An Investigation of the Influence of Fish Oil Supplementation on IL-8: A Possible Protection Against Preeclampsia

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Disclosures

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Learner Objectives:

To understand the role of polyunsaturated fatty acids from fish oil supplementation in the diet

To understand the unique properties of interleukin-8 that may affect the development of preeclampsia

To understand the factors that predict the use of fish oil in pregnancy

To understand the association between fish oil supplementation and serum levels of IL-8 in pregnancy

Disclosures

Conflict of Interest and Commercial Support: None

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Disclosures

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"Psychoneuroimmune Contributions to Postpartum Depression"
(R01 NR011278)
PI: Dr. Elizabeth Corwin

Preeclampsia

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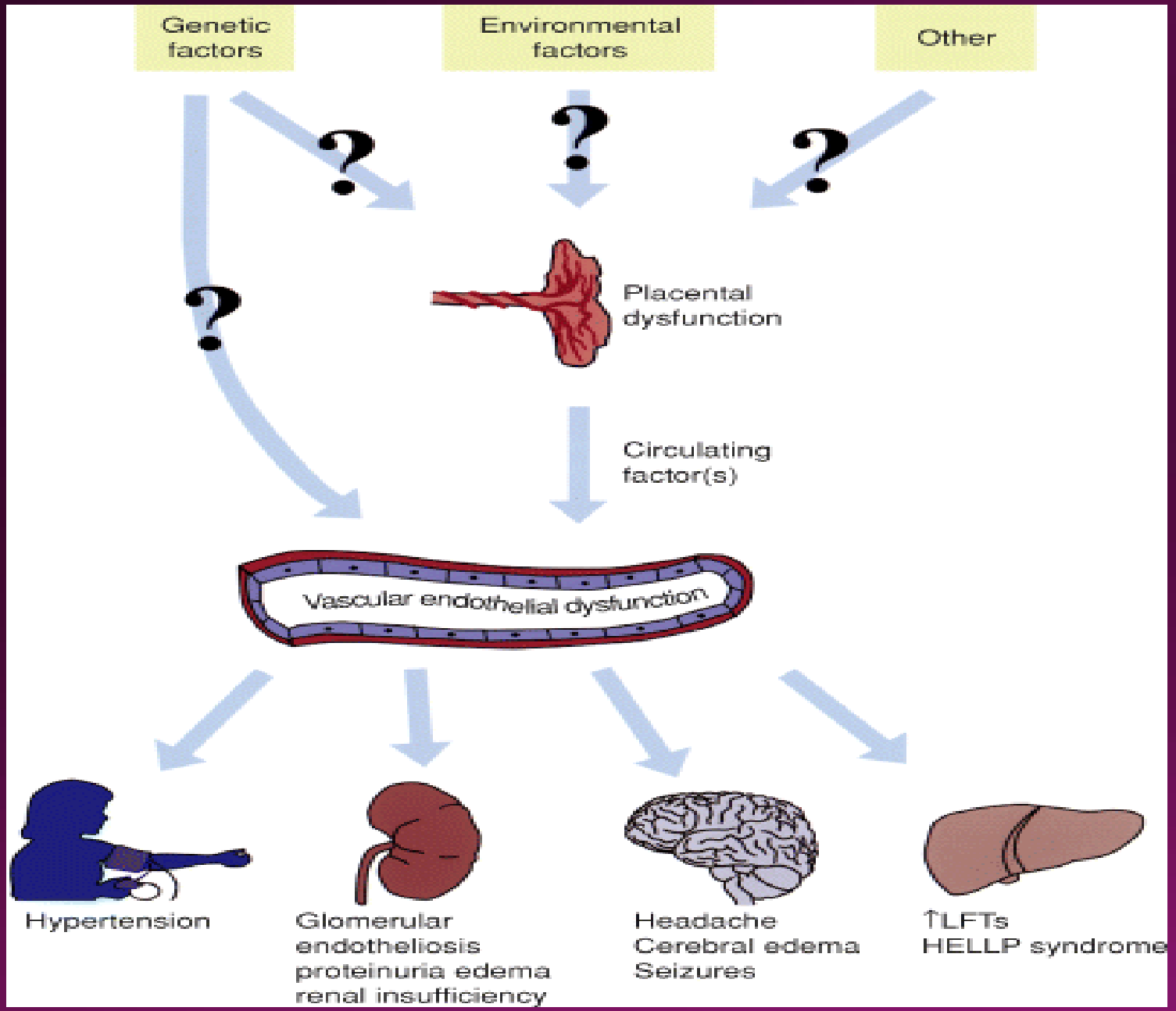
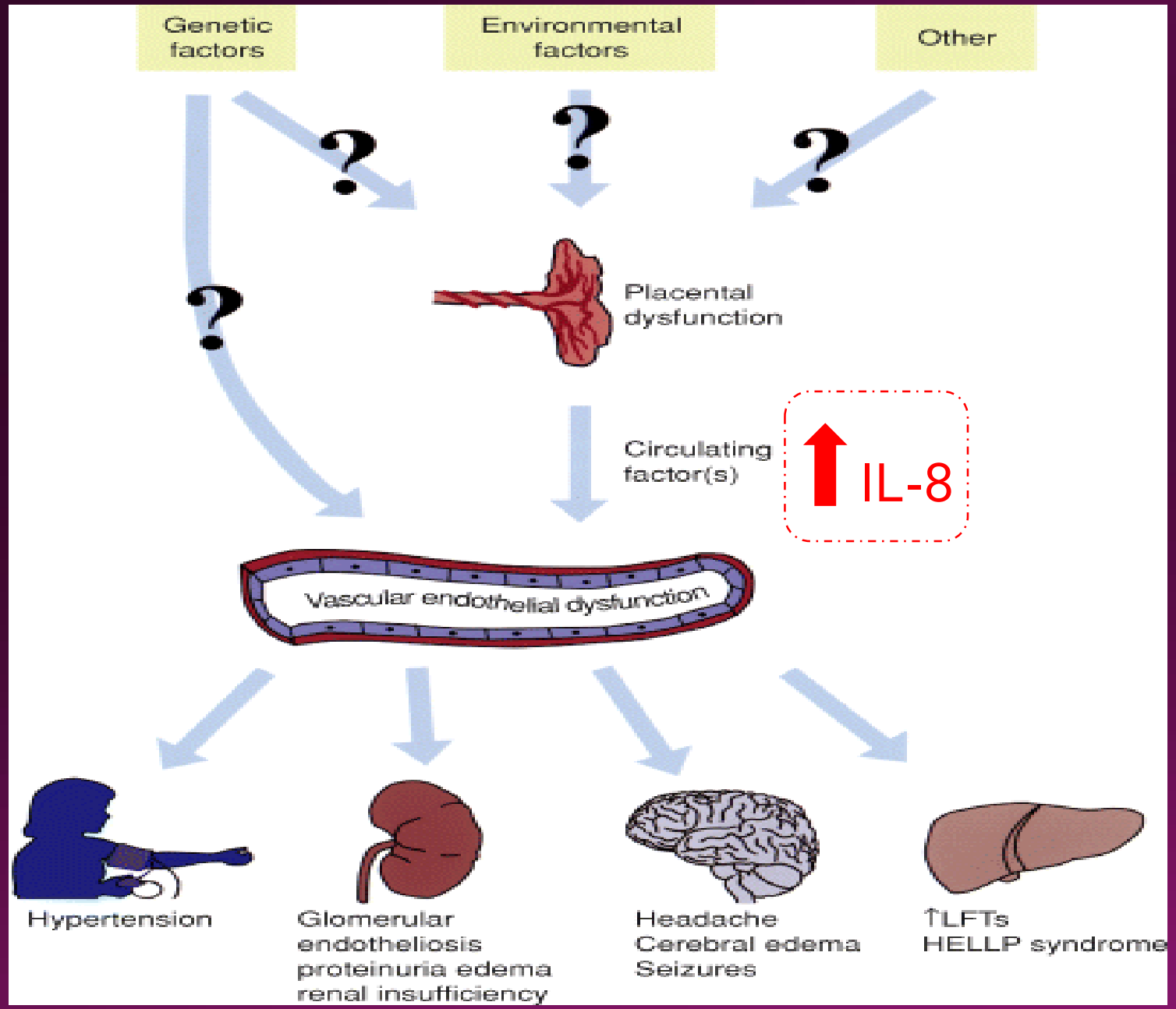
7 Times More Likely in a Developing Country



