

Women's Hearts Beat Differently

The Role of Cocoa Flavanols in Cardiovascular Health

Pharmasynergy Rom

Zeller Switzerland / September 2026



Zeller - The Swiss Phyto-Pioneer

- Over 160 years heritage since 1864
- Market leader in Switzerland
- Specialized in the development, production and marketing of herbal medicines
- Focus on Women's Health, CNS, Allergy, C&C



We plant health!

- Screening and selection of elite plants based on pharmacological/ phytochemical criteria
- *In vitro* and *in vivo* propagation programs
- Plant breeding & variety protection
- Standardized, controlled cultivation and processing according to GACP

Plant species	Zeller protected variety
<i>Vitex agnus castus</i>	AGNUZELL
<i>Cimicifuga racemosa</i>	CIMIZELL
<i>Valeriana officinalis</i> L., radix	VIVAL
<i>Hypericum perforatum</i> L.	VITAN
<i>Petasites hybridus</i>	PETZELL



From Seed to Health!

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Commitment to Science

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International Journal of Molecular Sciences

“St. John’s Wort Extract Ze 117 and Escitalopram Alter Plasma and Hippocampal Lipidome in a Rat Model of Chronic-Stress-Induced Depression” **Bussmann et al. 2024**

Clinical Pharmacology & Therapeutics

“No Clinically Relevant Interactions of St. John's Wort Extract Ze 117 Low in Hyperforin With Cytochrome P450 Enzymes and P-glycoprotein” **Zahner et al. 2019**

Archives of Gynecology and Obstetrics

“Effect of CIMicifuga racemose on metabolic parameters in women with menopausal symptoms: a retrospective observational study (CIMBOLIC)” **Friederichsen et al. 2019**

Phytomedicine

“Treat more than heat—New therapeutic implications of Cimicifuga racemosa through AMPK-dependent metabolic effects” **Drewe et al. 2022**

Journal of Allergy and Clinical Immunology

“Petasol butenoate complex (Ze 339) effectively improves nasal obstruction in comparison to desloratadine in allergic rhinitis” **Dumitru et al., 2011**

Antioxidants

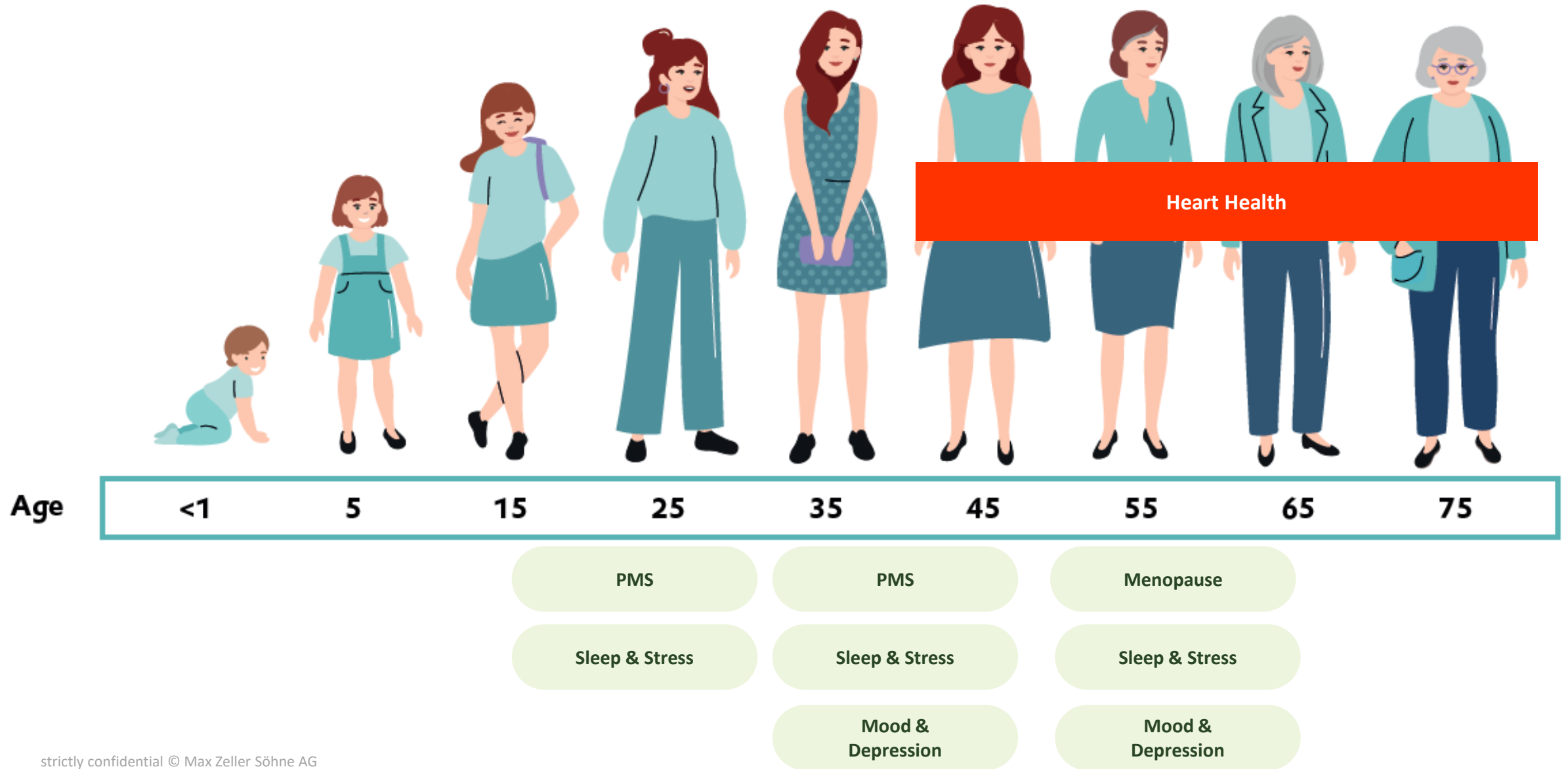
“Cimicifuga racemosa Extract Ze 450 Re-Balances Energy Metabolism and Promotes Longevity” **Rabenau et al. 2021**

