DIFFERENCES IN FATTY ACID COMPOSITION OF RABBIT'S MEAT AFTER THE CHANGE OF THE SOURCE OF FAT IN THE DIET

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Introduction

Healthy diet

Polyunsaturated fatty acid (PUFA) → human health

Western diet → ↑n-3 PUFA and ↓n-6 PUFA

↓↓ n-6/n-3 PUFA ratio

Deficiency of n-3 PUFA → Cardiovascular diseases

Deficiency of n-3 PUFA → Cancer

Meat and meat products in human nutrition

- source of nutrients
- healthy growth and development

?? fats ??

✓nutritional, energy in sensory value of food

✓taste and flavour

✓source of fat-soluble vitamins (A, D, E, K)

✓source of polyunsaturated fatty acids (PUFA)

Functional food

Animal products (meat, eggs, milk) enriched with n-3 PUFA

↓

Different dietary strategies

↓

Linseed or linseed oil

α – linolenic acid → eicosapentaenoic acid
α – linolenic acid → docosahexaenoic acid

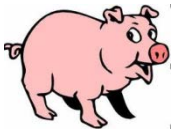
} long chain fatty acids

Rabbit meat

Often recommended by nutritionists

Low lipid and cholesterol level

High content of PUFA


	Rabbit	Pig	Beef	Veal	Chicken
Lipid (g/100g)	**6.8**	8.7	9.0	4.0	6.6
Cholesterol (mg/100g)	**45**	61	70	66	81
PUFA (%)	**23.9**	18.5	9.5	15.2	25.1
n-6/n-3	**6.7**	32.5	9.5	36.6	18.0

Dalle Zotte, 2002

Aim

Palm fat

Linseed oil

Changes of the fatty acid composition of rabbit's meat (back and hind leg muscles)

Materials and methods

24 x 

SIKA rabbits

6 ♂ 6 ♀

Control group

rabbit's diet +
6% palm fat

6 ♂ 6 ♀

Linseed group

rabbit's diet +
6% linseed oil

Main differences between diets

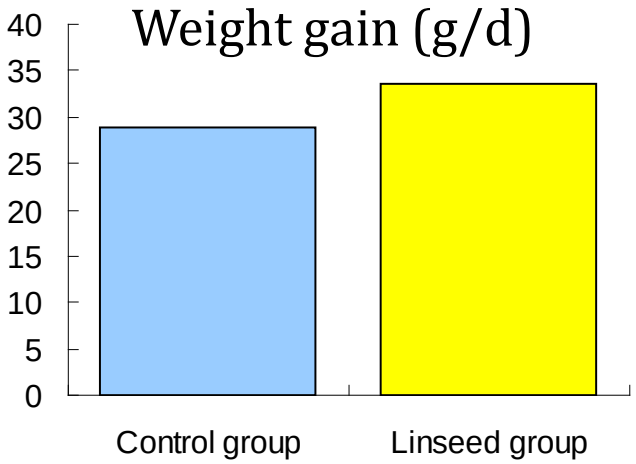
	Control diet	Linseed diet
∑ SFA	**80.08**	13.48
∑ MUFA	8.05	24.14
∑ PUFA	11.86	**62.38**
n-3 PUFA	2.85	**40.33**
n-6 PUFA	9.01	22.05
n-6/n-3	3.16	**0.55**