Kidney International (2005) 67, 2101–2113; doi:10.1111/j.1523-1755.2005.00316.x

Preeclampsia: A renal perspective

S ANANTH KARUMANCHI, SHARON E MAYNARD, ISAAC E STILLMAN, FRANKLIN H EPSTEIN and VIKAS P SUKHATME



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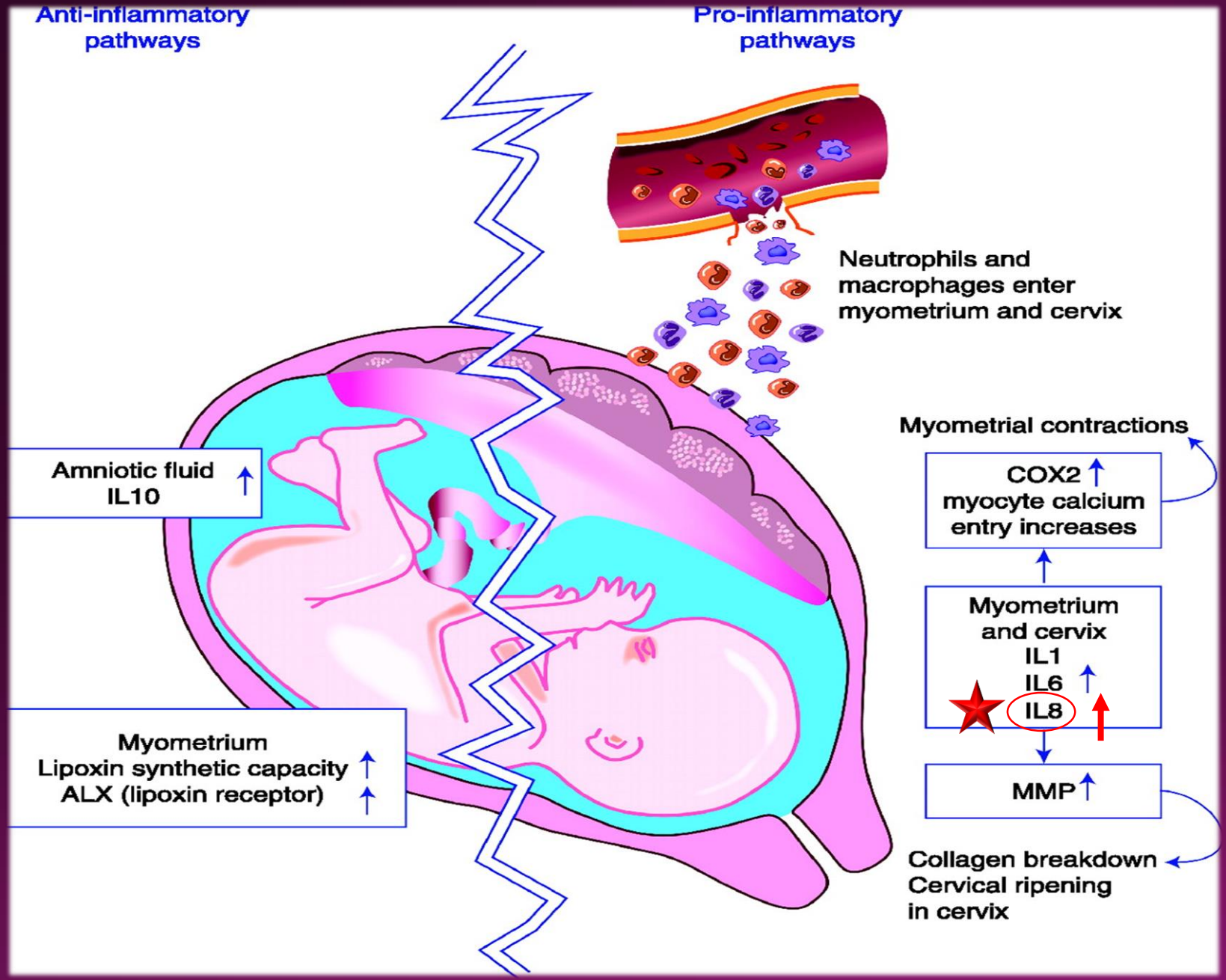

