

MCP SERVER

NO CODE

CLOUD HOSTED

# Advanced BMI & Anthropometric Analyzer MCP for AI Agents

Get precise body composition metrics and metabolic risk assessments for fitness and clinical health.

Advanced BMI & Anthropometric Analyzer provides precision body composition and physiological metric analysis. It goes beyond basic BMI to calculate fat-free mass, waist-to-hip ratios, and skeletal frame targets. Perfect for fitness professionals and clinical health assessments needing accurate anthropometric data.

**A+** Quality Score 100/100

bmi

body-composition

anthropometry

fitness-tracking

health-metrics



# 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

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## 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

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## 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

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## 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 — 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.

**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](https://cloud.vinkius.com) — connect your AI agent in under 60 seconds.

# Advanced BMI & Anthropometric Analyzer MCP

4 tools available

Cloud-hosted on Vinkius

You want more than a basic weight-to-height calculation. This MCP lets you dig into the actual composition of a body, moving past surface-level numbers to find what really matters for health and performance. Instead of just seeing a number, you're getting insights into metabolic risk, muscle density, and skeletal structure. If you're tracking an athlete's progress or conducting a clinical assessment, you can pull specific metrics like the Fat-Free Mass Index or use the US Navy method for body fat estimates. It takes the guesswork out of determining if someone's weight is coming from muscle or fat. You can also find out what a person's ideal weight should be based on their specific frame size, which is a game changer for personalized nutrition. Because Vinkius hosts this tool, you can plug it directly into your favorite AI client and start getting these kinds of deep-dive reports without having to manually run every calculation. It turns a simple health check into a data-driven analysis of physical composition.

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## Core Capabilities

### 01 — Calculate body fat percentage

Estimate body fat using the US Navy method based on neck, waist, and hip measurements.

### 03 — Analyze muscle density

Calculate the Fat-Free Mass Index and total lean body mass for athletes.

### 05 — Categorize weight status

Provide standard BMI classifications and weight category labels.

### 02 — Estimate metabolic risk

Determine waist-to-hip ratios to identify potential visceral fat accumulation.

### 04 — Determine skeletal frame size

Use elbow breadth to find a person's frame size and corresponding target weights.

# One Click on Vinkius — From Prompt to Execution

Available at [vinkius.com/mcp/advanced-bmi-anthropometric-analyzer](https://vinkius.com/mcp/advanced-bmi-anthropometric-analyzer) — connect your AI agent in three steps.

- 01 Provide your AI client with physical measurements like neck, waist, height, and elbow breadth.
- 02 The MCP processes these inputs through specific anthropometric formulas.
- 03 You get a detailed breakdown of body composition, risk levels, and target metrics.

The bottom line is you get professional-grade body composition analysis instead of just a single BMI number.

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## Built For

This is for health professionals and fitness coaches who are tired of giving generic advice. It's for the trainer who needs to justify a specific training block with data or the clinician who needs to assess metabolic risk beyond a scale reading.

### Personal Trainer

Uses `get_athlete_metrics` to track lean mass gains for bodybuilding clients on a weekly basis.

### Clinical Nutritionist

Uses `analyze_body_composition` to assess visceral fat risk during patient intake appointments.

### Fitness Researcher

Uses `calculate_frame_target_weight` to establish baseline targets for large study groups.

### Weight Loss Coach

Uses `calculate_bmi` to provide standard progress tracking in a clear, categorized format for clients.

## What Changes When You Connect

- 01** Stop guessing about muscle vs fat. Use `get_athlete_metrics` to see actual lean mass and Fat-Free Mass Index for more accurate progress tracking.
- 02** Identify metabolic risks quickly. The `analyze_body_composition` tool calculates waist-to-hip ratios to help you spot issues before they become problems.
- 03** Set realistic weight goals. Use `calculate_frame_target_weight` to find a target weight based on skeletal frame size rather than just a generic BMI number.
- 04** Standardize your health assessments. Use `calculate_bmi` to give clients clear, categorized weight status that is easy to understand at a glance.
- 05** Use proven methods for accuracy. This MCP applies the US Navy method for body fat, giving you a more reliable estimate than a standard scale ever could.

