YOUR GLUTES AREN'T BROKEN

WHY EXERCISE, EFFORT, AND GENETICS AREN'T THE PROBLEM

STUART BUSH

For my clients and students — who asked the questions I couldn't answer.

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Why Exercise, Effort, and Genetics Aren't the Problem

Stuart Bush

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FOREWORD

Some people aren't feeling their glutes activate or seeing them grow no matter what they do, or for how long they've been doing it.

They're doing everything right. They're performing the "best" glute exercises — the ones backed by research, programmed by trainers, and recommended all over forums with people of all levels of experience.

They're following the formula for muscle growth: working hard, getting adequate protein, allowing for proper recovery. They're ticking every box.

And yet, when it comes to results… they're seeing almost nothing.

Or maybe *something* — in *some* glute exercises, *some* of the time.

Perhaps they feel something some*where* else — burning in their quads at the front of the thigh. Strain in their hamstrings at the back of it. Or what feels like an alarming amount of engagement in their lower back.

If any of this sounds familiar, you're not alone.

It's supposed to be simple, isn't it? Do glute exercises → grow glutes.

Except, somehow, it's *not*. This tried and tested formula simply isn't working. Not for everyone.

And for those people, much of the advice they receive is confusing and demotivating. Without an explanation or a clear path forward, they're often left blaming themselves. Their bodies. Their genetics.

I'm not okay with that.

Not when there are better answers, explanations, and solutions available.

As a coach and fitness educator who trains both personal trainers and everyday clients, I field questions from people about this almost daily. People baffled by why they can't seem to feel their glutes activate or see them grow, no matter what they do.

It's weird because gluteus maximus is the biggest muscle in your body — you'd think such an important muscle would always be working.

Yet for all its might, it just seems so unpredictable. For some it works as expected but for others… not so much.

Untangling this mystery has driven me for a long time.

I started working as a trainer in 2005 and found it odd that not every client felt glute exercises in the same place, or got

the same benefit. I wasn't sure what to make of it, but it lingered in the back of my mind.

By 2012, I'd graduated up the ranks to work in the field of strength and conditioning (a fancy way of saying "trainer for athletes"). To my surprise even some elite-level athletes struggled to connect with their glutes.

I was confident I could help them because I felt I was pretty good at this 'glute stuff.' I assumed that having a long list of activation techniques made me an expert.

By 2016, I could no longer ignore what I was seeing. I'd begun teaching at the Australian Institute of Fitness, and the gap between what was *supposed* to activate glutes and what many people actually experienced was simply accepted as normal.

Students and teachers alike would share tips to get glutes activating better, but I never heard anyone ask the question that kept quietly gnawing away at me:

Why don't glutes activate properly in the first place?

Other major muscle groups — calves, quadriceps, hamstrings — seem to activate easily. Consistently. Predictably.

Nobody posts online looking for tips for activating calf muscles before a workout. Nobody asks why they don't *feel the burn* in their thighs. There's nothing really to ask. Those muscles just *work*.

Why was that not true of glutes?

Why did some clients seem to squat, lunge, and thrust with their glutes, but

others *doing the same exercises* seemed to be all thighs and lower back?

It didn't make sense that it was random. Nor was I comfortable charging people for a *chance* of a result. For the benefit of both my clients and my students, I felt a responsibility to be able to explain what was going on.

Unpacking that mystery became my Everest — the mountain I was determined to conquer.

What followed were years of studying anatomy, interrogating mentors, and research. So. Much. Research.

What I found led to a fundamental shift in how we need to think about activating, training, and growing glutes. Not new equipment or louder cues, but a better understanding of *why* glutes don't always activate predictably — and what we can do to change that.

The ideas in this book aren't new. They aren't pulled from a single study or method. They're the result of years spent piecing together research, advice, and real-world observation.

The information that follows is the simplified, "snack sized" version of the concepts I teach to trainers, coaches, and other industry professionals in my role as a consultant within the fitness industry.

My aim has been to keep it easy to understand. To achieve that I've kept the explanations simple and used citations sparingly (the full citation list would double the number of pages in the book and make for clunky reading).

For those who find themselves wanting more information, or more guidance on how to implement the concepts within this book, know that I'd be glad to provide them.

This book is the simplest and most direct way to explain the nature of the problem:

- What we've misunderstood (and continue to misunderstand!) about glute activation
- The scientific evidence that explains not just why some people can't grow their glutes no matter what they do, but more importantly guides us to the solution.

This book was written to share the shift in thinking and practice behind my questions, answers, approach, and the concepts that follow. A shift that's emerged over the past decade through research, testing, and real work with students and clients.

If it helps you understand your body just a little better — and perhaps brings a

small amount of clarity and hope — it has done its job.

Stu Bush
January, 2026

CHAPTER 1: WHAT ARE WE REALLY TALKING ABOUT?

If you're reading this, chances are your glutes aren't responding to exercise the way you were hoping they would.

Since you've already been putting in the work, I'm betting you know basic glute anatomy – like where to find them – and are willing to skip the lecture in order to get onto the good stuff.

I get it. I'm not here to bore you. Before we jump ahead, let's just make sure we're all on the same page. Each hip is home to three gluteal, or 'glute' muscles: gluteus minimus, gluteus medius, and gluteus maximus.

Medius and minimus are relatively small and not very powerful. They sit on the side of your hip, quietly handling their

supporting roles. Think of them like the backup singers to your favorite artist — they're useful, sure, but not very exciting and they're not the stars of the show. Nobody has ever written an interesting book about gluteus medius.

The real MVP is gluteus maximus: 'glute max' for short, or 'Gmax' for even shorter. It's by far the largest of the three glutes, and the one most responsible for the shape, power, and potential of your backside. It lives exactly where you think it lives — if you've ever patted your partner on the butt, you were patting their gluteus maximus.

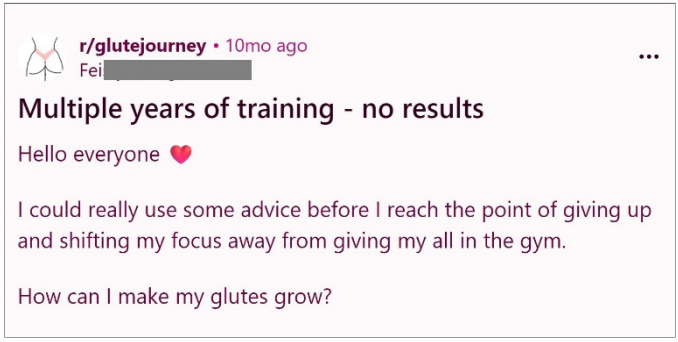
It's the biggest and the strongest of the glute muscles, but it's also one of the most unpredictable. It's the one people have the most difficulty activating and growing. Whether they realize it or not, anyone who says they can't feel their

'glutes' working is almost certainly referring to glute max.

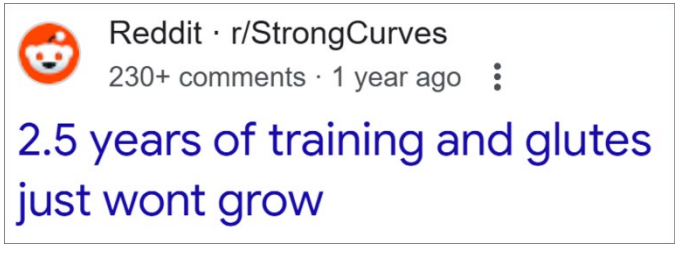
This book is about glute max specifically. It's written to explain why some people can't seem to activate and grow it. It shows where the current glute training approach falls short, and what the industry is overlooking that will *actually* allow those people to see the growth they want.

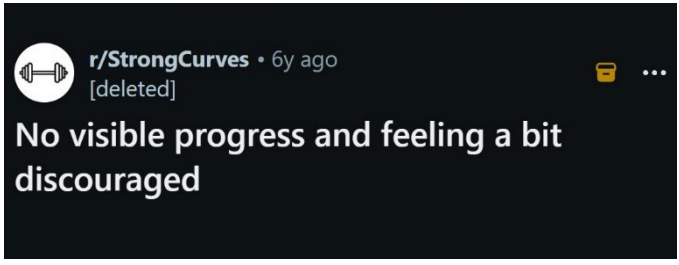
Not everyone has difficulty activating and growing glutes. The popular, mainstream approach to glute training works, more or less, for many.

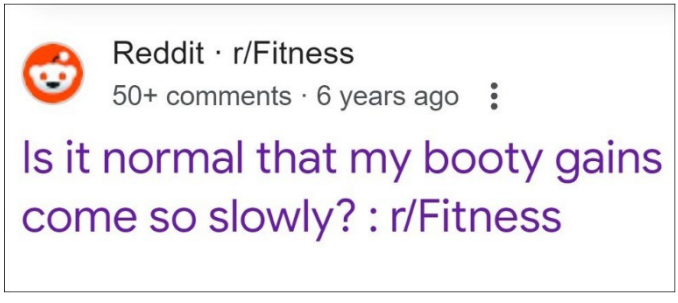
But there's also quite a lot of people for whom it doesn't. Rather than asking you to take my word for that, I'm going to *show* you. Below are screenshots from Reddit and online fitness forums. They were collected in a couple of minutes of casual scrolling. There are *thousands* more like them.

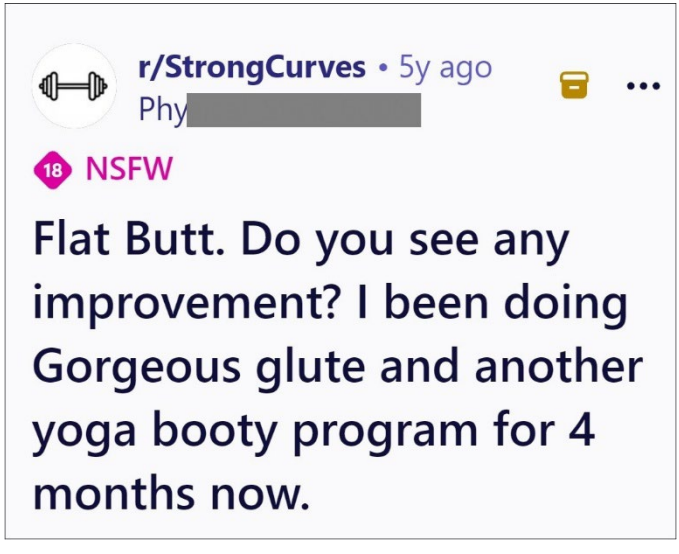

r/glutejourney • 10mo ago
Fei
Multiple years of training - no results
Hello everyone
I could really use some advice before I reach the point of giving up and shifting my focus away from giving my all in the gym.
How can I make my glutes grow?

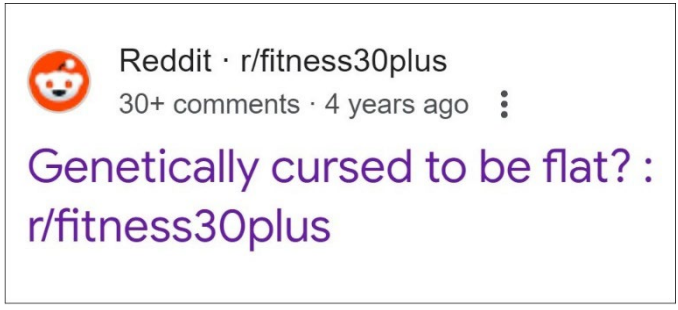

r/xxfitness • 4y ago
cai
Why aren't my glutes growing?
SEEKING ADVICE
Hi everyone! I'm honestly at a loss as to why I'm struggling with glute growth! I'm doing everything right (or at least what I've been told to do)


Reddit · r/StrongCurves
230+ comments · 1 year ago
2.5 years of training and glutes just wont grow


r/StrongCurves • 6y ago
[deleted]
No visible progress and feeling a bit discouraged


Reddit · r/Fitness
50+ comments · 6 years ago
Is it normal that my booty gains come so slowly? : r/Fitness


r/StrongCurves • 5y ago
Phy
18 NSFW
Flat Butt. Do you see any improvement? I been doing Gorgeous glute and another yoga booty program for 4 months now.



