Tankar om poster

Ulf Holmbäck
Forskare

Institutionen för folkhälso- & vårdvetenskap
Klinisk nutrition och metabolism

Varför göra en poster?

- Presentera dig och din grupp
- Skapa medvetenhet om ditt fält
- Presentera nya data
- Hitta sammarbetspartners
- Få ”feed-back” på protokoll, tolkningar
- Förbättra CV
- ”Biljett” till konferens

Viktiga bitar gällande posterlayout

- Bli sedd
- Möjliggör snabb förståelse
- Förståelsen minskar i relation till mängden data som presenteras
- Synlighet och förståelse kan ibland krocka
  - T. ex. bakgrundsbilder, dålig förgrunds-/ bakgrundskontrast

”Layout”

- Förenkla läsandet och guida läsaren
- Använd Sans Serif-typsnitt – läsbart från 2 m
- Grafer bättre än tabeller
- All text (inklusive axeltitlar) skall skrivas horisontellt
- Bilder kanske ökar ”attraktiviteten” men kan göra postern svårare att läsa
- Ha ”aldrig” abstrakt eller referenser med på poster

(Abstrakt & referenser i A4-kopior)

En standardposters upplägg
De tre nivåerna av förståelse

Konklusionstitel: X påverkar Y genom Z

Namn, tillhörighet , kontaktinformation

Mål

Att se om X påverkar Y

Konklusion

X påverkar Y genom Z

Bakgrund

Y är ....

X har sagts.......

Material och Metoder

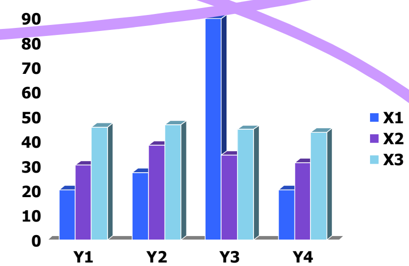
Xxxxx

Xxxx

Xxxxx

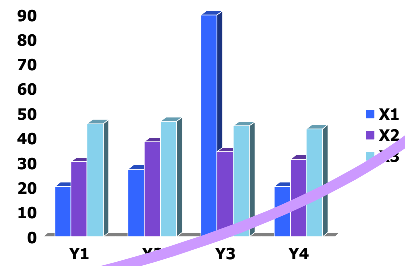
Resultat

Xxx



Xxx

xxxx



Institutionen för folkhälso- & vårdvetenskap
Klinisk nutrition och metabolism

Några fiktiva och reella exempel

Effect of protein intake and physical activity on 24-h pattern and rate of macronutrient utilization

Forskare 1, Forskare 2, Forskare 3

Uppsala university

ABSTRACT Effects of moderate physical activity (90 min at 45-50% of maximal O2 uptake 2 times daily) and "high" (2.5 g protein. kg-1. day-1, n = 6) or "normal" protein intake (1.0 g protein. kg-1. day-1, n = 8) on the pattern and rate of 24-h macronutrient utilization in healthy adult men were compared after a diet-exercise-adjustment period of 6 days. Energy turnover (ET) was determined by indirect and direct (suit) calorimetry, and "protein oxidation" was determined by a 24-h continuous intravenous infusion of [1-13C]leucine. Subjects were in slight positive energy balance during both studies. Protein contributed to a higher (22 vs. 10%) and carbohydrate (CHO) a lower (33 vs. 58%) proportion of total 24-h ET on the high- vs. normal-protein intake. The highest contribution of fat to ET was seen postexercise during fasting (73 and 61% of ET for high and normal, respectively). With the high-protein diet the subjects were in a positive protein (P < 0.001) and CHO balance (P < 0.05) and a negative fat balance (P < 0.05). The increased ET postexercise was not explained by increased rates of urea production and/or protein synthesis.

INTRODUCTION Many research studies have been concerned with metabolic aspects of the relationship between physical activity, dietary intake, and/or body composition. However, a majority of these have focused on the short term (9-h) effects of dietary intake and physical exercise on energy substrate metabolism. Although a number of 24-h studies have been performed to evaluate macronutrient utilization and its response to different dietary intakes (58), these have emphasized "total" 24-h macronutrient utilization and not the "pattern and rate" of macronutrient utilization throughout the 24-h period. Furthermore, the effect of a high-protein intake (vs. a normal-protein intake) on macronutrient metabolism has not been investigated in these previous studies.