Pharmaceuticals

“Treatment of Early Allergic and Late Inflammatory Symptoms of Allergic Rhinitis with Petasites Hybridus Leaf Extract (Ze 339): Results of a Noninterventional Observational Study in Switzerland” **Blosa et al. 2021**



Focus on Women's Health



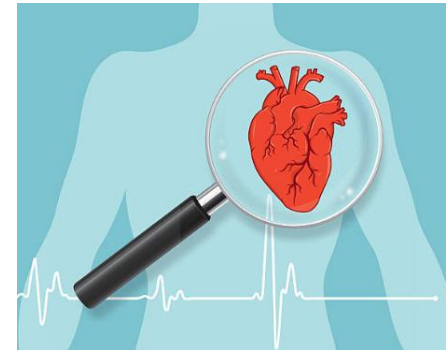
The Awareness Gap

- 🌱 In high income countries the majority of people die of two main causes:

cardiovascular disease and cancer

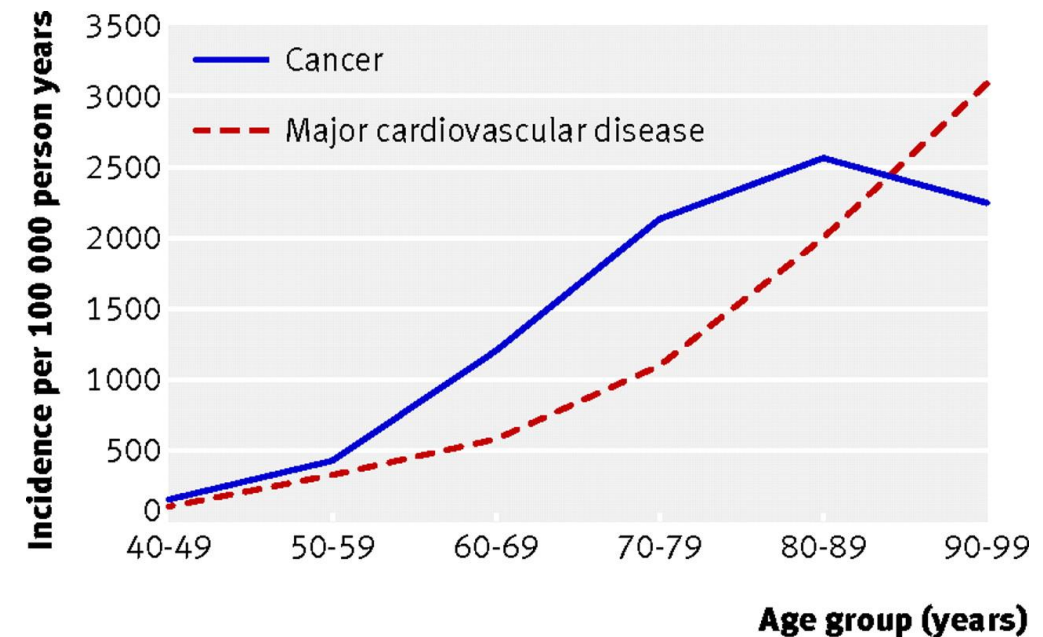
Age is perhaps the most powerful risk factor for cardiovascular disease, which increases exponentially between ages 40 and 80.

- 🌱 Cardiovascular disease (CVD) is one of the top five non-communicable diseases (NCD).
CVD is the leading cause of death in women, often underestimated compared to men.



