

Healthy Ageing with Palm-derived Tocotrienols

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Theory of Ageing

Aging: *A total process that begins at conception. It is a change in the behavior of an organism with age leading to a decreased power of survival and adjustment*



Prof Denham Harman (1916-2014)

The Free Radical Theory of Ageing (1965)

Accumulation of oxidative damage to macromolecules including DNA, protein and lipids, which increases with age and which is associated with life expectancy of organisms



Prof Claudio Franceschi

Inflammaging Theory (2000)

A *chronic, and low-grade inflammation* that develops with advanced age. The causes are accumulation of cell senescence, pro-coagulation factors, cell debris, gut dysbiosis and immune senescence





Modern lifestyles lead to unhealthy ageing



Unhealthy Eating



Chronic Stress



Lack of Sleep

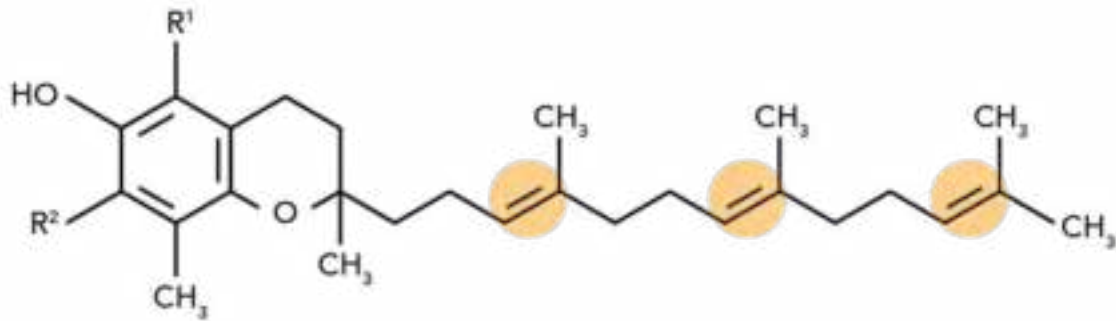


Lack of Exercise

Our modern lifestyles lead to **oxidative stress** and **low-grade chronic inflammation** in the body. These are the main causes of **noncommunicable diseases**.

Tocotrienols: A better form of Vitamin E

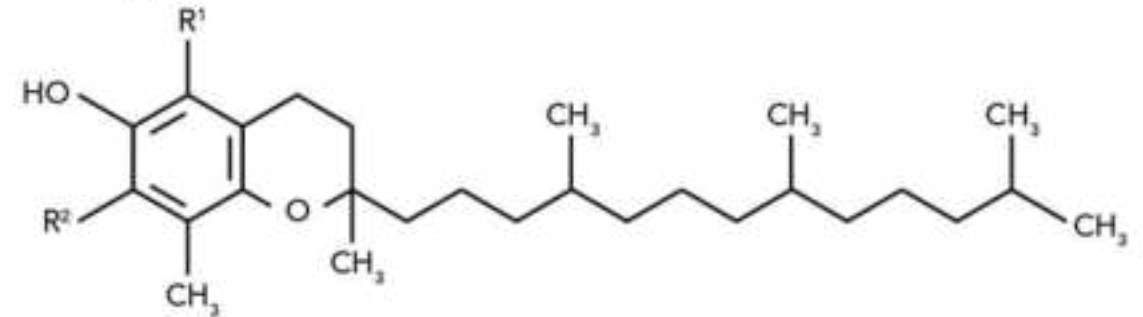
Tocotrienols



α : $R' = \text{CH}_3$, $R'' = \text{CH}_3$
 β : $R' = \text{CH}_3$, $R'' = \text{H}$

