University of Oslo

HELSEEFFEKTER AV FISKEMEL FRA LAKS

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Exploring the health effects of salmon fishmeal: A combined dietary intervention, animal study, cell experiment and omics approach.

(Dec 2017-Dec 2021)

Partners: UiO, Møreforskning Ålesund, Marine Harvest

University of Oslo

marineharvest
excellence in seafood

MØREFORSKING

Application: Evaluated through the Norwegian Research Council (NFR):
Funded: The Norwegian Seafood Research Fund - FHF

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Mat, ernæring, og helse

Hva gjør vi ift bærekraftsmålene?

Hvordan utnytte råvarene bedre for å fremme helsen og miljøet?

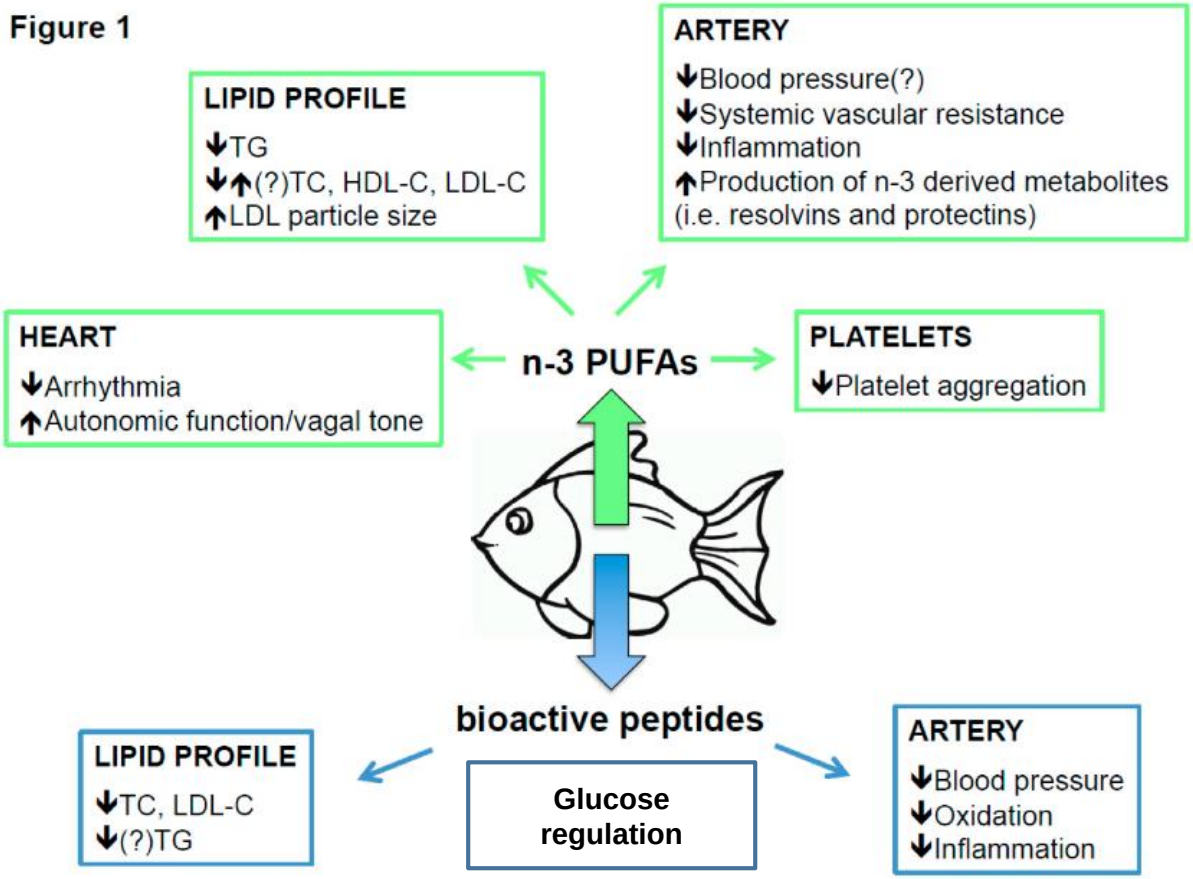
Bruke restråstoff med dokumentert helseeffekt til nye produkter

Bruke MER av det som allerede er tilgjengelig av råstoff!