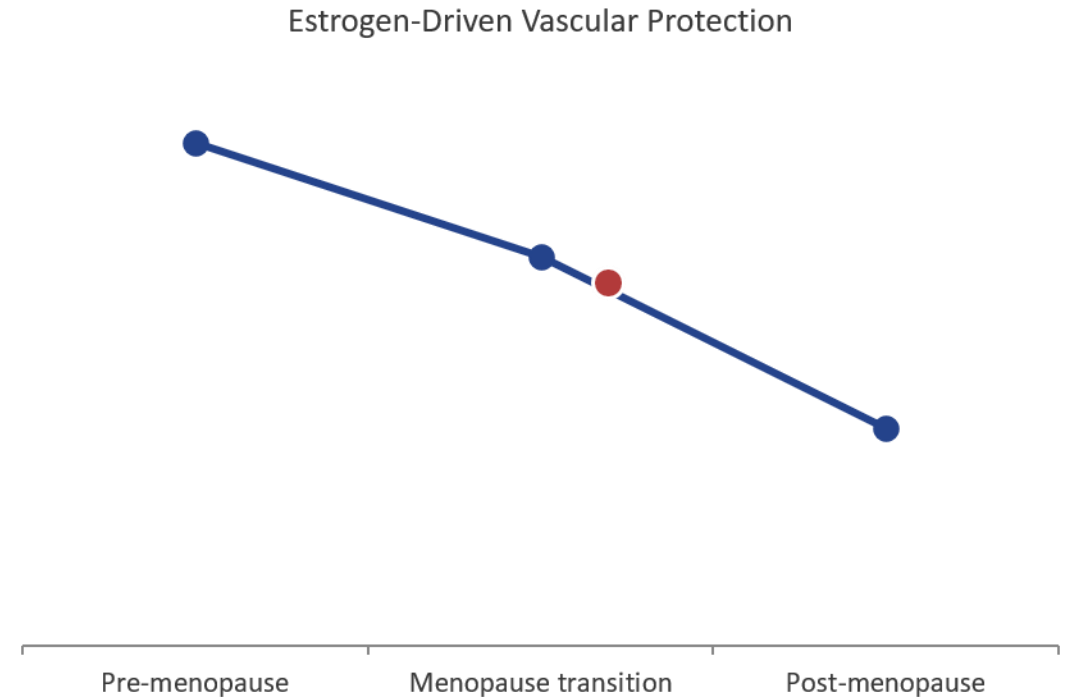
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American Heart Association®



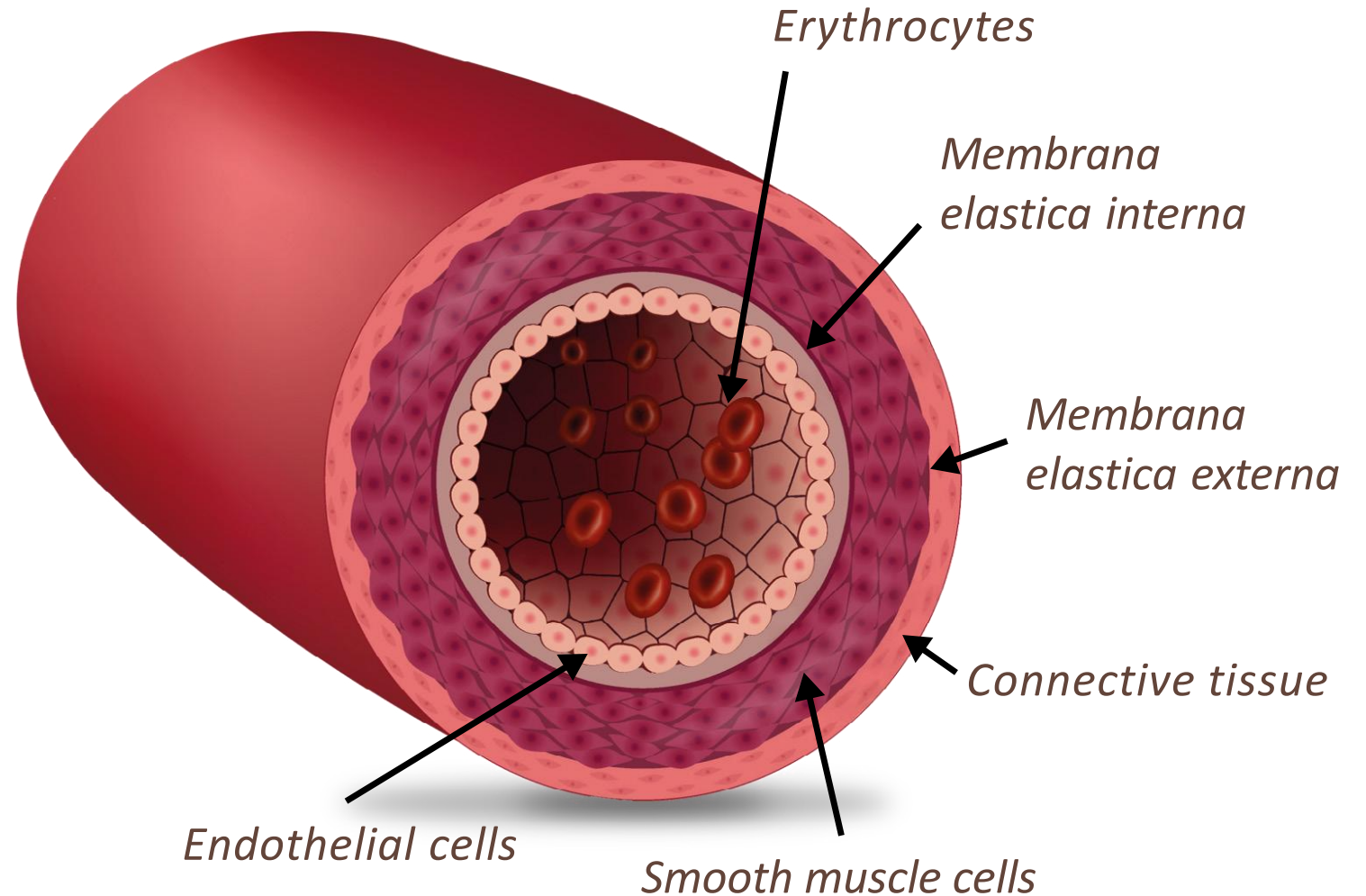
The Menopause Cliff

-  Estrogen is the vessel's natural bodyguard: it drives the endothelium to produce nitric oxide (NO) — the molecule that keeps vessels elastic and open.
-  During the menopausal transition, this vascular protection declines at an accelerating pace, resulting in a marked acceleration of vascular aging as women approach menopause



