MCP SERVER | NO CODE | CLOUD HOSTED

Power-to-Weight and Relative Strength Calculator MCP for AI Agents

Quantifying Athletic Performance Metrics in Cycling and Powerlifting

The Power-to-Weight and Relative Strength Calculator helps athletes quantify their performance metrics across multiple disciplines. It calculates Watts per Kilogram (W/kg) for endurance events like cycling or CrossFit, while also providing standardized relative strength scores (DOTS, WILKS, IPF) used in powerlifting. You can instantly compare your current numbers against professional benchmarks to see exactly where you stand.

A+ Quality Score 100/100

powerlifting | cycling | crossfit | fitness-metrics | strength-training | performance-tracking

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vinkius.com/mcp/power-to-weight-and-relative-strength-calculator

SCAN TO VIEW

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.

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.

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.

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	Ed25519	24h TTL	V8 Isolate
Encryption at rest	PKI vault signatures	Ephemeral session keys	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.

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.

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.

06 — Honeytoken Trap System

Phantom credentials are injected into isolated environments. If a honeytoken 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.

Agent Activity

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

FinOps

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

Tool Health

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

Firewall & DLP

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

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.

Power-to-Weight and Relative Strength Calculator MCP

3 tools available
Cloud-hosted on Vinkius

This MCP gives athletes a specialized engine for performance analysis. It lets you quantify two major types of athletic output: sustained endurance and maximum relative strength.

For cyclists or CrossFit athletes, the tool calculates your power-to-weight ratio (W/kg), giving you a single number that measures how much work you do per unit of body mass. For weightlifters, it computes industry-standard scores like DOTS or IPF points, which normalize raw lift numbers so you can compare yourself to others regardless of equipment or specific event structure.

Beyond just calculating ratios, the MCP also benchmarks your performance. It takes your resulting metrics and ranks them into professional tiers (Elite, Advanced, Intermediate) by comparing them against established athletic data. By connecting this through the Vinkius catalog, you gain immediate access to these complex calculations, allowing you to move past simple lift totals or wattage readings and start seeing true, actionable insights into your physical progress.

Core Capabilities

01 — Calculate W/kg for Endurance Sports

Determine the power-to-weight ratio (W/kg) using specific metrics from cycling or CrossFit workouts.

02 — Compute Standardized Strength Scores

Generate established relative strength scores, such as DOTS, WILKS, or IPF points, for weightlifting performance analysis.

03 — Benchmark Athletic Performance Levels

Receive a clear categorization of your current metrics —like Elite, Advanced, or Intermediate—by comparing them to professional benchmarks.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/power-to-weight-and-relative-strength-calculator** — connect your AI agent in three steps.

01 Input your specific athletic data: This might involve providing your body weight alongside measured power output (Watts) for endurance sports.

02 Select the required scoring method and input details, whether that's calculating W/kg or submitting lift totals (Squat, Bench, Deadlift) for relative strength points.

03 The MCP processes these inputs against its internal athletic benchmarks and returns a precise performance metric, along with an associated professional ranking tier.

The bottom line is that it takes raw numbers from different types of workouts and spits out industry-standard metrics you can actually use to guide your training plan.

Built For

This MCP is built for athletes, coaches, and physical performance analysts who need accurate, standardized ways to track progress. If you're tired of relying on simple totals or basic calculators that don't account for body weight or industry standards, this is your tool.

Strength Coach

Uses the MCP to calculate standardized scores like DOTS and IPF points, giving clients a common metric to track progress across different lifting phases.

Endurance Athlete

Rely on the W/kg ratio calculation after long rides or intense CrossFit sessions to understand their true power output relative to body weight.

Sports Performance Analyst

Inputs varied data points and uses the MCP to generate professional rankings, allowing them to give clients precise performance targets (Elite, Advanced, etc.).

What Changes When You Connect

01 You get a standardized number by using the calculate_relative_strength tool, allowing you to compare your squat totals against professional lifters globally.

02 Instead of just tracking total wattage, calculating W/kg ratio gives you an immediate measure of power efficiency for endurance events like cycling.

03 The get_performance_rank tool doesn't just give a number; it tells you if your current performance puts you in the 'Elite' or 'Advanced' category by comparing you to known benchmarks.

04 It handles complex scoring systems, so you don't have to manually research and apply the rules for DOTS, WILKS, or IPF points.

05 You can track progress over time, using these specific metrics to prove that your training is genuinely improving your physical efficiency.

Real-World Applications

Benchmarking a Cycling Season's Peak Performance

An athlete finishes a race and needs to know if their output was world-class. They use the calculate_wkg_ratio tool, which processes their peak wattage and weight data, confirming they hit 'Elite' status for that season.

Cross-Training Progress Check

A coach wants to see if a client who trains in both running and cycling is making gains. They use the calculate_wkg_ratio tool, comparing the new ratio against previous data points to verify improvement.

Comparing Lifts Across Different Gyms

A powerlifter moves from one gym's equipment to another and needs a comparable score. They use calculate_relative_strength, which standardizes their squat/bench/deadlift totals into a universal DOTS or WILKS score.

Setting Realistic Training Goals

A client asks what level they need to hit to be considered professional. The analyst uses get_performance_rank, which immediately shows the client that hitting 'Advanced' requires a specific W/kg target.

Patterns to Avoid

Using simple ratio math

✗ AVOID

Manually dividing your total wattage by your body weight and calling it 'your score.' This ignores the standardized rules required for official competition scoring.

✓ INSTEAD

Use calculate_wkg_ratio to get the correct W/kg metric, or use calculate_relative_strength if you are dealing with powerlifting totals. These tools apply specific, industry-vetted formulas.

Comparing dissimilar lift types

✗ AVOID

Taking a score from a bench press and comparing it directly to a squat score without normalization. The numbers don't tell you anything meaningful.

