

M C P S E R V E R

N O C O D E

C L O U D H O S T E D

Bench Press Arch Evaluator MCP

Optimize your lifting setup for maximum stability and legality.

Bench Press Arch Evaluator MCP uses your physical metrics to refine your bench press technique. It calculates how your arch affects range of motion, checks if your setup meets federation rules, and suggests better foot placement for leg drive. You can use it with any MCP-compatible client to turn raw lifting data into a precise training profile.

A+ Quality Score 100/100

powerlifting

bench-press

fitness-optimization

strength-training

sports-science



The connectivity layer between AI and the world's software.

Vinkius sits between AI and every application. All communication passes through Vinkius Cloud via the Model Context Protocol (MCP) — with governance, observability, and security at every layer.

Your AI Connections Run Through Vinkius Cloud

The world's largest
managed MCP catalog

Vinkius is the connectivity layer where AI connects to the software your business already runs. We handle the hosting, the security, the credentials, the uptime — you get agents that actually do things.

We operate the world's largest managed MCP catalog. Major SaaS platforms, CRMs, databases, and cloud providers — running, monitored, production-ready. This MCP server is hosted and maintained by the Vinkius Cloud for AI Agents.

The agent doesn't manage credentials, doesn't manage uptime, doesn't manage security. Vinkius does.

— Architecture principle

Four Pillars of the Vinkius Runtime

01 — Security by design

Credentials stay encrypted at rest via AES-256. The AI agent never touches raw keys — they're injected into a sandboxed V8 isolate at runtime. Actions are logged, and connections have an emergency kill switch.

03 — Deterministic observability

Eight immutable metrics per endpoint: request volume, p95 latency, error rate, active connections, cost attribution. A live payload feed logs every tool call with mutation detection.

02 — Built on MCP Fusion

This MCP server was built with **MCP Fusion**, the open-source framework (Apache 2.0) that powers the entire Vinkius catalog. Schema-as-firewall strips undeclared fields, compiled PII redaction runs at zero overhead, and cryptographic lockfiles produce git-diffable audit trails.

04 — Autonomous operations

Servers are deployed, monitored, and patched autonomously. New capabilities and security patches ship weekly. Zero-downtime deployments ensure continuous availability across all managed MCP servers.

AES-256

Encryption at rest

Ed25519

PKI vault signatures

24h TTL

Ephemeral session keys

V8 Isolate

Sandboxed execution

One Token. Instant Access.

Every MCP server on Vinkius is accessed through a **Connection Token**. Tokens are generated in the cloud dashboard and produce a unique MCP endpoint URL. Paste this URL into any MCP-compatible client — no SDK required.

A single token can serve **multiple AI clients simultaneously**, or you can issue separate tokens per client for granular access control. Each token tracks its own request count, last activity timestamp, and can be individually enabled or revoked.

MCP ENDPOINT`https://edge.vinkius.com/{token}/mcp`

Claude



Cursor



VS Code



Windsurf



Grok



Gemini

Security Is the Architecture

Security in Vinkius is not a feature — it's the foundation of the runtime. The gateway enforces multiple independent protection layers between AI agents and third-party APIs.

01 — Ed25519 PKI Vault

Every workspace has an Ed25519 Master Key. Session keys are generated ephemerally (24h TTL) and signed by the Master Key. Credentials never leave the vault boundary.

02 — V8 Isolate Sandboxing

Tool code runs inside isolated-vm V8 isolates with 64 MB memory caps and per-request timeouts. No filesystem access, no network access except through the SSRF-guarded fetch bridge.

03 — SSRF Guard

All outbound HTTP requests are DNS-resolved and validated before execution. Private IP ranges (10.x, 172.16-31.x, 192.168.x, AWS metadata 169.254.x) are blocked at the network layer.

05 — Cryptographic Audit Trail

Every request is signed into a SHA-256 hash chain with Ed25519 signatures. Events form a tamper-proof, SIEM-exportable forensic record.

04 — DLP & PII Redaction

A ResponseGuard pipeline intercepts every tool response. Configurable redaction patterns strip sensitive fields (emails, SSNs, card numbers) before data reaches the AI agent.

06 — Honeypot Trap System

Phantom credentials are injected into isolated environments. If a honeypot is used outside Vinkius infrastructure, the server is quarantined instantly.