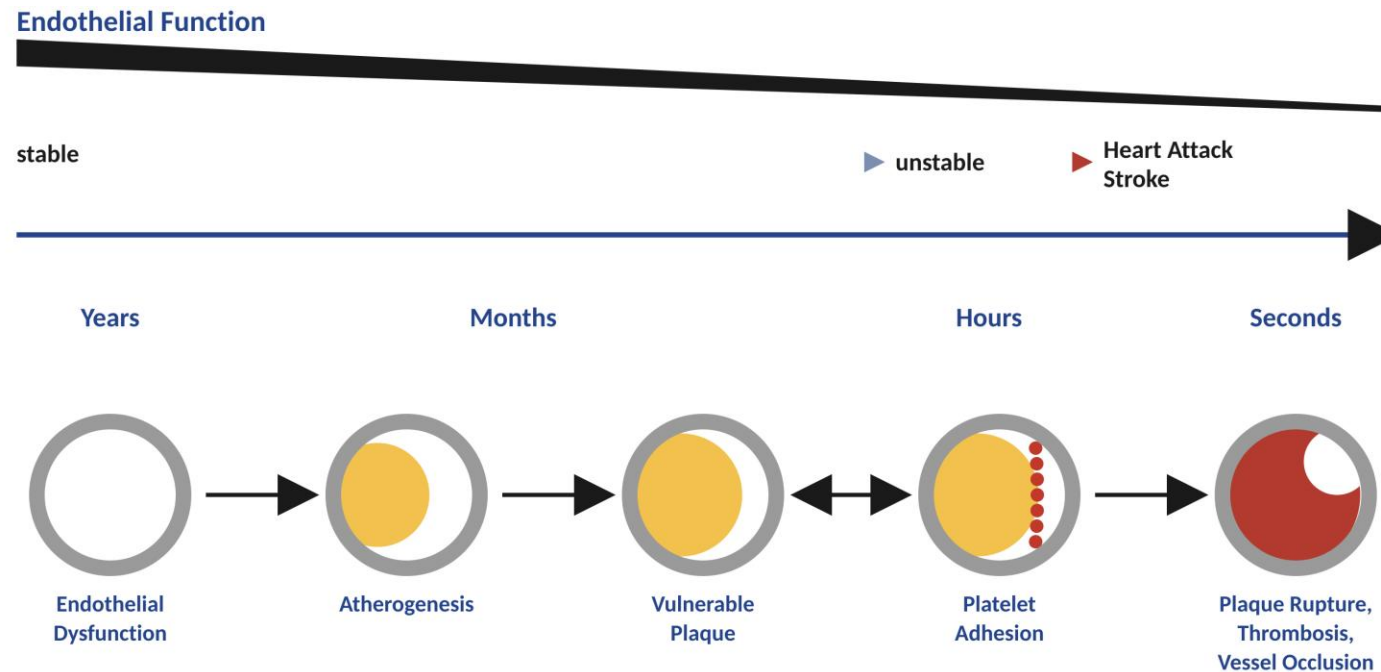
The Endothelium: Functional Hub for Blood Flow and Vascular Protection

- Contributes to the regulation of vascular tone and responds to hemodynamic stimuli.
- Supports vascular homeostasis by modulating inflammatory and redox processes.
- Strengthens vascular integrity and enables the controlled exchange between blood and tissue.



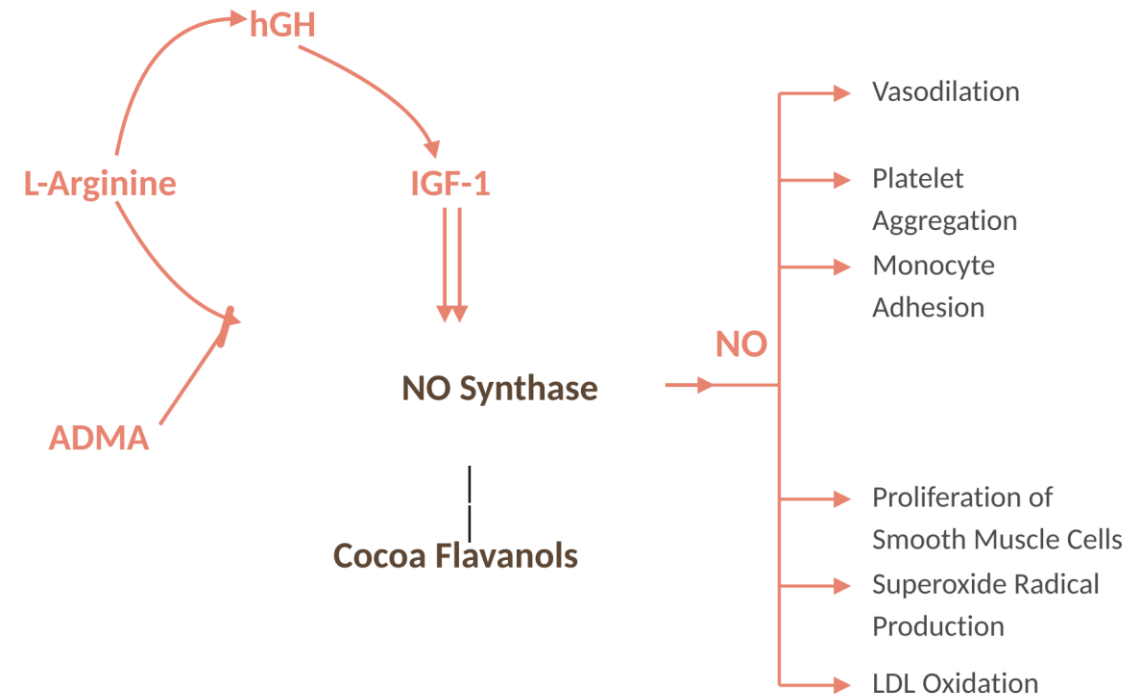
What happens in endothelial dysfunction?

