Abstract THU0448 –Table 1. Mean MDHAQ scores in patients with primary OA or RA at 1st visit, and 1 or 2 years later

Mean scores at...	1st visit			1-year later			2-years later			P Change in OAvsRA	
	OA	RA	P	OA	RA	P	OA	RA	P	1 year	2 years
# patients	101	175		101	175		45	113			
RAPID3 (0-30)	11.9	13.7	0.03	11.5	10.9	0.50	11.9	9.0	0.02	0.004	0.0004
Function (0-10)	0.63	0.78	0.03	0.61	0.66	0.43	0.72	0.53	0.046	0.119	0.009
Pain (0-10)	5.0	5.5	0.16	4.9	4.3	0.43	4.7	3.6	0.03	0.004	0.004
PATGL (0-10)	4.8	5.6	0.01	4.6	4.4	0.54	4.9	3.7	0.009	0.005	0.0001
Fatigue (0-10)	3.9	4.9	0.008	3.7	4.0	0.43	3.6	4.0	0.41	0.073	0.359
Self-report painful JC	12.0	15.4	0.014	9.5	11.7	0.10	11.9	10.2	0.35	0.415	0.035
48 (0-48)											

Abstract THU0439 – Table 1. Hypothesized and actual correlations for hypothesis testing

PCS total score	Hypothesized Correlations		Actual Correlation R (p-value)	Hypothesis met
	Magnitude	Direction		
Internal resource				
Pain self-efficacy questionnaire	Moderate	-	-0.4186 **	Yes
Mental well-being				
HADS	Strong	+	0.5823 **	Yes
SF-36 mental health	Moderate	-	-0.3323 **	Yes
Physical well-being				
WOMAC physical function	Moderate	+	0.4767 **	Yes
WOMAC pain	Moderate	+	0.4671 **	Yes
SF-36 physical functioning	Moderate	-	-0.2632 **	No
Social well-being				
Lubben's social network score	Weak	+/-	-0.0486	Yes

** p < 0.001; HADS: Hospital Anxiety and Depression Scale

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THU0440 THE ASSOCIATION OF PLASMA FATTY ACIDS LEVELS WITH HAND AND KNEE OSTEOARTHRITIS

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Background: Obesity is one of the most important risk factors for osteoarthritis (OA). For long the association between obesity and OA was thought to be explained by increased mechanical loading. However, the role of systemic factors is increasingly recognized, especially in non-weightbearing joints. Obesity is strongly associated with increased levels of circulating fatty acids, which may result in lipotoxicity. However, our knowledge about the effect of different fatty acids on OA is sparse.

Objectives: To investigate the association of plasma saturated fatty acids (SFAs), monounsaturated fatty acid (MUFAs), polyunsaturated fatty acids (PUFAs), omega (n)-3 and n-6 PUFAs with clinically defined hand and knee OA.

Methods: In the population-based Netherlands Epidemiology of Obesity (NEO) study, a total of 6,671 middle-aged participants were recruited from the greater area of Leiden. Clinical hand and knee OA were defined by the ACR clinical classification criteria. Blood samples were obtained after an overnight fast and 150 minutes after consumption of a standardized liquid mixed meal containing 600kCal, with 16% of energy (En%) derived from protein, 50 En% from carbohydrates and 34 En% from fat. EDTA-plasma samples were used for a high-throughput proton nuclear magnetic resonance (NMR) metabolomics platform (Nightingale Health Ltd., Helsinki, Finland) to quantify 159 lipid and metabolite measures. For the present analyses the concentrations of fasting and postprandial total fatty acids, SFAs, MUFAs, PUFAs, n-6 PUFAs and n-3 PUFAs in mmol/l were used. Since we are in a postprandial state most

of the day, these samples were used for the primary analyses. All fatty acid concentrations were standardized (mean 0, SD 1), to ensure a similar interpretation of the estimated effect. We excluded participants who reported to have inflammatory rheumatic disease or fibromyalgia, with missing physical examination, who were non-fasting at baseline, or reported using lipid-lowering medication. Logistic regression analyses were used to investigate the association between fatty acids and clinical OA phenotypes. All analyses were stratified by sex and corrected for age, education, ethnicity and total body fat percentage. Data are presented as odds ratios (OR) with 95% confidence intervals (CI).

Results: In the current analysis 5,328 NEO participants were included, with a mean age of 56 years and 58% were women. Hand OA, knee OA and concurrent hand and knee OA were defined in 8%, 10% and 4% of participants, respectively. After correction for possible confounders, total fatty acids, SFA, total PUFA and omega-3 PUFA levels were positively associated with clinical hand OA in men, with OR (95% CI) of 1.24 (1.01; 1.53), 1.23 (1.00 – 1.50), 1.26 (1.00 – 1.58) and 1.24 (1.01 – 1.52), respectively. Although not significant, similar effect estimates were observed for men with concurrent hand and knee OA, but not for clinical knee OA alone. In women no associations were seen of any of the fatty acids with clinical hand or knee OA. Analyses of the association between fasting fatty acid levels and clinical hand and knee OA showed rather similar results, with slightly lowered ORs and wider confidence intervals.

Abstract THU0440 –Table 2.

Table 2. Association between postprandial plasma fatty acids and clinical OA phenotypes

		Hand OA OR (95% CI)	Knee OA OR (95% CI)	Hand and knee OA OR (95% CI)
Total FA	Men	1.24 (1.01; 1.53)	0.93 (0.78; 1.12)	1.21 (0.76; 1.90)
	Women	1.05 (0.85; 1.30)	0.88 (0.74; 1.05)	0.93 (0.61; 1.13)
SFA	Men	1.23 (1.00; 1.50)	0.99 (0.83; 1.19)	1.19 (0.80; 1.75)
	Women	1.05 (0.84; 1.31)	0.86 (0.72; 1.03)	0.76 (0.56; 1.04)
MUFA	Men	1.20 (0.96; 1.50)	0.92 (0.76; 1.12)	1.12 (0.64; 1.98)
	Women	0.98 (0.80; 1.20)	0.92 (0.78; 1.08)	0.81 (0.60; 1.10)
PUFA	Men	1.26 (1.00; 1.58)	0.90 (0.74; 1.09)	1.31 (0.84; 2.04)
	Women	1.13 (0.91; 1.41)	0.88 (0.73; 1.06)	0.86 (0.64; 1.14)
n-3 PUFA	Men	1.24 (1.01; 1.52)	1.06 (0.86; 1.29)	1.24 (0.83; 1.85)
	Women	1.13 (0.90; 1.40)	0.85 (0.70; 1.04)	0.96 (0.74; 1.26)
n-6 PUFA	Men	1.24 (0.98; 1.56)	0.87 (0.72; 1.06)	1.29 (0.85; 1.97)
	Women	1.12 (0.91; 1.39)	0.89 (0.74; 1.08)	0.85 (0.64; 1.13)

Fatty acid levels have been standardized (mean = 0, SD = 1). OR represents increased odds for every increase in SD. Analyses have been adjusted for age, fat percentage, education and ethnicity. Abbreviations: SFA= saturated fatty acid, MUFA= monounsaturated fatty acid, PUFA= polyunsaturated fatty acid, n= omega

Conclusion: Quantitatively measured plasma postprandial SFA and PUFA levels were significantly associated with hand OA in men. In women no associations were found. Intriguingly, although SFA and omega-3 PUFAs are deemed to have opposing effects on inflammation, both were positively associated with hand OA. Future research is warranted to replicate the association and determine whether there is a causal role for plasma fatty acid levels in hand OA.

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