Emergency Kill Switch

EU AI Act Art. 14(1)
Compliant

The kill switch is an **emergency halt** mechanism — not a simple toggle. When triggered, it executes three actions atomically:

01 — Server deactivated

The MCP server is immediately taken offline across the entire cluster.

02 — All tokens revoked

Every connection token is invalidated. Total lockout — reconnection blocked until new tokens are issued.

03 — WebSocket connections killed

Active connections terminated via Redis pubsub broadcast. Propagates to every runtime node in the cluster.

Full Visibility. Zero Guesswork.

The Vinkius cloud dashboard includes a full MCP Governance suite — real-time analytics and security controls for production AI operations.

Control Plane

KPI dashboard with request volume, latency, success rate, token consumption, and AI-generated operational briefings.

FinOps

Cost tracking per tool, payload compression savings, budget optimization signals, and consumption trends.

Firewall & DLP

PII redaction activity, sensitive data protection counters, and security event timeline.

Agent Activity

Which AI clients are connecting, how often, and what they're doing — real-time session tracking.

Tool Health

Slowest and most error-prone tools, with actionable root-cause insights and performance baselines.

Incident Log

Error trends, failure rates, status-code breakdowns, and forensic audit trail access.

Get started at cloud.vinkius.com — connect your AI agent in under 60 seconds.

Bench Press Arch Evaluator MCP

4 tools available

Cloud-hosted on Vinkius

If you are serious about powerlifting, your bench press setup is everything. This MCP helps you move past guesswork by analyzing how your specific body proportions and flexibility impact your lift. Instead of wondering if your arch is too high or if your feet are in the right spot, you can get direct feedback based on your height and shoulder mobility. You can use it to figure out how much you're actually reducing your range of motion or to make sure you won't get red-lighted in a meet. It's a technical tool for lifters who want to build a repeatable, efficient, and legal bench press setup.

Core Capabilities

01 — ROM Reduction Analysis

Your agent calculates how much your arch shortens the distance the bar travels.

03 — Foot Placement Optimization

It identifies the best spot for your feet to maximize stability through leg drive.

02 — Legality Verification

The AI checks your setup against federation rules to prevent disqualifications.

04 — Target Profile Generation

Your client creates a specific goal for your arch height and movement based on your body type.

One Click on Vinkius — From Prompt to Execution

Available at vinkius.com/en/ai-agent-connect/bench-press-arch-evaluator — connect your AI agent in three steps.

- 01

Connect your preferred client like Claude or Cursor to Vinkius.
- 02

Provide your physical metrics like height and shoulder flexibility to your agent.
- 03

Ask the agent to run specific tools like legality checks or efficiency calculations.
- 04

Receive immediate technical feedback and target profiles for your training.

Connect your AI client to the Vinkius-hosted MCP and start analyzing your lift.

Built For

This MCP is built for competitive lifters and coaches who need precise technical data for bench press optimization.

Powerlifters

Lifters use it to refine their technique and ensure meet legality.

Strength Coaches

Coaches use it to provide data-driven setup advice to their athletes.

Sports Scientists

Professionals use it to analyze the relationship between flexibility and lifting efficiency.

What Changes When You Connect

- 01

Reduces range of motion through precise arch analysis.
- 02

Prevents competition red lights by checking setup legality.
- 03

Increases stability by optimizing foot placement.

- 04 Provides data-driven training targets based on individual body metrics.
-

Real-World Applications

Meet Preparation

Verify your setup meets federation standards before you step on the platform.

Personalized Training Goals

Get a target profile for arch height and leg drive based on your height and flexibility.

Technique Refinement

Determine if your current arch is actually helping you reduce movement.

Stability Improvement

Find the best foot position to support your arch during heavy attempts.

Patterns to Avoid

Guessing your arch height

❌ AVOID

You assume your arch is deep enough to reduce movement without checking your actual mobility.

✓ INSTEAD

Use `get_arch_efficiency` to see exactly how much your arch shortens the bar path.

Ignoring federation rules

❌ AVOID

You build a massive arch that looks great in the gym but gets you red-lighted in a meet.

✓ INSTEAD

Run `validate_competition_legality` to confirm your setup won't get disqualified.

Random foot placement

❌ AVOID

You move your feet around during heavy sets to find stability through trial and error.

