
N = 28	**14 Weeks**	**p < .001**
High School Varsity Baseball Players	Structured Off-Season S&C	Repeated Measures ANOVA
17 Terrestrial | 11 Aerial	4 Days/Week	Bonferroni correction
*one anomaly maintained for subgroup integrity		

5-PHASE PERIODIZATION MODEL

PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5
Isometrics	**Eccentrics**	**Progressive Overload**	**Strength & Power**	**Power/Contrast**
Structural integrity. 40-65% 1RM. 5-8s static holds.	Force absorption. Long lowering tempos (8-12s).	NSCA standards. Volume drops, intensity rises. VBT zones monitored.	Heavier absolute loads. Movement quality emphasized.	Supersets & PAP to maximize force production.
Wks 0-2	*Wks 2-4*	*Wks 4-8*	*Wks 8-11*	*Wks 11-14*

Data Collection & Measurement Protocol

Technology and testing used to track every athlete across the 14-week program

DAILY MONITORING (High Frequency)

Vald CMJ	Countermovement Jumps via Force Plates — readiness & neuromuscular status
Hand Grip Strength	Right & Left — bilateral comparison
Bodyweight	Vald Force Plates — body composition tracking throughout program
VBT	Velocity-Based Training on all core lifts — bar speed & load management

WEEKLY PERFORMANCE CHECKS

30-Yard Dash	Electronic timing — speed output
10-Yard Splits	Acceleration phase measurement
Fly 10s Splits	Top-end velocity measurement

PRE/POST TESTING MATRIX — Statistical Validation Metrics

Metric	Profile Focus	Instrument	Result
Hex Bar Deadlift	Terrestrial (primary)	Vald Force Plate	379→417 lbs T | 326→364 lbs A
Back Squat	Terrestrial	1RM Bar / Platform	Pre-test baseline profiling
Bench Press	Terrestrial	1RM Bar	Pre-test baseline profiling
Vertical Jump	Aerial (primary)	Vald CMJ Force Plate	27.85→30.37 in T | 30.04→32.53 in A
Bodyweight	Both profiles	Vald Force Plate	186→196 lbs T | 177→186 lbs A

The Research: Baseline Reality

Brad Leshinske Ph.D. — Pre-test data confirmed the blueprint before training began

TERRESTRIAL — Strength Advantage

Hex Bar Deadlift

379 lbs vs Aerial 326 lbs

Back Squat

352 lbs vs Aerial 332 lbs

Bench Press

214 lbs vs Aerial 169 lbs

AERIAL — Speed & Explosion Advantage

Vertical Jump

30.04 in vs Terr. 27.85 in

10-Yard Sprint

1.66s vs Terr. 1.68s

10-Yard Fly

1.15s vs Terr. 1.20s

Note: These profiles are programming guidelines, not labels. Terrestrial athletes can develop speed and Aerial athletes can develop strength — primary

The Research: Training Raises the Floor

Both profiles responded equally to the same 14-week MP-aligned program — $p < .001$

	TERRESTRIAL		AERIAL
Hex Bar Deadlift	379 → 417	+38 lbs each	326 → 364
Vertical Jump	27.85" → 30.37"	+2.5" each	30.04" → 32.53"
Bodyweight	186 lbs → 196 lbs	+9-10 lbs each	177 lbs → 186 lbs

"Training raises the floor — but biology sets the baseline. Motor Preference determines an athlete's signature, not their potential."

Intervention

Everything individualized — S&C, warm-ups, hitting, throwing, pitching

Strength & Conditioning

Brad designed a 5-phase periodization model (Isometrics → Eccentrics → Progressive Overload → Strength & Power → Power/Contrast) run over 14 weeks. Each athlete's exercise selection was translated through a Prescription Translation Matrix matching movement intent to motor profile — Terrestrials trained through the anterior chain (back squat, hex DL, military press), Aerials through the posterior chain (front squat, RDL, landmine press).

Monitoring & Technology

Daily: Vald CMJ (countermovement jumps via force plates) and bodyweight tracked. VBT monitored on all core lifts. Weekly: hand grip strength (R&L), 30-yard dash with electronic timing, 10-yard splits, fly 10s. This created a real-time feedback loop to manage load, recovery, and athlete readiness across the full roster.

Baseball-Specific Training

Hitting, throwing, and pitching warm-ups, drills, and development work were all adjusted to match each athlete's natural movement preference. Rather than applying one universal approach across the roster, players were developed and cued in alignment with how they are biologically wired to produce and absorb force.

Performance Outcomes

2025 → 2026 | Before & After MPE | * = Program Record

	2025	2026	Change
Batting Average	.366	**.407***	**+.041**
On-Base % (OBP)	.488	**.523***	**+.035**
Slugging % (SLG)	.501	**.659***	**+.158**
OPS	.989	**1.182***	**+.193**
Home Runs	13	**35**	**+22**
Triples	19	**29***	**+10**

#1 Illinois entire 2026 season · #4 Nationally (MaxPreps) · 35-3 Overall · Program offensive records set in AVG, OBP, OPS, SLG, 3B, RBI, Runs

I only share this because I believe MPEs have helped our players get better... As you can see from the data, we far surpassed almost all of our offensive numbers this year and set offensive records in just about every category.

— Peter Lotus | Head Coach, St. Laurence Vikings Baseball