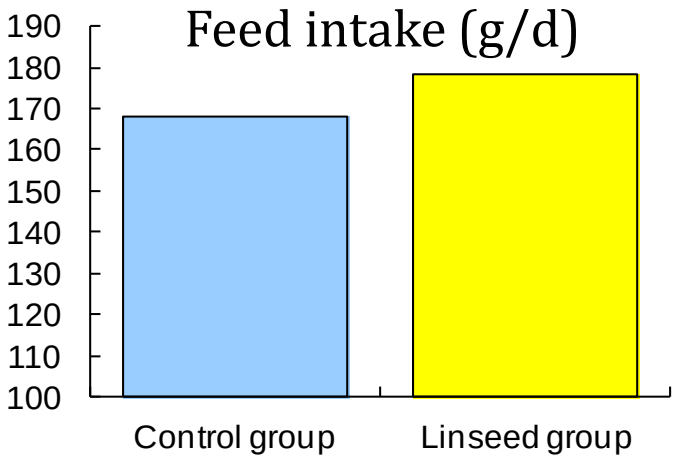
Material and methods

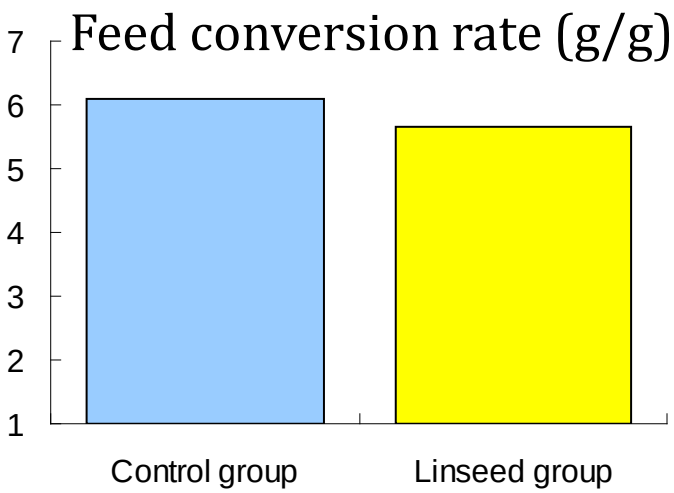
- Diet intake → recorded daily
- Body weight → recorded weekly
- 22 days of treatment
- Samples: → back muscle (M. *longissimus dorsi*)
  → hind leg muscle (*Biceps femoris*)
- Analysis: → GC
  → HPLC

