AN EXECUTIVE PERSPECTIVE ON PITCHER ASSESSMENT & DEVELOPMENT

When Accurate Measurements Lead to the Wrong Conclusions

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BEYOND THE FORCE PLATE

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The baseball industry has never had more ways to measure athletic performance.

Force plates. Motion capture. High-speed cameras. Pitch tracking. Biomechanical assessments. Sophisticated dashboards filled with numbers, graphs, angles, velocities and force-time curves.

We can measure how much force a pitcher produces, in which direction, at what point in the delivery, and how those forces change throughout the movement.

That is valuable information.

And the technology continues to improve.

But there is a question that deserves considerably more attention:

> **Are we actually understanding the individual pitcher, or are we becoming increasingly sophisticated at measuring what the pitcher does?**

Because those are two very different things.

And confusing them could have significant consequences for how we approach player development.

1. Beyond Aesthetics: A Step Forward, But Not the Final Answer

Recently, I came across an interesting discussion about using force plate mounds to measure vertical and horizontal ground reaction forces during pitching.

The question was whether these measurements could help move pitching assessment away from visual aesthetics and toward understanding where and how an athlete applies force during the delivery.

The response was an enthusiastic yes.

I agree that this is a valuable direction.

Rather than relying exclusively on what a pitching delivery looks like, force plates provide quantitative information about the forces an athlete applies to the ground.

They allow us to examine aspects of the delivery that cannot be reliably determined through visual observation alone.

That is progress.

But I believe we need to take the next step in our thinking.

> **Moving beyond aesthetics does not automatically mean we have moved toward understanding the individual.**

We may now have a much more detailed picture of what happens mechanically, but that does not necessarily explain the underlying motor organization responsible for producing those measurements.

And that distinction matters.

2. The Measurement Is Not the Explanation

Let's consider what happens when a pitcher steps onto a force plate mound.

The technology records measurable characteristics of the pitching delivery.

We can examine:

- Vertical ground reaction forces.
- Horizontal ground reaction forces.
- Propulsive and braking forces.
- Force-time characteristics.
- Timing and distribution of force throughout the delivery.

These measurements can provide valuable insights into the external mechanical demands and outputs of the pitching motion.

But what happens next?

The measurements are interpreted.

They are compared with reference values, previous assessments, performance indicators or established expectations.

From there, conclusions may be drawn about what the pitcher should improve.

And this is where we need to be careful.

A force plate tells us something about the forces produced during a particular movement task.

> **It does not independently establish why the pitcher produced those forces in that particular way.**

It does not identify the individual's underlying motor organization.

It does not independently establish whether the observed force-production strategy is consistent with that individual's Natural Movement Blueprint.

And it cannot, by itself, tell us whether changing that strategy would improve the individual's movement.

The distinction is fundamental:

> **Measuring the output is not the same as understanding the system that produced it.**

3. The Individualization Illusion

This brings us to something I believe deserves serious attention throughout professional baseball.

The industry increasingly talks about individualized player development.

We profile athletes. We collect individual measurements. We create individual reports. We build training programs around individual data.

But does individual data automatically result in individualized development?

Not necessarily.

Consider two pitchers who produce different force plate readings.

One demonstrates a particular vertical force profile. The other produces a different distribution of vertical and horizontal forces.

Both are measured accurately.

But what does the difference actually mean?

Does one represent a more effective movement strategy?

Should both pitchers be encouraged to move toward the same reference values?

Should the pitcher with the lower measurement automatically be trained to produce more force?

And, perhaps most importantly:

> **Have we established whether the movement strategy producing those readings is appropriate for the individual pitcher in the first place?**

Without understanding the individual's underlying motor organization, we risk interpreting differences as deficiencies simply because they do not match an expected profile.

We can end up correcting individual differences rather than understanding them.

And that creates a paradox.

We collect individual data, apply predefined interpretations, and prescribe training based on those interpretations.

The technology is individualized.

But the thinking behind the intervention may still be standardized.

4. When the Measurement Becomes the Classification

Let's take this one step further.

Imagine two pitchers stepping onto a force plate mound.

