

# RCT with adult HIV patient in Jimma, Ethiopia

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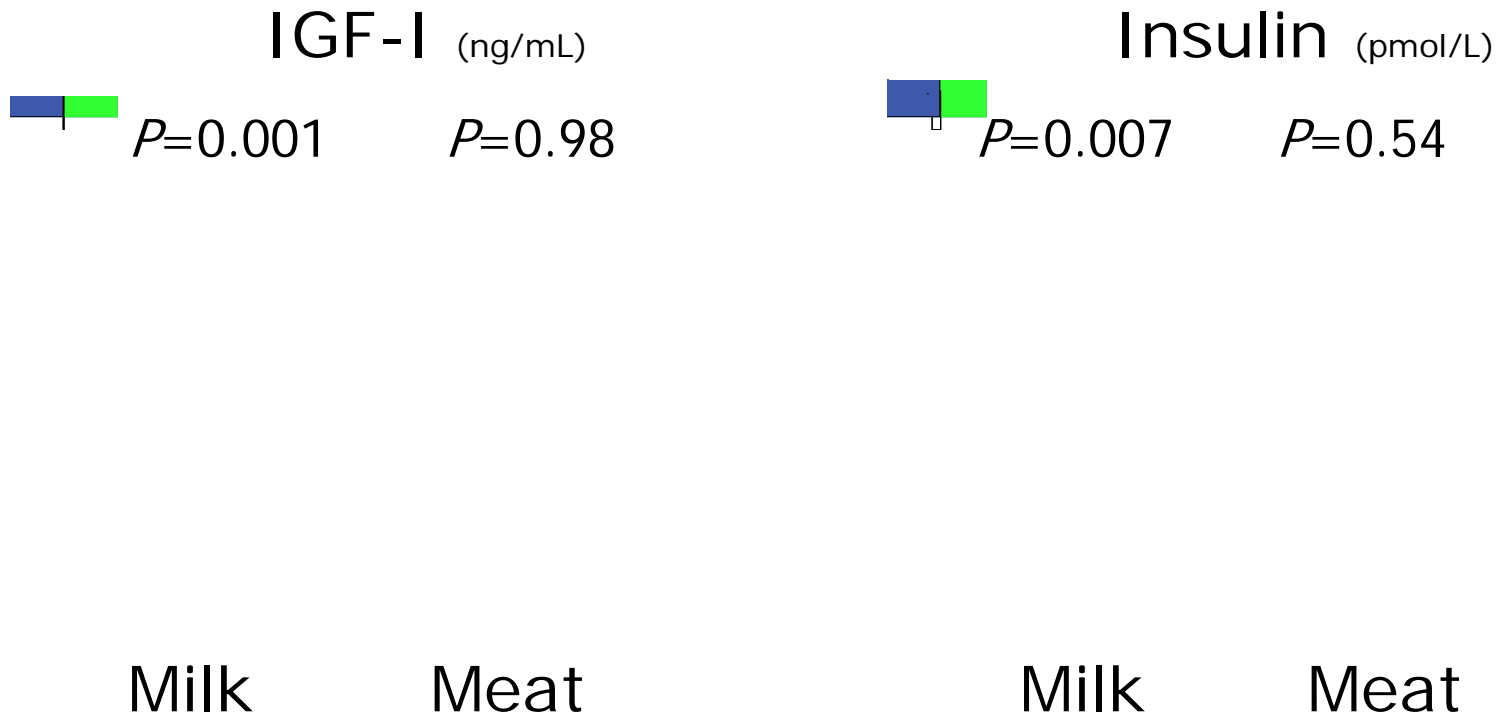
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# HIV -AIDS

- Globally
  - 65 mill HIV positive
  - 26 mill died
- Africa
  - 65% of the cases in the world
- Ethiopia
  - 12% HIV positive in urban areas

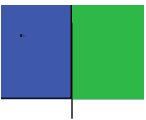
# One week intervention study with 24 healthy 8 y old boys

1 ½ litre of skimmed milk daily  
or  
250 g meat daily

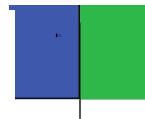


# Milk protein fractions

IGF-I (ng/mL)



Insulin (pmol/L)



$P=0.27$

$P<0.001$

Diff:  $P=0.007$

$P=0.006$

$P=0.36$

Diff:  $P=0.05$

# The Use of Whey or Skimmed Milk Powder in Fortified Blended Foods for Vulnerable Groups<sup>1,2</sup>

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## Abstract

Fortified blended foods (FBF), especially corn soy blend, are used as food aid for millions of people worldwide, especially malnourished individuals and vulnerable groups. There are only a few studies evaluating the effect of FBF on health

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## **TABLE 7** Effects of adding WPC or SMP to FBF

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### Adding WPC or SMP to FBF

#### Advantages

Improves the protein quality, measured as PDCAAS.

