

Can a hydrolysate made from cod protein improve components of the metabolic syndrome?

Caroline Jensen, PhD

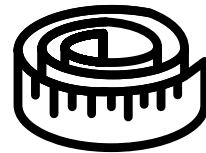
Metabolic syndrome



↑ Fasting glucose



↑ Blood pressure



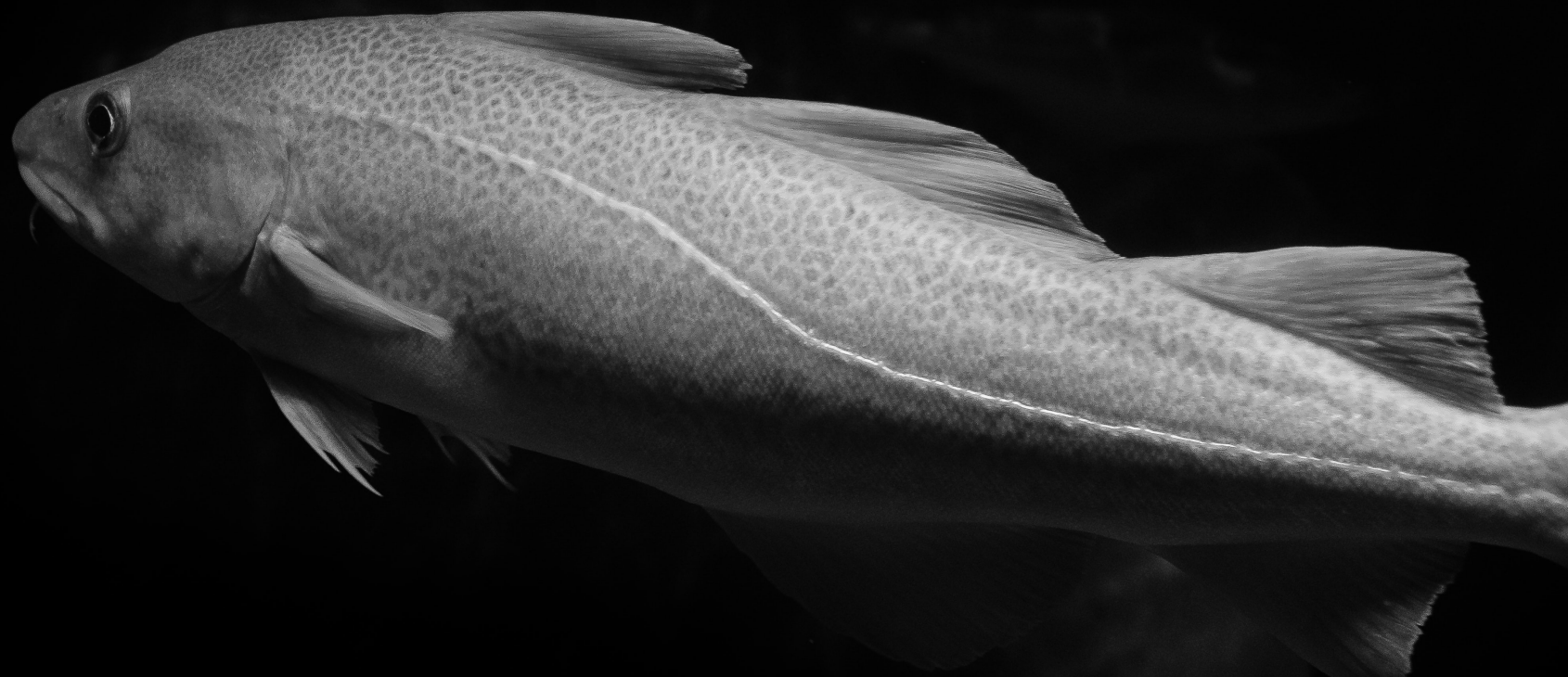
↑ Waist circumference

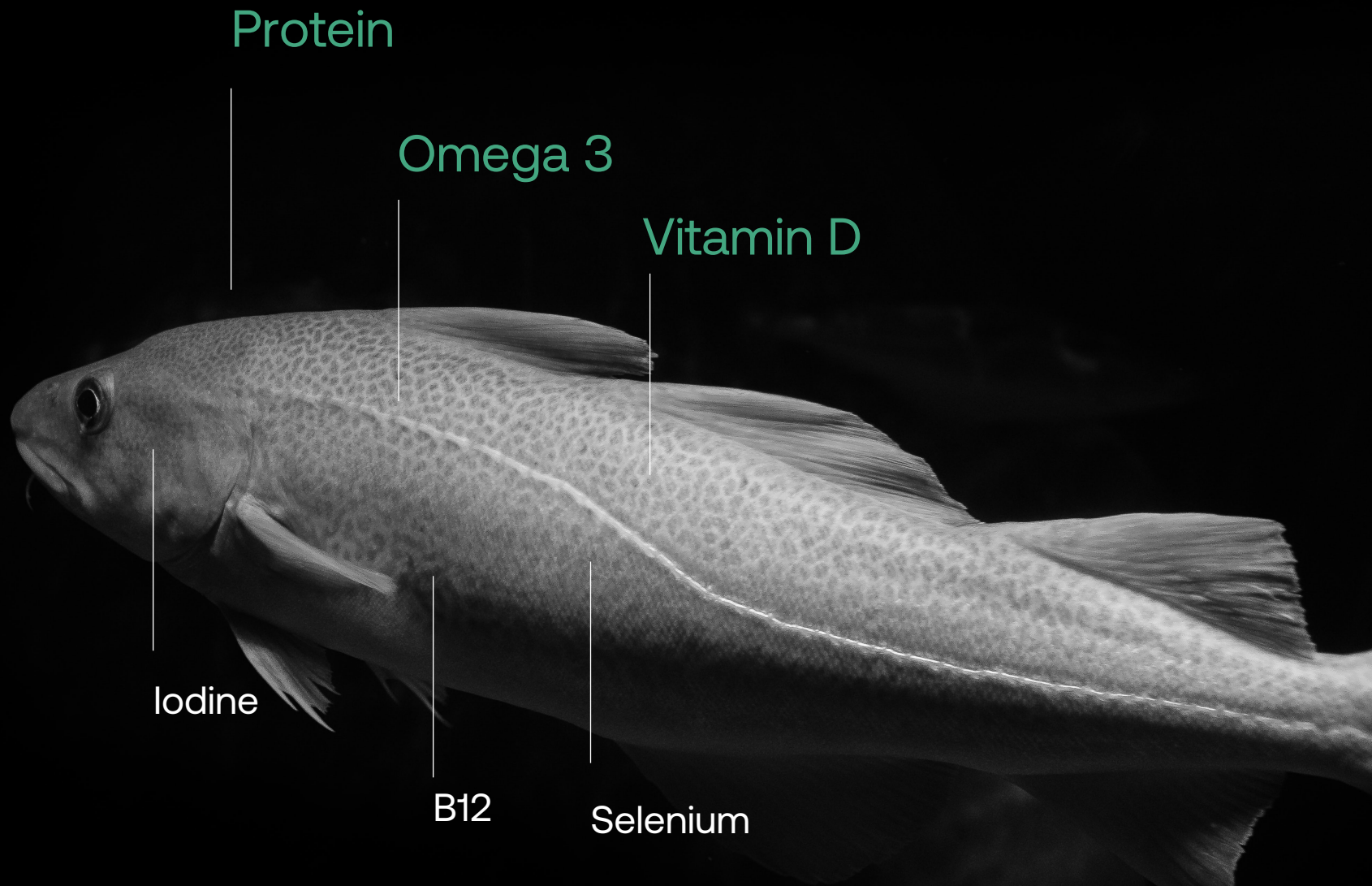


↑ Fasting triglycerides