- ✓ The release of nitric oxide (NO), a vasodilating and anti-inflammatory molecule, is reduced
- ✓ The vessels no longer respond adequately to stimuli, e.g. they fail to dilate sufficiently
- ✓ There is increased inflammation, risk of thrombosis, and deposits (plaques) on the vessel walls - a central mechanism of atherosclerosis



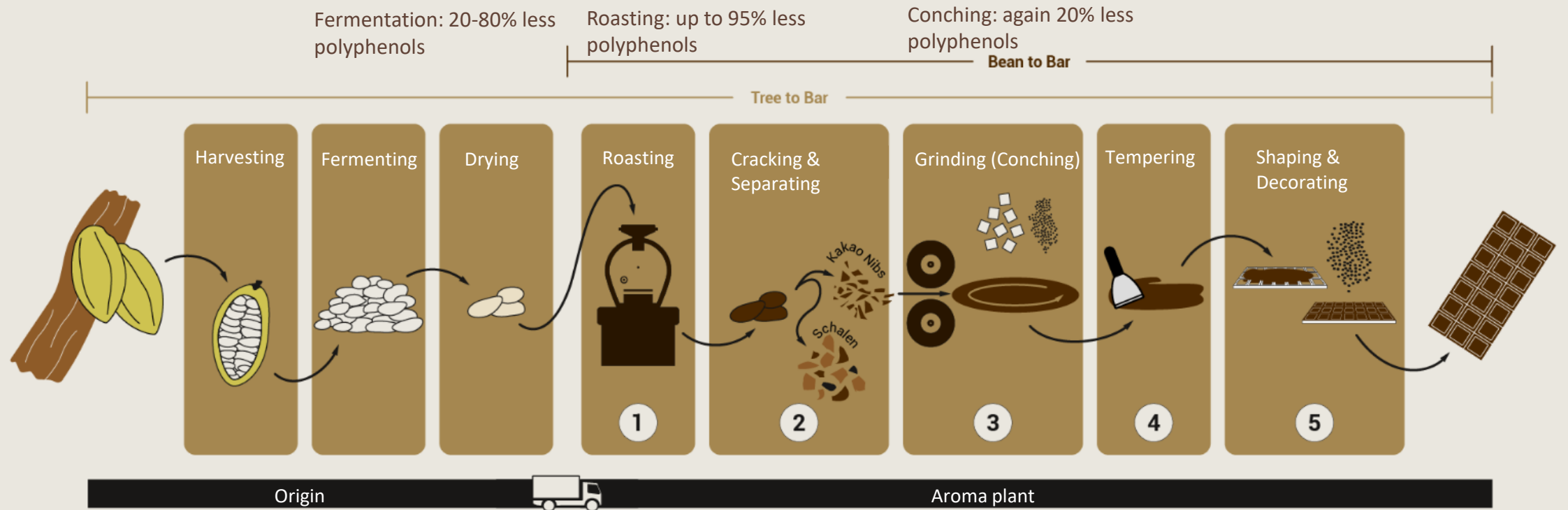
How do Cocoa Flavanols support vascular health?

- Cocoa (*Theobroma cacao* L.) = an important natural source of flavanols
Cocoa flavanols = a subgroup of polyphenols that act on endothelial function
- Consist of **catechins** (monomeric) and **procyanidins** (oligomeric)
- Promote the formation of nitric oxide (NO) in the endothelium
- NO leads to relaxation of the vascular smooth muscle
- Supports vascular elasticity and promotes normal blood flow