Results

Productive performance

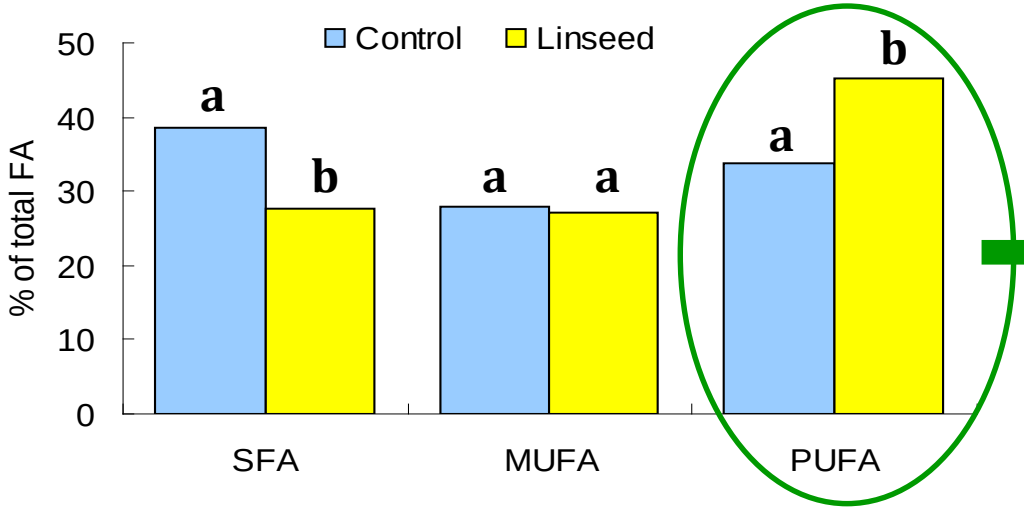


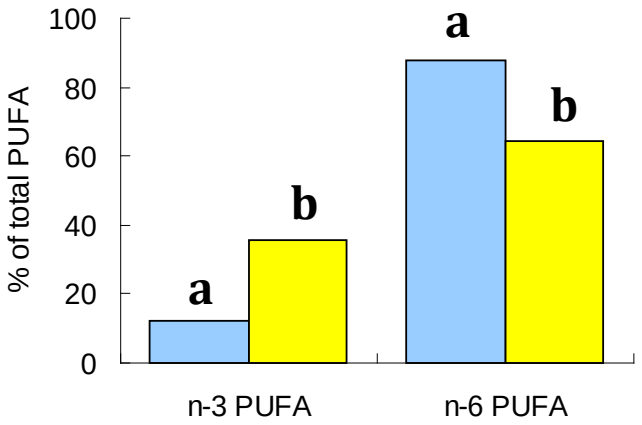




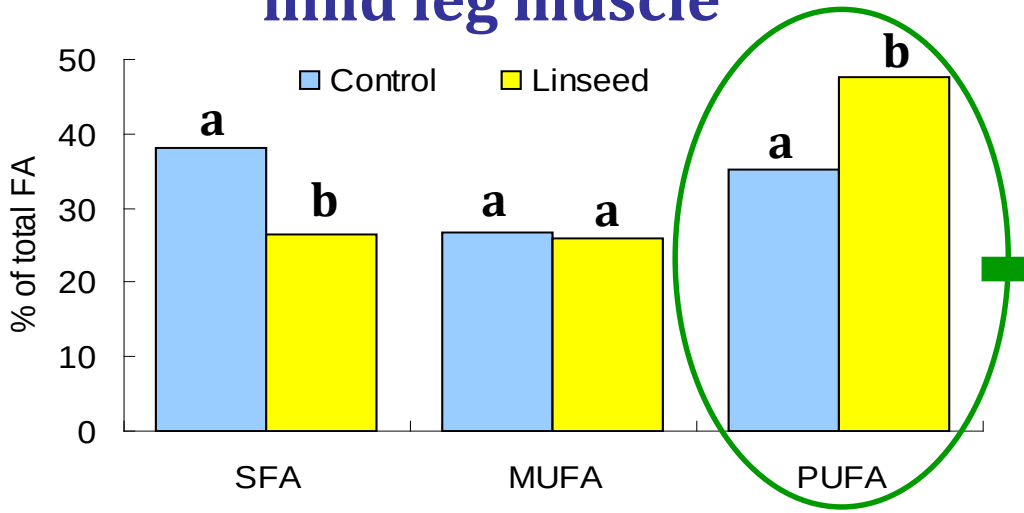
Fatty acid composition of rabbit meat

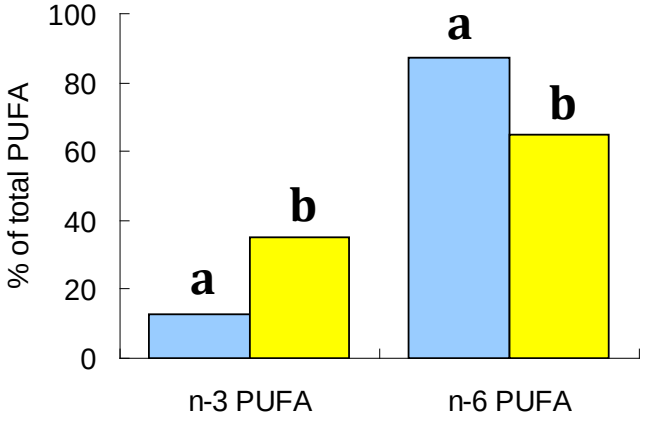
back muscle





hind leg muscle





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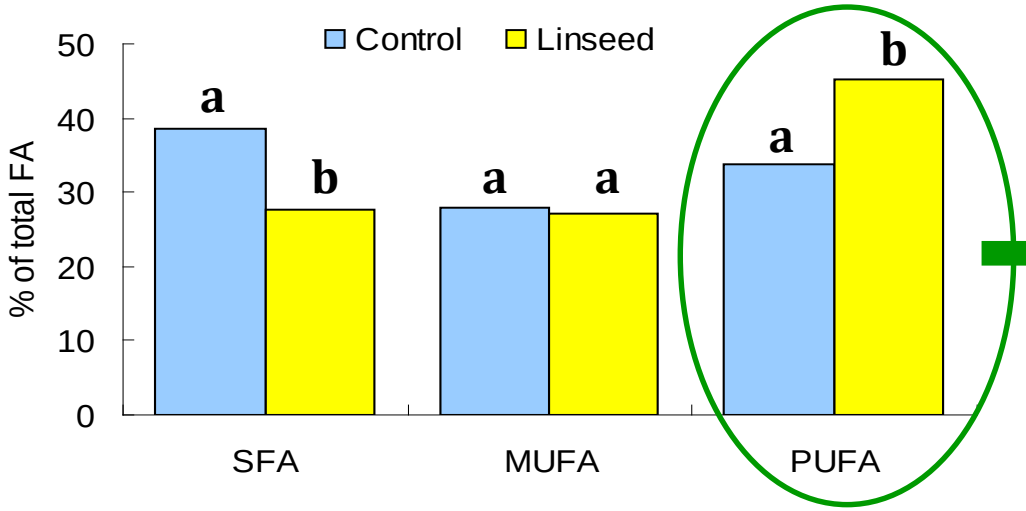