Real people. Real frustration. The "right" exercises and the "right" programs. Why would it not work? What's missing?

Before we go further, we need to address the elephant in the room:

It's not genetics that prevents people from growing their glutes.

It's tempting — logical, even — to blame genetics when you're doing everything that works for others but not you. I get it.

And yes, genetics *do* influence the rate that we build muscle.

But this limitation many people are encountering — their glutes stubbornly refusing to grow no matter what they do — *is almost certainly not a genetic one*.

I'm not asking you to "just trust me, bro" either — much of this book is dedicated to proving it.

So if it's not genetics, what is it?

CHAPTER 2: THE QUESTION NOBODY ANSWERS

Lack of glute activation and growth is common enough that the fitness industry has developed a routine set of responses for it. Some are helpful. Some are incomplete. And some don't even pass the 'logic test'.

Let's go back to our evidence locker (a.k.a. the internet) and look at the most common reasons, explanations, and solutions given to anyone experiencing disappointing glute results.

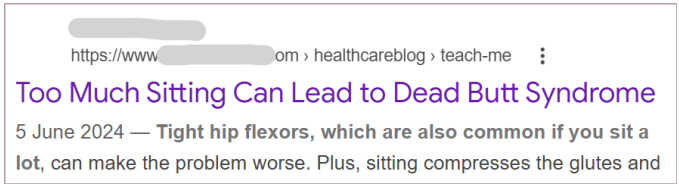
"You're quad dominant — your quads are taking over for your glutes."

This is maybe the fitness world's favorite non-answer. To say "you're quad dominant" is describing the problem, not offering a solution.

We know some people's bodies default to using quads more than glutes. Why only some people? What causes it?

And why is it that quads so often take over for glutes, but not the other way around?

"Sitting for extended periods makes your glutes relaxed/sleepy/lazy and they don't activate properly"



There's all sorts of labels used to describe underactive glutes: gluteal amnesia, sleepy glutes, or the diabolical-sounding Dead Butt Syndrome.

Sitting is commonly named as a leading cause. Explanations for why vary slightly, but usually boil down to the same basic idea:

- Sitting stretches the glutes, leaving them too relaxed to activate
- Glutes are passive when we're sitting, and eventually they become too weak to work properly
- Because we're not using our glutes when we sit, over time we 'forget' how to use them, a.k.a. 'Glute amnesia.'

There's definitely a link between a sedentary lifestyle and reduced glute activation, *but none of these explanations make sense.*

Think about it for a moment — each of these points would also apply to your quads.

When you sit, your quads are stretched by roughly the same amount as your glutes. They're just as passive. But nobody complains of 'Dead Quad Syndrome.'

In fact, people with supposedly "dead" glutes often find that their quads are overworking during exercise. They're quad dominant!

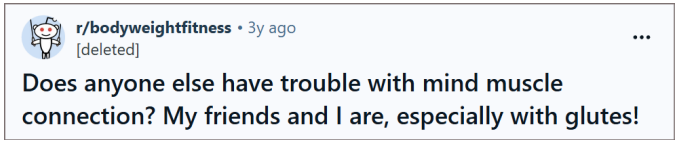
If the explanations were true, shouldn't the quads be lazy too?

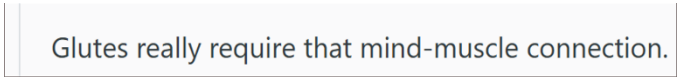
"You're not activating your glutes properly prior to exercising."

Wait — aren't the exercises themselves supposed to activate the glutes? Isn't that the whole point?

Warmups aside, no other 'gym' muscle seems to need 'activating' to fire it up before exercise. Your biceps work when you do bicep curls. Your quads work when you squat. But we just accept that for some reason glutes need a pre-workout ritual to make them do their job.

"You need a better mind-muscle connection to your glutes."





What does that even mean? It's nonsensical.

The solution to not feeling your glutes working is… to get better at feeling your glutes working?

That's not an answer! It's just repeating the problem back to them in pseudo-scientific words.

It raises the same questions as the 'glute activation' advice: why don't people lack a mind-muscle connection (whatever it is) with other muscles? Nobody complains of lacking a mind-muscle connection to their quads or their calves.

At every turn, with every explanation, we find ourselves circling the same basic point: *there's something different about glutes*.

"Your hip flexors are too tight — you need to stretch them."

Like the "sitting down causes sleepy glutes" crowd, we know there's a link between tight hip flexors and poor glute activation. It might provide temporary relief but research consistently shows there's no long-term benefit to stretching — no improvement in range of motion,

posture, athletic performance, or glute activation.[1]

In fact, one hip flexor stretching program led to people getting *less* glute activation.[2]

You read that right: *stretching made things worse.*

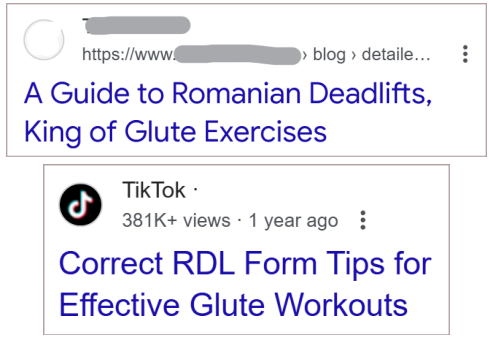
If tight hip flexors were the root of the problem, wouldn't stretching make it better?

---

[1] Konrad A, Močnik R, Titze S, Nakamura M, Tilp M. *The Influence of Stretching the Hip Flexor Muscles on Performance Parameters. A Systematic Review with Meta-Analysis.* Int J Environ Res Public Health. 2021 Feb 17;18(4):1936.

[2] Moreside & McGill. *Improvements in Hip Flexibility Do Not Transfer to Mobility in Functional Movement Patterns*. Journal of Strength and Conditioning Research 27(10):p 2635-2643, October 2013.

"Do an RDL instead of a deadlift!"



Okay, this one is oddly specific but for good reason — it's taking over the fitness industry.

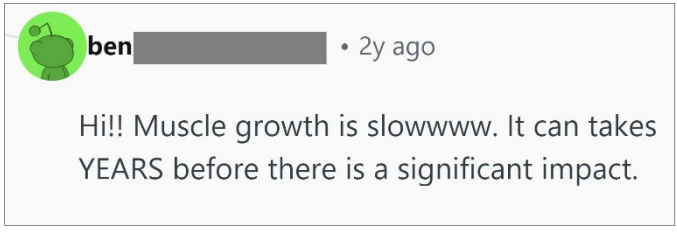
Lots of exercises are modified to shift more load toward the hip to make them more 'glutey'. But 'hip' isn't the same thing as 'glute'. There's a bunch of other muscles around the hip that can — and often will — do the extra work.

The Romanian Deadlift (RDL) is a classic example of this. It's very common for glute programs to favor the RDL over the regular deadlift, but studies show that it actually creates *less*

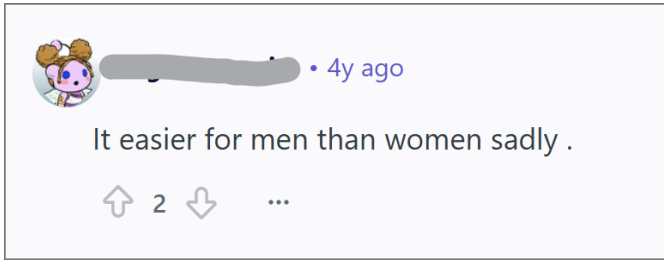
glute activation — it's much more of a hamstring exercise.[3]

The 'glute' engagement people feel in that one spot deep in the back of the hip during an RDL? *That's where the hamstrings attach.*

"Glutes are slow to grow (especially for women) — you've got to keep going and be patient"



[3] Lee S, Schultz J, Timgren J, Staelgraeve K, Miller M, Liu Y. *An electromyographic and kinetic comparison of conventional and Romanian deadlifts*. J Exerc Sci Fit. 2018 Dec;16(3):87-93.



There's a few things to unpack here. Firstly, let's acknowledge that we all want things to happen sooner than they usually do — a promotion at work, the next season of Mindhunter, or our in-laws to finally go home.

From that perspective, glute growth will always seem 'slow'.

But compared to other muscles, glutes ain't slow.

Their fiber structure isn't very different from thigh muscles. In fact, they have a large physiological cross-sectional area (try saying that after a few drinks) which means they're quite thick and have excellent potential for growth.

That thicker structure usually means glute growth is visible *sooner* than in other leg muscles.

So there's no structural reason they'd grow slower than other big muscles. What about the 'for women' part, though?

It depends how you measure it — measured by the pound, men grow muscle faster. But measured proportionately, research shows the rate of growth is *not* slower for women.[4]

Think of it like this: race a man and a woman to grow a pound of muscle, the man will probably win. But race them to grow their existing muscle by, say, 10% — the kind of increase you'd actually notice in the mirror — *we could expect it to be a draw*.

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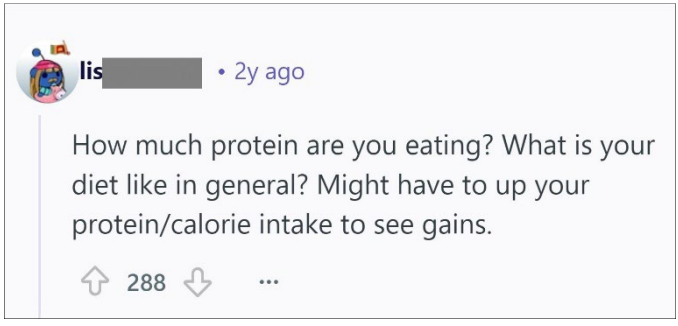
[4] Roberts BM, Nuckols G, Krieger JW. *Sex Differences in Resistance Training: A Systematic Review and Meta-Analysis*. J Strength Cond Res. 2020 May

Which means if your glutes are growing slower than other muscles, it's not because of a biological handbrake.

"Your glutes aren't growing because you don't eat enough protein"

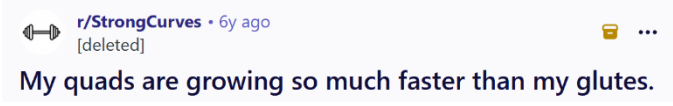


Getting enough protein — and food generally — is an essential part of building new muscle mass. There's no doubt that some people would see better progress if they ate more.

However… (and you knew there was a 'but' coming, didn't you?)

The most common complaint is usually not "*nothing* is growing." Far more often, the complaint is:

"My thighs are growing *but not my glutes."*



And if there's enough protein to build thighs, there's enough to build glutes. Nutrition can't be the limiting factor.

What's missing?

That's a small selection of the most common responses. Some of them are more helpful than others, but if we look closely there's a pattern:

These 'explanations' aren't *explaining* anything.

They describe the problem using fancier language. They offer temporary fixes. They shift blame onto something unrelated.

They're trying to understand the problem within the variables of the formula they know; they're not questioning the formula itself.

They all stop short of the real question:

Why?