Intak av fisk og CVD risiko

- Inntak av fisk er assosiert med redusert risko for CVD
- Både mager og fet fisk har gunstige helse-effekter

Figure 1



Modified from Chiesa et al. 2016

Kan restråstoff (fiskemel) fra laks brukes for human konsum?

Har fiskemel helseeffekter?

Fish filleting residues for enrichment of wheat bread: chemical and sensory characteristics

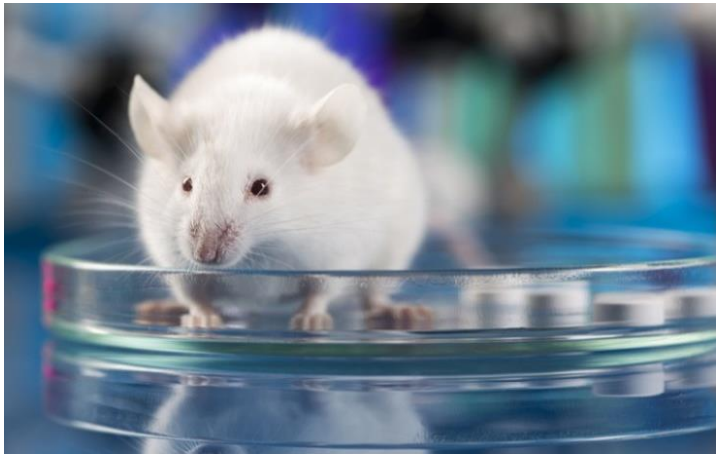
Sabrina Carvalho Bastos · Tá
Renato Leal · Luís Felipe Fab
Ana Carla Marques Pinheiro

For appearance, taste, texture, global aspect, color, and purchase intention, the bread formulations with fish flour received sensory acceptance better than or as good as that of a standard bread formulation without fish flour.

Hence, the addition of fish processing residue to breads is a way to provide essential nutrients to the population through a well-accepted, accessible, and low-cost product.

Fiskemel kan inkorporeres i matvarer-
Har det noen helseeffekter?

Parallell studie set-up



Generere data fra tre forskjellige eksperimentielle set-up for å forstå hvordan fiskemel/ fiskeprotein kan påvirke risikomarkører

Nutr Metab Cardiovasc Dis. 2000 Dec;10(6):323-30.

Effect of Norwegian fish powder on risk factors for coronary heart disease among hypercholesterolemic individuals.

Nenseter MS[1], Østerud B, Larsen T, Strøm E, Bergei C, Hewitt S, Holven KB, Hagve TA, Mjøs SA, Solvang M, Pettersen J, Opstvedt J, Ose L.

Author information

1 Lipid Clinic, University of Oslo, Rikshospitalet, 0027 Oslo, Norway.

n=70, 12 uker, 10 g fiskepulver (sild)

⟺ Lipoproteins, hemostatic factors, ICAM-1, P-selectin and IL-8

Br J Nutr. 2013 Feb 28;109(4):648-57. doi: 10.1017/S0007114512001717. Epub 2012 May 31.

A randomised study on the effects of fish protein supplement on glucose tolerance, lipids and body composition in overweight adults.

Vikøren LA[1], Nygård OK[1], Lied E[1], Rostrup E[1], Gudbrandsen OA[1].

Author information

1 Institute of Medicine, University of Bergen, Haukeland University Hospital, N-5021 Bergen, Norway.

n= 34, 8 uker, Fiskeprotein fra torsk (3 g/d/4 uker--6 g/d/4 uker

↓ Glukose-AUC, ↑ 2 h insulin, C-peptide, og ↓ LDL-C

Food Nutr Res. 2019 Mar 11;63. doi: 10.29219/fnr.v63.3437. eCollection 2019.

Cod protein powder lowered serum nonesterified fatty acids and increased total bile acid concentrations in healthy, lean, physically active adults: a randomized double-blind study.

Vildmyren I[1,2], Halstensen A[2,3], Oterhals Å[4], Gudbrandsen OA[1].