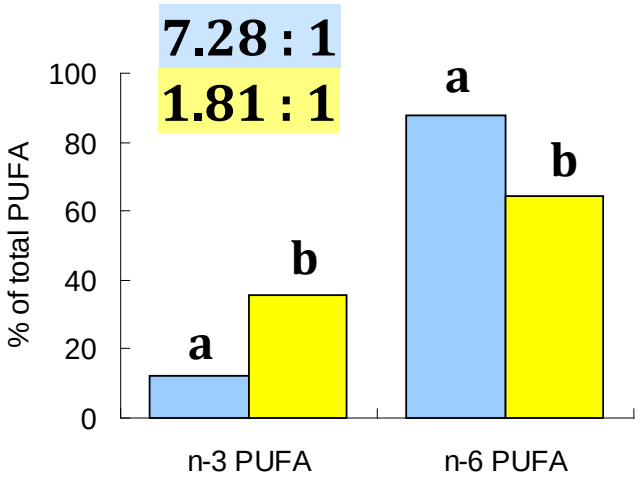

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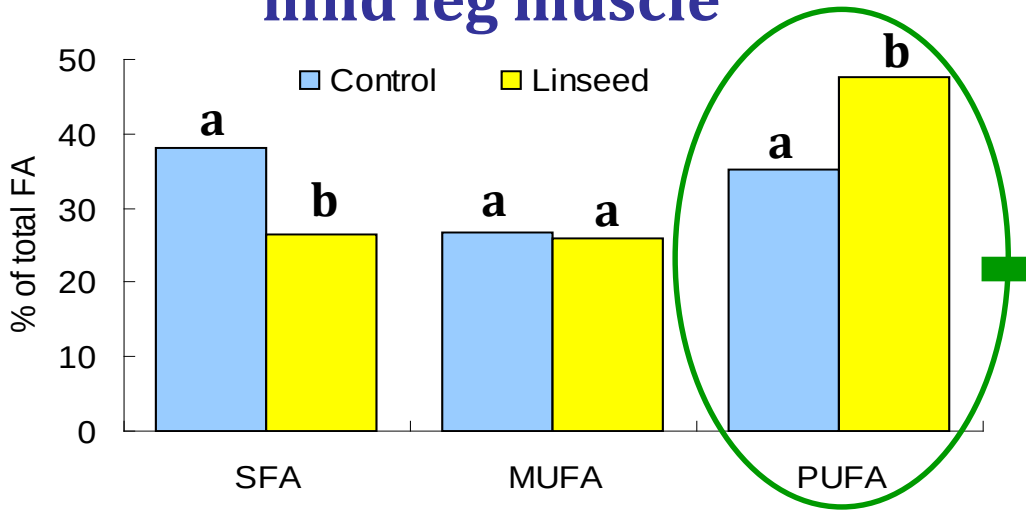