With improved protein quality it is possible to reduce the total amount of protein in the blend, which could have potential metabolic advantages.

Allows for a reduced content of soy and cereal and thereby a reduction of potential antinutritional effects.

Likely to improve weight gain, linear growth, and recovery from malnutrition, but studies are needed to confirm this.

Improves flavor; SMP more so than WPC.

#### Disadvantages

Increases the price considerably, which is an important limiting factor in all relief feeding.

Adds lactose to the product, which could potentially have negative effects, but which is not likely to be important in the amounts suggested.

**TABLE 7** Conclusions of adding WPC or SMP to FBF

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Using whey (WPC34%)

compared with SMP

Advantages

Has been 25–33% less expensive up to early 2007.

Has a slightly better protein quality measured as PDCAAS, but not likely to be important.

Potential beneficial effects on the immune system and muscle synthesis have been suggested, but convincing evidence is lacking. Relevant to perform studies to examine this further.

We have not been able to identify studies suggesting that casein-dominated milk powders such as SMP have advantages over whey.

Disadvantages

Might in the future be more expensive than SMP.

Might not be as widely available as SMP.

Does not improve flavor to the same degree as SMP.

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# Conclusions on whey and immune modulation in HIV patients

- No convincing evidence that whey has beneficial effects on
  - Antioxidant status
  - Immunological parameters
  - HIV status
- Whey seems to increase GSH levels, which could have beneficial effects on immune function or viral load, but speculative

The role of whey in nutritional support of HIV  
infected patients on antiretroviral treatment:  
A randomized trial in Jimma, Ethiopia