↓ HDL cholesterol





Protein

Omega 3

Vitamin D

Iodine

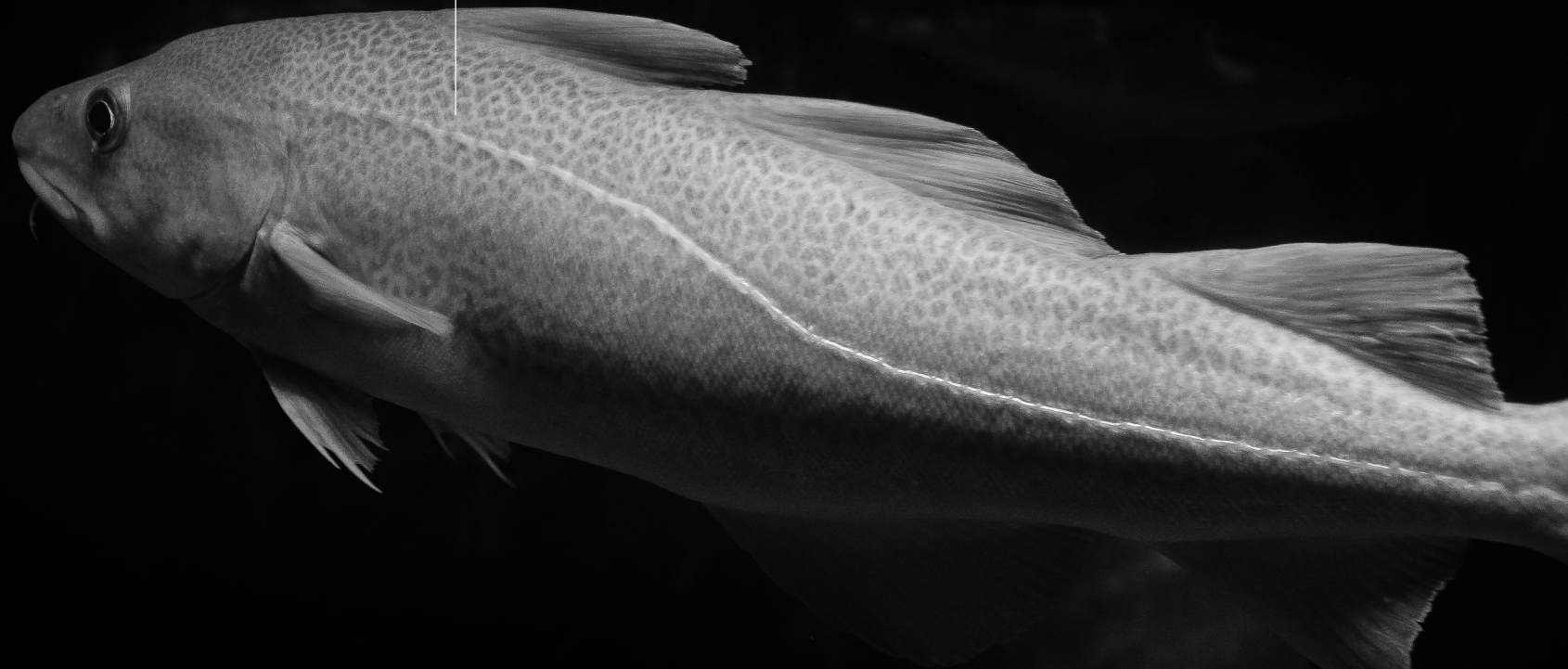
B12

Selenium

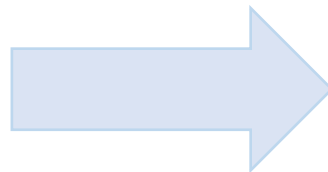
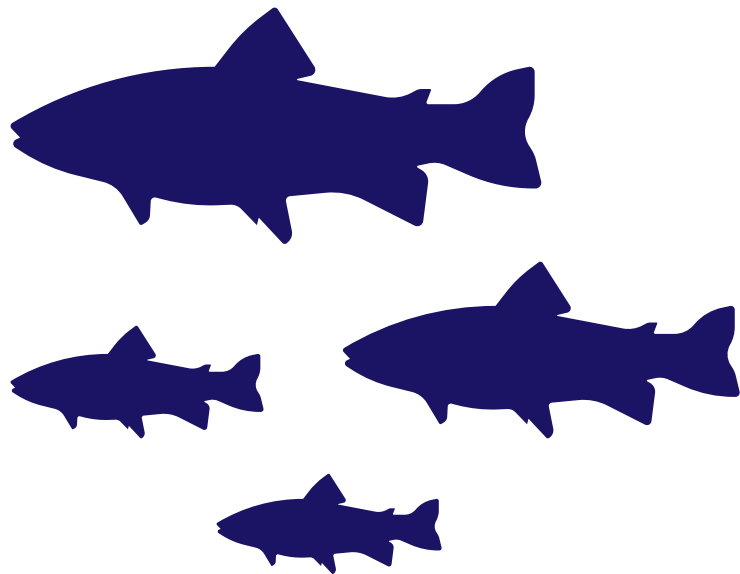
Omega 3



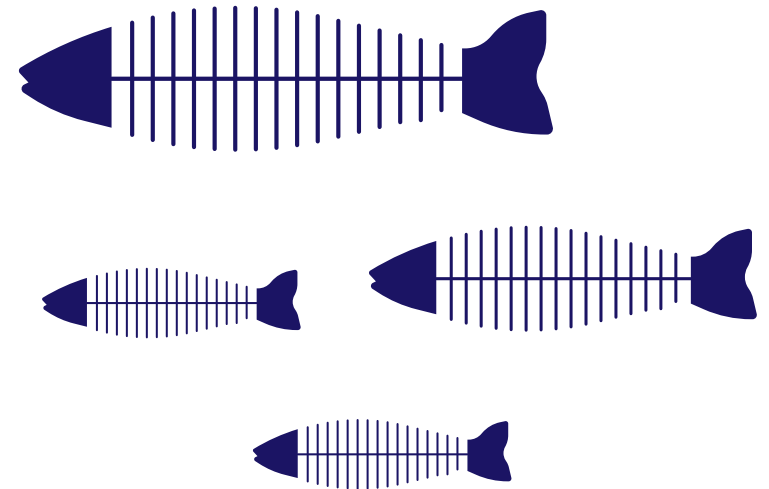
Protein



3,55 millions tons fish and shellfish



965 000 tons residual raw material



Overall aim

Investigate the effect of supplementation with cod protein hydrolysate on

- 1) Glucose metabolism in healthy adults
- 2) Components of MetS in adults with overweight and/or obesity

Test material (CPH)

- Firmenich Bjørge Biomarin AS
- A hydrolysate made by enzymatic hydrolysis of Atlantic cod
- Di- and tripeptides with bioactive effects?

1.