You're quad dominant. *Okay, why?*

Your glutes are sleepy. *Why?*

Your hip flexors are tight. *Why?*

You need to activate your glutes. *Why?*

CHAPTER 3: "YOU'D FALL OVER"

So we've established that lots of people's glutes aren't responding despite doing the 'right' exercises. This leads us to a question that comes up again and again:

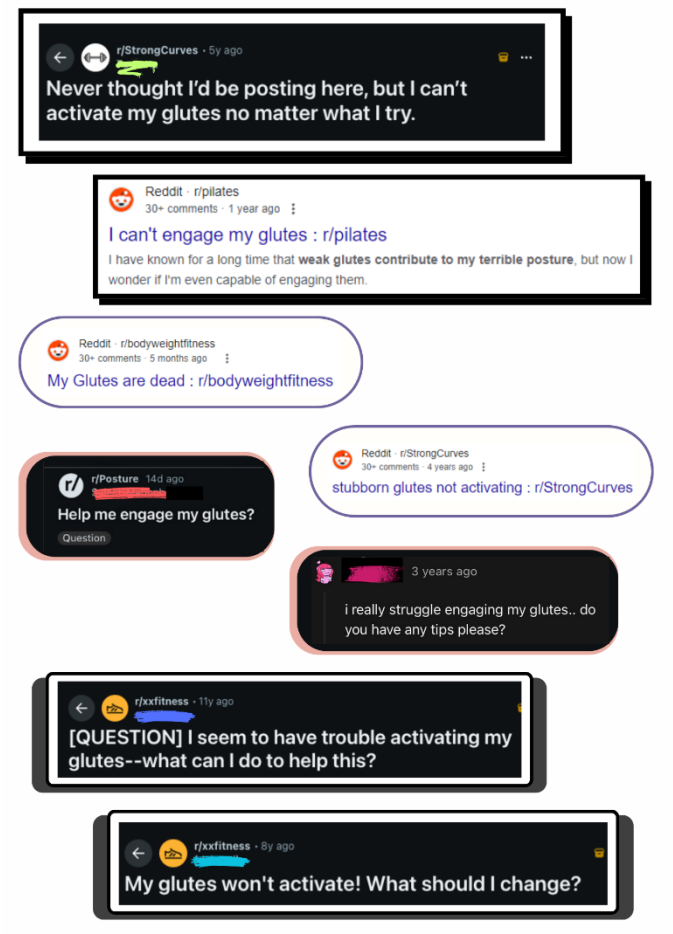
Are their glutes even working in the first place?

It seems reasonable to ask — it would certainly explain the lack of progress.

But it creates a major disconnect with what most textbooks tell us: "These exercises activate glute max." Period. No questions. No doubt.

That sort of certainty is comforting, but how do we reconcile it when what the

textbooks say doesn't match what many people are experiencing in real life?



How do we explain the disconnect?

First we need to clarify what's meant by 'active/activated' glutes, or what counts as glutes 'working'.

Muscles aren't like a lightswitch with an "on" and "off" position. They're more like a dial that can be turned up or down, which makes terms like 'active' subjective.

If glutes would typically work at a 10 out of 10 in a hip thrust but yours only feel like they're at a 4/10, does that count as "active"? They're not at zero, but they're not meeting expectations, either. It's kind of a grey area.

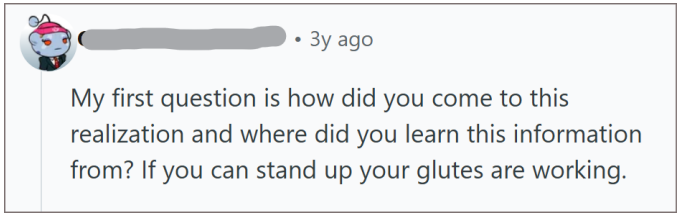
I'm going to use words like 'active' and 'working' the same way my clients and the general population use them: to mean doing the normal or 'expected' amount of work.

If we're expecting a 10/10 glute burn but feeling mostly quads firing, it's fair to say

glute activation isn't dialed up to where we want it.

Of course, some of the "well *ackshually*" crowd sees an opportunity here. They'll point out that any activation at all technically means they're 'working,' which is only true in the most literal, least helpful sense possible.

And unfortunately, this peculiar kind of nitpicking doesn't stay theoretical. It tends to show up whenever someone dares to question the amount of activation they're (not) feeling — a confident, condescending correction that shuts the conversation down instead of helping anyone move forward.



As much as I'd like to ignore unkind responses like this one, I just can't.

Not just because of the condescending tone, but because *it's incorrect*.

How does someone come to the realization that their glutes aren't activating properly?

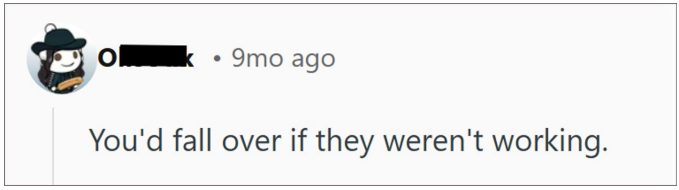
Because they know what it feels like for a muscle to work hard… *and they're not feeling that in their glutes*.

Because they know muscles get a little sore a day or two after working hard… *and they're not feeling that in their glutes*.

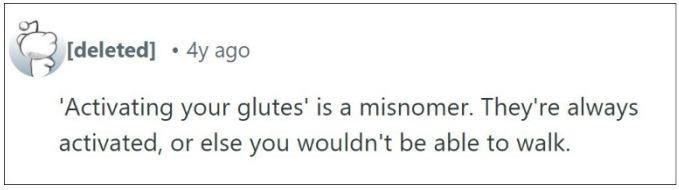
Because they know muscles that repeatedly work hard tend grow bigger over time… *and they're not seeing that in their glutes*.

The "if you can stand up, your glutes are working," line isn't true either, but I

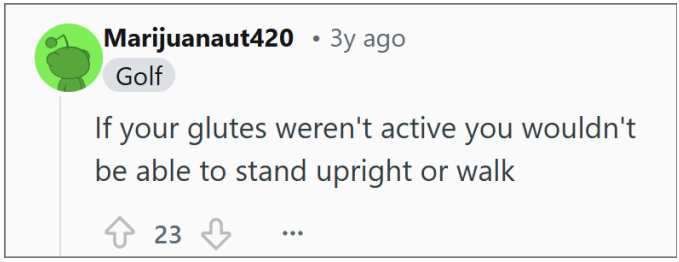
doubt it's a popular misconception. Let's ignore it and move on.



Oh.



Uh oh.

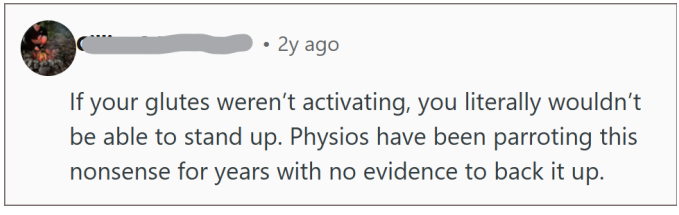


Ok, fine. Let's do this.

Gluteus maximus isn't really a 'standing up' muscle, so no — you wouldn't fall

over if it wasn't working. It's far more of a movement muscle than a postural one, and if you're using it to help you stand it means there's a problem somewhere.

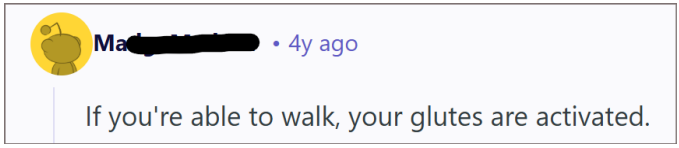
The other gluteal muscles — medius & minimus — are different, but they're not on trial here. They're not the ones people have difficulty activating.



Well I'm not a physio, but okay — here's the evidence: glute max activates at somewhere between 1-3% of its full power during quiet standing.[5] That's barely idling. It's *miles* below the

[5] Chan, R.K.K., Choi, E.M.F., Chou, C.Y.Y. et al. *Effect of surface inclination and gluteus maximus activation on lumbar lordosis and footpronation in individuals with low back pain with extension pattern: a preliminary study*. Sci Rep 15, 11242 (2025)

threshold for contributing meaningfully to stabilization or movement.



It's really not massively involved in walking, either. Your other glutes, sure, but glute max? Not so much.

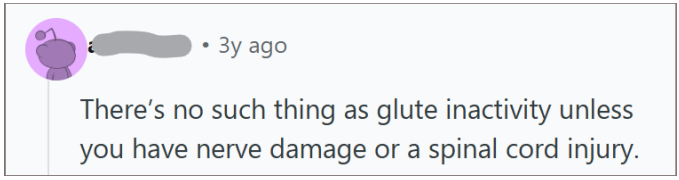
Once again it depends how we define 'activated'.

Glute max does activate during walking, but not meaningfully so.[6] It briefly flickers to around 15-20% of its full power as your foot strikes the ground, but that's mostly to slow the movement of the thigh bone. What it *doesn't* do is give you power for forward propulsion,

[6] Al'khafaji I, Wright A, Ford K, Pritchard N, Dischiavi S, Stubbs AJ. *Comparison of Hip Electromyographic Patterns During Overground Versus Treadmill Gait in Healthy Females*. J Hip Preserv Surg. 2016 Sep 14;3

which is its main and most important role.

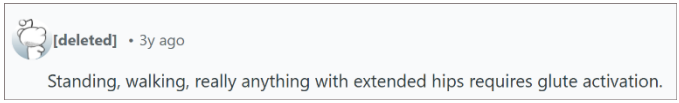
But is the ability to stand and walk evidence that it's functioning normally? Well, people with nerve damage completely paralyzing their glute max are still able to walk.[7] So…. no.



These comments have three things in common:

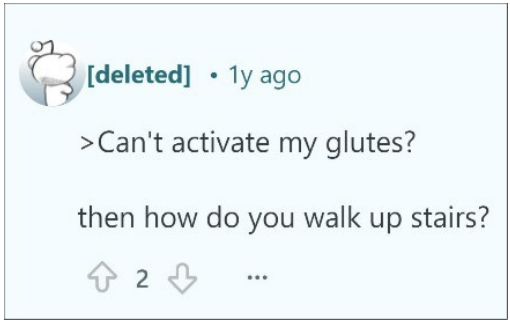
1. They're written with certainty.
2. They're unkind and unhelpful to the reader.
3. They're **wrong**.

[7] Donovan RL, Khan YS. *Inferior Gluteal Nerve Injury*. [Updated 2023 Sep 4]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan



Because this isn't how it works.

There's a lot of muscles packed into your hip, and for every movement glute max can make there are other muscles available to do the same job. Not brilliantly perhaps, but well enough to get by. Just because your leg is moving a certain way doesn't guarantee — at *all* — that glute max is driving it.



With the other muscles you muppet!

Seriously, try this next time you're walking up stairs: reach down and put your hands on the back of your thighs, below your butt. That's your hamstrings. Feel how they activate with every single step? That's not a design flaw — *they're supposed to do that!*

CHAPTER 4: NOTHING HAPPENS WITHOUT STIMULUS

For the sake of my blood pressure, let's step back from internet arguments for a moment.

If glute growth is the goal, it helps to understand how that process actually works.

Our bodies don't like wasting energy because, before Uber Eats at least, they could never quite be sure when the next meal would be served. Making muscles bigger requires a *huge* amount of energy — first for the new 'building blocks,' and then we use even *more* energy carrying that extra muscle around everywhere we go.

So your body only makes muscles bigger if it's really, *really* necessary.

To convince it that the growth is worth the investment, you've got to bully it a little — make the muscle work harder than it's used to. Do that, and the (literal) bean counters in your body will come around to the idea that bigger really does equal better.

Stimulating the muscle like this (we literally call it a muscle stimulus) is the single most important part of the muscle building formula because without it, your body simply won't bother.

After all, why would it? If your existing muscles are comfortably handling your daily tasks, why waste energy making them bigger?

Once stimulus has triggered the muscle growth process, the next stage is recovery — the muscle needs to repair

and actually do the growing. Good recovery requires sufficient food and time (and ideally some sleep).

Stimulus and recovery are the two biggest levers we can pull to influence muscle growth. Remember, though, that recovery is only relevant **after** there's been a stimulus. Without that, there's no reason for muscles to grow.

Nothing happens until stimulus happens.

Remember that fact. Bookmark it. It matters — especially when we get to what most 'experts' keep overlooking.