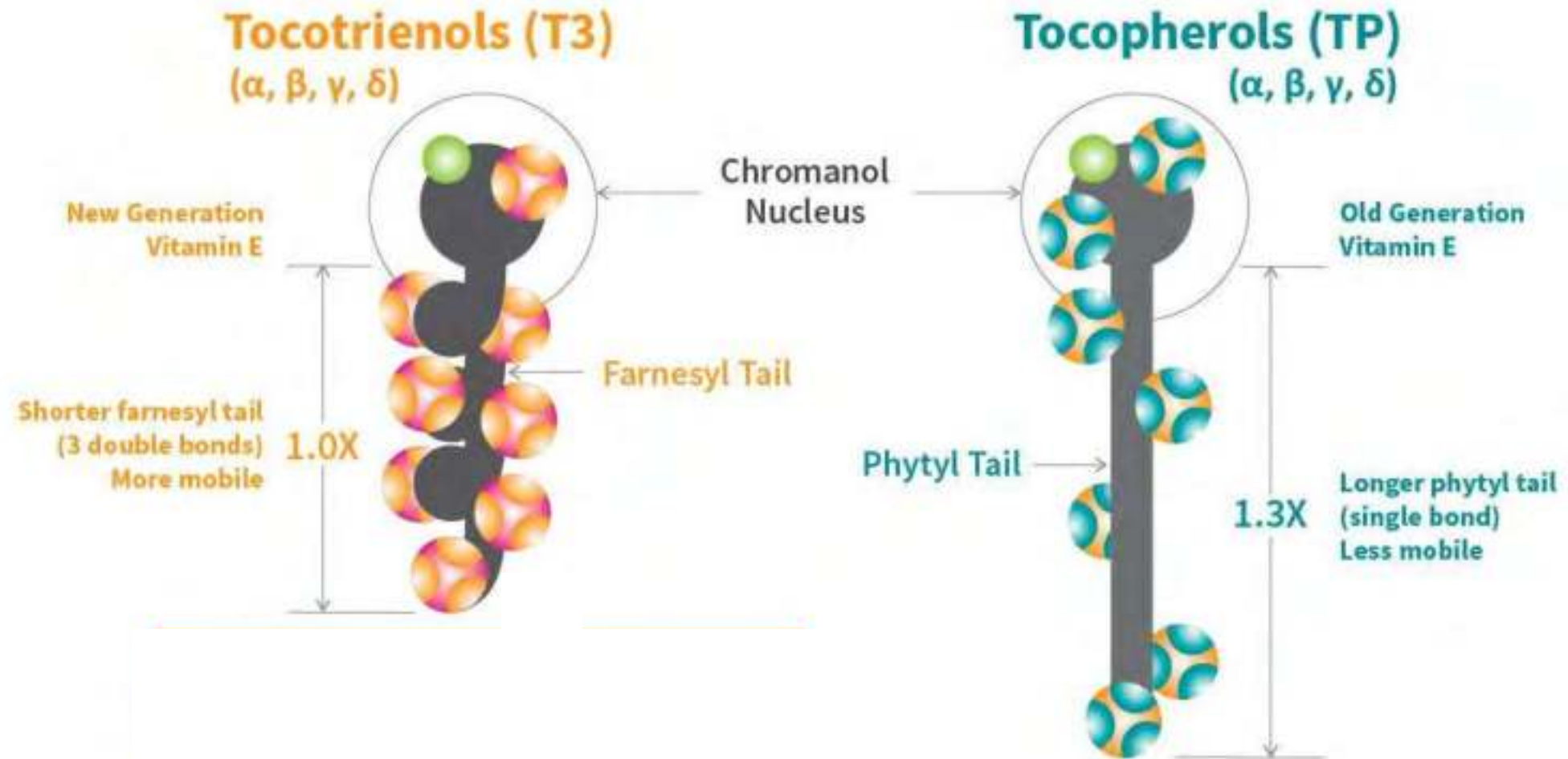
δ : $R' = \text{H}$, $R'' = \text{CH}_3$
 γ : $R' = \text{H}$, $R'' = \text{H}$

