



“A cup of this mash would give energy to a soldier the entire day.”

- *Hernán Cortés, presenting cacao to King Carlos V of Spain, circa 1528*

- » Warriors' drink to lower blood pressure
- » You can start tomorrow for about \$15

Chapter 4

Ancient Mesoamericans Understood Blood Flow Better Than Your Doctor

Your monthly blood pressure prescription: \$200. Side effects: dizziness, fatigue, dry cough. Ancient Mesoamerican warriors drank bitter cacao before battle. Their blood vessels opened, allowing them to sustain effort for hours. The mechanism was unknown to them, but modern science confirmed it in 2006. You can access this knowledge tomorrow.

What Warriors Drank Before the Spanish Arrived

Warriors consumed cacao before combat and long expeditions – not for a caffeine rush, but for sustained cardiovascular performance. The preparation process mattered: fermented beans roasted at specific temperatures, with no sugar or milk. The bitter compounds, called flavanols, trigger a molecule your blood vessels need to stay flexible.

Francisco Hernández, royal physician to Philip II, spent seven years (1570–1577) in New Spain studying indigenous medicine. In his posthumously published *Quatro libros de la naturaleza* (1615), Book Six, he documented something remarkable: Mayan messengers carrying cacao beverages ran the 150-mile route from highland Chiapas to the coastal settlements in under 24 hours, while Spanish horses required rest stops. The messengers didn't.

Bernardino de Sahagún's *Historia General de las Cosas de Nueva España* (compiled 1545–1590) records that Aztec nobles consumed

cacao “to give them strength and resist fatigue” before military campaigns. The Dresden Codex (circa 1200 CE), one of the oldest surviving Mayan books, depicts cacao in ritual contexts and shows it being prepared for traveling merchants and warriors.

Archaeological evidence supports these written records. At Colha in northern Belize, vessels dated to 600 BCE tested positive for theobromine (cacao’s signature compound). At Río Azul in Guatemala, cylindrical vessels from 450 CE bore glyphs reading “his/her cup for cacao.” At Palenque, burial sites contained cacao vessels alongside the remains of high-ranking individuals, indicating fuel for their journey to the underworld.

Your grocery store chocolate bar shares almost nothing with this traditional preparation. The flavanols that made cacao valuable are destroyed during commercial processing, especially when manufacturers add milk and sugar to mask the natural bitterness.



Why “Opening the Heart” Was Medically Accurate

Mayan healers said cacao “opened the heart.” They had no concept of nitric oxide or endothelial cells, but their empirical observation was biochemically accurate. Here’s what actually happens: cacao flavanols – specifically a compound called epicatechin – trigger endothelial cells lining your blood vessels to produce nitric oxide. This molecule signals smooth muscle in vessel walls to relax, leading to vessel dilation, increased blood flow, and reduced blood pressure. This is the same mechanism your expensive ACE inhibitor medication uses – except cacao flavanols come without the prescription pad.

In 2006, researchers at UC Davis and the University of Düsseldorf published breakthrough findings in the Proceedings of the National Academy of Sciences. They proved that pure epicatechin from cacao produces the same vascular effects as consuming flavanol-rich cocoa. The connection between consumption and increased blood flow was direct and measurable. The researchers tracked nitric oxide levels, measured blood vessel dilation, and monitored blood pressure – all three improved significantly.

What Modern Medicine Split Into Three Prescriptions

Ancient practitioners prescribed cacao for fatigue, mental fog, and altitude sickness – three complaints addressed with one remedy. Modern medicine writes three prescriptions: stimulants for fatigue, nootropics for cognition, and altitude medication for mountain sickness. Your copays add up. The underlying cause in all three? Insufficient blood flow.

Hernández documented this in his botanical surveys: Highland Mayan traders departing Chiapas for journeys above 12,000 feet carried cacao as essential equipment. Those who consumed it maintained stamina at altitude, while those who refused – often Spanish colonists unfamiliar with the practice – suffered severe altitude sickness and couldn’t complete the routes.

The Dresden Codex depicts cacao being prepared for traveling merchants alongside gods and nobles – not for ceremonial use, but for practical application in long-distance commerce across mountainous terrain. Harvard researchers studying cerebral blood flow in elderly volunteers found that two weeks of flavanol-rich cocoa



(900mg daily) increased blood flow velocity in brain arteries by 8-10% (Sorond et al., 2008, Neuropsychiatric Disease and Treatment). The study used precise transcranial Doppler ultrasound measurements to track changes. Better brain circulation means sharper cognition.

A 2015 study in the *Journal of Applied Physiology* (Perkins et al., DOI: 10.1152/jappphysiol.00416.2015) showed that epicatechin-enriched bread increased muscle oxygenation during exercise. More oxygen reaching working muscles delays fatigue. Highland traders covering 40-mile mountain routes in a day weren't using a placebo. The biochemistry explains what ancient cultures observed through centuries of systematic use: vasodilation helps everywhere blood flows – brains, muscles, hearts, and lungs adapting to thin air. One mechanism, multiple benefits.