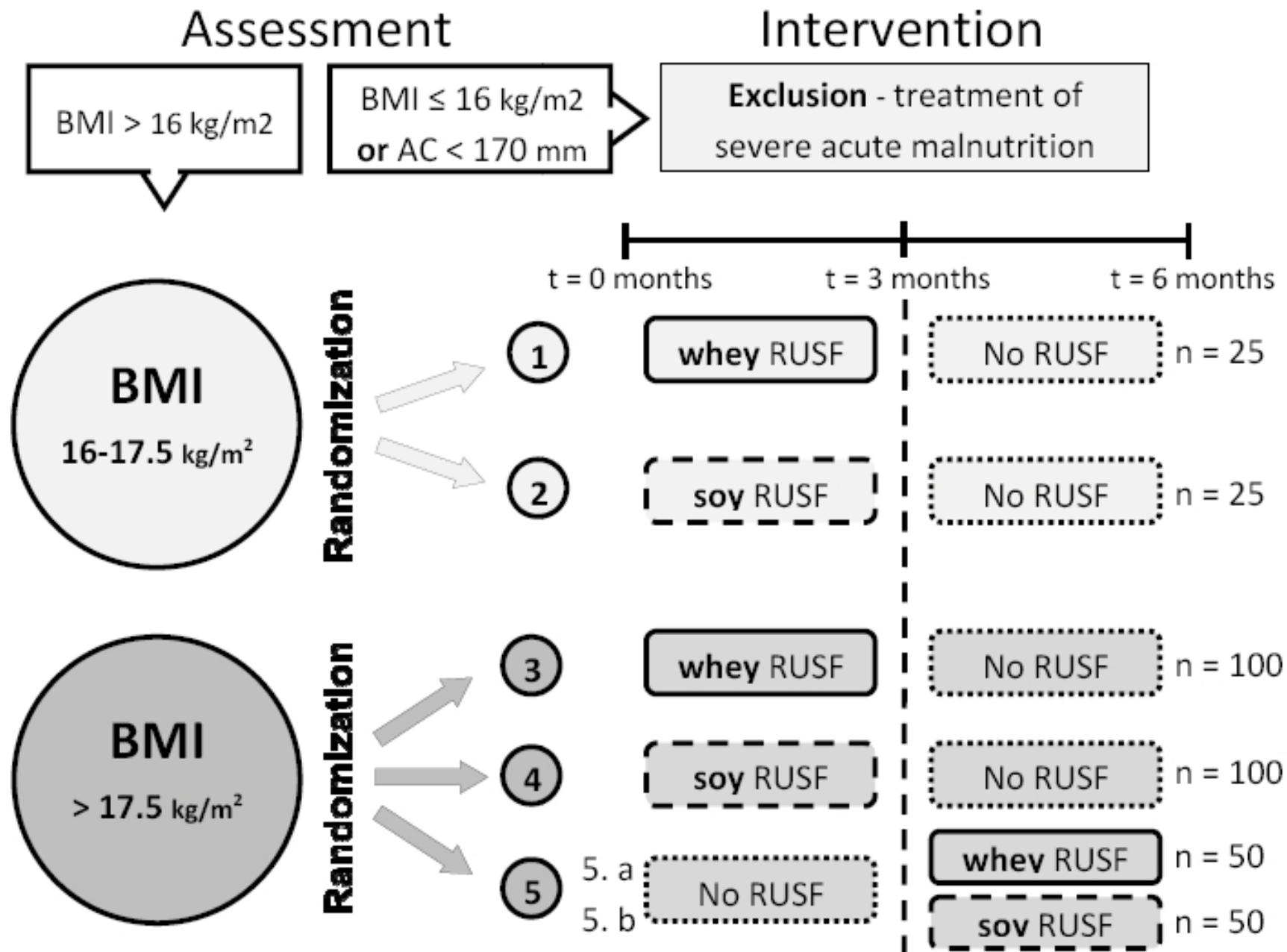
# Overall Objective

To assess the effects of a whey-containing nutritional supplement to HIV infected patients commencing antiretroviral treatment (ART) on general and HIV specific treatment outcomes

## Intervention

- Ready-to-Use-Supplementary-Food (RUSF)/LNS
- 1000 kcal/d – 5 kcal/g - 16 % of energy as protein
- Randomised to
  - Whey protein 30 g or
  - Soy protein 30 g

# Study design



# Primary outcomes

- Lean body mass
  - Anthropometry
  - Bioimpedance
  - Deuterium dilution
  - DXA, if possible?
- Grip strength
  - Dynamometer
- Physical activity
  - Actiheart – combined accelerometer/heart rate monitor

# Secondary outcomes

- HIV load
- CD4 count
- Adherence to Anti Retroviral Treatment ART
- Risk of IRIS
  - Immune Reconstitution Inflammatory Syndrome
- S-IGF-I levels
- Quality of Life

**Table 1.** Details of baseline and follow-up examinations

Time line, month of study	0	1	2	3	4	5	6	12
Body composition								
Height	•							•
Body weight	•			•			•	•
Hip-waist ratio	•			•			•	•
Skinfolds and MUAC <sup>1</sup>	•			•			•	•
Bioelectrical impedance	•			•			•	•
Deuterium dilution	•			•			•	
Physical performance								
Grip strength, Dynamometer	•			•			•	
Physical activity, ActiHeart	•			•			•	
Blood samples								
Fasting blood glucose	•			•			•	•
Haematology <sup>2</sup>	•		•	•			•	
Viral load	•		•	•			•	
CRP	•			•			•	
IGF-1	•			•			•	
Lipid profile <sup>3</sup>	•			•			•	•
Micronutrient status <sup>4</sup>	•							
Dietary assessment	•	•	•					
Quality of Life	•			•				
Adherence to ART	••	••••	••••	••••	••••	••••	••••	
Blood pressure	•							•

<sup>1</sup> Triceps and subscapular skinfolds and mid-upper arm circumference (MUAC)

<sup>2</sup> Haematology includes total blood cell count, CD4, haemoglobin

<sup>3</sup> Total, HDL, and LDL cholesterol, triglyceride

<sup>4</sup> Focusing on iron, i.e. ferritin, and transferrin receptor

# Research Team

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  - Dr. Tsinuel,
  - Dr. Alemshet
- University of Copenhagen
  - Henrik Friis
  - Aase Bengaard Andersen
  - Christian Mølgaard
  - Pernille Kæstel
  - Gregers Andersen
  - Kim Fleischer Michaelsen