MATERIALS AND METODS Eight healthy male volunteers participated in the normal-protein study, and six healthy male volunteers participated in the high-protein study. One of these individuals participated in both studies, and the results were reflective of the group mean differences. Descriptive data for the subjects are shown in Table 1. The subjects were recruited from the population of students and employees at Uppsala University. They were physically fit but not competitive athletes. All were in good health, as determined by medical history and physical examination; none of the subjects smoked or had excessive alcohol consumption. All subjects gave their written informed consent, and the study was approved by the Ethical Committee of the Faculty of Medicine at Uppsala University. Subjects were studied on an outpatient basis during days 1-5 at the nutrition metabolic unit. They ate the standardized diet for 7 days, and physical exercise was performed on a cycle ergometer within the unit. Day 6 was used as a so-called "sham infusion" day, and air samples were taken one time every hour to determine the change in background output of 13CO2 in expired air (15, 16). O2 uptake and CO2 output were recorded at regular intervals throughout the day. In the evening of day 6, the subjects were dressed in the calorimeter suit, and intravenous catheters were inserted in the veins on the dorsal side of both hands, as previously described (15). Physiological saline was slowly infused during the night until the start of the tracer infusion at 0600 on day 7. Day 7 was the L-[1-13C]leucine, [15N,15N]urea tracer infusion day, and the primed, continuous 24-h intravenous infusion of the stable isotope tracers was started at 0600 and continued until 0600 on day 8. The cycling exercise was performed between 0830-1000 and 1600-1730. When not cycling, the subjects usually sat in a chair while watching a video or reading.

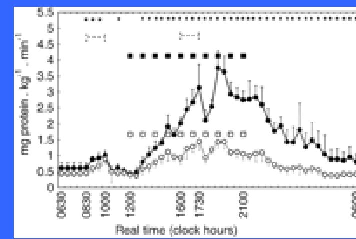
Resulsts The subjects maintained a stable body weight during the 7-day study. Although there was no significant difference between the indirect and direct calorimetric estimations of total energy turnover, indirect calorimetry indicated a slight but significant (P < 0.05) positive energy balance (equivalent to 5% of intake) during the 7th day (the infusion day) during the normal-protein study. Balance was not significantly different from equilibrium when estimated via the direct calorimetric method The pattern and rate of "protein" utilization is shown in Fig. 2. During exercise, while subjects were in the fasting state, protein utilization increased to the same degree, although the absolute rate was significantly higher during the high-protein study. After termination of exercise (at 1000), protein oxidation decreased, reaching significantly lower values at 1230 compared with the preexercise value at 0830 in both groups (P < 0.05; Fig. 2).

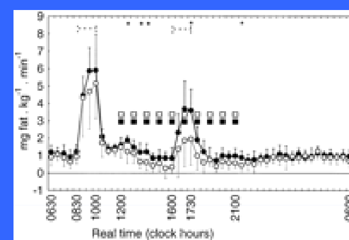
Fig. 2. Rate and pattern of whole body protein utilization (mg · kg1 · min1) throughout the 24-h day. , Data obtained in the high-protein group; , data obtained in the normal-protein group; , rate and period of dietary protein intake for the high-protein group; , rate and period of dietary protein intake for the normal-protein group. Dashed lines indicate when the physical activity was performed. In this and in Figs. 3-7, 0630 represents the end of the first 30-min period of continuous measurement. * P < 0.05.

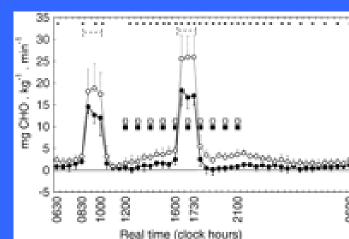
Feeding increased protein oxidation, and the increase was more pronounced for the high-protein group. During exercise, protein utilization increased in both groups, and termination of exercise was associated with an immediate and significant (P < 0.01) decline in protein oxidation. It later increased for a 60-min period, rising to the same level as during early exercise in the normal-protein group, whereas with the high-protein group it showed a tendency to reach above the highest oxidation rate obtained during exercise. After the end of the feeding period, protein oxidation declined progressively in both groups (Fig. 2).