Tocopherols

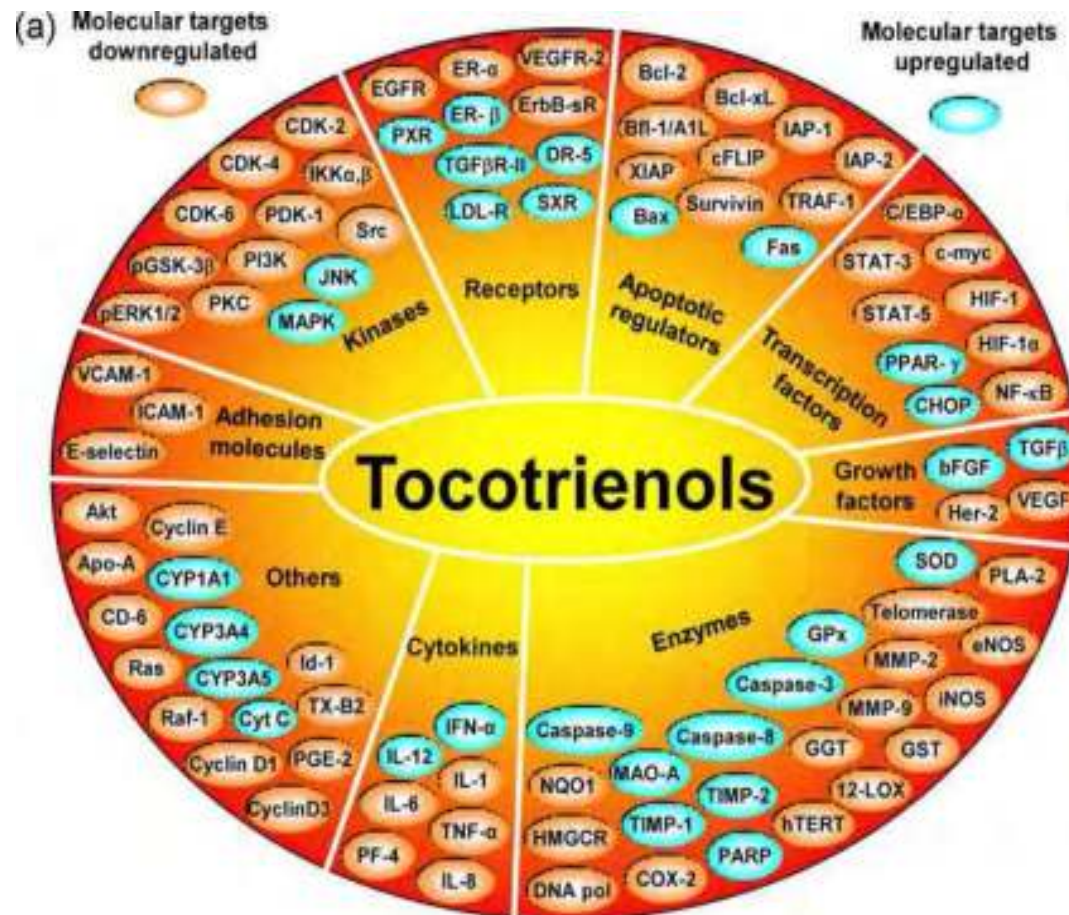


α : $R' = \text{CH}_3$, $R'' = \text{CH}_3$
 β : $R' = \text{CH}_3$, $R'' = \text{H}$