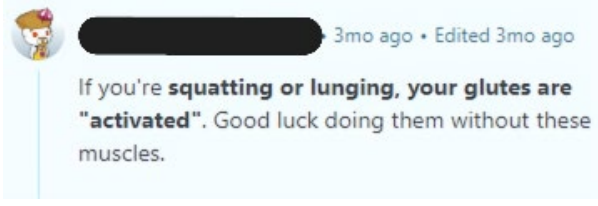
You'll notice I didn't mention genetics. That's deliberate. They influence glute growth, sure, but they're not what's *limiting* it.

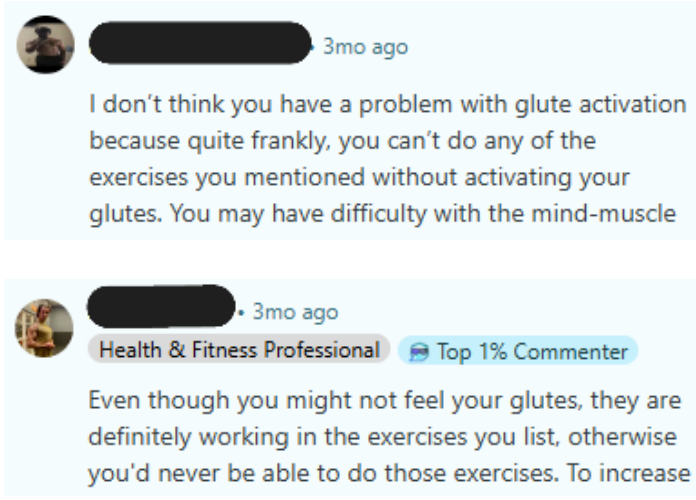
For that to make sense, we need to question an assumption at the heart of glute training.

CHAPTER 5: "THEY CAN'T NOT BE WORKING"

Earlier we saw the first wave of unhelpful comments: ones insisting that simply standing or walking proves glute max is working normally. We've already covered why that isn't true.

But there's a second wave. A more confident, more insistent version of the same idea — that if you do the 'right' movement, glutes more or less *have* to work.





The logic goes like this:

- Glute max is a powerful hip muscle.
- Squatting, lunging, and virtually every popular "glute" exercise are quite demanding, so your body will need to use powerful hip muscles.
- Therefore your body will use glute max to perform those movements.

This is the argument that gets repeated in gyms, in Reddit threads, and in PT

clinics. And on the surface, it's reasonable. It makes sense.

But it's based on an assumption:

If a movement *can* activate your glutes, then it *will* activate your glutes.

Which is logical.

No, it's more than that — it's *obvious*.

So obvious it seems silly to even question it.

But is it true?

CHAPTER 6: THE QUESTION TOO OBVIOUS TO ASK

"Do glute exercises activate glutes?" is a great way to get funny looks in a gym. Now that we've asked it, though, I bet you're curious.

Back in 2020, a research team took a closer look at glute training by combining data from 16 high-quality studies.[8] Between them, these studies tested 24 of the most popular glute max exercises. They all used the same basic setup — start with a quick "glute squeeze" drill to record a baseline, and

[8] Neto WK, Soares EG, Vieira TL, Aguiar R, Chola TA, Sampaio VL, Gama EF. *Gluteus Maximus Activation during Common Strength and Hypertrophy Exercises: A Systematic Review*. J Sports Sci Med. 2020 Feb 24;19(1):195-203.

then see how much activation the actual gym exercises produced.

After comparing all of the data, they were able to rank the exercises in order of which produced the most glute max activation.

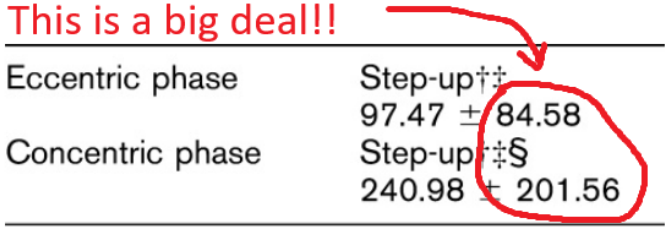
I'll save you the suspense — the #1 glute exercise was the step-up. By a huge margin.

On the surface, this appears to solve 'the glute question.' Anybody looking to grow their glutes should simply do step-ups.

But there's more to this study than meets the eye. Something more interesting — and more *important* — than just which glute exercise is "best". Something I've never seen industry professionals mention when they refer to this paper, and that not even the authors themselves discussed:

The variation between people's results is huge.

Like, *weirdly* high.



The study only lists the average activation scores, not the individual data for each participant. Crucially though, the authors include something called the 'standard deviation.' It's a little bit of math that gives us an idea of how much the results varied between people.

Knowing how individual results differed is useful because averages on their own can be misleading — for example, we could put Elon Musk next to a homeless guy and say that *on average* they're both billionaires. Technically that's true.

But in real terms only one of them flies around in a private jet.

Working our way backwards from the data provided, a conservative estimate is that some people got four to five times less glute activation than others. That's the *conservative* figure.

If we go with the more typical 'mid-range' calculation used in these situations (that's two standard deviations for the stats nerds), the difference becomes so large the math actually starts to break down. It begins implying some people must have had *negative* glute activation, which obviously isn't a thing.

And since we can't have less-than-zero glute activation, the only way the math makes sense is if it wasn't just one or two participants who scored at the very low end of the spectrum.

It was a cluster of them.

It's worth reading that last part again. Seriously.

This isn't a 'creative' interpretation of the data, either — it's using the exact formula researchers believe is 'broadly representative' of results.

And it shows that some people were getting effectively no glute activation.

Almost zero.

From the number one glute exercise.

CHAPTER 7: IT WAS NEVER GUARANTEED

With this study, the researchers have (unintentionally, I believe) confirmed something many people have been saying for years:

"I just don't feel my glutes activating."

We now have hard evidence that it *is* possible.

Under lab conditions, some people really do perform the very 'best' glute exercises while barely using glute max.

So if you've been busting your butt and felt like the star of the show was AWOL…

If your glutes don't ever seem to 'feel the burn' despite doing the internet's most upvoted glute exercises…

This research is the smoking gun that says "*you're not crazy for thinking that.*"

Because the unpredictable 'glutes for some people, not for others' wasn't limited to the step-up — it was true for almost every exercise on the list. Yes, even the hip thrust. In fact, the 'better' the glute exercise, the greater the variation between participants.

These wild swings in activation aren't "just how muscles work," either. No other leg muscle fires as inconsistently from person to person as glute max.[9] Not even close. Glute max is unique in this regard.

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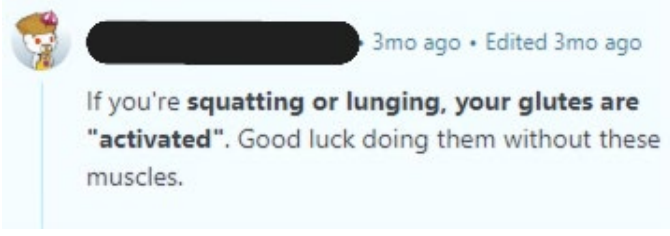
[9] Crouzier M, Hug F, Dorel S, Deschamps T, Tucker K, Lacourpaille L. *Do individual differences in the distribution of activation between synergist muscles reflect individual strategies?* Exp Brain Res. 2019 Mar;237(3):625-635.

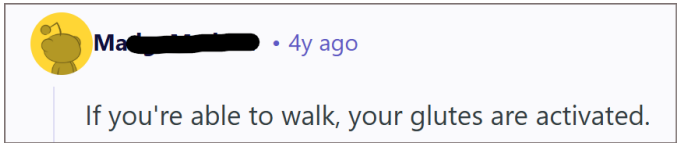
What This Means

For the confused glute non-responders out there, this is vindication.

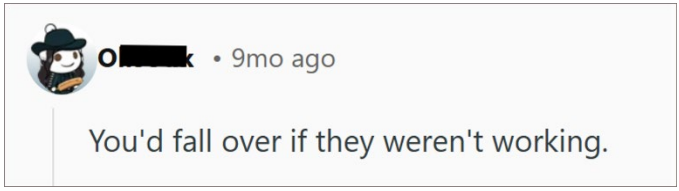
It backs up what so many have been dismissed for even questioning.



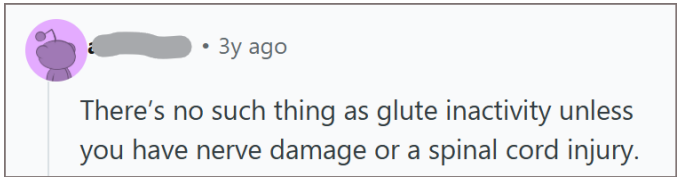
People just trying to make sense of a disconnect they're noticing in their bodies.



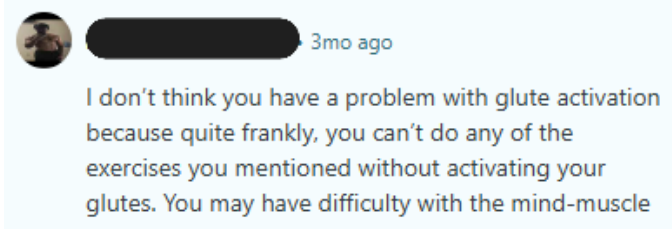
Who just can't feel their glutes activating…



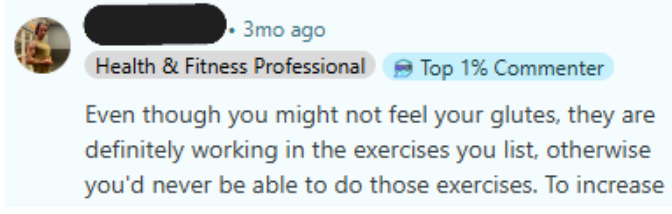
…no matter how hard they squeeze.



Whose glutes don't get sore…



…no matter how many reps they do.



And who see progress everywhere except their glutes…

…had it right all along.

If it didn't feel like your glutes were working, *it's because they probably weren't.*

They weren't necessarily *off*, but it's quite possible they were on 'whisper quiet' mode while other muscles did the work.

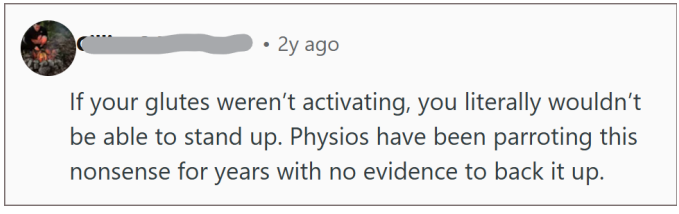
And the condescending know-it-alls? Wrong.

"Your glutes are definitely working." Wrong.

"There's no such thing as glute inactivity." Wrong.

"You can't even *do* those exercises without using your glutes."

Wrong.



Because now there's evidence to back it up. Evidence that makes a simple truth impossible to ignore:

Glute max activation isn't guaranteed.

Not by standing. Not by walking.

And not by the 'best' glute exercises according to science.

It means that whatever people choose to call it — sleepy glutes, dead butt

syndrome, glute amnesia or anything else — *they're describing a real thing.*

And they genuinely can be doing the 'best' glute exercises without really activating their glutes.

<u>This is why lack of glute growth isn't a genetic problem.</u>

Remember the muscle-building formula?

Nothing happens until stimulus happens?

If you're doing glute exercises without using your glutes, the first stage of muscle growth – stimulus – *hasn't happened*.

And without that stimulus, the other factors don't even get a chance to matter.

Great recovery? Irrelevant.

‘Good’ genetics? Wasted.

CHAPTER 8: HOW IS THAT EVEN POSSIBLE?

It's quite a plot twist.

And if you didn't see it coming, you're not alone — there's evidently a few 'experts' on Reddit who didn't see it coming, either.

But it's possible, and it makes sense when we realize how glute max is different.