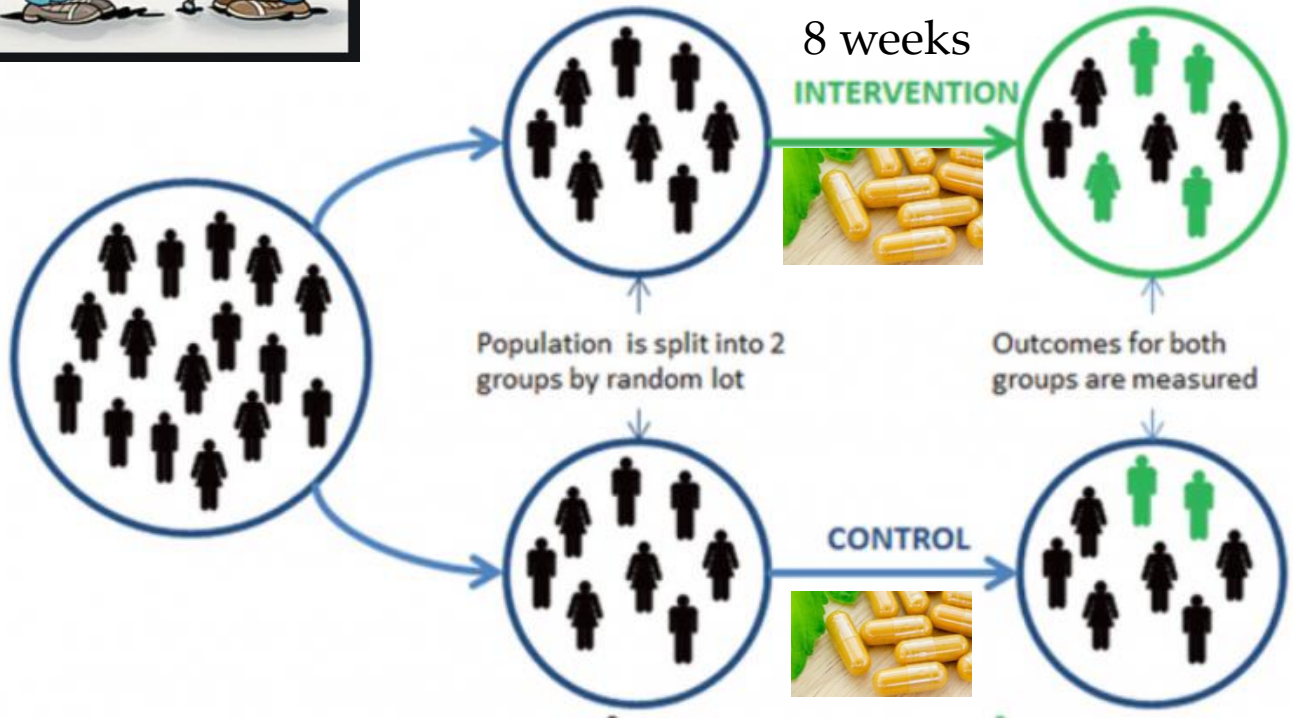
n=40, 8 uker, 8.1 g protein fra torsk

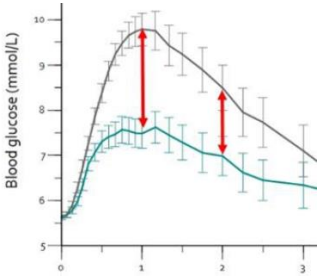
⟺ LDL-C, Apo B, TG, Total kolesterol, HDL-C og ApoA1 mellom gruppene

WP 1: Human intervensjon

Et daglig inntak av fiskeprotein (~5 g) fra laksefiskemel i 8 uker vil forbedre glukose-omsetningen hos personer med nedsatt glukosetoleranse.

FishMeal studien





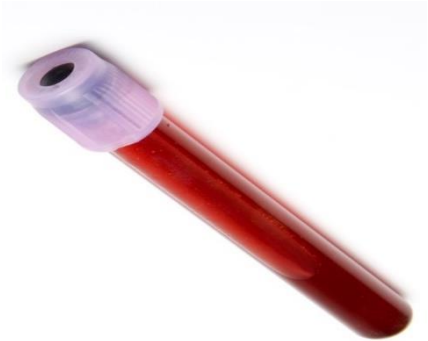
Blood glucose

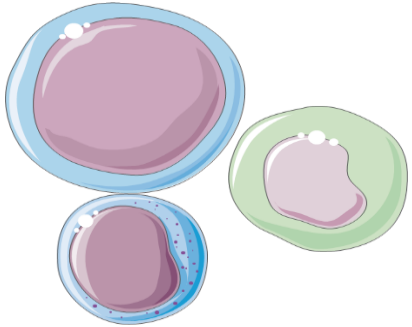
?