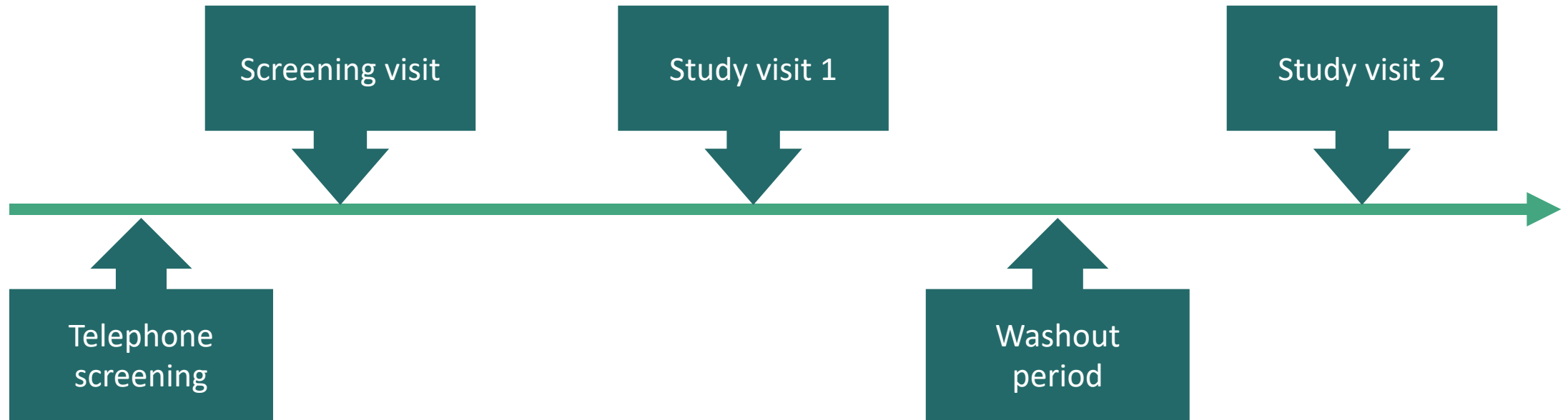
The Blood Glucose Study

- Assess the effect of a low dose of CPH on glucose metabolism in healthy adults aged 40-65 years
- 20 mg/kg body weight CPH or control
- Glucose, insulin and glucagon-like peptide 1 (GLP-1)

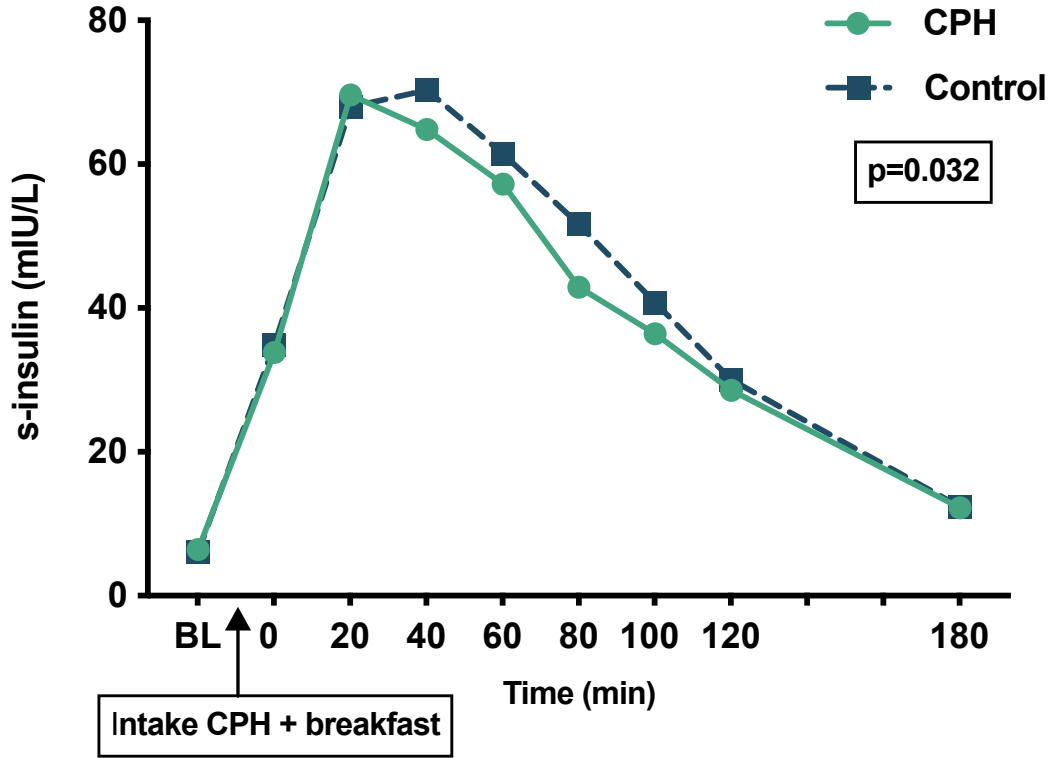
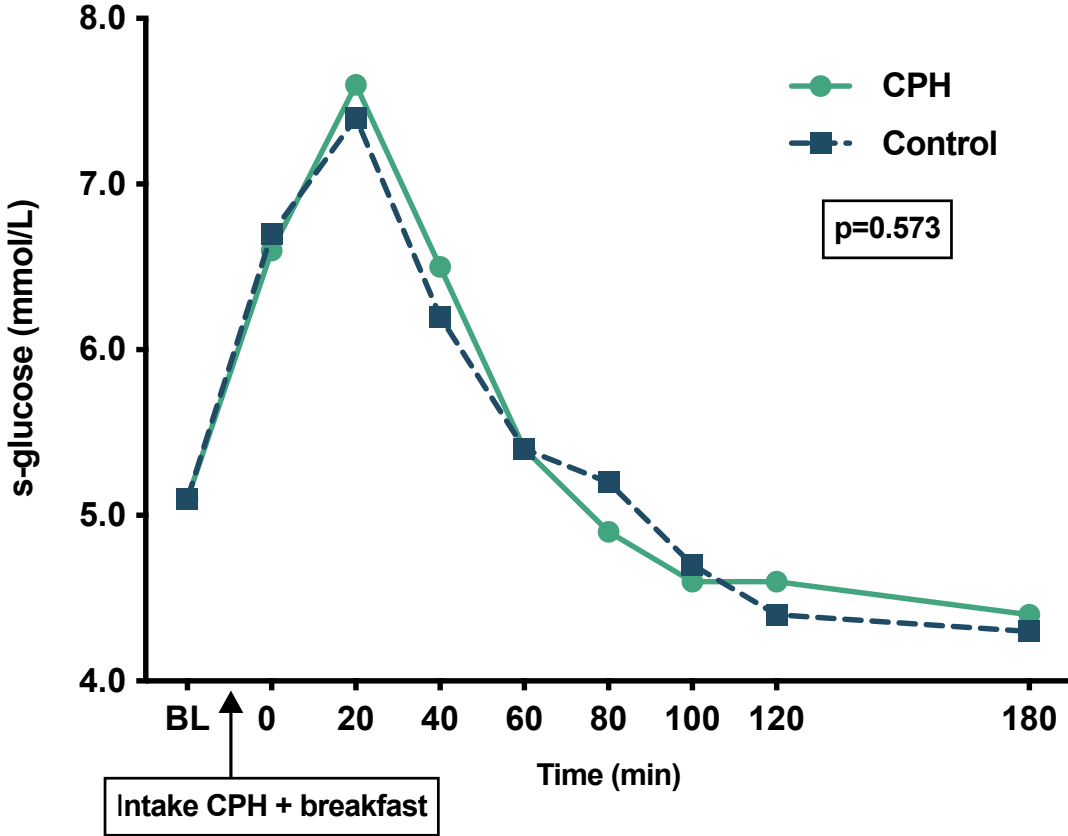
1.