'Simple' Muscles

Most of the muscles in our legs are what I call "simple".

Picture yourself standing up on your tiptoes for a moment, like you're looking for your car keys on top of the fridge. Your calves are the only muscles that

can point your feet like that — no other muscles can do it. So standing on tip toes *guarantees* your calves are activating because otherwise you wouldn't be up there.

Your quadriceps ('quads') at the front of your thigh work the same way: they're the only muscles that can straighten your knee. Anytime you're walking upstairs or pushing up out of a squat, your quads *will* activate. They have to. There's no alternative.

With these simple muscles, movement is proof of activation because there's no backup muscles. No deputies. If the movement happened, *that* muscle is what did the work. Period.

Training simple muscles is super straightforward: pick the appropriate exercise and it *will* get a workout. Apply the classic gym formula of *sets, reps, rest, eat, repeat* and progress will be so

predictable you almost set your watch to it.

Why Glute Max Isn't Simple

But glute max is different. It ain't simple.

There are *lots* of muscles packed into your hips. And for every movement glute max can make, there are other muscles that can step in and do the work.

Unlike the simple calf muscles and quad muscles, when it comes to 'glute' movements, *your body has options*. Lots of deputies it can call on.

Which means you can do all the 'right' glute exercises — follow every cue, complete every rep — but there's no rule that says your body has to use glute max for the job.

This is where so many glute programs fall short. They're based on an assumption:

The activation happened because the movement happened.

And for simple knee and ankle muscles, that's true.

But glute max is complex. It has backups. Every single 'glute' movement can be outsourced to other muscles.

Why Genetics Aren't the Limiting Factor

This is why glute growth is so inconsistent between people. Even within the same exercise, some people are using glutes, some are using "not glutes."

For those people, it's not that genetics is stopping their glutes from growing — it's that something is stopping them from *activating*.

And if they don't activate, the signal to start growing never gets sent.

So the real question isn't "Is it my genetics?"

It’s "What determines whether glutes activate?"

CHAPTER 9: ACTIVATION IS CONDITIONAL

So we've got a muscle — glute max — that doesn't have to work. Your body has backup muscles and isn't afraid to use them.

If your body can choose between glutes and 'not glutes,' then something has to be deciding which path is selected. The way we move isn't random — it follows rules.

And the rule for where and when our body chooses glute max is surprisingly straightforward:

Gluteus maximus can only activate powerfully when its foundation is stable.[10] [11]

That's it.

Years of research condensed into one simple sentence.

To understand why stability is important, picture a drawbridge. It's heavy, so it needs a powerful engine to lift it — that much is obvious.

But imagine the engine is bolted onto a foundation of plywood and duct tape. *Now it doesn't matter how strong the engine is* — the flimsy platform will tear apart long before the bridge will move.

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[10] Hu H, Meijer OG, van Dieën JH, Hodges PW, Bruijn SM, Strijers RL, Nanayakkara PW, van Royen BJ, Wu W, Xia C. *Muscle activity during the active straight leg raise (ASLR), and the effects of a pelvic belt on the ASLR and on treadmill walking.* J Biomech. 2010 Feb 10;43(3):532-9.

[11] Takasaki H, Iizawa T, Hall T, Nakamura T, Kaneko S. *The influence of increasing sacroiliac joint force closure on the hip and lumbar spine extensor muscle firing pattern.* Man Ther. 2009 Oct;14(5):484-9.

Power is useless without a stable foundation.

Your hip joint works the same way.

Visualize yourself lying on your stomach. Now picture the drawbridge again. The bridge becomes your leg. The engine is your glute max. And the foundation that needs to be anchored into bedrock before you can safely rev the engine? That's your pelvis.

If your pelvis isn't stable, glute max can't exert much force. Not because the muscle is weak, *but because it can't generate more power than your pelvis can handle.*

That's why I call Gmax a 'complex' muscle. It has requirements. Fine print. It comes with conditions attached.

Most leg muscles are simple. They don't care about pelvic stability. The power of your quads is the same regardless of whether your pelvis is stable or not.[12] Your calves couldn't care less — they activate just the same.

But Gmax needs conditions to be right, or it simply can't do "the thing."

And the condition it needs is the stability of your pelvis. That foundation is what

[12] Tayashiki K, Kanehisa H, Miyamoto N. *Does Intra-abdominal Pressure Have a Causal Effect on Muscle Strength of Hip and Knee Joints?* J Strength Cond Res. 2021 Jan 1;35(1):41-46.

determines whether your glute can safely use its power.

Incidentally, this mechanism explains the source of one of the biggest frustrations in fitness:

If your pelvis is unstable, the strength of your glute max is reduced *but the strength of your quads is not*.

Your body is clever. It wants to complete the task safely and effectively, so it automatically adjusts to send more of the load to the most capable muscle.

Lots of people are aware this happens. They might not know exactly why, or be able to explain the mechanism, but they *do* have a name for it:

'Quad dominance.'

What we've all come to know as 'quad dominance' isn't a genetic limitation — it's a *stability* one. It doesn't matter that

you'd prefer to use glutes, or that the textbook says you *should* — your body doesn't care. It doesn't read textbooks.

This goes against what many physical therapists teach: that strengthening glute max helps stabilize the pelvis. That approach made sense with older models of understanding, but current research now points firmly toward it working the opposite way. Pelvic stability and glute max engagement happen together, but it's stability that enables glute max, not the other way around.[13] [14]

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[13] Hu H, Meijer OG, van Dieën JH, Hodges PW, Bruijn SM, Strijers RL, Nanayakkara PW, van Royen BJ, Wu W, Xia C. *Muscle activity during the active straight leg raise (ASLR), and the effects of a pelvic belt on the ASLR and on treadmill walking.* J Biomech. 2010 Feb 10;43(3):532-9.

[14] Fukuda TY, Aquino LM, Pereira P, Ayres I, Feio AF, de Jesus FLA, Neto MG. *Does adding hip strengthening exercises to manual therapy and segmental stabilization improve outcomes in patients with nonspecific low back pain? A randomized controlled trial.* Braz J Phys Ther. 2021 Nov-Dec;25(6):900-907.

Pelvic stability is so important that if our nervous system senses instability, it does something else that's quite brilliant:

It tightens muscles around our hips to help brace the midsection.[15] [16]

It's automatic. It doesn't ask permission — it just starts locking stuff down. (Remember the tight hip flexors from earlier? Yup. That's what's happening.)

Tight hip muscles are your body's way of creating more support. *They're helping you*.

This is why stretching programs don't reduce hip tension in the long run, and

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[15] Tateuchi H, Taniguchi M, Mori N, Ichihashi N. *Balance of hip and trunk muscle activity is associated with increased anterior pelvic tilt during prone hip extension*. J Electromyogr Kinesiol. 2012 Jun;22(3):391-7.

[16] Jung HS, Kang SY, Park JH, Cynn HS, Jeon HS. *EMG activity and force during prone hip extension in individuals with lumbar segmental instability*. Man Ther. 2015 Jun;20(3):440-4.

may even make things worse: tight hip muscles aren't the problem. They're a natural response to a higher-level problem — they're a *symptom*.

There's another muscle at the hip that's perfectly positioned to tighten up and brace when the pelvis isn't quite stable:

Gluteus maximus.

Which makes perfect sense. If the pelvis is unstable, glute max can't activate with much force because — to go back to our drawbridge analogy — we don't want the engine to wreck the foundation.

So the biggest muscle in our body switches from a powerful movement role to a quiet support role. (Which means we can add 'tight glutes' to the same basket as tight hip flexors. They're different sides of the same coin.)

But it can't do both together.

That means that whether glute max moves you or braces you isn't decided by your hips or the exercises in your program. It's determined by the stability of your pelvis.

And once we understand that, it becomes clear why its power varies so much between people:

As stability varies, so too does glute max.

If it's been sidelined into a bracing role, it's not available to help you sprint, jump, or lunge.

And even the "best" glute exercises will feel like your quads, hamstrings, or lower back are doing the work.

Because they are.

Glute max activation isn't automatic. **It's conditional**.

That's why glute activation can be unpredictable.

It's not random.

It's not genetics.

It's conditional.

That's a lot to take in, even for the trainers I teach. If your head is swimming a bit, here are the key points:

1. **Our body needs stability.** If it detects instability, it often tightens muscles around the hip for extra support.

2. **Glute Max is a power muscle,** but without a stable foundation it switches into bracing/support mode.

3. **Glute max can do movement <u>or</u> stability…** *but not both at the same time*.

So there you have it. Glute max is a complex muscle with a non-negotiable requirement: pelvic stability.

CHAPTER 10: WHY NONE OF THAT WORKED

Let's pause for a moment and put this in simple, human terms.

Thousands – perhaps millions – of people are doing the most popular, recommended glute exercises without seeing much, or any, progress. It's one of the most common problems in fitness.

Most well-intentioned advice is usually variations of things like:

- Do more reps
- Add a band
- Squeeze your glutes
- Eat more protein

These things may help a bit, but usually not a lot. And once we understand that glute activation is conditional on deeper stability, it becomes obvious *why*:

None of them improves stability.

That's the piece everyone has been missing. They're working around the problem, not fixing it.

Without a stable foundation, glute max can't generate power. Your body compensates by tightening the hip muscles and using the leg muscles strength-based movements. No amount of reps, squeezing, protein, or patience will fix it. Neither will clamshells, glute bridges, foam rollers or stretching — because none of those things improve the underlying stability conditions Gmax depends on.

Which raises an obvious question:

What does?

CHAPTER 11: THE WRONG KIND OF STABILITY

So what are these conditions? What creates the pelvic stability that allows our glutes to activate and, ultimately, grow?

It's your core muscles, but perhaps not in the way you're imagining. The fitness industry is right to promote the benefits of core stability, but there's a gap between how stability works and the exercises we use to achieve it.

As strange as it might seem, most of the popular core exercises aren't helping build the stability we need.

If we're going to get the glute activation we want, we need to rethink our approach to training core stability.

First, let's clarify what stability actually means. It doesn't mean an absence of movement. It means *controlled* movement — just enough to get the job done without unnecessary motion elsewhere.

Second, focusing on core *strength* is misleading. Stability is more about coordination than brute force. A few strong core muscles don't necessarily mean the system functions well. It's like an orchestra — making a couple of instruments very loud doesn't make the symphony better. What matters is how the musicians play together.

Stability is the same. It's not about core *strength* as much as core *coordination…* or "core-ordination." (Brilliant, right?)

Core Function Made Simple

Here's how it works. Most experts broadly divide the core muscles into two groups:[17]

- Deep core muscles — closer to the spine, providing fine, continuous stability
- Outer core muscles — closer to the skin, more powerful, better at creating movement

All core muscles can help stabilize, but the deep core muscles are better at it.[18] They're built for it. They're less powerful — they seldom create a 'burn' when

[17] Biely, Scott & Smith, Susan & Silfies, Sheri. (2006). *Clinical Instability of the Lumbar Spine: Diagnosis and Intervention.* Ortho Phys Ther Prac. 3.

[18] Richardson CA, Snijders CJ, Hides JA, Damen L, Pas MS, Storm J. *The relation between the transversus abdominis muscles, sacroiliac joint mechanics, and low back pain.* Spine (Phila Pa 1976). 2002 Feb 15;27(4):399-405.

they're working — but they have better precision and superb endurance.

NASA figured this out ages ago — massive rockets are great for launching the thing, but you don't want to use them for docking with the space station. You need tiny jets for that sort of precision.

Which leads to a problem: most popular core exercises focus on *movement* — sit-ups, leg raises, twists, and so forth. They're hard work and give us a good burn in the abs… but these are generally signs we're using the *outer* core muscles.

Even planks, often praised for building "stability," usually train the outer core instead. The position is so intense it tends to overload the deeper muscles, so the body hits the "emergency boost" button and fires up the more powerful outer muscles.