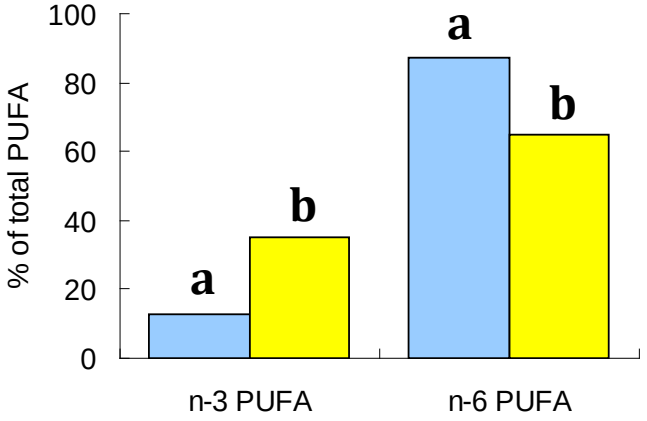

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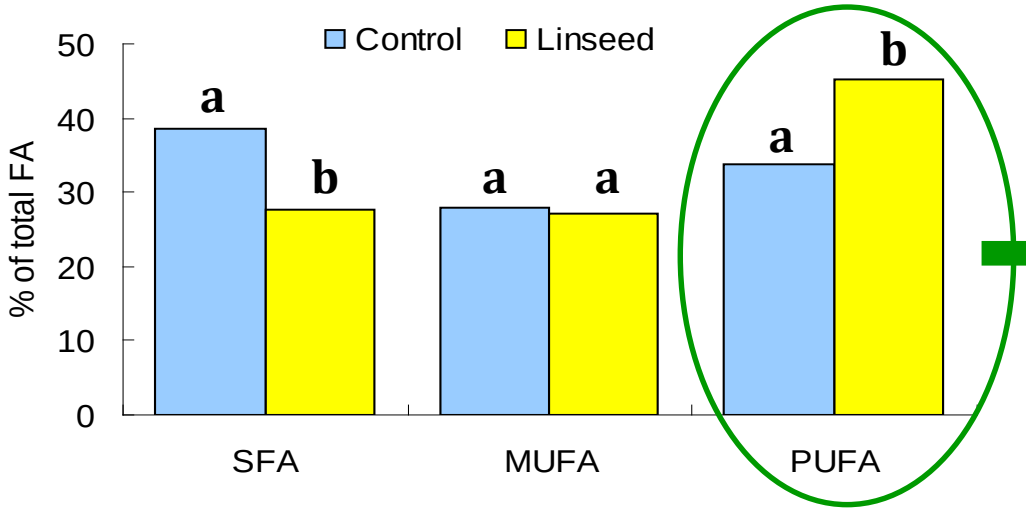
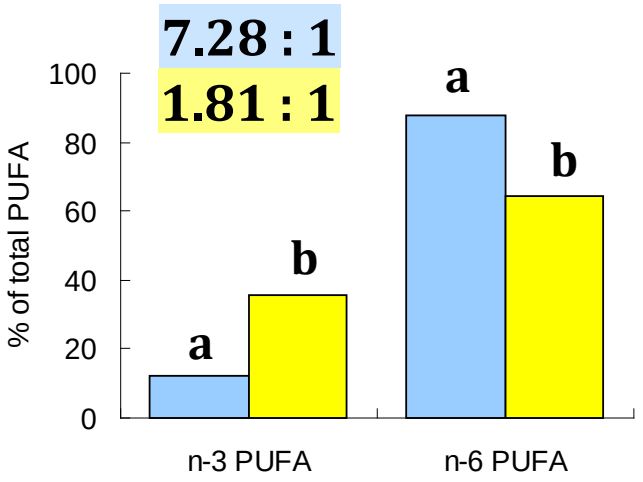
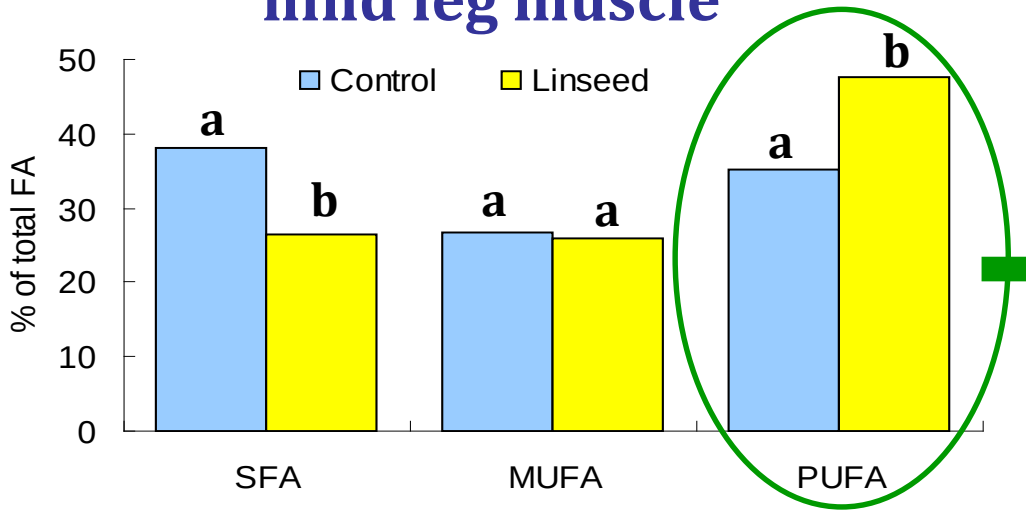
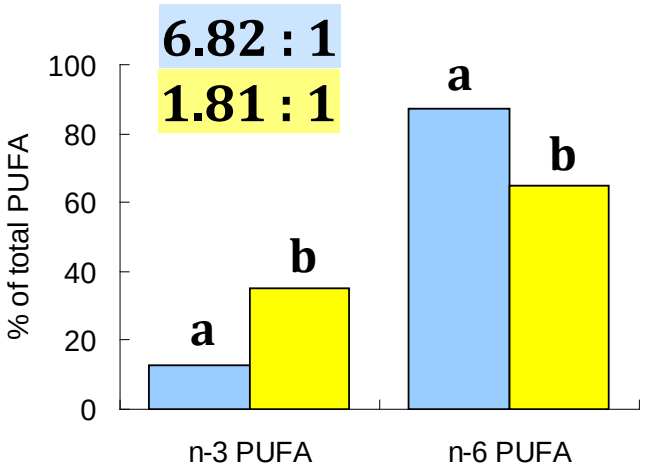