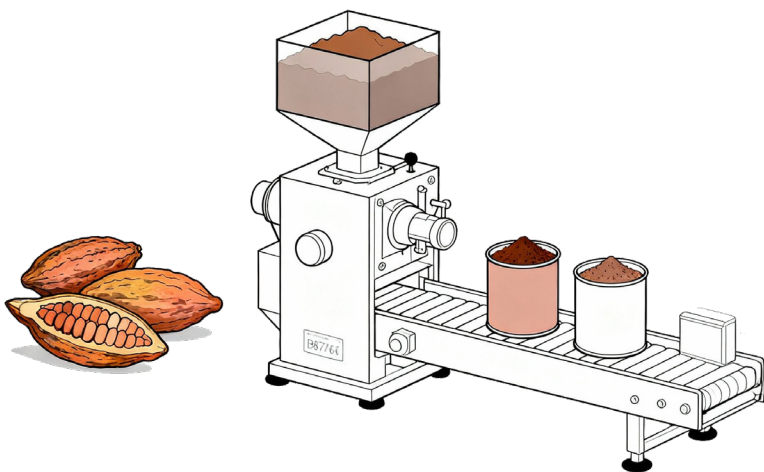
Why Natural Compounds Don't Get Marketing Budgets

Multiple meta-analyses – systematic reviews combining data from dozens of clinical trials – show cacao flavanols reduce blood pressure by 4-5 mmHg for systolic (top number) and 2-3 mmHg for diastolic (bottom number). That's comparable to first-line phar-

maceutical interventions. A 2010 meta-analysis in the American Journal of Hypertension (DOI: 10.1038/ajh.2009.213) analyzed 10 randomized controlled trials with 297 participants. The mean blood pressure reduction was -4.5 mmHg systolic and -2.5 mmHg diastolic – both statistically significant. A 2017 Cochrane review (DOI: 10.1002/14651858.CD008893.pub3) – considered the gold standard for medical evidence – examined 35 trials involving 1,804 participants and confirmed the effect held across diverse populations.

Zero prescription needed, with side effects reported by less than 1% of study participants. The pharmaceutical problem? You can't patent a plant compound that's been used for 3,000 years. No patent means no 20-year monopoly. No monopoly means no billion-dollar marketing budget, which in turn means doctors don't hear about it at conferences sponsored by drug companies. Your expensive medication with TV commercials versus \$15 of ceremonial-grade cacao that requires reading actual research papers.

One cardiologist at a Boston teaching hospital started drinking flavanol-rich cacao daily after reviewing the Schroeter study. Three months later, he discontinued his own blood pressure medication under careful self-monitoring. His colleagues were skeptical until they saw his blood work – 120/78 mmHg sustained for six months. He's not unique, but he's rare among doctors willing to try it themselves before their retirement accounts vest.



What Grocery Store Chocolate Destroyed

Not all cacao works. The preparation method determines whether the beneficial compounds survive. What destroys flavanols includes:

High roasting temperatures (commercial chocolate)

- Alkalization (Dutch processing that makes cocoa darker and less bitter)
- Adding milk (dairy proteins bind to flavanols, making them unavailable)
- Adding sugar (though it doesn't destroy flavanols, it adds calories and metabolic problems)

What preserves flavanols includes:

- Light roasting below 150°C (300°F)
- Minimal processing
- Stone-ground preparation
- Consumption without dairy

Cocoa products can vary dramatically in flavanol content based on processing techniques. One study found flavanol levels ranged from nearly zero in some commercial products to over 800mg per serving in carefully processed ceremonial cacao. The biochemistry is specific: flavanols are heat-sensitive. They survive gentle processing but disappear during aggressive industrial chocolate-making designed for sweetness and shelf stability.

Unexpected Side Effects

Less than 1% of participants in cocoa studies reported digestive complaints or dislike of the product. Most side effects involved the bitter taste, not physiological problems. Some people report mild stimulation from theobromine, cacao's primary alkaloid. It's gentler than caffeine but can affect sleep if consumed late in the day. Stick to morning consumption if you're sensitive. Cacao is a whole food with fiber, minerals (particularly magnesium), and some calories (about 120 per 40g serving). It's not a zero-calorie pharmaceutical intervention – factor it into your daily intake.

Your Modern Protocol - No Temple Required

Recreating Cardiovascular Benefits With Current-Day Ingredients



Source: Ceremonial-grade cacao (brands like Crio Bru, Navitas, or Keith's Cacao) or 100% unsweetened cacao powder with verified high-flavanol content. Search for "ceremonial cacao" or "high-flavanol cocoa powder." Cost: \$15–25 per bag, lasting 2–3 weeks at therapeutic doses.