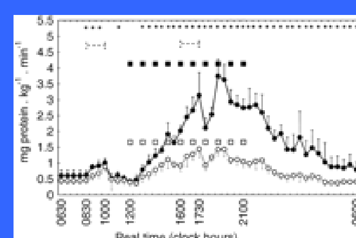
When calculating the extra protein oxidized during exercise, using as a baseline the value obtained just before exercise, there was a significantly (P < 0.05) higher protein utilization during the exercise period in feeding (66.3 ± 37.4 and 35.4 ± 8.4 mg with the high and normal-protein diets, respectively) compared with the change in fasting (28.1 ± 12.7 and 24.4 ± 6.9 mg). When comparing the diets, the high-protein group had a higher protein utilization during feeding (P = 0.04) but not during fasting.

The 24-h pattern and rate of "fat" utilization is shown in Fig. 3. During exercise, while subjects were fasting, fat utilization increased. Postexercise fat utilization slowly decreased, and it continued to decrease during feeding (P < 0.01), becoming lower than the preexercise value by 1530. The effect of physical exercise on the fat utilization rate was lower (P < 0.01) in the fed vs. fast state in both groups. As shown in Fig. 3, there was a higher fat utilization rate in the high-protein group despite a lower fat intake.









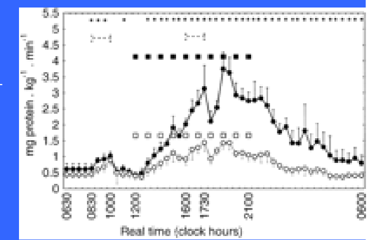
fasting promptly increased CHO utilization, and during postexercise CHO utilization decreased markedly, falling below the preexercise fasting value in both groups. Feeding increased CHO utilization and to a higher degree when the normal-protein diet was given. Exercise during feeding stimulated CHO oxidation and to a higher degree than during fasting for subjects given the normal-protein intake.

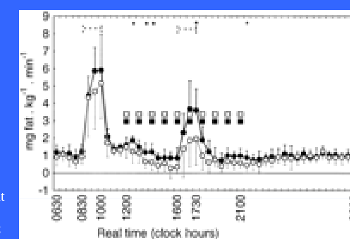
Fig. 4. Rate and pattern of whole body carbohydrate (CHO) utilization (mg · kg1 · min1) throughout the 24-h day. , Data obtained in the high-protein group; , data obtained in the normal-protein group; , rate and period of dietary protein intake for the high-protein group; , rate and period of dietary protein intake for the normal-protein group. Dashed lines indicate when the physical activity was performed. * P < 0.05.

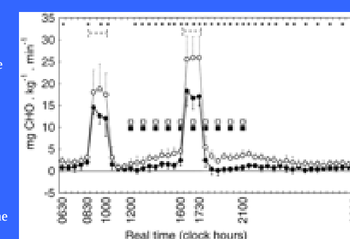
During the overnight fasting period, protein oxidation (P < 0.01) slowly and progressively decreased in both groups. Also, CHO (P < 0.01) utilization slowly and progressively decreased, whereas fat utilization slowly increased (P < 0.05) only in the normal-protein group, compared with values recorded at the end of the feeding period.

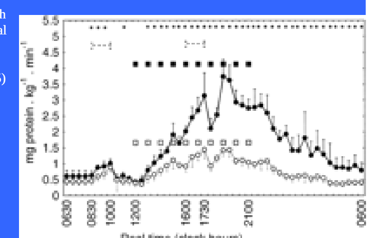
The nonprotein RQ (FQ) for each group throughout the 24-h study period is shown in Fig. 5. The nonprotein FQ was the same in both groups (0.87); it was significantly different (P = 0.01) from the nonprotein RQ in the high-protein group (0.82) but not for the normal-protein group (0.88). The 24-h nonprotein RQ for the normal-protein group was also significantly (P = 0.02) higher than that for the high-protein group.