✓ INSTEAD

Use `optimize_leg_drive_position` to find the specific spot that keeps your arch stable.

The Right Fit

Connect this MCP if you are a competitive lifter or coach who needs technical data to refine bench press mechanics. Do not use this if you are a casual gym-goer just looking for general strength tips. The decision depends on whether you need to meet specific federation standards for competition.

Bench Press Arch Evaluator: 4 Technical Analysis Tools

These tools analyze your physical proportions and flexibility to optimize your bench press setup and ensure meet legality.

#	TOOL	DESCRIPTION
01	calculate_optimal_setup	This tool generates a specific target profile for your training based on your physical stats.
02	get_arch_efficiency	It measures how much your arch actually reduces your range of motion.
03	optimize_leg_drive_position	This tool suggests the best foot placement to keep your arch stable during the lift.
04	validate_competition_legality	It checks your current setup against standard powerlifting federation requirements.

See It in Action

Real prompts you can use once this MCP is connected to your AI agent through Vinkius Cloud.

U How efficient is my bench press arch? I am 180cm tall, my arch height is 10cm, and my shoulder flexibility is 0.8.



Your arch efficiency is high, providing a significant reduction in range of motion for your height and flexibility profile.

U Is my bench press setup legal? My arch is 12cm, shoulder flexibility is 0.7, and my feet are touching the floor.



Yes, your current setup meets standard competition requirements.

U What is my target setup? I am 175cm tall with a shoulder flexibility of 0.6.



Your target profile includes an arch height of 8.5cm, a ROM reduction of 12%, and a posterior foot placement for optimal leg drive.

Frequently Asked Questions

01 How does this MCP help with my bench press?

It analyzes your physical metrics to optimize your arch, leg drive, and overall setup for better efficiency and legality.

02 Can I use this to check if my setup is legal for a meet?

Yes, the `validate_competition_legality` tool checks your setup against standard powerlifting federation requirements.

03 What metrics do I need to provide?

You typically need to provide your height, arch height, and shoulder flexibility to get accurate results.

04 Which AI clients can I use with this MCP?

You can use any MCP-compatible client, including Claude, Cursor, Windsurf, and VS Code.

05 Does it suggest foot placement?

Yes, the `optimize_leg_drive_position` tool suggests the best foot placement to maximize your arch stability.

06 How can I check if my bench press arch is legal for competition?

You can use the `validate_competition_legality` tool. It checks your arch height, shoulder flexibility, and whether your feet maintain contact with the floor to ensure you meet standard federation requirements.

07 How do I improve my arch efficiency?

Use `get_arch_efficiency` to evaluate your current performance. You can then use `calculate_optimal_setup` to determine the target arch height and ROM reduction you should aim for based on your specific body metrics.

08 Can this tool help with my leg drive?

Yes. The `optimize_leg_drive_position` tool suggests the best foot placement to maximize stability based on your height, arch height, and shoulder flexibility.

Go Live in 60 Seconds

Get your connection token from cloud.vinkius.com, then paste the endpoint URL into any MCP-compatible client.

YOUR MCP ENDPOINT

`https://edge.vinkius.com/[TOKEN]/mcp`

CLIENT	WHERE TO CONFIGURE
 Claude AI	Profile → Customize → Connectors → "+" → Add custom connector → Paste endpoint
 Cursor	Settings → Features → MCP Servers → "+" Add New MCP Server" → Type: SSE → Paste endpoint
 VS Code	Ctrl/Cmd+Shift+P → "MCP: Add Server" → add <code>"bench-press-arch-evaluator": { "url": "..." }</code>
 Windsurf	MCP Settings → <code>mcp_settings.json</code> → Add endpoint URL
 ChatGPT	Settings → Tools & plugins → Add MCP server → Paste endpoint
 Gemini	Extensions → Add MCP Server → Paste endpoint URL

ASK AN AI ABOUT THIS

Let your preferred AI explain this MCP server

-  Ask ChatGPT 
-  Ask Claude 
-  Ask Perplexity 
-  Ask Gemini 
-  Ask Grok 

READY TO CONNECT

Bench Press Arch Evaluator is live on Vinkius Cloud.

Get your connection token, paste it into your AI agent, and
start building. No SDK. No deployment. Just results.

Start at cloud.vinkius.com →

vinkius.com · support@vinkius.com

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