δ : $R' = \text{H}$, $R'' = \text{CH}_3$
 γ : $R' = \text{H}$, $R'' = \text{H}$

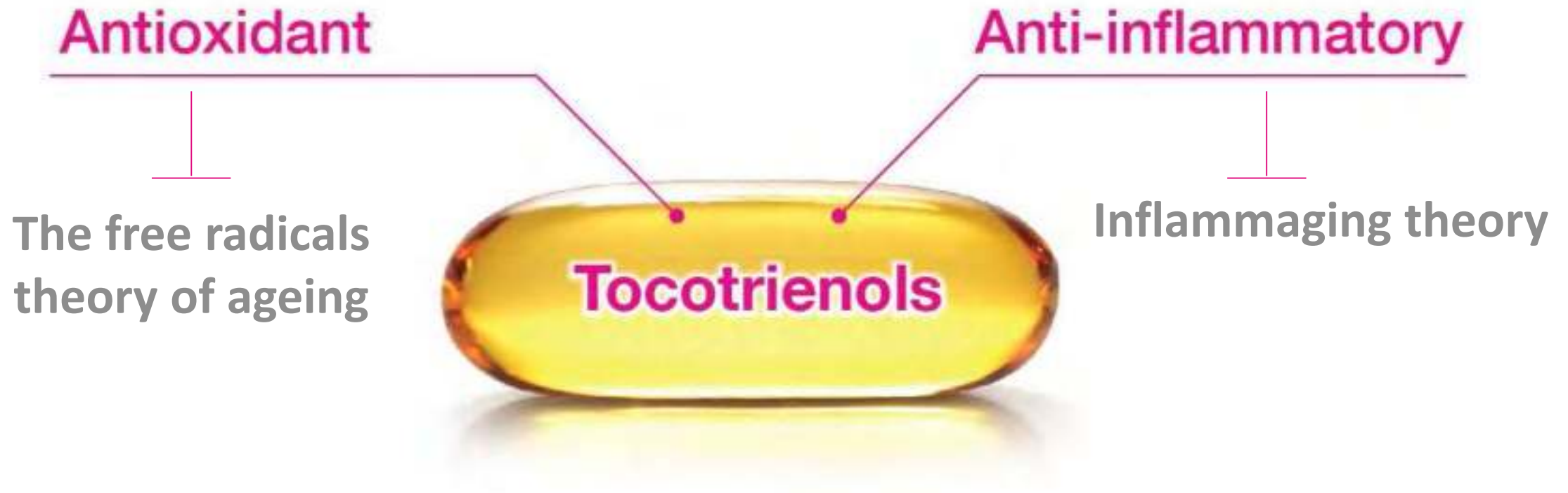


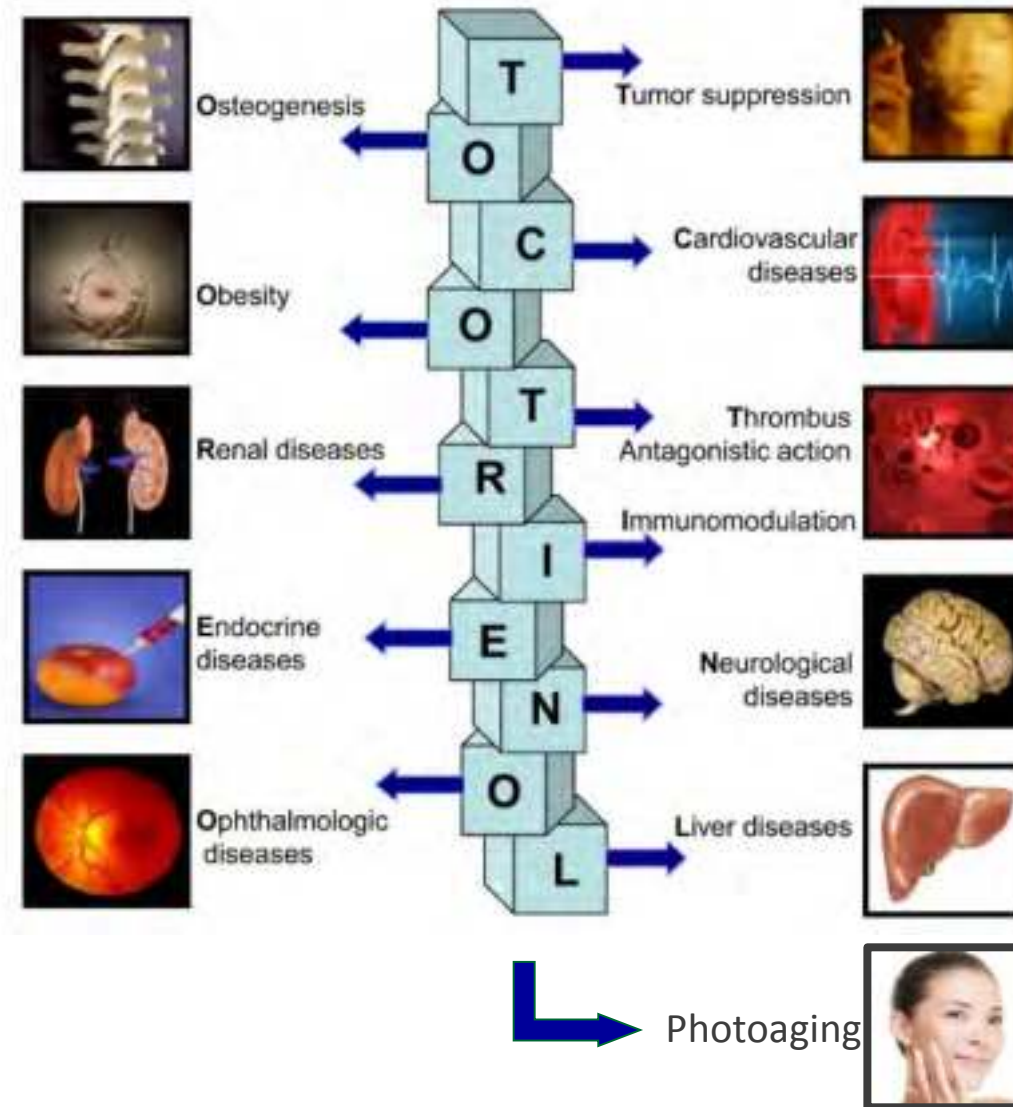
Tocotrienols are Potent Anti-inflammatory Agent



T3 exhibit potential anti-inflammatory activities via suppression of transcription factor NF- κ B and stat-3 cell signaling pathway

Tocotrienols in healthy ageing





1. Heart Health

Clinical Trials prove that **Tocotrienols** improves **Lipid Profile**.