(Sidenote — when I teach this stuff to trainers, I'll poll the group to find which of them can hold a plank the longest. That planking champion usually does worse than average in the stability drills that follow.)

Here's why all this matters:

1. Glute max needs pelvic stability before it can activate and grow.
2. The best pelvic stability is created by the deep core muscles
3. The classic, sweat-inducing, feel-the-burn core exercises mostly work the outer core muscles, not the deep core

Which means you could do the most intense core workouts for months without ever giving glute max the stable platform it needs to shift into LAUNCH mode.

So the first step to growing our glutes isn’t choosing the right glute exercise — it’s figuring out how to train our deep core muscles.

Not the ones that make you feel the burn. The ones you probably can't even feel working.

How do we do *that*!?

CHAPTER 12: HOW DO WE TRAIN MUSCLES WE CAN'T FEEL?

There's a bunch of reasons our deep core muscles might end up underperforming: injury, surgery, pregnancy, and repetitive strain are just a few. Once they drop offline, they don't automatically bounce back.

Here's why retraining them is tricky: the outer core 'movement' muscles and deep core 'stability' muscles operate differently.

Most of the outer core muscles are what I call "voluntary" muscles — with a bit of practice, we can tense them more or less on command.

Unfortunately we have less control over deep core muscles. They're designed to run quietly in the background, which makes them much harder to engage voluntarily. You can't always just "squeeze" them the way you can your outer abs.

(Sidenote — this is why 'standing up straight' doesn't really improve our posture in the long term. Doing it consciously means we're using the outer core muscles. They fatigue quickly and switch off as soon as we stop thinking about it. 'Good' posture is very much a product of our deep core muscles.)

So if deep core muscles are difficult to engage voluntarily, and they aren't targeted with traditional core exercises like planks or sit-ups, how do we train them?

The answer becomes clear once we recognize what the deep core muscles have in common.

Because it turns out there *is* something we can do that brings them all online at once.

Something that makes them work together, in harmony, like musicians in an orchestra.

Something I know for a fact you've done many, many times.

Are you ready?

Take a deep breath, here we go:

Your deep core muscles are all involved in breathing.[19]

[19] Mirtaleb A, Rahmani N, Kazemi K, Javaherian M, Azarsa MH. *The breath-back connection: A systematic review*. J Bodyw Mov Ther. 2025 Oct;44:63-72.

Yup. Bet you didn't see that coming, huh?

But it's true.

Every breath you take (like the one I suggested you take a second ago — see what I did there?) has the potential to activate your very deepest core muscles. The ones you need for pelvic stability. The ones your glutes need before they can generate power.

With every 'good' inhale, the diaphragm contracts downward to pull air into your lungs. This downward movement pushes against the contents of your abdomen, causing your deep core muscles to activate as a reflex. The combined diaphragm-plus-deep-core activation increases the internal pressure within your abdomen ('intra-abdominal pressure' if you want to sound fancy, or IAP to sound cool), which fortifies your torso from the inside

out. It's like a can of soda — strong unless you open it and let the pressure escape. As the internal pressure builds it locks your pelvis and tailbone so tightly together that they operate as one solid unit. That's the ultimate level of stability — the foundation that allows glute max to produce force powerfully and safely.[20] [21]

The technical name for this mechanism is a bit of a mouthful: force closure of the sacroiliac joint.

That's why I call it the Glute Platform.

The more internal pressure we have, the more solid and stable our Glute Platform

[20] Vleeming A, Schuenke MD, Masi AT, Carreiro JE, Danneels L, Willard FH. *The sacroiliac joint: an overview of its anatomy, function and potential clinical implications.* J Anat. 2012 Dec;221(6):537-67.

[21] Takasaki H, Iizawa T, Hall T, Nakamura T, Kaneko S. *The influence of increasing sacroiliac joint force closure on the hip and lumbar spine extensor muscle firing pattern.* Man Ther. 2009 Oct;14(5):484-9.

gets — and the better our glutes work.[22] [23] [24]

That's what happens with a 'good' breathing pattern. Unfortunately, for many of us our breathing isn't optimizing this pressure — *and neither is our training.*

Why Core Strength Isn't the Same as Core Stability

This is where we see the disconnect between the kind of stability your glutes

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[22] Tayashiki K, Kanehisa H, Miyamoto N. *Does Intra-abdominal Pressure Have a Causal Effect on Muscle Strength of Hip and Knee Joints?* J Strength Cond Res. 2021 Jan 1;35(1):41-46.

[23] Tayashiki K, Mizuno F, Kanehisa H, Miyamoto N. *Causal effect of intra-abdominal pressure on maximal voluntary isometric hip extension torque.* Eur J Appl Physiol. 2018 Jan;118(1):93-99.

[24] Tayashiki K, Hirata K, Ishida K, Kanehisa H, Miyamoto N. *Associations of maximal voluntary isometric hip extension torque with muscle size of hamstring and gluteus maximus and intra-abdominal pressure.* Eur J Appl Physiol. 2017 Jun;117(6):1267-1272.

need and the core exercises the fitness industry has been telling you to do.

Powerful glute activation requires internal pressure in our core. The most popular core exercises — situps, planks, and the like — *don't significantly improve our ability to generate that internal pressure.*[25] [26] [27]

They feel intense. They create a satisfying burn. And don't get me wrong, they do have a place within the realm of core training. But they don't change the thing that counts most.

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[25] Hemborg B, Moritz U, Hamberg J, Löwing H, Akesson I. *Intraabdominal pressure and trunk muscle activity during lifting--effect of abdominal muscle training in healthy subjects*. Scand J Rehabil Med. 1983;15(4):183-96.

[26] Cresswell AG, Blake PL, Thorstensson A. *The effect of an abdominal muscle training program on intra-abdominal pressure*. Scand J Rehabil Med. 1994 Jun;26(2):79-86.

[27] Balldin UI, Myhre K, Tesch PA, Wilhelmsen U, Andersen HT. *Isometric abdominal muscle training and G tolerance*. Aviat Space Environ Med. 1985 Feb;56(2):120-4.

This explains why so many people can have a 'strong' core — hold a plank for ages, do hundreds of situps, breeze through a Pilates class without breaking a sweat — and still struggle to feel their glutes activate when they should.

It's why, in the workshops I teach to trainers, the planking champion usually fails basic core stability tests: having strong outer core muscles is not the same thing as having good core stability.

By contrast, lots of research shows that improving breathing patterns leads to both better core stability and more powerful glute max activation. [28] [29] The benefit extends far beyond your workout, too — people with 'good'

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[28] Nelson, Nicole MS, LMT. *Diaphragmatic Breathing: The Foundation of Core Stability*. Strength and Conditioning Journal 34(5):p 34-40, October 2012.

[29] Tayashiki K, Kanehisa H, Miyamoto N. *Does Intra-abdominal Pressure Have a Causal Effect on Muscle Strength of Hip and Knee Joints?* J Strength Cond Res. 2021 Jan 1;35(1):41-46.

breathing patterns perform better in all sorts of movement tests.[30]

If someone had told me in 2015 that a decade later I'd be teaching people that their breathing influences how their glutes work, I'd have thought they were crazy. In fact, I probably would have said that breathing exercises were for people who didn't like training very hard.

But this is the breakthrough.

It's where a huge amount of emerging research is pointing. And it's what most of the fitness industry isn't talking about yet:

- Glute max needs pelvic stability to activate properly
- Pelvic stability is best created by our deep core

[30] Bradley H, Esformes J. *Breathing pattern disorders and functional movement*. Int J Sports Phys Ther. 2014 Feb;9(1):28-39.

- The activity — or inactivity — of our deep core muscles is strongly influenced by how we breathe.

That doesn't mean improving our breathing pattern is the *only* step in the journey to build a better butt. It just means it's the *first* step. Without effective breathing, it doesn't matter how many situps you do or how long you can hold a plank — core stability is limited. And so is your glute activation.

If The First Step Isn't in Place

Restricted breathing means that not enough internal pressure is generated, so your pelvis doesn't lock firmly with your tailbone. The Glute Platform doesn't form properly.

Your body compensates by tightening some of the nearby 'movement' muscles for extra stability — like the outer core muscles and the hip flexors mentioned

earlier.[31] It works, kind of, but it's clumsy and limiting.

There's one other outer muscle that's really good at helping with that external bracing.

It's big.

Powerful.

It's in the perfect position.

You might have heard of it:

Gluteus maximus.

And if your breathing isn't doing enough to secure your pelvis and tailbone from

[31] Jung HS, Kang SY, Park JH, Cynn HS, Jeon HS. *EMG activity and force during prone hip extension in individuals with lumbar segmental instability.* Man Ther. 2015 Jun;20(3):440-4.

the inside, glute max quietly shifts into bracing mode on the outside.[32]

Tight. 'On,' maybe… but not strong.

[32] Barker PJ, Hapuarachchi KS, Ross JA, Sambaiew E, Ranger TA, Briggs CA. *Anatomy and biomechanics of gluteus maximus and the thoracolumbar fascia at the sacroiliac joint*. Clin Anat. 2014 Mar;27(2):234-40.

CHAPTER 13: IT JUST *WORKS*

That was a lot to take in, right?

Anatomy, biomechanics. Phew.

Let's take a breath (heh), step back, and connect some dots.

For years, the model for glute training has been built around the assumption: do glute movements, get glute activation.

We've seen the confusion that model creates. Confusion you've perhaps experienced personally.

The old model works for a lot of people, but we know there are many for whom it doesn't. The advice for what to do — and what to do *differently* — when it

doesn't work is limited. The suggestions are ineffective. Contradictory. Chaotic. The outcome is often one of frustration and helplessness.

That gap is what tells us the old model we've been relying on is incomplete.

You've now seen the evidence for a different model. A model that says glute max activation is *not* guaranteed. That it's conditional on a specific pelvic stability mechanism — what I've come to call the Glute Platform.

And when we apply this 'stability first' model to the chaos we saw earlier — the Reddit threads, the contradictory advice, the confusion — something remarkable happens. We can see further than before.

Quad Dominance Explained

For much of my career, 'quad dominance' was a mysterious ailment. Some people had it; some people didn't. There was no known cause, and most advice for avoiding it could be summed up as "try not to be one of the unlucky ones."

But let's take another look at it through our 'stability first' lens.

The hip and the knee work together in most leg movements, so our glutes and our quads share a lot of the workload.

We know the power of our glutes is limited by pelvic stability, but the power of our quadriceps is not.

That means if pelvic stability is lacking, the hip is weaker than normal but the knee joint is as strong as ever.

The smartest thing for our body to do in this situation is divert more load to the knee so that the reliable, dependable quads can take the brunt.

That's what quad dominance is. It's not an ailment, nor is it mysterious — it's a clever workaround to a stability limitation.

Why Stretching Doesn't Fix Tight Hip Flexors

Most studies show that stretching tight hip flexors doesn't change anything in the long run. At least one study showed it made things worse.

But now we understand tight hip flexors aren't the problem — they're a *solution*. Your body isn't tightening stuff as a practical joke; it's trying to stabilize an area that's vulnerable. Until the unstable area gets more support from the deep

core muscles, the hip flexors *need* to be tight.

This isn't just theoretical. Core endurance exercises (without any stretching) have been shown to reduce hip tension and increase range of motion more than dedicated stretching programs.[33]

Why Sitting Causes Sleepy Glutes

The link between a 'seated' or sedentary lifestyle and reduced glute function becomes apparent. It's not because sitting stretches your glutes (it would stretch your quads too, remember?) — it's because sitting encourages shallow

[33] Moreside JM, McGill SM. *Hip joint range of motion improvements using three different interventions.* J Strength Cond Res. 2012 May;26(5):1265-73.

breathing.[34] [35] Deep core muscles don't get enough signal. Stability drops. Hip flexors tighten. Glutes brace.