The Blood Glucose Study

- 41 participants
- Mean age 51 ± 6 years
- Mean BMI 25 ± 3 kg/m²



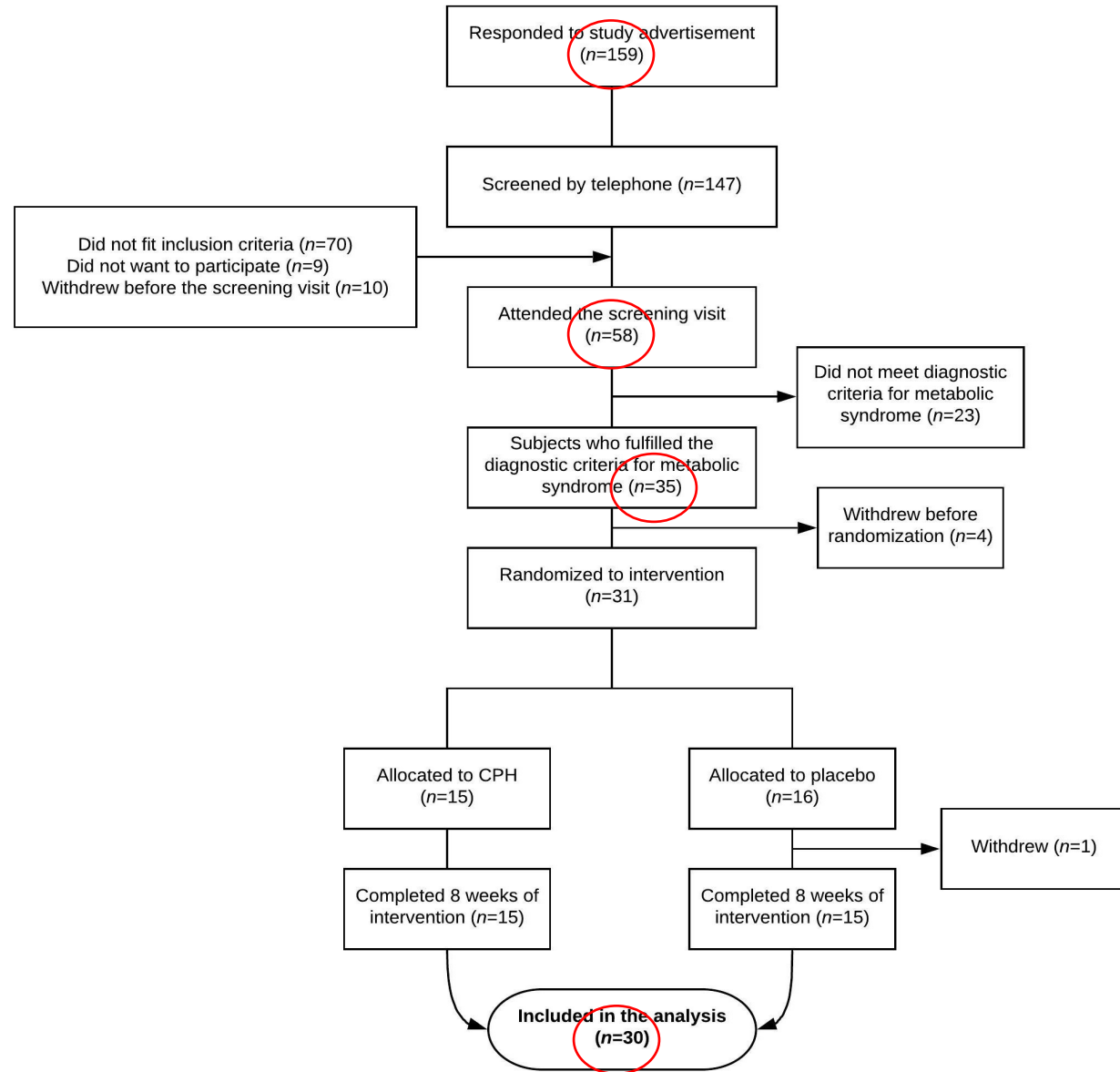
Results



2.

The MetS Study

- Assess the effect of 4 g CPH taken daily for 8 weeks on glucose and lipid profile, including