Reduction of
Total Cholesterol



20%¹

Reduction of
Low-Density Lipoprotein



25%²

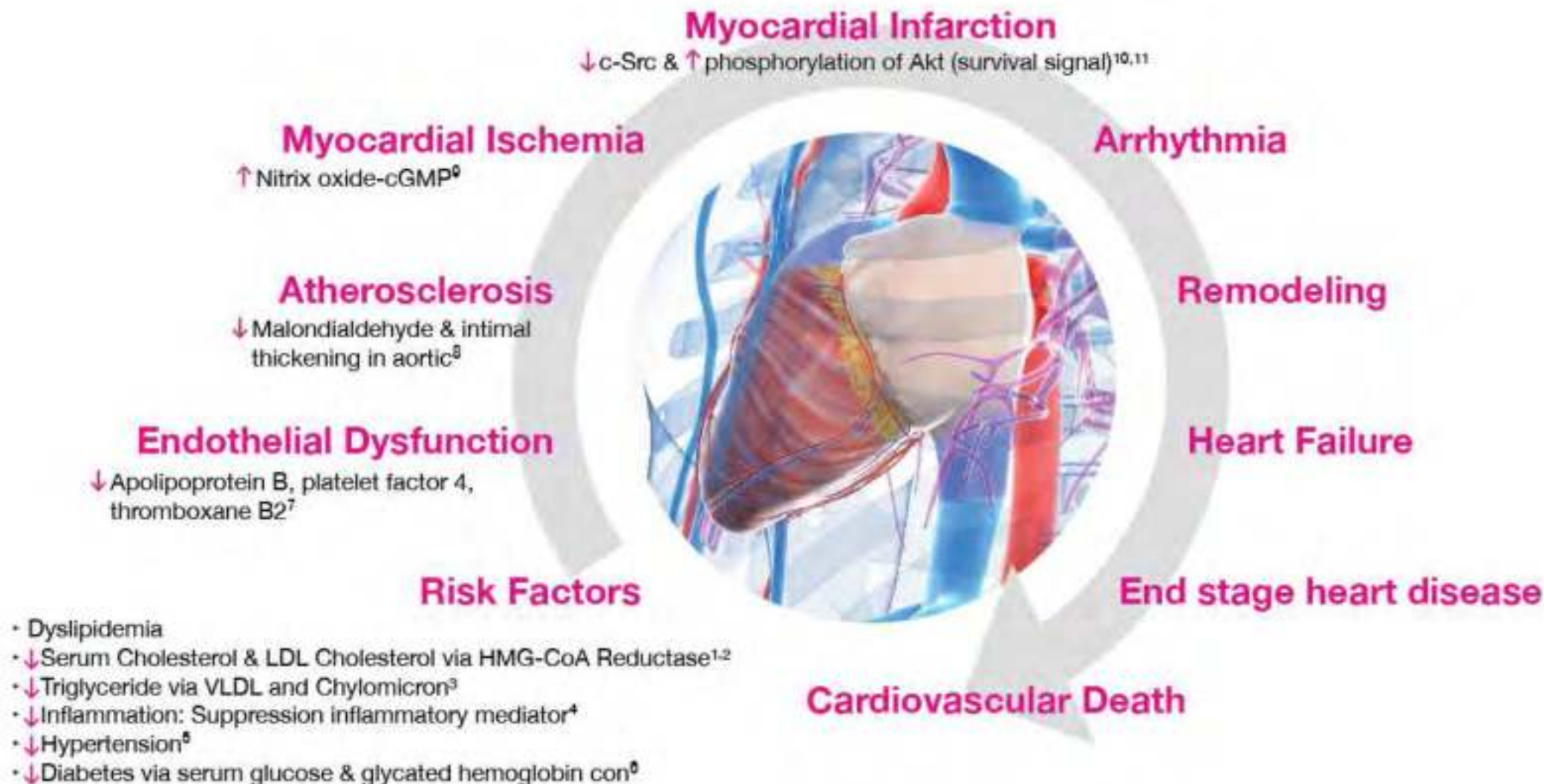
Reduction of
Serum Triglycerides



28%²

1. Qureshi *et al.* (2002). *Atherosclerosis*, 161 : 199 – 207

2. Zaiden *et al.* (2010). *J. Athero and thrombosis*, 17 (10): 1019 - 1032



α tocopherol has NO effects for CVD

TABLE 4. META-ANALYSIS OF THE EFFECTS OF VITAMIN E ON MYOCARDIAL INFARCTION, STROKE, OR DEATH FROM CARDIOVASCULAR CAUSES IN LARGE TRIALS.*

STUDY	DAILY DOSE	DURATION OF STUDY	VITAMIN E	PLACEBO	RELATIVE RISK (95% CI)
	mg	yr	no. with events/total no. (%)		
ATBC ¹⁴	50	5.0	1889/14,564 (13.0)	1970/14,569 (13.5)	0.96 (0.90–1.03)
CHAOS ¹⁵	≥400	1.3	41/1035 (4.0)	64/967 (6.6)	0.60 (0.40–0.89)
GISSI ¹⁶	300	3.5	571/5660 (10.1)	584/5664 (10.3)	0.98 (0.87–1.10)
Current study	400	4.5	772/4761 (16.2)	739/4780 (15.5)	1.05 (0.95–1.16)
Total			3273/26,020 (12.6)	3357/25,980 (12.9)	0.97 (0.92–1.02)†

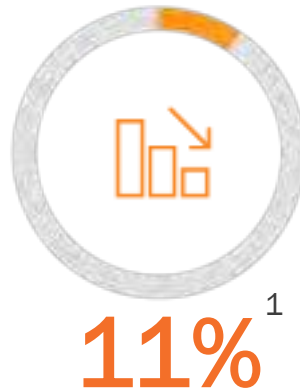
Yusuf et al (2000) *N Engl J Med* 2000;342:145-53.