Why Glute Growth is Often Slower for Women

We can reconcile how women often appear to grow glutes more slowly than men, while also somehow having a 'relatively similar' rate of muscle growth.

[34] Lee LJ, Chang AT, Coppieters MW, Hodges PW. *Changes in sitting posture induce multiplanar changes in chest wall shape and motion with breathing*. Respir Physiol Neurobiol. 2010 Mar 31;170(3):236-45.

[35] Lin F, Parthasarathy S, Taylor SJ, Pucci D, Hendrix RW, Makhsous M. *Effect of different sitting postures on lung capacity, expiratory flow, and lumbar lordosis.* Arch Phys Med Rehabil. 2006 Apr;87(4):504-9.

Women generally have a broader pelvis, which makes it harder to stabilize.[36] [37]

This means that women's rate of muscle growth might be comparable to men, ***but their pelvic stability often isn't***. A greater stability challenge means women's glutes are more likely to switch into bracing mode, meaning less activation and less stimulus to create growth.

Why Do Women Get More Knee Injuries?

If we follow the 'broad pelvis stability challenge' thread a step further, another long-standing mystery comes into focus: knee injuries. Female athletes

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[36] Kiapour A, Joukar A, Elgafy H, Erbulut DU, Agarwal AK, Goel VK. *Biomechanics of the Sacroiliac Joint: Anatomy, Function, Biomechanics, Sexual Dimorphism, and Causes of Pain*. Int J Spine Surg. 2020 Feb 10;14(Suppl 1):3-13.

[37] Joukar A, Shah A, Kiapour A, Vosoughi AS, Duhon B, Agarwal AK, Elgafy H, Ebraheim N, Goel VK. *Sex Specific Sacroiliac Joint Biomechanics During Standing Upright: A Finite Element Study*. Spine (Phila Pa 1976). 2018 Sep 15;43(18):E1053-E1060.

experience knee injuries up to 8 times more frequently than males.

Most explanations attempt to link these injuries to hormonal fluctuations weakening protective ligaments, but results of these studies are inconsistent and often contradictory.[38]

There's another perspective, though.

We know that muscles provide more knee stability than ligaments, and the muscle that provides the most protection

[38] Dos'Santos T, Stebbings GK, Morse C, Shashidharan M, Daniels KAJ, Sanderson A. *Effects of the menstrual cycle phase on anterior cruciate ligament neuromuscular and biomechanical injury risk surrogates in eumenorrheic and naturally menstruating women: A systematic review*. PLoS One. 2023 Jan 26;18(1):e0280800.

to the knee is glute max.[39] [40] With a broader pelvis increasing the stability challenge, glute max is more likely to be used for bracing, which means it's less able to support the knee.

This is not to suggest that all knee injuries in women can be prevented with this "one simple thing." There are other contributing factors, but this provides at least one compelling 'why.'

It's worth mentioning here that attempts have already been made to strengthen the glutes and surrounding muscles of female athletes to prevent knee injuries. Researchers recently reviewed 16 such

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[39] Powers CM. *The influence of abnormal hip mechanics on knee injury: a biomechanical perspective.* J Orthop Sports Phys Ther. 2010 Feb;40(2):42-51.

[40] Hewett TE, Myer GD, Ford KR, Heidt RS Jr, Colosimo AJ, McLean SG, van den Bogert AJ, Paterno MV, Succop P. *Biomechanical measures of neuromuscular control and valgus loading of the knee predict anterior cruciate ligament injury risk in female athletes: a prospective study.* Am J Sports Med. 2005 Apr;33(4):492-501.

programs and concluded they do ***not*** reduce knee injuries in women.[41]

When we look at what these programs actually involved, the outcome becomes less surprising. Most studies relied on variations of the "best" glute exercises we've already discussed, suggesting they made the familiar mistake of assuming glute activation is guaranteed.

Only a small number of programs included core stability training, and these were limited to the usual suspects: planks, sit-ups, and the like.

Not a single study addressed breathing, or monitored the stability conditions glute max depends on. If you've read

[41] Lima YL, Collings TJ, Hall M, Bourne MN, Diamond LE. *Injury Prevention Programmes Fail to Change Most Lower Limb Kinematics and Kinetics in Female Team Field and Court Sports: A Systematic Review and Meta-Analysis of Randomised Controlled Trials.* Sports Med. 2024 Apr;54(4):933-952.

this far, you can draw your own conclusions.

Why Squat Studies Contradict Each Other

Back to our 'regular' programming — squatting is another source of debate. Some studies showed that squatting deeper or with a wider stance leads to higher glute activation.[42] [43] As a result, these squat variations have become something of a 'must-do' in most glute programs.

But other research has since found squat depth and stance width make little

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[42] Paoli A, Marcolin G, Petrone N. *The effect of stance width on the electromyographical activity of eight superficial thigh muscles during back squat with different bar loads.* J Strength Cond Res. 2009 Jan;23(1):246-50.

[43] Caterisano A, Moss RF, Pellinger TK, Woodruff K, Lewis VC, Booth W, Khadra T. *The effect of back squat depth on the EMG activity of 4 superficial hip and thigh muscles.* J Strength Cond Res. 2002 Aug;16(3):428-32.

difference at all to glute max activation.[44] [45]

It's a baffling contradiction. Until we realize what *wasn't* measured: pelvic stability. It highlights something crucial — foot placement, squat depth, and other such 'tips' for maximizing glute activation are all minor variables in the scheme of things. They're sideshows that distract us from the main event.

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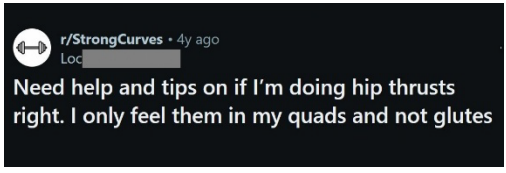
[44] Coratella G, Tornatore G, Caccavale F, Longo S, Esposito F, Cè E. *The Activation of Gluteal, Thigh, and Lower Back Muscles in Different Squat Variations Performed by Competitive Bodybuilders: Implications for Resistance Training*. Int J Environ Res Public Health. 2021 Jan 18;18(2):772.

[45] Erdağ D, Yavuz HU. *Evaluation of muscle activities during different squat variations using electromyography signals*. In: Aliev R, Kacprzyk J, Pedrycz W, Jamshidi M, Babanli M, Sadikoglu FM, editors. Advances in Intelligent Systems and Computing. Vol 1095. Cham: Springer; 2020. p. 859–865.

The Weird Thing About Hip Thrusts

Hip thrusts are hugely popular for people trying to grow their glutes. Studies reveal a couple of interesting points:

First, there's *outrageous* variation in quad activation between people.[46] Seriously, it makes the glute variation in the step-up look tiny. That means not everyone is doing hip thrusts — some are essentially doing 'knee thrusts.'



[46] Contreras B, Vigotsky AD, Schoenfeld BJ, Beardsley C, Cronin J. *A Comparison of Gluteus Maximus, Biceps Femoris, and Vastus Lateralis Electromyographic Activity in the Back Squat and Barbell Hip Thrust Exercises*. J Appl Biomech. 2015 Dec;31(6):452-8.

Secondly, there seems to be a disconnect between a stronger hip thrust and athletic performance. Glute max plays a major role in sprint speed and jump height. Naturally, a lot of athletes have been hip thrusting enormous weights to build that power in their glutes. There's a catch though —

they don't sprint faster.[47] They don't jump higher.[48]

It's baffled coaches for years, including Bret Contreras — inventor of the hip thrust.[49]

You already know what's missing. The hip thrust loads the hip in a very 'glutey' kind of way. What it *doesn't* do is improve the underlying stability conditions. Their weakest point isn't their glutes. It never was.

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[47] Jarvis P, Cassone N, Turner A, Chavda S, Edwards M, Bishop C. *Heavy Barbell Hip Thrusts Do Not Effect Sprint Performance: An 8-Week Randomized Controlled Study.* J Strength Cond Res. 2019 Jul;33

[48] Lin KH, Wu C, Huang Y, Cai Z. *Effects of hip thrust training on the strength and power performance in collegiate baseball players*. Journal of Sports Science. 2017;5(3).

[49] Contreras, B. *Science is self-correcting: The case of the hip thrust and its effects on speed*. 2017, July 27. https://bretcontreras.com/science-is-self-correcting-the-case-of-the-hip-thrust-and-its-effects-on-speed/ Retrieved December, 2025

You Can't Unsee It.

Once you've seen how stability dictates glute max function, there's no going back. Your perspective shifts — permanently.

Debates that once felt important become background noise. Details that used to seem critical — foot position, activation cues, or the "best" glute exercise — matter less. They're still useful, but in the scheme of things they're just sideshows.

But for people who don't yet have this lens, these debates are still the main event. The details are the only tools available; the only solutions on offer.

And so the cycle continues. The arguments are repeated. The results remain inconsistent. And the explanations never quite *explain*.

The old model can only take us so far. This is what the hard ceiling looks like:

The full post is long enough to make a screenshot impractical, so I've typed it out instead:

> **Why can't I ever feel my glutes in anything?**
>
> Hey everyone, I 18f have been lifting for some years now and I'm a competitive athlete in Olympic lifting.
>
> Here's the thing. I never feel my glutes working properly. Not in squats, not in hip thrusts, not in step-ups. I feel everything in my thighs or lower back. Sometimes there's a tiny bit of glute action, but it

takes a LOT for me to even feel it — and most of the time I don't.

I've tried:

- Tapping my glutes to engage my mind
- Heavy hip thrusts and squats
- Slow eccentrics, tempo work
- My usual Olympic lifting
- Complex variations where the weight is dropped at certain phases (like during eccentric/concentric phases)

Still, barely anything. My glutes aren't very big either, and I feel like they're just not waking up no matter what I do. And I'm not trying to do 8–12 reps or chase a pump — I'm an athlete. I need them to actually work in performance lifts too.

Has anyone else dealt with this? — super open to advice and willing to try anything.

Sit with that for a moment.

This isn't someone new to training.

This is an athlete competing in Olympic weightlifting — a sport built on explosive power and technical precision.

She's strong. Experienced. Coached.

And she can't feel her glutes working at all.

Look at what she's already tried.

Activation drills.

Heavy hip thrusts.

Tempo work.

Mind-muscle connection.

Variations. Adjustments. Alternatives.

What stands out most is her commitment. She's doing *everything*. She'll try *anything*. This isn't just important to her — it's essential.

But it's not working.

And the responses she received?

They're familiar.

> "Do glute activation exercises."
>
> "Squeeze them at the end ROM on your thrusts."
>
> "Banded side steps and banded squats."
>
> "Do reverse leg lifts where you only use your glutes."
>
> "RDLs work really well."

The usual labels get thrown around — sleepy glutes, tight hip flexors, quad dominance — and, of course, no glute activation post would be complete without someone confidently stating:

> "If your glutes were not working you would not be able to walk."

With the exception of that last comment, none of these responses is malicious. They're listing exactly what the old model tells us to do.

And to each of these well-intended suggestions, the athlete responds with polite variations of

> "I've tried that, and it didn't work."

There's no mic drop moment here — no big reveal.

You don't need me to explain, or point out what's missing.

(And if you feel like you want to reach through the screen and tell her something, that's not an accident.)

It's not a lack of effort.

It's not poor coaching.

Everyone involved is searching for solutions inside the old framework — the one we've all been taught.

But if that framework was complete, *this athlete's post wouldn't exist.*

CHAPTER 14: SO WHAT DO WE DO ABOUT IT?

The 'stability first' model provides more answers and greater clarity than the old model. It leads us to explanations that actually explain the problem — and reveal the solution.

So how do we do it?

How to Optimize Breathing

As we inhale, the diaphragm moves down. Both your ribcage and abdominal wall should expand outward in response.

Imagine an inflated balloon wedged between your ribcage and pelvis. If we were to press down on the balloon, it would expand evenly in all directions (except where the spine prevents it).