Chocolate Production Process

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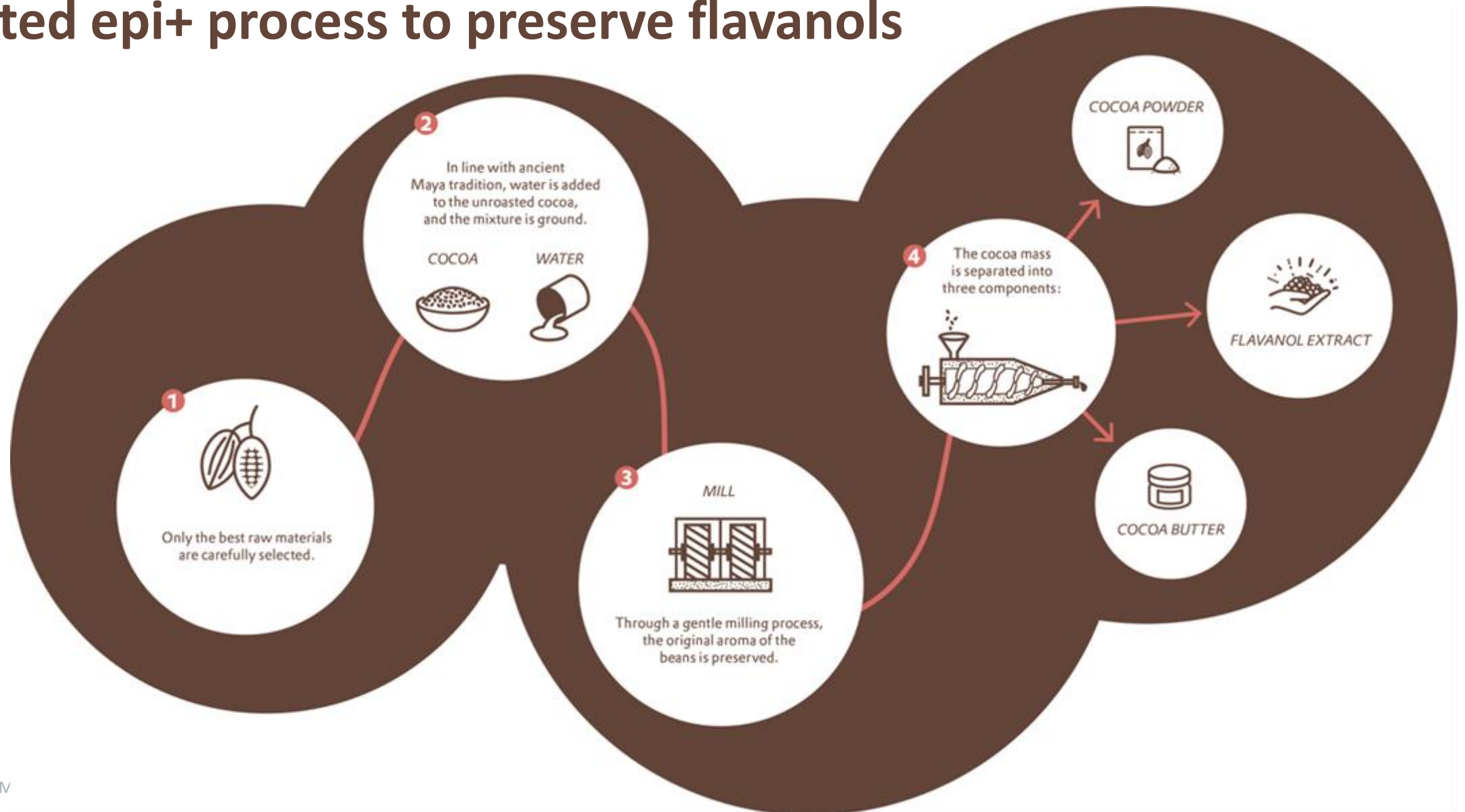
~ 80% less polyphenols



Unique Flavanol Extraction

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Patented epi+ process to preserve flavanols



Cocoa flavanols help maintain
the **elasticity of blood vessels**
which contributes to **normal
blood flow**



Scientific evidence

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The EFSA health claim is based on more than 10 clinical trials demonstrating the beneficial effect of cocoa flavanols on vascular function.

Key findings from randomized controlled trials and supporting studies include:

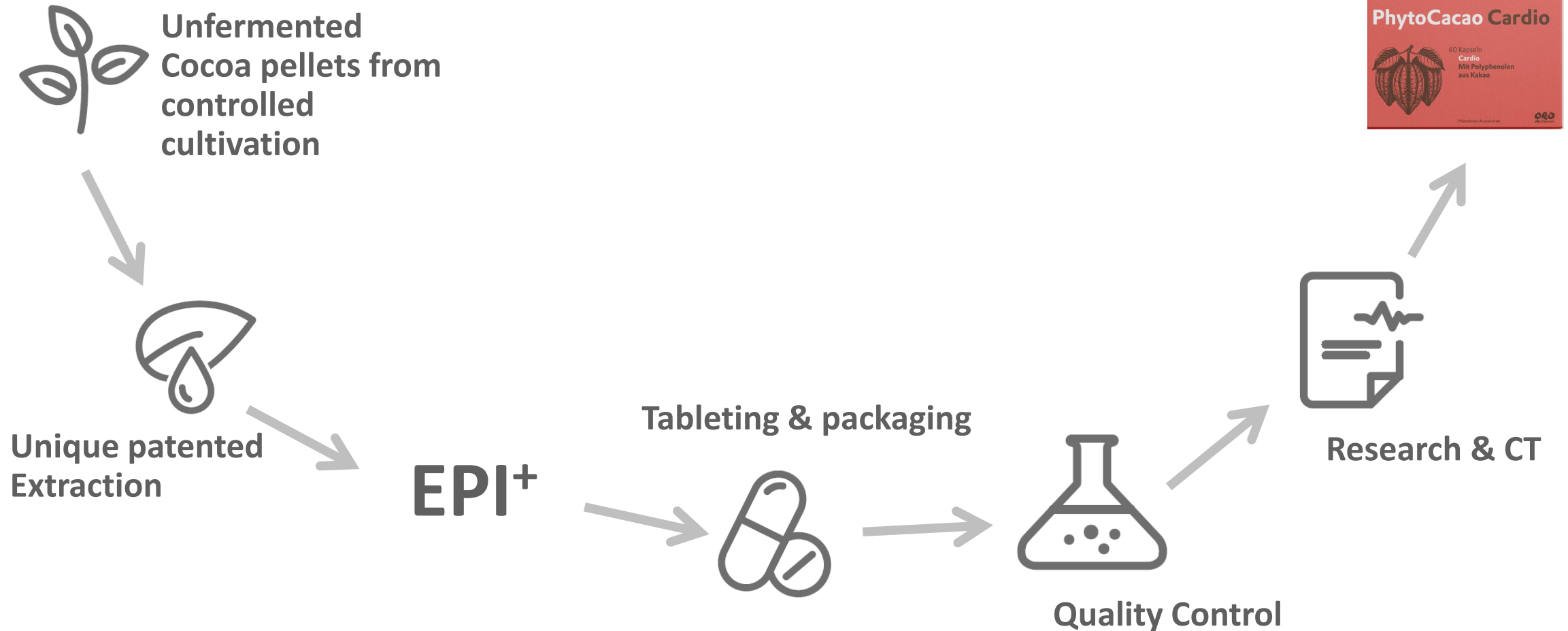
- ❖ Significant improvements in flow-mediated dilation (FMD) have been consistently observed in healthy individuals, overweight adults, smokers, and patients with cardiovascular risk factors.
- ❖ Positive effects observed after both short-term (2 hours) and longer-term (up to 12 weeks) intake of cocoa flavanols indicating both rapid and long-term vascular benefits.
- ❖ Reproducible outcomes across randomized controlled trials, confirming the beneficial role of cocoa flavanols in maintaining vascular health.