DISCUSSION The "aim" of this study was to evaluate the effect of a constant and well-defined dietary intake with either high- or normal-protein content, in combination with physical exercise, on energy turnover and rate of macronutrient utilization over a continuous 24-h period, using a combined stable isotope tracer-calorimetric study model (15, 17). Thus a number of the features of the experimental design deserve comment before an evaluation of the results below. We considered it important to include a 6-day adaptation period, with the same daily dietary intake and pattern of physical activity, before the detailed major metabolic measures were made for at least two reasons: 1) to have a stable 13CO2 background in expired air (15) and 2) since many published metabolic studies on the interaction between diet and exercise have primarily focused on the acute effect of diet and exercise, without a period of adaption.









Institutionen för folkhälso- & vårdvetenskap
Klinisk nutrition och metabolism

Metabolic responses to nocturnal fasting

Ulf Holmbäck[1a], Forskare 2, Forskare 3, Forskare 4, Forskare 5

[1]Department of Medical Sciences, [a]Nutrition/[b]Clinical chemistry, University Hospital, SE-751 85 Uppsala, Sweden; [2]IPM, Karolinska Institute, Box 230, SE-171 77 Stockholm, Sweden; [3]Swedish Dairy Association, SE-105 46 Stockholm, Sweden

UPPSALA UNIVERSITET

Purpose

As night work is becoming more prevalent, we studied the influence of nocturnal feeding versus fasting on metabolic parameters.

Conclusion

The body seems to be able to buffer small differences in meal size - timing. It does not seem to be more favorable to ingest few larger meals during daytime compared to smaller meals around the clock.

Background

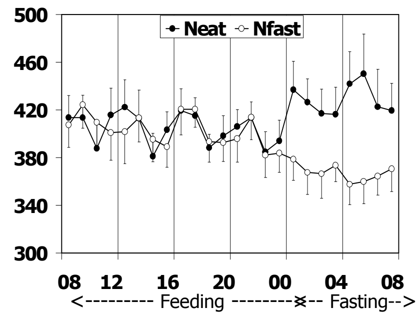
A growing proportion of the affluent societies work force have irregular work hours. These irregular work hours may have caused the metabolic changes, altered circadian rhythms and hormonal patterns seen in shift workers. With this study we wanted to study if it was more metabolic favorable to ingest 4 larger meals at daytime than 6 meals divided evenly throughout the 24h-period

Methods

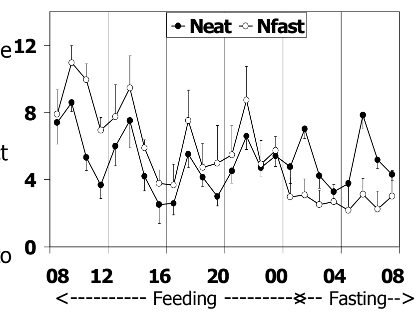
A six-day high-fat diet (40E% CHO, 45E% fat) was given to 7 healthy males, who were studied twice using 2 different protocols in a crossover design. After the diet period the subjects were kept awake for 24h at the metabolic ward. With the protocol "Night-eat" (Neat) the subjects received 6 meals every 4h throughout the 24h period. With the "Night-fast" protocol (Nfast) 4 meals (same 24h energy content as Neat) were provided every 4h until 20.00 (feeding period); no food was then provided during the night (fasting period). During these 24h energy expenditure and substrate utilization were assessed with indirect calorimetry; and blood samples were drawn regularly and analyzed for glucose, triacylglycerols (TAG) and non-esterified fatty acids (NEFA). Data were analyzed with a three-factor repeated measurements analysis of variance.

Results

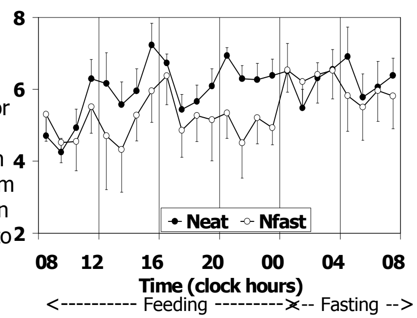
Energy expenditure (kJ/h) was lower in Nfast then Neat during the fasting period ($p<0.05$); but did not differ between the protocols seen over the whole 24h period; or during the feeding period (p=ns).