2. Liver Health

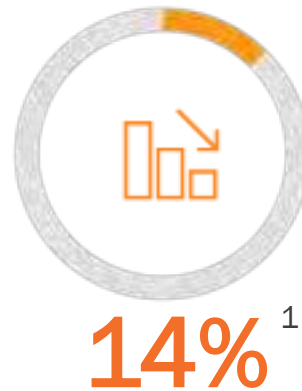
Clinical Trial proves that **Tocotrienols** Improves **Liver Health Biomarkers** in Non-Alcoholic Fatty Liver Disease Patients.



Reduction of
Triglycerides



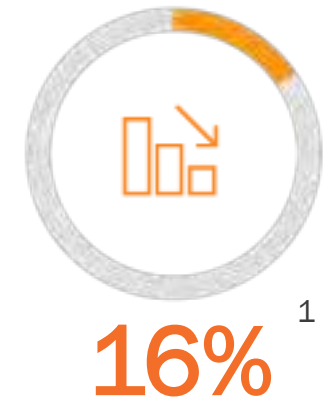
Reduction of
Oxidative Stress Marker
Malondialdehyde



Reduction of
Inflammatory High-
Sensitivity C-Reactive
Protein



Reduction of
Serum
Aminotransferases



3. Skin Health

Davos Life Science Clinical Trial proves that **Tocotrienols** improves skin resilience to UV assault. Application of Tocotrienols reduces **skin redness and pigmentation** following UV Irradiation.



Reduction in
Skin Redness



26%

Less Darkening of Skin
After UV irradiation exposure

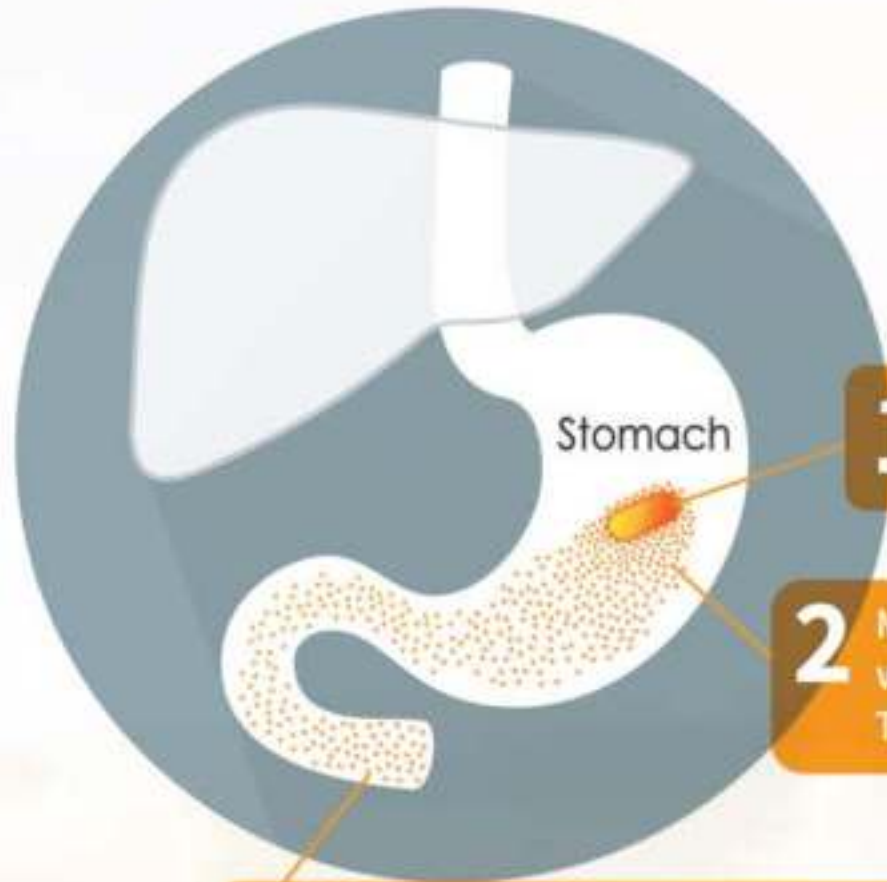


32%

T3 Bioavailability: **The Important of SEDS Formulation**

DavosLife E3 Bio-Enhanced 20

Proprietary Self-Emulsifying Delivery System



1 In the stomach, the capsule dissolves and Bio-Enhanced 20 (BE-20) is released.

2 Mild agitation from gastric mobility leads to dilution of BE-20 with gastrointestinal fluid, and the emulsification of the Tocotrienols mixture. Finely dispersed droplets are formed.