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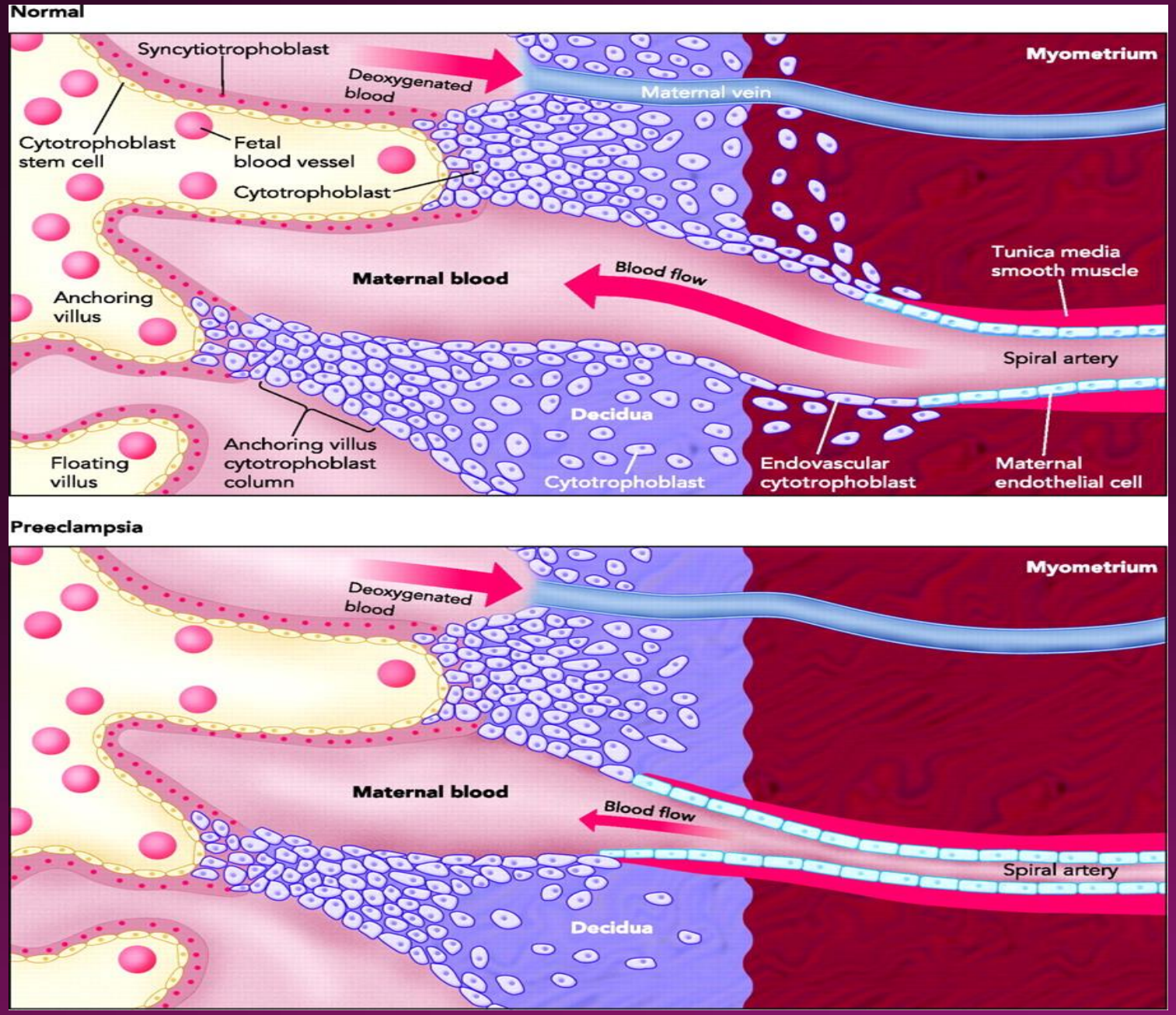