other components of the metabolic syndrome
- 4 g CPH or placebo daily for 8 weeks
- Primary outcome: Fasting and postprandial glucose levels



2.

The MetS Study

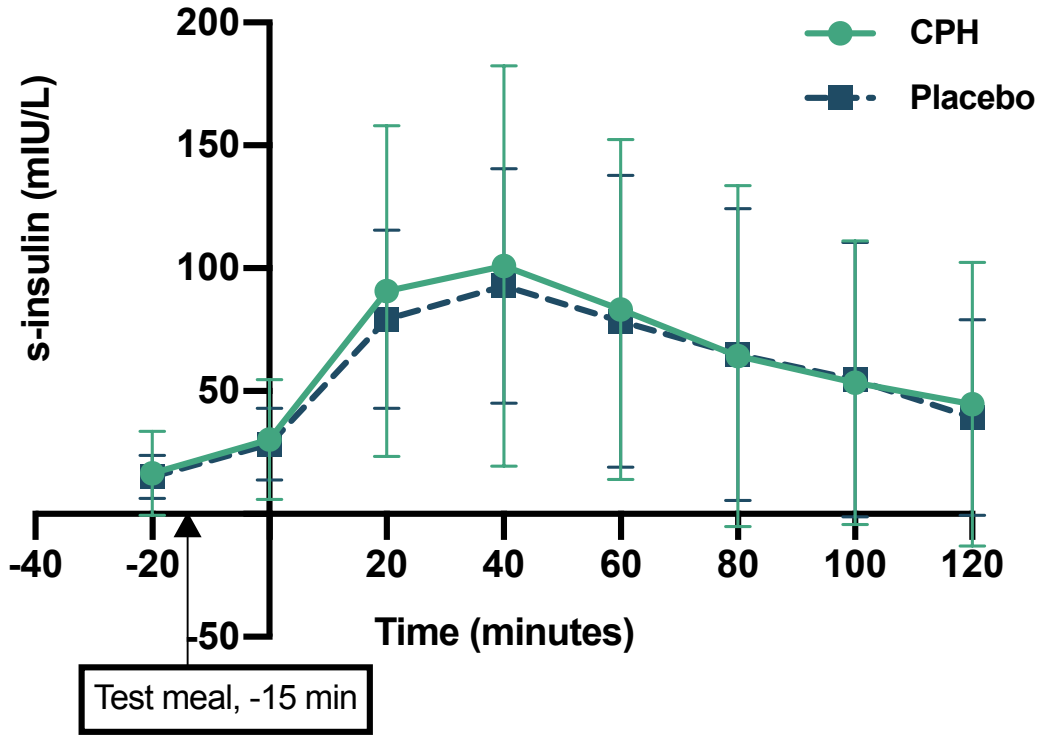
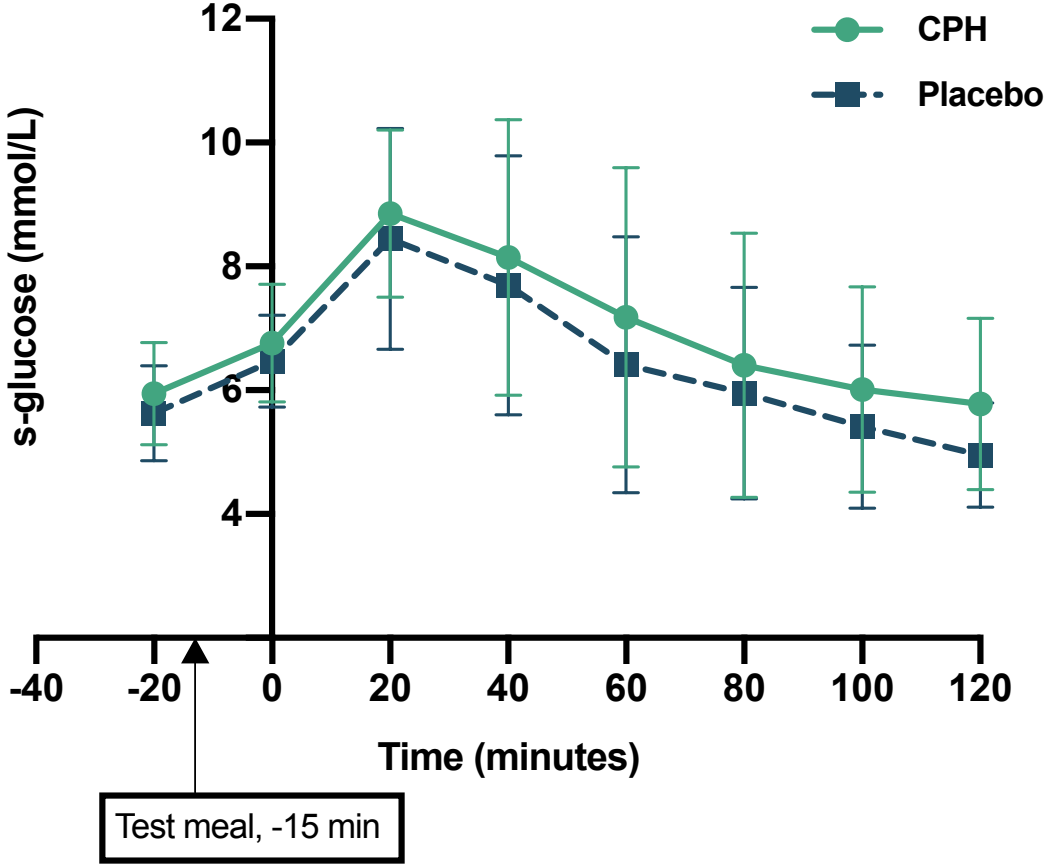
CPH-group