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## Real-World Applications

### Tracking muscle growth in bodybuilding

A client wants to know if they're gaining muscle or just getting bigger. Use `get_athlete_metrics` to track their Fat-Free Mass Index over several months.

### Explaining weight goals to new clients

A new client is confused why their target weight is different from the internet's average. Use `calculate_frame_target_weight` to show how their skeletal frame influences their target range.

### Assessing visceral fat risk for patients

A nutritionist needs to assess a patient's risk for visceral fat. Input the patient's waist and hip measurements into `analyze_body_composition` to get a risk level.

### Quick health screenings for gym members

A gym owner wants to provide a quick health screening for new members. Use `calculate_bmi` to give them an immediate weight category and a starting point for their fitness journey.

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## Patterns to Avoid

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### Relying only on BMI for health

#### ✗ AVOID

Telling a muscular athlete they are overweight because their BMI is high.

#### ✓ INSTEAD

Use `get_athlete_metrics` to show their lean body mass and Fat-Free Mass Index instead.

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### Guessing ideal weight for everyone

#### ✗ AVOID

Setting a 150lb goal for a person with a very large skeletal frame.

#### ✓ INSTEAD

Use `calculate_frame_target_weight` to find a target based on their actual elbow breadth.

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### Ignoring visceral fat risk

#### ✗ AVOID

Only looking at total weight and missing abdominal health issues.

#### ✓ INSTEAD

Use `analyze_body_composition` to calculate the waist-to-hip ratio and assess metabolic risk.

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## The Right Fit

Use this MCP if you need to move beyond basic weight tracking into actual body composition. It's ideal for personal trainers, nutritionists, and clinical health researchers who need to calculate metrics like Fat-Free Mass Index, waist-to-hip ratios, or skeletal frame targets. It's the right choice when you need to distinguish between fat mass and muscle mass using established methods like the US Navy body fat estimate. Don't use this if you only need a simple weight-to-height calculation; `calculate_bmi` is sufficient for that. If you need a full medical-grade DEXA scan or hydro-static weighing, this MCP won't replace those, as it relies on anthropometric measurements like elbow breadth and waist circumference. Use it to add a layer of professional-grade analysis to your AI agent's health and fitness workflows.

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## Advanced BMI & Anthropometric Analyzer for Clinical Metabolic Risk Assessment

Most health assessments start and end with a scale. You take a client's weight, divide it by their height, and give them a BMI number that doesn't tell the whole story. It's a tedious process of trying to guess if someone's weight is a health risk or just a result of high muscle density.

This MCP changes that by pulling in actual anthropometric data. Instead of a single number, you get a breakdown of body fat percentage, waist-to-hip ratios, and skeletal frame targets. You get a clear picture of a person's metabolic health in one go.

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## Advanced BMI & Anthropometric Analyzer for Precise Athlete Muscle Density Tracking

Tracking an athlete's progress usually involves a lot of manual math and messy spreadsheets. You have to manually calculate lean body mass and try to estimate how much of their progress is actually muscle growth versus just water weight or fat.

You can now just feed the measurements into your agent. It handles the math for the Fat-Free Mass Index and lean body mass automatically, giving you a clean, data-driven way to track performance gains.

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# Advanced BMI & Anthropometric Analyzer: 4 Health Metrics Tools

Get professional body composition analysis, muscle density metrics, and skeletal frame targets in one place.