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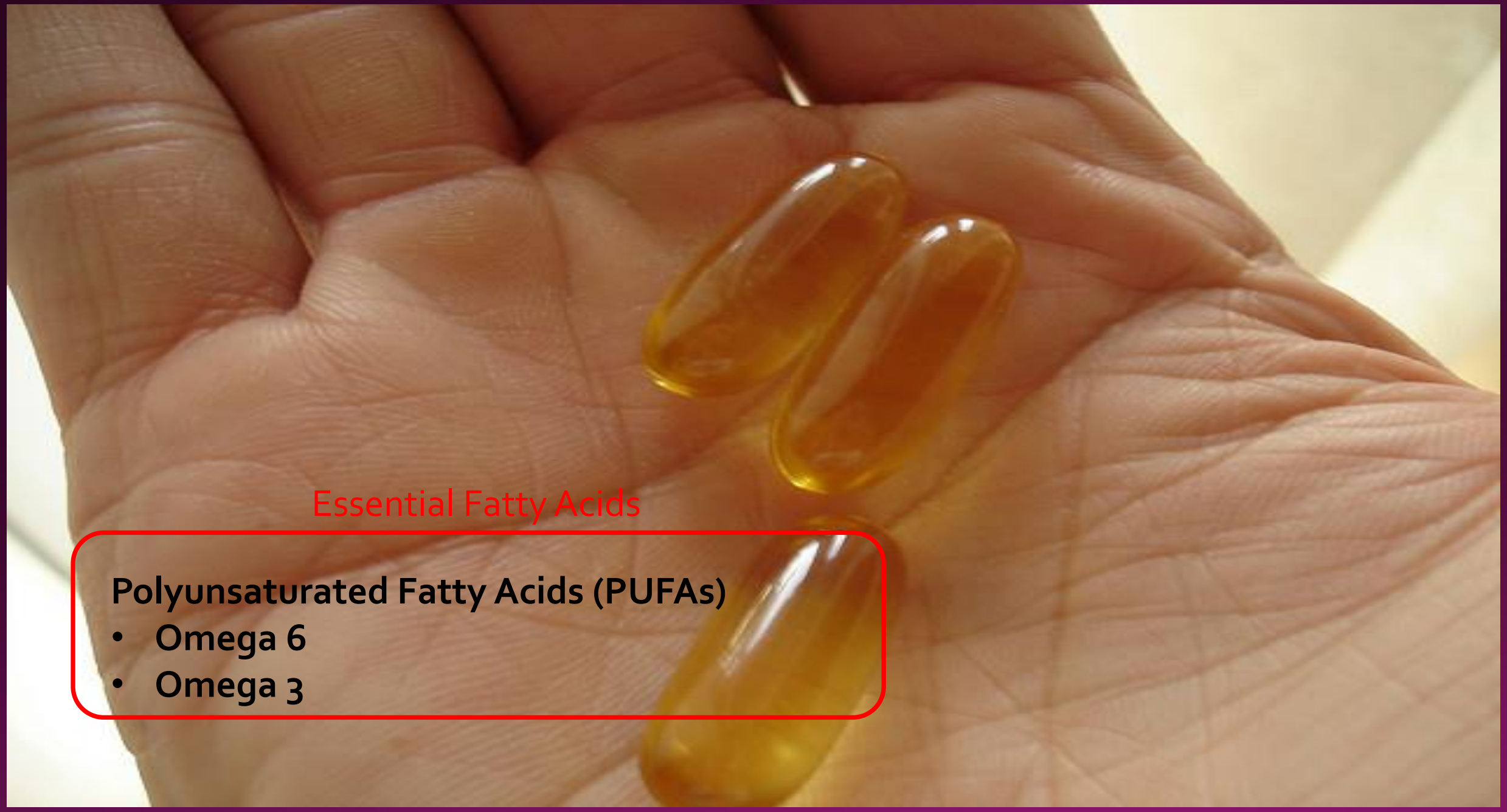