Hva er en « Omics approach»?

Ulike molekylære lag

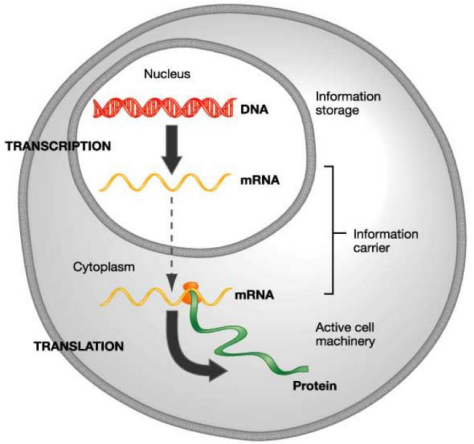
Standard lipidprofil, glukose,





PBMCs = lymphocytes,
monocytes NK-cells

mRNA



Targeted metabolomics (225 metabolitter)

Photos; servier medical art

Nutrigenomics

Nutrigenetics

Nutritional Epigenetics

Nutritional Transcriptomics

Proteomics

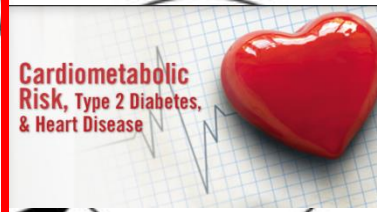
Metabolomics

DNA

RNA

Protein

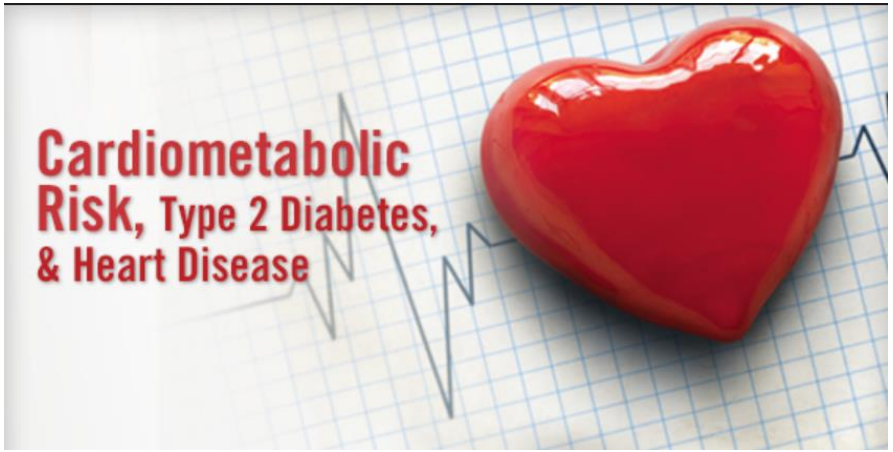
Metabolite



Vi ønsker å bidra til:

Å utnytte ressursene fra havet bedre

Vi ønsker å bidra med :

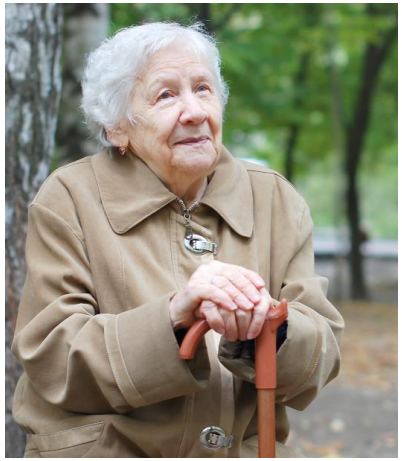


Ny kunnskap om hvordan restråstoff fra laks kan påvirke riskofaktorer for kardiometabolske sykdommer

Vi ønsker å bidra med:

å dokumentere positive (og evt negative) effekter av fiskemel for evt. bruk som ingrediens i matvarer som

kan bidra til å forebygge kardiometabolske sykdommer?



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marineharvest
excellence in seafood

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