3 These fine oil droplets have increased surface area for absorption and therefore increased bioavailability.



DavosLife E3 Bio-Enhanced 20

Clinically Proven Enhanced Absorption

Plasma Total Tocotrienols

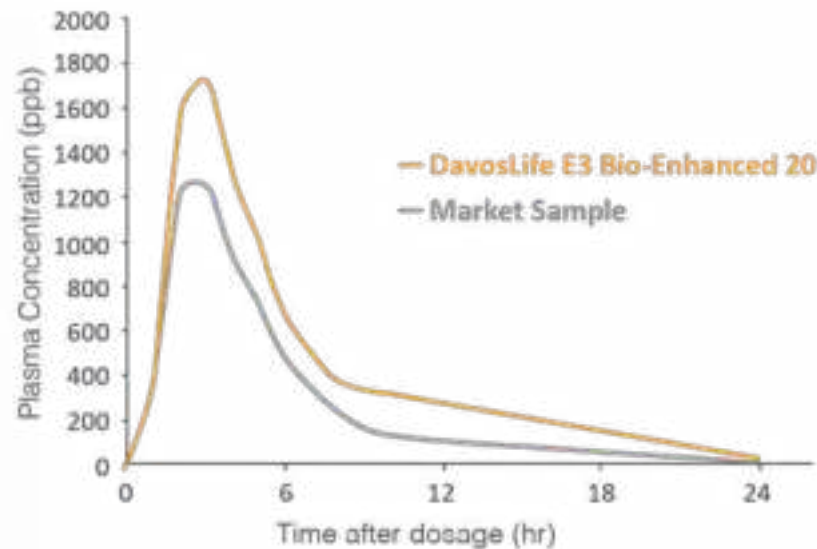


Figure 1

DavosLife E3 Bio-Enhanced 20 delivers a higher concentration of Tocotrienols (C_{max}) to plasma.

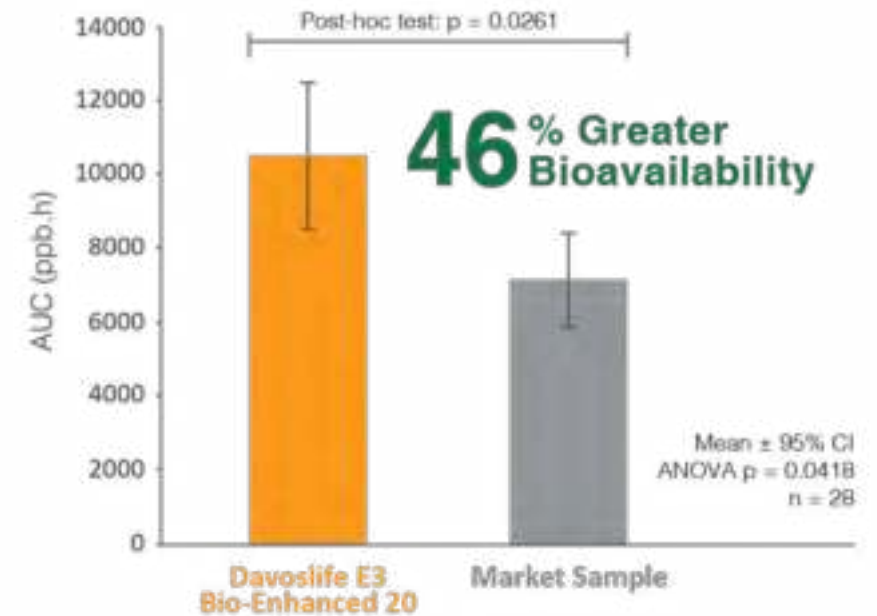


Figure 2

DavosLife E3 Bio-Enhanced 20 has the greater AUC compared to the market sample.