#	TOOL	DESCRIPTION
01	<code>get_athlete_metrics</code>	Calculates the Fat-Free Mass Index and total lean body mass. This helps you see how much of a person's weight is actual muscle.
02	<code>calculate_bmi</code>	Computes the standard Body Mass Index and assigns a weight category. It provides a quick snapshot of a person's general weight status.
03	<code>analyze_body_composition</code>	Estimates body fat percentage and the waist-to-hip ratio. These metrics help identify metabolic risks and abdominal health.
04	<code>calculate_frame_target_weight</code>	Determines skeletal frame size and target weight based on elbow breadth. It helps set realistic weight goals based on bone structure.

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## See It in Action

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

**U** I'm a personal trainer. My client is a male, 180cm tall, weighs 85kg, and has a neck of 40cm and a waist of 95cm. Can you analyze his body composition?



Based on the measurements provided, here is the body composition analysis:

- **Estimated Body Fat:** 21.5%
- **Waist-to-Hip Ratio:** 0.91
- **Risk Assessment:** Moderate risk level for visceral fat accumulation.

This indicates that while the client is within a healthy weight range for some categories, monitoring abdominal fat is recommended.

**U** What's a good target weight for a woman who is 165cm tall and has an elbow breadth of 28cm?



Based on an elbow breadth of 28cm, the skeletal frame size calculation suggests the following:

- **Frame Size:** Medium
- **Target Weight Range:** 58kg - 64kg

This range is tailored to her specific bone structure rather than a generic BMI average.

**U** I need to know the FFMI for an athlete. He's 90kg, 185cm tall, and has about 12% body fat.



Here are the athlete metrics for your client:

METRIC	VALUE
<b>Fat-Free Mass Index (FFMI)</b>	23.64
<b>Total Lean Body Mass</b>	79.2 kg

An FFMI of 23.64 indicates a very high level of muscle density for his height.

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## Frequently Asked Questions

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### 01 What can the Advanced BMI & Anthropometric Analyzer do for my fitness clients?

It provides a deep dive into body composition. Instead of just weight, it calculates things like muscle density and body fat percentage to give you a clearer picture of their progress.

### 02 Does the Advanced BMI & Anthropometric Analyzer calculate body fat percentage?

Yes, it uses the US Navy method to provide an estimate based on specific anatomical measurements like your neck and waist size.

### 03 Can I use the Advanced BMI & Anthropometric Analyzer to find a target weight?

You can use it to determine a target weight based on a person's skeletal frame size, which is much more accurate than using a generic BMI goal.

### 04 How does the Advanced BMI & Anthropometric Analyzer help with metabolic health?

It calculates the waist-to-hip ratio, which is a key indicator of visceral fat and metabolic risk, helping you identify potential health issues more accurately.

### 05 Is the Advanced BMI & Anthropometric Analyzer good for tracking athletes?

It's perfect for that. It includes tools to calculate the Fat-Free Mass Index, which helps you see how much of an athlete's weight is actual lean muscle.

**06 What measurements do I need for the Advanced BMI & Anthropometric Analyzer?**

Depending on the metric you want, you'll typically need things like height, weight, neck circumference, waist circumference, hip circumference, and elbow breadth.







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# Go Live in 60 Seconds

Get your connection token from [cloud.vinkius.com](https://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
 <b>Claude AI</b>	Profile → Customize → Connectors → "+" → Add custom connector → Paste endpoint
 <b>Cursor</b>	Settings → Features → MCP Servers → "+ Add New MCP Server" → Type: SSE → Paste endpoint
 <b>VS Code</b>	Ctrl/Cmd+Shift+P → "MCP: Add Server" → add <code>"advanced-bmi-anthropometric-analyzer": { "url": "..."} </code>
 <b>Windsurf</b>	MCP Settings → <code>mcp_settings.json</code> → Add endpoint URL
 <b>ChatGPT</b>	Settings → Tools & plugins → Add MCP server → Paste endpoint
 <b>Gemini</b>	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

# Advanced BMI & Anthropometric Analyzer 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](https://cloud.vinkius.com) →

[vinkius.com](https://vinkius.com) · [support@vinkius.com](mailto:support@vinkius.com)

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### DOCUMENT INFORMATION

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