Both are assessed using the same technology, under the same testing conditions.

The measurements are accurate.

But the results are different.

Pitcher A demonstrates a higher vertical force output and a particular horizontal force distribution.

Pitcher B produces a different combination of vertical and horizontal forces.

The analyst compares both profiles against an expected reference and identifies differences.

Perhaps Pitcher B is producing less vertical force than expected. Perhaps his horizontal force distribution differs from the preferred model. Perhaps his braking-force characteristics do not match the profile the organization considers desirable.

A conclusion is drawn.

A deficiency is identified.

A training intervention is prescribed.

But stop for a moment.

What if the difference between these two pitchers is not necessarily a deficiency, but an expression of two different ways of organizing movement?

Have we established that the same force-production strategy should be expected from both individuals?

Have we identified their Natural Movement Blueprints?

Do we understand how each pitcher naturally organizes movement before deciding which force characteristics should be changed?

And what if the training intervention moves one of those pitchers away from the movement organization that is most natural to him?

This is where measurement and interpretation can become confused.

The force plate did not necessarily make a mistake.

The numbers may be perfectly accurate.

But the conclusion drawn from those numbers may not accurately represent the individual.

An accurately measured difference is not automatically an identified deficiency.

A force profile that differs from an expected model is not, by itself, evidence that the pitcher needs to change how he produces force.

We need to understand the individual before deciding what the numbers mean for that individual.

Otherwise, we risk repeating exactly the same mistake that can occur when an observable pronation or supination expression is mistaken for the athlete's underlying natural movement organization.

Different measurement.

Same fundamental problem.

The output is being interpreted without first understanding the individual who produced it.

5. Before the Force Plate: Was the Movement Already Outside the Blueprint?

But there is an even more fundamental question we need to ask.

> **What if the pitcher was already moving outside his Natural Movement Blueprint long before he ever stepped onto the force plate?**

Think about that for a moment.

A pitcher may have spent years being coached to achieve particular positions, follow specific mechanical models, change his arm action, adjust his movement patterns or produce force in ways that are considered biomechanically desirable.

Over time, those instructions can influence how he organizes and executes movement.

He adapts.

He learns.

He develops movement strategies that may become highly repeatable and deeply ingrained.

But repeatability does not automatically mean that the movement is consistent with his natural organization.

And what if, after years of coaching and mechanical adjustments, that pitcher is now operating significantly outside his Natural Movement Blueprint?

Then he steps onto a force plate.

The technology accurately measures the forces he produces during that particular delivery.

But what exactly are we measuring?

We are measuring the output of his CURRENT movement strategy.

A strategy that may already have been shaped by years of coaching, mechanical intervention and adaptation.

> **We are not automatically measuring his natural movement organization.**

The measurement itself may be perfectly accurate.

But the movement being measured may already be the product of an underlying mismatch.

This creates a much bigger problem.

If we take that force plate reading, compare it with predefined expectations and prescribe interventions based on the assumption that the measured movement represents the appropriate starting point for that individual, we may be building the next intervention on top of an existing mismatch.

In other words, we could be trying to optimize a movement strategy without first establishing whether that strategy is appropriate for the individual.

And what happens if the resulting intervention reinforces the very movement pattern that has already taken the pitcher outside his natural movement window?

We may be measuring the consequences of previous interventions and using those measurements to justify further interventions.

That is a potentially self-reinforcing cycle of interpretation.

Before asking how we can improve a pitcher's force-production profile, shouldn't we first establish how that pitcher is naturally organized to move?

Before deciding that a particular force characteristic needs to change, shouldn't we understand whether the current movement strategy is consistent with the individual's Natural Movement Blueprint?

And before prescribing another mechanical adjustment, shouldn't we establish whether the pitcher is already operating outside his natural movement window?

Because there is a fundamental difference between measuring how an athlete currently moves and understanding how that athlete is naturally organized to move.

What if the problem isn't what the force plate measures? What if the problem started years before the pitcher ever stepped onto it?

6. What Happens Before the Force Is Produced?

This is the question I believe deserves a much bigger place in modern player development.