✓ INSTEAD

Always use calculate_relative_strength. This tool ensures all your lifting totals are normalized into one of the recognized standards (DOTS, WILKS, or IPF) for an apples-to-apples comparison.

Ignoring performance context

✗ AVOID

Assuming that because you hit a specific number, it means you're at the top. You need to know if that number even counts as 'Elite' in your sport.

✓ INSTEAD

Run the get_performance_rank tool after any calculation. This shows you exactly which performance tier (Intermediate, Advanced, Elite) your calculated score falls into relative to professional standards.

The Right Fit

Use this MCP if your primary goal is quantitative comparison across athletic disciplines or time periods. Specifically, use it when you need an industry-standard metric—for example, comparing a deadlift today versus last year, or checking if a cyclist's power output translates into 'Elite' status. If you are only tracking simple totals (e.g., total miles run this week, or raw lift weight), the basic fitness tracker will work fine. However, if you need to measure efficiency relative to body mass (W/kg) or compare lifts using a universal scoring system like DOTS and WILKS, you must use this MCP. Don't use it if your only goal is general tracking; use it when your goal is validation against professional benchmarks.

Power-to-Weight Calculator for Analyzing Endurance Performance Metrics

Today, calculating true athletic efficiency requires jumping between tabs: you check a cycling app for wattage, open a spreadsheet to enter your body weight, and then manually calculate the ratio. This process is slow, prone to rounding errors, and doesn't account for how professional standards define 'Elite' status.

With this MCP, you simply feed in your peak performance data points. The system handles the complex W/kg math instantly, giving you a single, reliable figure that tells you exactly where your power output ranks against top athletes.

Relative Strength Calculator for Standardized Powerlifting Scoring

When tracking strength, the biggest pain point is comparing different lift days. Some gyms track raw totals; others use specific scoring models like WILKS or DOTS that normalize your performance against a multi-lift standard. Trying to do this manually in a spreadsheet is almost impossible.

This MCP takes the complexity out of structured weightlifting analysis. You input your best lifts, and it returns standardized scores you can trust, making true, consistent progress tracking possible.

Power-to-Weight and Relative Strength Calculator: 3 Tools for Athletic Performance Metrics

Use these tools to quantify your physical output, calculate W/kg ratios, and generate standardized relative strength scores for both endurance sports and weightlifting.

#	TOOL	DESCRIPTION
01	`calculate_wkg_ratio`	Calculates your power-to-weight ratio (W/kg) based on endurance sports metrics like wattage and body weight.
02	`get_performance_rank`	Compares a given athletic metric against professional benchmarks to categorize performance into tiers.
03	`calculate_relative_strength`	Computes standardized relative strength scores (DOTS, WILKS, IPF) required for powerlifting analysis.

See It in Action

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

U I weighed 82kg and hit a peak power output of 350 Watts on the bike. What does that mean for my cycling performance?

Cycle Performance Analysis

W/kg Ratio: *4.27 W/kg*

- **Benchmark Status:** Advanced (Top 15%)
- **Interpretation:** This ratio shows strong endurance power, placing you well above the average recreational athlete and putting you in a competitive tier for regional races.

U I'm trying to track my progress over six months. My total lift (S+B+D) was 250kg last month compared to 310kg this month, weighing 95kg. What are the scores?

Powerlifting Score Comparison

METRIC	LAST MONTH	THIS MONTH
DOTS Score	285.1	367.9
WILKS Score	301.4	398.2

Your consistent increase shows excellent strength development across the board.

U Is a W/kg ratio of 5.0 considered elite for an athlete my size (70kg)?

Performance Ranking Check

Based on current professional benchmarks for your weight class:

- **Target:** To be classified as 'Elite,' you need a minimum W/kg ratio of 4.5.
- **Your Score:** A 5.0 W/kg places you significantly above the required threshold, indicating world-class performance potential.

Frequently Asked Questions

01 **How does the Power-to-Weight and Relative Strength Calculator help me track my cycling progress?**

It gives you a single, standardized metric (W/kg) that accurately measures your power output relative to your body weight. This helps coaches see if your training is genuinely improving your efficiency, not just your raw wattage.

02 **Can I use this MCP for comparing my lifting totals across different competitions?**

Yes. The calculator normalizes your squat, bench, and deadlift totals into standardized scores (like DOTS or WILKS). This means you can compare performances fairly even if the rules of the competition changed.

03 **What does 'Elite' mean when I run my metrics through this tool?**

When it flags 'Elite,' it means your current performance is statistically comparable to top-tier, professional athletes in that specific sport. It tells you exactly what level of training output you are achieving.

04 **Do I have to manually input every single number into the Power-to-Weight and Relative Strength Calculator?**

No. The MCP is designed to take your key performance metrics—like peak wattage or total lift weights—and applies the complex math for you, providing the final calculated score instantly.

05 **Is this tool just a glorified calculator, or does it tell me something actionable?**

It's more than a simple calculation. By comparing your result to professional benchmarks, it tells you where you need to focus: do you need higher wattage (endurance) or better form on the deadlift (relative strength)? The results guide your next training cycle.

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 `"power-to-weight-and-relative-strength-calculator": { "url": "…" }`
Windsurf	MCP Settings → `mcp_settings.json` → 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

Power-to-Weight and Relative Strength Calculator 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

INDEPENDENT PLATFORM DISCLAIMER

DOCUMENT INFORMATION

Generated	July 2026
MCP Server	Power-to-Weight and Relative Strength Calculator MCP
Server ID	`019f0616-b412-72f6-8901-a7d549c41b01`
Platform	Vinkius Cloud for AI Agents
Endpoint	`https://edge.vinkius.com/{token}/mcp`

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