Grassi et al. (2005, 2008)
Davison et al. (2008)
Balzer et al. (2008)
Heiss et al. (2003, 2005, 2007, 2010)
Berry et al. (2010)
Monahan et al. (2011)

From Cocoa Bean to PhytoCacao Cardio

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PhytoCacao® Cardio is unique!

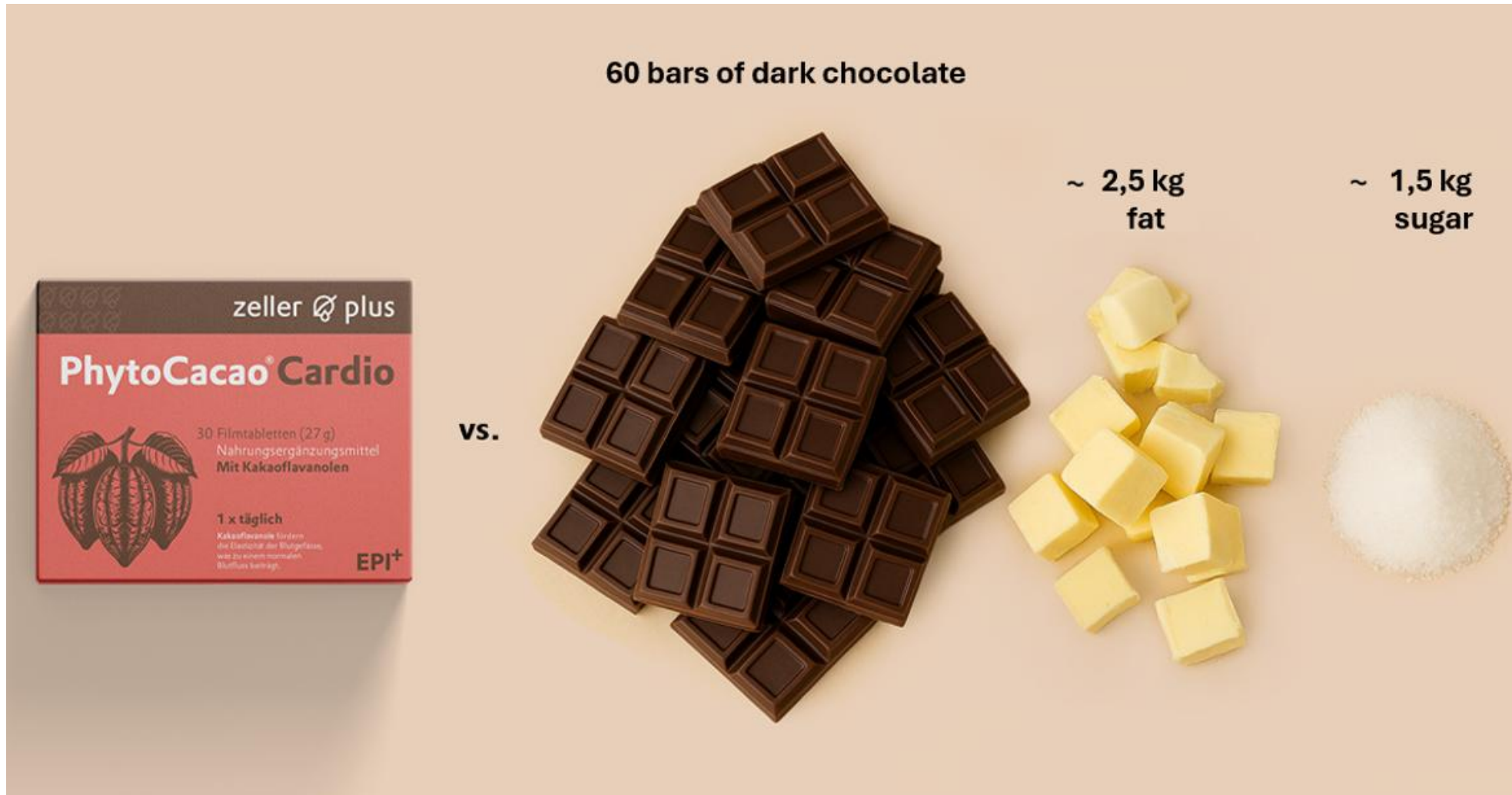
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- ❖ **PhytoCacao® Cardio** is the innovative cocoa based dietary supplement to effectively support cardiovascular health
- ❖ Containing the proprietary **epi⁺ extract**
- ❖ Uniquely enriched with **200 mg of cocoa flavanols** per tablet (one a day)
- ❖ Flavanols enhance **endothelial function** and **promote nitric oxide production**