- 15 participants
- Mean age: 53±6 years
- Mean BMI: 33±2 kg/m²

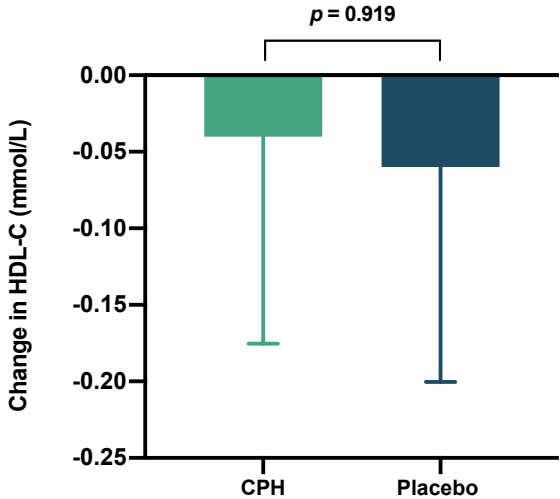
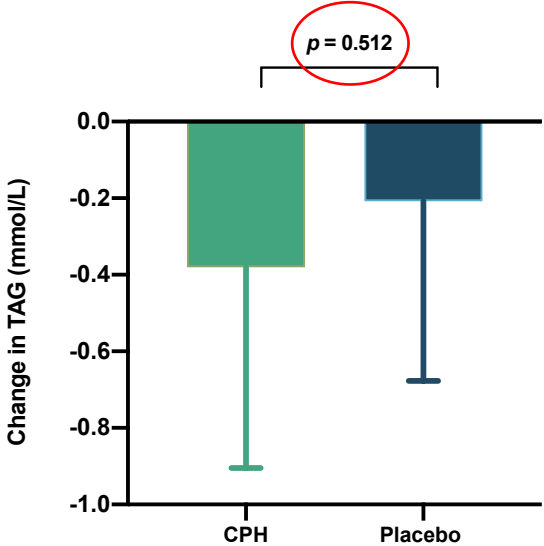
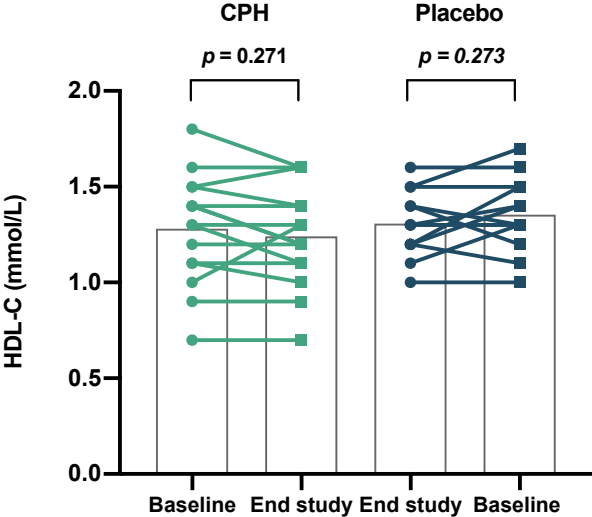
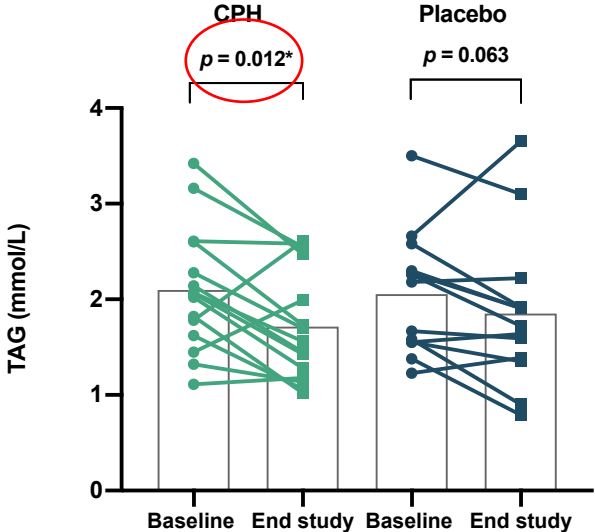
Placebo-group