Essential Fatty Acids

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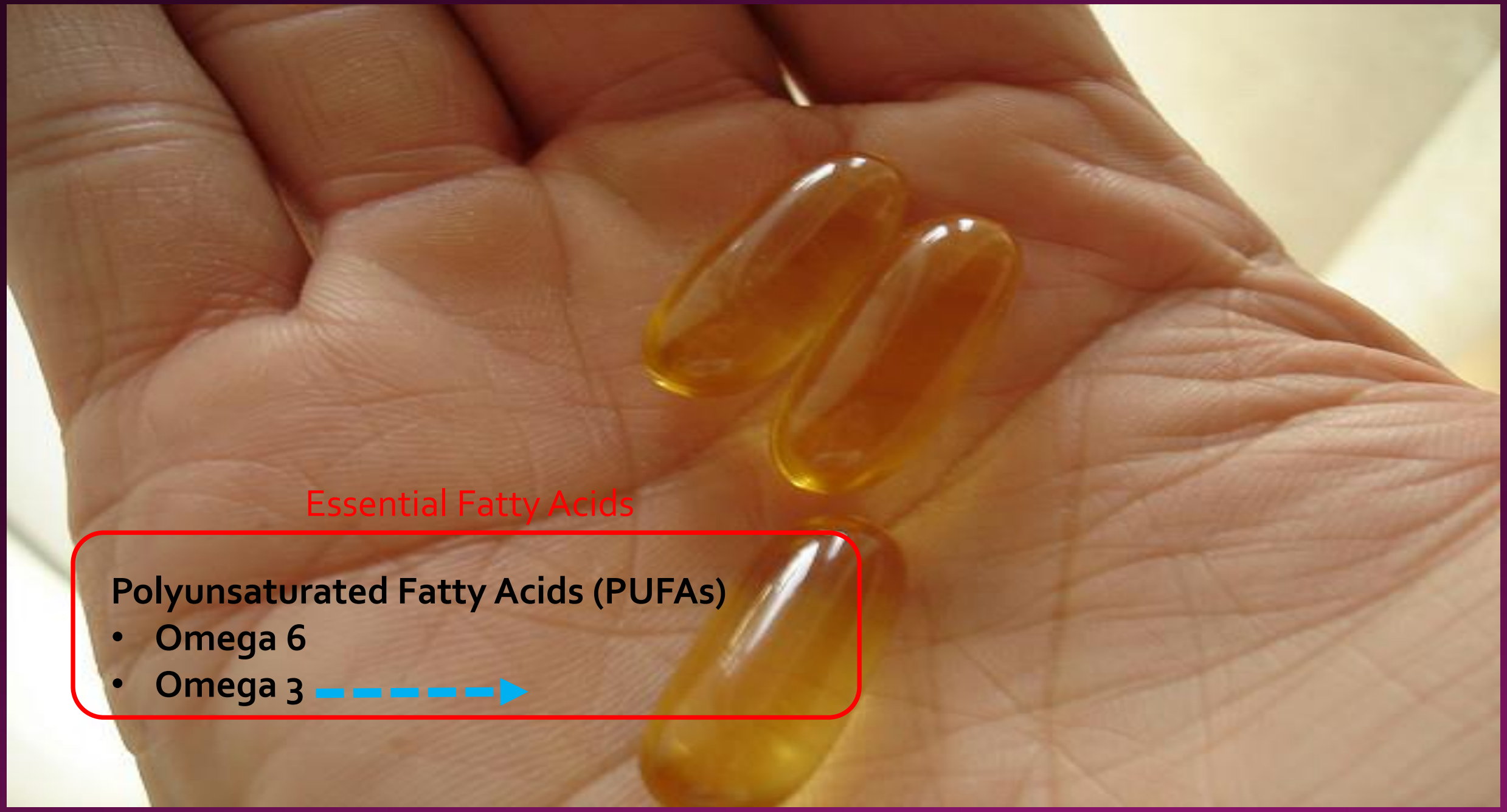
- **Omega 3**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