One tablet vs. chocolate binge

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Zeller study PEPCO

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High-level scientific study program with German Sport University Cologne. The aim of this exploratory study is to investigate the effects of a highly concentrated, minimally processed cocoa extract on endothelial function and cardiovascular parameters.

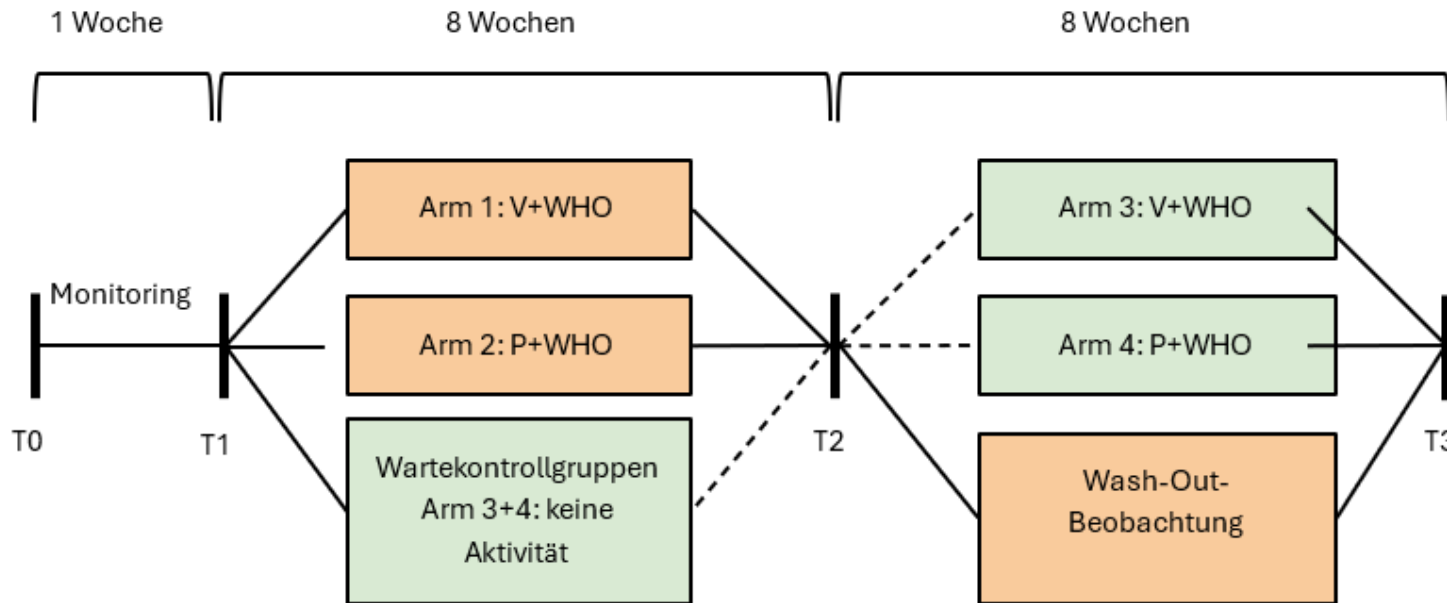


Figure: Study Design

Randomized, double-blinded, placebo-controlled expolative study

40+ post-menopausal women

3 study phases, 24 months

PhytoCacao® Cardio versus Placebo + physical activity according to WHO recommendation

Evaluation of Endothelial function by PAT (Peripheral Arterial Tonometry)

PEPCO results

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First look in postmenopausal women: consistent, favorable signals across four independent measures

-15.1 pts

Arterial stiffness (AI@75)

vs. placebo · $p = 0.003$ · lower is better

+0.82

Vessel dilation (RHI)

vs. placebo · $p = 0.044$ · higher is better

+3.4 reps

Physical performance

60-second sit-to-stand · $p = 0.019$

+4.4 pts

Physical quality of life

SF-12 score · $p = 0.037$

Exploratory pilot study · $n = 39$ postmenopausal women · 8 weeks of active treatment · with German Sport University Cologne

PhytoCacao® Cardio in Switzerland

Healthy vessels are central to an active life.
PhytoCacao® Cardio specifically supports:



People who care about their vascular health



Women during and after **menopause**, when the elasticity of the vessels decreases



Athletes for better circulation



Anyone looking for a plant-based **Omega-3 alternative** in the category vascular health



Why License This

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Protected

epi+ is a proprietary, patent-protected cold-extraction process - a defensible process moat, not a commodity extract.



Proven

Clinical program (PEPCO-Prevention) plus preclinical neuroprotection data - optionality beyond cardiovascular health.



Simple

Food-supplement status
Clear message
One tablet a day



On-Trend

Women's health & menopause: one of the fastest-growing categories in consumer health - a clear cardiovascular niche.



Let's Talk



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