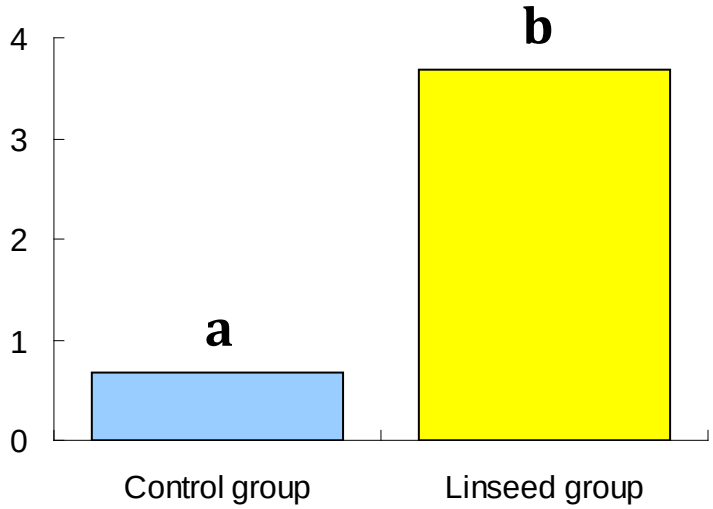
hind leg muscle



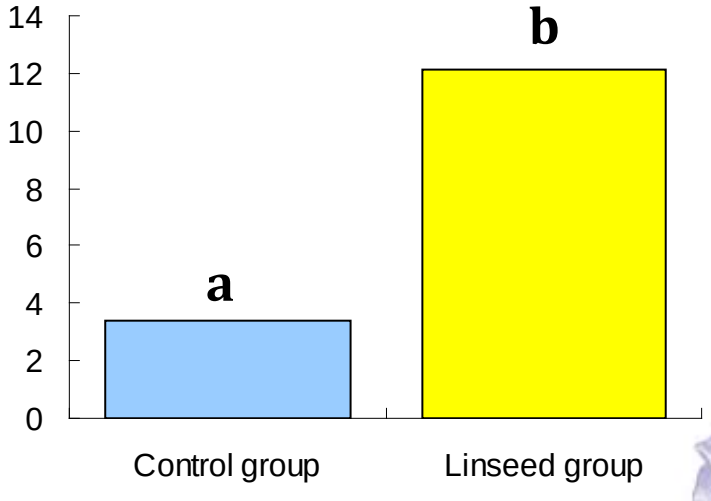


Malondialdehyde concentration

back muscle



hind leg muscle



Conclusions

Dietary FA composition → Meat FA composition

Linseed oil → ↓ SFA and ↑ PUFA (n-3)

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↓ n-6/n-3 PUFA ratio

⇩

healthier food for human

↑ PUFA → ↑ susceptibility to lipid oxidation

⇩

various natural antioxidants

Conclusions

Thank you for your attention

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