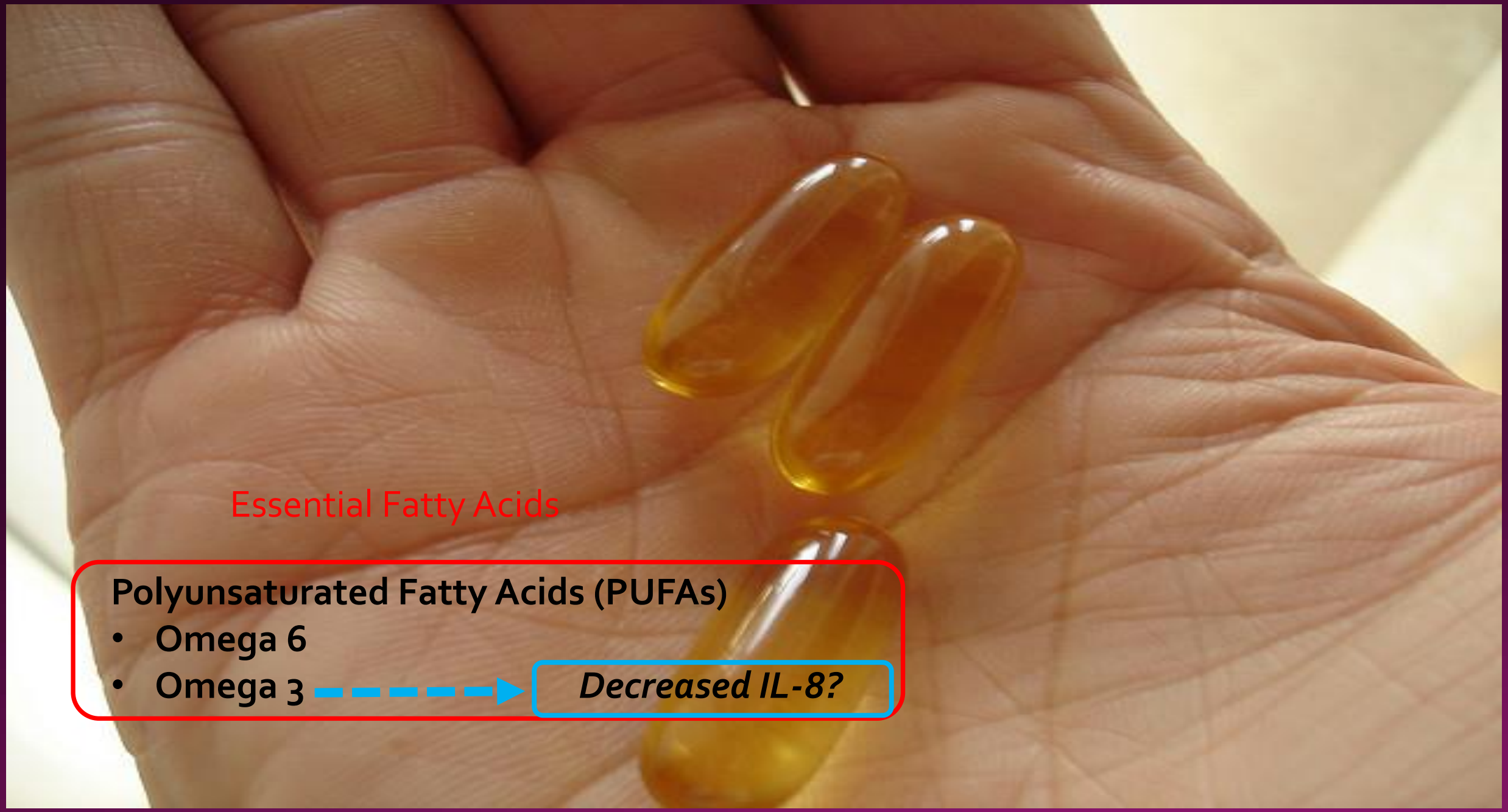
Essential Fatty Acids
Polyunsaturated Fatty Acids (PUFAs)
• Omega 6
• Omega 3
Decreased IL-8?