Before a pitcher produces measurable force against the ground, there is already an organization of movement taking place.

The individual does not simply generate force.

The individual organizes the body to move, interact with the ground and produce that force.

How that happens is not necessarily identical from one pitcher to another.

Two pitchers may achieve similar measurable outcomes through different movement strategies.

Equally, two pitchers may produce different force profiles while both operating within their respective natural movement organizations.

The measurement alone cannot distinguish between these possibilities.

This is not an argument against biomechanics.

It is an argument for understanding the individual beyond the biomechanical output.

We need to distinguish between what we can measure externally and what we need to understand about the individual producing that measurement.

Because if we only focus on the final measurable result, we risk overlooking the organization that preceded it.

> **The question shouldn't only be how much force a pitcher produces, or where that force is applied. It should also be how that particular pitcher is naturally organized to produce it.**

That is a different starting point.

7. The Natural Movement Blueprint: Understanding the Individual First

Every pitcher has an individual way of organizing movement.

Understanding that organization changes the questions we ask during player assessment.

Instead of immediately asking whether a pitcher produces enough force in a particular direction, we first need to understand the individual behind the movement.

What kind of mover are we looking at?

How does this individual naturally organize movement?

What are the individual's natural movement characteristics?

How do those characteristics influence the way the pitcher organizes the delivery?

And how should that understanding influence the decisions we make about development?

This is where the concept of the Natural Movement Blueprint becomes important.

The Natural Movement Blueprint provides a framework for understanding the individual organization behind movement rather than relying exclusively on the visible mechanics or measurable output.

It does not replace force plates, motion capture or biomechanical assessment.

It addresses a different layer of the assessment process.

Technology can help us quantify what happens.

But understanding the individual requires us to look beyond the numbers.

And without that understanding, how confident should we really be when deciding what a pitcher needs to change?

8. Before We Prescribe, Do We Understand?

Imagine an organization investing heavily in technology, collecting detailed force plate assessments and creating sophisticated individual development programs.

Everything looks modern.

Everything looks scientific.

Every pitcher has individual data.

But if the interpretation of those measurements is not informed by an understanding of the individual's natural movement organization, there is still a fundamental piece missing.

We may know exactly what the athlete produced during the assessment.

We may know how that output compares with a selected reference.

We may even know which measurable variables changed after a training intervention.

But do we know whether the intervention was appropriate for that individual?

Did we establish whether his current movement strategy was consistent with his natural organization?

And did we understand the individual before deciding what needed to change?

These are not minor questions.

They go directly to the foundation of player development.

The objective should not be to make every pitcher produce the same force profile, move through the same positions or satisfy the same mechanical expectations.

The objective should be to understand the individual and make better development decisions based on that understanding.

> **Individualization must begin with the individual. Not with the measurement.**

THE BIGGER QUESTION

I am not questioning the value of force plates.

I am questioning the conclusions we sometimes draw from them.

Technology has given baseball an extraordinary ability to measure athletic performance.

But measurement and understanding are not interchangeable.

A more detailed force plate report does not automatically provide a deeper understanding of the pitcher.

A more sophisticated assessment does not automatically produce a more individualized development plan.

And more data does not necessarily mean better decisions.

There is an even bigger issue to consider.

What if we are measuring the consequences of previous interventions — and using those measurements to justify more of the same?

What if a pitcher has already spent years adapting to mechanical expectations that do not align with his natural movement organization?

What if the industry is becoming increasingly sophisticated at measuring and optimizing movement strategies without first establishing whether those strategies are appropriate for the individuals performing them?

Perhaps the next step in player development isn't simply finding better ways to measure what pitchers do.

Perhaps it is developing a better understanding of the individual who produces those measurements.

Because before we decide what a pitcher needs to change, we should understand how that pitcher is naturally organized to move.

> **We have become exceptionally good at measuring the output.**

> **But are we actually understanding the pitcher behind it?**

And perhaps the most important question of all:

> **Are we developing the individual — or are we simply getting better at measuring, analyzing and optimizing movement patterns that may have been wrong for that individual from the very beginning?**

That's the question.

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