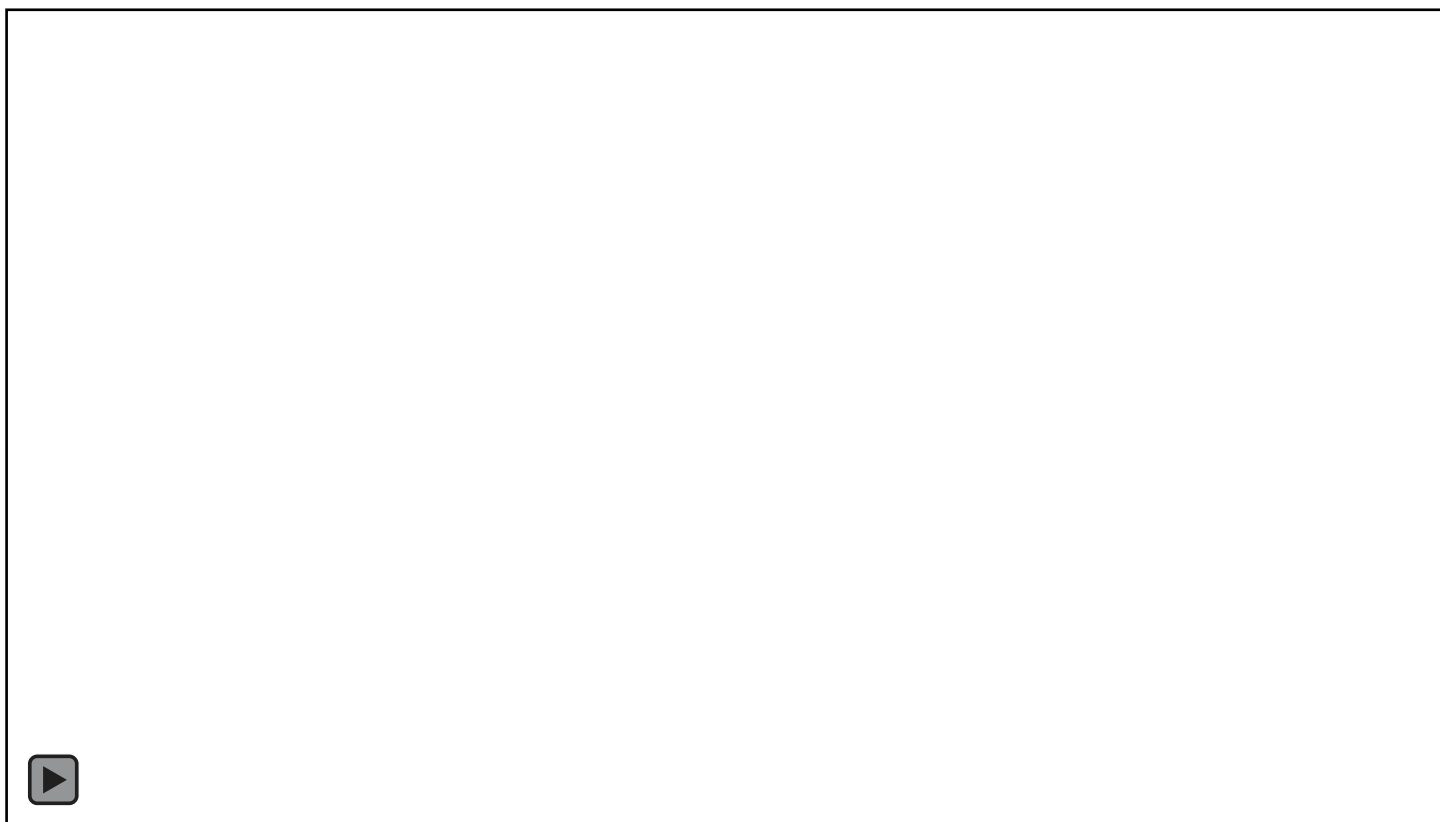


In Collaboration with



DavosLife E3 Bio-Enhanced 20

Superior Performance



DavosLife E3 Bio-Enhanced 20

Patented Formulation

DavosLife™ and DavosLife E3™ are trademarks of Davos Life Science Sdn Bhd.

This product is protected by patents:



See www.klkoleo.com/davoslife/patents for granted and pending patents in all countries.

Davos Clinical Trial



Ongoing Human Study

General well being (older adults)



Objective

To examine the efficacies of TRF in improving general well-being in healthy old adults (n =220)



Treatment

Placebo;
DavosLife E3 BE20
(200mg/day)



Duration

6 months supplementation



Endpoints

Oxidative stress, inflammation, skin function, cardiovascular, bone mineral density and weight management

In Collaboration with



Status

Trial Commencement (Apr 2021)

Take home message



Tocotrienols possesses antioxidant & anti-inflammatory properties which beneficial in improving age-related diseases as evidenced in clinical studies.



Tocotrienols formulation is important for optimal delivery and absorption in body to manifest the efficacy.



Large scale of clinical trials are important to elucidate the role of tocotrienols in the perspective of healthy ageing.

Acknowledgement



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For more information on Davos Life Science, visit:
www.klkoleo.com/DavosLife



For more information on Tocotrienols, visit:
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