Methods:

- 203 Women in Colorado and Ohio Enrolled
- Longitudinal Study from 3rd Trimester to 6 months Postpartum:

- This analysis is of the one prenatal time point in the 3rd Trimester
  - Fish Oil Supplementation? Yes/No

"Psychoneuroimmune Contributions to Postpartum Depression"
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  - Plasma Cytokine levels

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Table 1. Demographic and clinical characteristics of women who did or did not report taking prenatal fish oil supplements (mean ± SD)

FISH OIL USAGE

	No (N=116)	Yes (N=40)	p value
Age	28.1 (5.3)	31.1 (4.2)	**p= 0.002****
BMI	25.1 (5.2)	22.8 (3.4)	**p=0.01***
Married	73%	90%	p=0. 05
Caucasian	67%	93%	**p=.002****
High Income	66%	93%	**p=.001****

Table 2. Interleukin-8 plasma levels (pg/ml) in women who did or did not report taking prenatal fish oil supplements (mean ± SE)

FISH OIL USAGE

	No (N=108)	Yes (N=40)	p value
IFN-γ	0.82 (.05)	1.0 (.09)	**NS**
IL-1	0.38 (.03)	0.38 (.08)	**NS**
IL-6	1.00 (04)	0.88 (.08)	**NS**
TNFα	1.81 (.05)	1.76 (.07)	**NS**
IL-8	1.60 (.04)	1.33 (.06)	**p=.002****
IL-10	1.48 (.08)	1.53 (.15)	**NS**

Logistic Regression Results:

Performed to assess the impact of 4 factors (age, BMI, Caucasian race or other, Income (food voucher program) on the likelihood a woman would supplement with fish oil in pregnancy.

A full model using these 4 predictors (age, BMI, Caucasian race or other, Income (food voucher program) was statistically significant.

- Chi-square (6, N=188) = 23.43, p<.000

Logistic Regression Results:

Fish oil users were more likely to be older (p<.002*), thinner (p=.01*), Caucasian (p=.002**) and not receiving food vouchers (.001**).

The whole model explained 11.7-17.8% of the variance in fish oil intake and correctly classified 76.6% of cases.

Linear Regression Results:

After controlling for age, BMI, marital status, Caucasian race, and income:

- IL-8 levels were significantly lower among women taking fish oil supplements ($p=0.026^*$, $t=3.157$, $df = 145$) compared to those not taking it.

- Fish oil usage **explains 5.8% of the variance in prenatal IL-8 plasma levels**

Why are women using Fish Oil and how much are they ingesting?

Could Fish Oil Use Reduce Preeclampsia Risk?

Could IL-8 levels serve as an early marker of preeclampsia?

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