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( ) :

SPSS

(

*Paired-t test*

%

% /

/ ± /

( ) :

**HDL**

/

(P < /

)

**LDL** % /

(P < /

P < /

)

**LDL/HDL**

**Chol/HDL**

:

( )

**HDL LDL**

:

(.)

( )

)

Poly - Unsaturated Fatty Acids (PUFA)

.( Mono- Unsaturated Fatty

.( ) Acids

(LA) :

(LNA)

(PUFA)

.( )

FAO WHO

%

)

LNA LA

HDL LDL Chol TG

%

LA

(

.( )

Linium Usitatissimum

(LNA)

( LA / g LNA / g )

HDL

TG

.( )

LDL

%

LNA

%

PUFA

LA

.( ) /

( ) LNA %

.( )

( )

.( )



( )

/

( ) %

( ) LDL

(% / )

( ) HDL

HDL

Lucas

Eristland

( )

( )

( )

HDL

( )

% /

/ mg/dl

( )

Alekseeva

( )

Kim

%

( )

%

% /

( )

% /

(PUFA)

LDL

( )

/ mg/dl

%

% /

( )

Eristland

Alekseeva

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HDL

LDL

## **REFERENCES**

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1. Zandi P, Yusefzadeh H. The guidelines for food oils. Iran: Industrial research and standard institutes publication. 1998; PP: 19-28.
2. Salaki F. A survey of fats and oral oils. Iran: Industrial and research nutrition institute publication. 2001; PP: 35-40.
3. Hodson L, Skeaff CM, Chisholm WA. The effect of replacing dietary saturated fat with polyunsaturated or monounsaturated fat on plasma lipids in free-living young adults. *Eur J Clin Nutr* 2001; 55(10): 908-15.
4. Binkoski AE, Kris-Etherton PM, Wilson TA, Mountain ML, Nicolosi RJ. Balance of unsaturated fatty acids is important to a cholesterol-lowering diet: comparison of mid-oleic sunflower oil and olive oil on cardiovascular disease risk factors. *J Am Diet Assoc* 2005; 105(7): 1080-6.
5. Norodoy A. Is there a rational use for n-3 fatty acids (fish oils) in clinical medicine? *Drug* 1991; 42: 331-42.
6. Kim JA, Sou L, Lee K. Flaxseed (Linseed) properties and benefits. Philadelphia: W.B Saunders Co. 2000; PP: 168-79.
7. Green A. Low-Linolenic flax: variation on familiar oilseed. *Inform* 1990; 1(11): 934-41.
8. Artimis PS. Essential fatty acids in health and chronic disease. *Am J Clin Nut* 1999; 70 (3): 560-569.
9. Nottleton JA. Omega-3 fatty acids and health. New York: Chapman & Hall, 1995.
10. Notletton JA. Omega-3 fatty acids: comparison of plant and seafood source in human nutrition. *J Am Diet Assoc* 1991; 91: 331-37.
11. Jenkins DJ, Kendall CW, Vidgen E, Agarwal S, Rao AV, Rosenberg RS, et al. Health aspect of partially defatted flaxseed, including effects on serum lipids, oxidative measures and ex-vivo androgen and progestin activity. *Am J Clin Nutr* 1999; 69: 395-402.

12. Lucas EA, Wild RD, Hammond LJ, Khalil DA, Juma S, Daggy BP, et al. Flaxseed improves lipid profile without altering biomarkers of bone metabolism in postmenopausal women. *J Clin Endocrinol Metab.* 2002; 87(4): 1527-32.
13. Prasad K. Hypocholesterolemic and antiatherosclerotic effect of flax lignan complex isolated from flaxseed. *Atherosclerosis.* 2005; 179(2): 269-75.
14. Mandasescu S, Mocanu V, Dascalita AM, Haliga R, Nestian I, Stitt PA, et al. Flaxseed supplementation in hyperlipidemic patients. *Rev Med Chir Soc Med Nat Iasi* 2005; 109(3):502-6.
15. Stuglin C, Prasad K. Effect of flaxseed consumption on blood pressure, serum lipids, hemopoietic system and liver and kidney enzymes in healthy humans. *J Cardiovasc Pharmacol Ther* 2005; 10(1): 23-7.
16. Harper CR, Edwards MC, Jacobson TA. Flaxseed oil supplementation does not affect plasma lipoprotein concentration or particle size in human subjects. *J Nutr.* 2006; 136(11): 2844-8.
17. Mandasescu S, Mocanu V, Dascalita AM, Haliga R, Nestian I, Stitt PA, et al. Flaxseed supplementation in hyperlipidemic patients. *Rev Med Chir Soc Med Nat Iasi* 2005; 109(3): 502-6.
18. Cunnane SC, Ganguli S, Menard C, Liede AC, Hamadeh MJ, Chen ZY, et al. High alpha-linolenic acid flaxseed: Some nutritional properties in humans. *Br J Nutr* 1993; 69: 443-53.
19. Chan JK, Brucke UM, McDonald BE. Dietary alpha-linolenic acid is as effective as oleic acid and linoleic acid in lowering blood cholesterol in normolipidemic men. *Am J Nutr* 1991; 53: 1230-4.
20. Alekseeva RL, Sharafetdinov KH, Plotnikova OA, Mal'tsev GI, Kulakova SN. Effect of diet including linseed oil on clinical and metabolic parameters in patients with type 2 diabetes mellitus. *Vopr pitan* 2000; 69 (6): 32-5.
21. Eristland J, Anderson H, Seljeflot I, Hostmark AT. Long term metabolic effects of omega-3 polyunsaturated fatty acids in patients with coronary artery disease. *Am J Clin Nutr* 1995; 61: 831-6.
22. Phillipson BE, Rothrock DW, Connor WE, Harris WS, Illingworth DR. Reduction of plasma lipids, lipoproteins and apoproteins by dietary fish oils in patients with hypertriglyceridemia. *N Engl J Med* 1985; 312: 1210-6.
23. Simopoulos AP. Omega-3 fatty acids in health and disease and in growth and development. *Am J Clin Nutr* 1991; 54: 438-63.
24. Sirtori CR, Crepaldi G, Manzato E, Mancini M, Rivellesse A, Paoletti R, et al. One year treatment with ethyl esters and omega-3 fatty acids in patients with hypertriglyceridemia and glucose intolerance reduced triglyceridemia, total cholesterol and increased HDL-C without glycemic alteration. *Atherosclerosis* 1998; 137: 419-27.
25. Dewailly EE, Blanchet C, Gingras S, Lemieux S, Sauve L, Bergeron J, et al. Relations between omega-3 fatty acid status and cardiovascular disease risk factors among Quebecers. *Am J Clin Nutr* 2001; 5: 603-11.
26. Bierenbaum ML, Reichstein R, Warkins TR. Reduction of atherogenic risk in hyperlipidemic humans with flaxseed supplementation. A preliminary report. *Am J Clin Nutr* 1993; 12: 501-4.

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27. Harris WS. Fish oils and plasma and lipoprotein metabolism in humans: a critical review. *J Lipid Res* 1989; 30: 785-807.
  28. Katan MB, Zock PL, Mensink RP. Dietary oils, serum lipoproteins, and coronary heart disease. *Am J Clin Nutr* 1995; 61: 1368-73.
  29. Kelly GS. Conjugated linoleic acid: a review. *Altern Med Rev* 2001; 6(4): 367-82.