Preparation: Mix with hot (not boiling) water – 180–190°F preserves flavanol content. Boiling water destroys the compounds you're trying to consume. No milk, no sugar. The traditional bitterness indicates active compounds remain intact.



Dosage: 20–40 grams of cacao, consumed in the morning. This provides 200–400mg of flavanols. The Harvard protocol (Sorond et al., DOI: 10.2147/NDT.S2310) used 450mg twice daily – 900mg total. The UC Davis study (Schroeter et al., DOI: 10.1073/pnas.0510168103) demonstrated effects with single doses of 917mg total flavanols. Most people start at the lower end and increase if well-tolerated.



Timeline: Nitric oxide levels peak approximately 2 hours after consumption. Blood pressure reductions become consistent after 1–2 weeks of daily use. Vascular improvements continue to build over several weeks.

Troubleshooting: If it tastes like dirt, your water's too hot – aim for 180°F, not boiling. If it's gritty, blend longer or use a milk frother. If it makes you jittery, reduce the dose or consume with food. If you feel nothing, you may need higher flavanol content – verify your source provides at least 200mg flavanols per serving.

Monitoring: If you're currently taking blood pressure medication, blood thinners, or MAO inhibitors, start at 20g and work with your physician. Cacao can interact with certain medications. Regular blood pressure monitoring helps track effects.

Frequently Asked Questions

Why did Mayan messengers outperform Spanish horses on long-distance routes?

Mayan messengers completed 150-mile routes in under 24 hours while Spanish horses needed rest stops. Cacao's epicatechin triggers nitric oxide production, dilating blood vessels and delivering more oxygen to working muscles. Ancient observation matched modern biochemistry.

How did commercial processing eliminate cacao's cardiovascular benefits?

Processed cocoa retains only 2-18% of original epicatechin due to high-heat roasting and alkalization. Traditional low-temperature preparation preserved active compounds. Modern chocolate optimizes for sweetness and shelf life, not cardiovascular function.

How does nitric oxide improve altitude adaptation, cognition, and cardiovascular function?

Cocoa flavanols increase nitric oxide, improving circulation throughout the body. Better brain circulation sharpens cognition. Better muscle oxygen delays fatigue. Ancient healers treated multiple conditions with one remedy because vascular function connects them.

Why don't doctors recommend cacao despite its blood pressure benefits?

Cochrane reviewed 35 trials showing 4-5 mmHg reductions matching pharmaceutical interventions. You cannot patent ancient compounds. No patent means no marketing budget for physician education. The research exists but lacks pharmaceutical industry promotion.

What preparation mistakes reduce or block cacao's cardiovascular benefits?

Boiling water destroys epicatechin. Milk proteins bind to flavanols, blocking absorption. Most commercial cocoa has been alkalized, eliminating beneficial compounds. Use warm water, avoid dairy, choose high-flavanol sources, and consume 200-400mg daily.

How did ancient cultures discover cacao's heart benefits without modern science?

Aztec plant medicine knowledge surpassed European medical practice. Warriors given cacao consistently performed better in battle.

Why Western Science Needed 3,000 Years to Catch Up

The Mayans figured out cacao's cardiovascular effects through systematic observation over centuries. They didn't need double-blind trials – they had generations of empirical evidence. Western science didn't confirm the nitric oxide mechanism until 2006, when UC Davis researchers proved epicatechin directly increases nitric oxide production and blood vessel function. The delay wasn't about cacao's effectiveness; it was about modern medicine's late recognition that traditional foods might contain therapeutic compounds worth studying. Pharmaceutical companies had little incentive to fund research on something they couldn't patent.

The research exists now: more than 35 clinical trials, multiple systematic reviews, and cardiovascular benefits confirmed across different populations, ages, and study designs

What This Changes and What It Doesn't

Cacao won't replace emergency blood pressure medication or reverse advanced cardiovascular disease. It's not a miracle cure for anything. But if you're borderline hypertensive (120–139/80–89 mmHg), prehypertensive, or looking to reduce medication doses under medical supervision, the research supports trying high-flavanol cacao. The traditional preparation matters, as does the absence of milk and sugar and daily consistency. This isn't about occasionally eating dark chocolate and hoping for benefits. Ancient Mesoamerican cultures didn't understand endothelial function or nitric oxide pathways; they simply observed that properly prepared cacao improved physical performance and cardiovascular resilience. Modern science took 3,000 years to figure out why they were right. You can start tomorrow morning.

Cocoa (Flavanols):

Dr. McMillan's Clinical Perspective

When patients tell me they eat chocolate for their heart, I gently separate the medicine from the treat. The benefit lies in cocoa's flavanols, epicatechin in particular, which prompt the lining of the blood vessels to release more nitric oxide. The sugar, fat and heavy processing wrapped around most chocolate contribute nothing to that effect, and often strip the flavanols out altogether. Dose the cocoa, not the confectionery, and you get the biology without the baggage.