- 15 participants
- Mean age: 53±7 years
- Mean BMI: 32±3 kg/m²

Results



Results



Article

Supplementation with Low Doses of a Cod Protein Hydrolysate on Glucose Regulation and Lipid Metabolism in Adults with Metabolic Syndrome: A Randomized, Double-Blind Study

Caroline Jensen ^{1,*}, Hanna Fjeldheim Dale ^{1,2}, Trygve Hausken ^{1,2,3},
Jan Gunnar Hatlebakk ^{1,2,3}, Ingeborg Brønstad ^{2,3}, Gülen Arslan Lied ^{1,2,3},
and Dag Arne Lihaug Hoff ^{4,5}

- ¹ Centre for Nutrition, Department of Clinical Medicine, University of Bergen, 5021 Bergen, Norway; hanna.dale@outlook.com (H.F.D.); trygve.hausken@helse-bergen.no (T.H.); jan.gunnar.hatlebakk@helse-bergen.no (J.G.H.); gulen.arslan@uib.no (G.A.L.)
 - ² Division of Gastroenterology, Department of Medicine, Haukeland University Hospital, 5021 Bergen, Norway; ingeborg.bronstad@helse-bergen.no
 - ³ National Centre of Functional Gastrointestinal Disorders, Haukeland University Hospital, 5021 Bergen, Norway
 - ⁴ Division of Gastroenterology, Department of Medicine, Ålesund Hospital, Møre and Romsdal Hospital Trust, 6026 Ålesund, Norway; dag.arne.lihaug.hoff@helse-mr.no
 - ⁵ Department of Clinical and Molecular Medicine, Faculty of Medicine and Health Sciences, Norwegian University of Science and Technology, 7491 Trondheim, Norway
- * Correspondence: caroline.j@uib.no

Article

The Effect of Supplementation with Low Doses of a Cod Protein Hydrolysate on Satiety Hormones and Inflammatory Biomarkers in Adults with Metabolic Syndrome: A Randomized, Double-Blind Study

Caroline Jensen ^{1,*}, Hanna Fjeldheim Dale ^{1,2}, Trygve Hausken ^{1,2,3},
Jan Gunnar Hatlebakk ^{1,2,3}, Ingeborg Brønstad ^{2,3}, Gülen Arslan Lied ^{1,2,3} and
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- ¹ Centre for Nutrition, Department of Clinical Medicine, University of Bergen, 5021 Bergen, Norway; hanna.dale@outlook.com (H.F.D.); trygve.hausken@helse-bergen.no (T.H.); jan.gunnar.hatlebakk@helse-bergen.no (J.G.H.); gulen.arslan@uib.no (G.A.L.)
 - ² Division of Gastroenterology, Department of Medicine, Haukeland University Hospital, 5021 Bergen, Norway; ingeborg.bronstad@helse-bergen.no
 - ³ National Centre of Functional Gastrointestinal Disorders, Haukeland University Hospital, 5021 Bergen, Norway
 - ⁴ Division of Gastroenterology, Department of Medicine, Ålesund Hospital, Møre and Romsdal Hospital Trust, 6026 Ålesund, Norway; dag.arne.lihaug.hoff@helse-mr.no
 - ⁵ Department of Clinical and Molecular Medicine, Faculty of Medicine and Health Science, Norwegian University of Science and Technology, 7491 Trondheim, Norway
- * Correspondence: caroline.j@uib.no

Conclusion

- A single dose of CPH before a meal reduced the postprandial insulin concentration, without affecting glucose or GLP-1 levels.
- A daily intake of 4 g CPH for 8 weeks did not affect components of the metabolic syndrome

Thank you!



Main supervisor:

Dag Arne Lihaug Hoff

Co-supervisors:

Gülen Arslan Lied

Trygve Hausken

Jan Gunnar Hatlebakk

Co-authors and collaborators:

Hanna Fjeldheim Dale

Ingeborg Brønstad

Einar Lied

Klinisk Forskningspost, Ålesund sjukehus

Per F. Refsnes

Stine R. Martinussen

Linda N. Bratli

Thank you!