That's exactly what your torso should do as you inhale and your diaphragm presses down.

A good inhale looks like:

- Breathing through the nose
- Ribcage expanding sideways
- Abdomen gently swelling sideways & forward
- Neck and shoulders relaxed
- No movement through the spine

This expansion activates your deep core muscles and builds pressure. This is what creates pelvic stability.

A compromised inhale includes any of:

- Shoulders lifting
- Back arching
- Mouth breathing

- Neck tensing
- Uneven or limited expansion of ribcage and abdomen

These are signs that some deep core muscles are restricted and 'outer' muscles are stepping in to brace.[50] [51]

It means your Glute Platform isn't fully 'platforming' yet.

How to Check Your Breathing

Stand in front of a mirror and take a few slow breaths. Watch what moves as you inhale.

If your shoulders lift, your back arches, or your neck tenses, stability is limited.

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[50] Boulding R, Stacey R, Niven R, Fowler SJ. *Dysfunctional breathing: a review of the literature and proposal for classification*. Eur Respir Rev. 2016 Sep;25(141):287-94.

[51] Bradley H, Esformes J. *Breathing pattern disorders and functional movement*. Int J Sports Phys Ther. 2014 Feb;9(1):28-39.

If you see gentle, even expansion around the ribs and abdomen — without spine movement — you're on the right track.

Don't be alarmed if it turns out your breathing isn't as good as it could be. It's pretty common. The good news is that it can be improved with practice.

The bad news is that the process isn't especially sexy. It doesn't make for a good highlight reel on social media.

Improving your breathing pattern can feel weird at first. In fact, I'd be surprised if it didn't. It won't change overnight, but every good breath you take is giving a workout to those valuable deep core muscles and will quickly add up to better glute activation.

The easiest place to start is lying down.

Use your hands to feel what's moving — ribs, abdomen, neck — and see what you can soften or encourage. The aim isn't to massage or release any tight 'stuff' you feel, but just to give yourself feedback to know when the pattern is improving.

(Yes, that's me in the pics. Hi!)

This process isn't flashy.

It doesn't burn.

But it works.

CHAPTER 15: BUILDING GLUTES ONTO THE GLUTE PLATFORM

Earlier I said breathing isn't the *only* step in building glutes — it's the first.

The next step is to add glute activation without overloading your Glute Platform.

That's why, for this stage at least, we can't use the traditional formula of sets and reps. There's no point saying to do 10 reps if it's going to push you beyond the limits of your stability — your body will switch back to its old habits. You'll notice yourself arching your back, tilting your pelvis, tensing your neck, which means you'll end up reinforcing the

exact "not glutes" pattern we're trying to undo.[52]

This is the *regress to progress* principle.

The most intense exercises don't guarantee the best result because we can only create as much glute activation as our Glute Platform can support. Beyond that limit, glutes virtually shut down.

(Remember the people getting almost zero activation in the 24 "best" glute exercises? The effort overloaded their stability.)

So we need to rewire our system. That's why, at every stage of glute training, the focus is to stay within our individual stability limits. This requires honesty with yourself. Real honesty. The kind

[52] Panayi S. *The need for lumbar-pelvic assessment in the resolution of chronic hamstring strain.* J Bodyw Mov Ther. 2010 Jul;14(3):294-8.

that admits "that last rep, my back arched" even when no one's watching.

A good place to start is laying face down, using a drill I call *Heel to Ceiling* (it's exactly what it sounds like).

Most people fall into a trap here — they lift the leg as high as it can go because they assume 'more equals more.'

But that almost certainly comes with extra movement: arching the back. Tilting the pelvis.

That's the "not glutes" pathway.

The New Rules of Glute Activation

To help avoid the temptation of crossing into "not glutes" territory, we need to measure success differently. We need to change the rules of the game.

We've been taught that harder, higher, further makes for better results, so we used to aim for that. But that was the old way.

The rules of the game have shifted: the new rules say the spine and pelvis can't move during the exercise. At all. Movement anywhere *except* the leg is like crossing the foul line — it doesn't count.

If you try this — and I hope you do — you'll probably notice something:

The new rules are *tough*.

Chucking your leg into the air with a flick of your pelvis and a quick arch of your

back is easy. Gradually raising your leg into the air without moving any other part of your body is *hard*.

Harder for the muscles in the back of your hip, probably (you'd hope so — that's the whole point), but often harder for the muscles in your torso, too.

Believe it or not, that's generally a good sign. We're not just training our glutes here — *we're training the conditions that support them*.

So how far you move isn't nearly as important as what moves.

Small leg lift, zero spine movement? **Big glute win.**

Big leg lift, back arching, pelvis rolling? **That's your "not glutes" pathway.**

The most challenging part of this sometimes isn't the exercise itself, it's our own ego. Admitting to ourselves that

we just arched our back a little and perhaps need to slow down can feel like a backward step (it's definitely not).

You'll probably find that one of those amazing low, wide inhales makes the new game easier to play. *That's not a coincidence*. It's your stability system working as intended.

How to Build From Here

As your body gets better at coordinating the "hips move, pelvis doesn't" pattern, we challenge it further by increasing the load to the glute.

I do this by first progressing into a kneeling position. This allows us to load one hip at a time, moving carefully through gentle rocking movements.

As always, it's crucial to monitor our spine and pelvis position to ensure they remain fixed. A simple way to do this is with our palms flat on our abdomen,

thumbs on lower ribcage and pinkie fingers on the pelvis bone just above the hip.

The moment we feel the ribs and pelvis moving further apart, we know we've gone beyond our current stability limit and are veering toward "not glutes" territory.

And just in case you needed reminding — a lovely low, wide breath here will make it easier to stabilize our midsection and isolate our hip movement.

What to Notice

One of the things most people find is that one leg moves more easily and with more control than the other (for me it's my right side — ol' lefty can be stubborn).

This imbalance is why it's important that we work on one leg at a time. If we jump straight to exercises that work both legs together — like a squat — our body will naturally favor the stronger side and the imbalance might even get worse.

The Lunge, But Better

All this "hips move, pelvis doesn't" focus prepares our body for what might just be the greatest glute exercise in existence: the lunge.

The lunge is already popular, but the way that most people do it isn't actually providing the greatest benefit to their

glutes. To get the best out of the lunge requires us to approach it differently.

Most people are taught to push through the front leg when they lunge. Whether they feel glutes or thighs doing the work, they'll be feeling it in the forward leg.

This might break your brain a little, but it's better if you push through the *back* leg.

Specifically the *glute* of the back leg.

But it doesn't work if you just "squeeze your glute" as is often cued — that changes the position of the pelvis and usually creates more tension at the front of the hip.

Instead, I cue people to initiate the movement by pushing the heel of their back leg to the wall behind them, and feel the knee of their back leg slide backward within its skin. This *must* be done without the position of the pelvis or

spine changing (because then you're using "not glutes").

It's not easy at first — it requires good control and a solid Glute Platform — but it does a lot of very cool things at the same time:

1. It trains glute activation from the neutral position

When we push through our front leg, the hip is bent or 'flexed'. That means our hip flexors are shortened (tight hip flexors, anyone?) and glute max starts in a lengthened position.

That's fine, I guess, but it's not the only position in which we need our glutes to work. In fact, it's the ability to extend their hips — think 'leg moving behind us' a.k.a. *what the rear leg does in a lunge* — that people most often lack.

Driving through the glute of the rearward leg is lengthening the hip flexors and

building glute strength in the position we most often lack it (which is why it's hard at first).

2. It trains core stability and the 'core-glute' connection

Lunging with a strong glute connection in the rear leg is easiest to do with a neutral spine and pelvis, and a very upright torso position. The moment we arch, tilt, or lean forward, our ability to drive through that rear glute is reduced.

On the left is a lunge using the rear leg and glute, on the right is the more common 'front leg' lunge:

So the 'rear leg lunge' becomes somewhat self-correcting: there's really only one way to do it, meaning you'll know when something's off.

This is how we build glutes that work in the real world.

Remember the hip thrusts that don't increase athletic performance? The glute exercises that don't protect against knee injury?

Those approaches don't lead to meaningful real-world improvement because they're not integrating glute activation with the core stability conditions it requires.

They treat core and glutes as separate things, when they're really an ecosystem.

That's why we're doing it differently. At every stage of this progression — from breathing, to laying, to kneeling, to

standing — we're combining both systems. The glute exercises discussed here aren't separate from the Glute Platform we've developed; they're an extension of it. The moment we separate them we're compromising the system.

Glutes & Glute Platform *together*. Not separately.

That's the framework. That's what matters more than any specific exercise.

CHAPTER 16: WHERE TO GO FROM HERE

What I've described are the foundational stages of a newer, more complete model for glute activation and growth.

This book doesn't (and can't) describe every single step of that process. Anyone who's ever tried to explain a physical skill on paper knows why — at some point, words and pictures fall short.

For that reason, this book isn't a program.

It's a *map*.

One that provides a framework — scientific principles for glute activation and how they can be implemented.

Just like glute max isn't the right tool for stability, a book isn't the right tool for teaching how your body should move — and feel — when things are working properly.

That's why I created *Build a Better Butt*.

It's a video course that takes everything we've covered in this book and puts it into your body.

It's the course I created out of frustration — the things I wish the fitness industry knew.

In it, I coach people through each exercise in real time, pointing out the key technique points: what it looks like when it's right, and what it looks like when the small "not glutes" compensations creep in.

To show the process honestly, I didn't teach these movements in advance. There's no effortlessly perfect, made-

for-TV stuff here. You'll see people learning in real time — the wobbles, the mistakes, the laughter, and the moments where things finally click.

It shows what's possible — what you can achieve at home, with no equipment, in as little as 10-15 minutes a day.

This book was written to make sense of why some people's glutes don't activate or grow. The course puts the right conditions back in place, step by step.

Whether you choose to explore it or not, the underlying idea is the same one we've followed throughout:

People aren't broken.

Their glutes aren't broken.

They just need the right conditions.

ONE LAST THING

If there's one idea I hope you take from this book, it's not a specific exercise or technique, it's this:

Your body hasn't failed you.

Each of us is the product of different experiences. Adventures we've had. Toes we've stubbed. Kids we've raised.

Every adventure leaves its own little mark on the way we move. Some bodies have had more adventures than others.

It's understandable to sometimes get frustrated with what our body does — or doesn't — do. I know I have.

But if yours ever seems a little more stuck, or a little slower to respond, it's not weakness. It's not failure.

If anything, it probably means you have more stories to tell.

Your body has been doing the best it can, in the best way it knows how. It's worth acknowledging it for that.

At the heart of this book is a theme. Unspoken, but written on every page:

The adaptability of the human body.

Wherever your body is at right now, the fact it got there at all is testament to your ability to adapt. To adjust. To cope.

When I teach these concepts in person, I sometimes hear an exasperated, "So I've been doing it wrong all this time!?"

My answer is always no.

This isn't about right or wrong. It's about degrees of optimal.

Lots of things work. Some things work better than others.

The effort you've put in up to this point isn't wasted. It wasn't wrong. Nor am I here to tell you what you *should* do.

As a colleague of mine once put it:

"Whatever you do, you'll get better at."

You get to choose.

ABOUT THE AUTHOR

Stuart Bush has worked in the fitness industry since 2005, coaching everyone from complete beginners to professional athletes and world-record-holding powerlifters.

He spent seven years teaching within Australia's leading fitness education institutions, where he contributed to curriculum development and assessment design, and helped write

the textbooks used to train personal trainers nationwide.

Since 2019, he has worked independently, consulting with personal training studios and individual coaches to translate contemporary biomechanics into clearer frameworks for cueing, coaching, and understanding movement.

This book — and the related video course — represent a deliberate shift toward sharing these insights directly with people outside the professional fitness industry, based on the belief that understanding how your body actually works shouldn't be reserved for trainers alone.