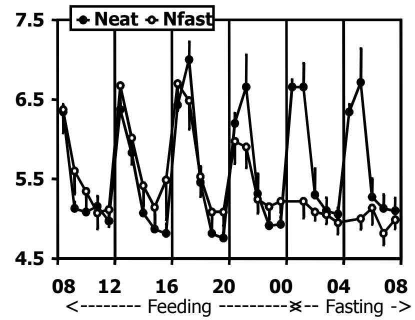
Carbohydrate oxidation (g/h) did not differ between the protocols seen over the whole 24h period; or during the feeding or fasting period (p=ns). A circadian•meal effect was seen in both protocols, probably from higher postprandial CHO oxidation after the 08h meal compared to the 16h meal ($p<0.05$).



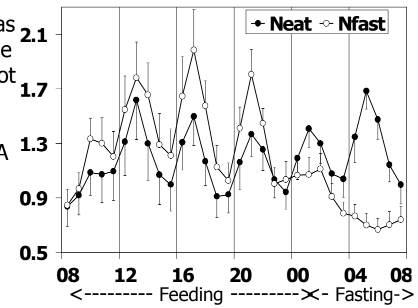
Fat oxidation (g/h) did not differ between the protocols seen over the whole 24h period; or during the feeding or fasting period (p=ns). A circadian•meal effect was seen in both protocols, probably from lower postprandial fat oxidation after the 08h meal compared to the 16h meal ($p<0.05$)



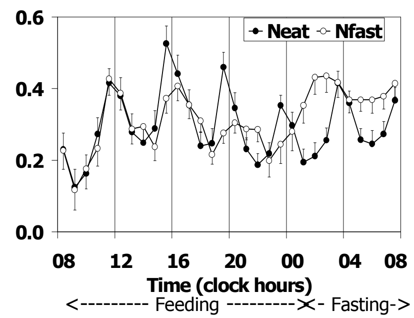
Glucose concentration (mmol/L) was lower in Nfast then Neat during the fasting period ($p<0.05$); but did not differ between the protocols seen over the whole 24h period; or during the feeding period (p=ns). In both protocols protocol, lower glucose concentrations were observed after the 08h meal compared to the 16h and 20h meals ($p<0.05$).



TAG concentration (mmol/L) was lower in Nfast then Neat during the fasting period ($p<0.05$); but did not differ between the protocols seen over the whole 24h period; or during the feeding period (p=ns).A circadian pattern was seen with both protocols and meal intake increased TAG concentration, except after the 08h meal ($p<0.05$).



NEFA concentration (mmol/L) was higher in Nfast then Neat during the fasting period ($p<0.05$); but did not differ between the protocols seen over the whole 24h period; or during the feeding period (p=ns).A circadian pattern was seen with both protocols and with both protocols meal intake decreased NEFA concentration ($p<0.05$); although the response to meal intake seemed to be delayed after the 16h and 20h meal with the Nfast protocol.



Sleep Deprivation Increases Energy Intake and Displaced Sleep Increases Preference for Snacks

Ulf Holmbäck, Forskare 2, Forskare 3
University of USA

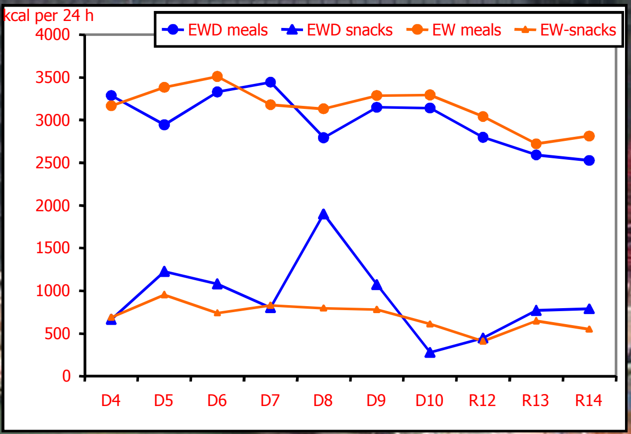
Aim: To study whether circadian misalignment (sleeping during the daytime) impacts food intake separately from sleep loss

Conclusion: Circadian misalignment was associated with a higher proportion of energy intake from snacks relative to meals.

Introduction: Sleep loss has been associated with increased appetite. Epidemiological studies have shown that shift workers, who are chronically sleep deprived, have an increased risk of obesity. It is not known whether circadian misalignment (sleeping during the daytime) impacts food intake during sleep loss.

Methods : 18 healthy males (age 24±1 y, BMI 23.1±0.5 kg/m2) participated in one of two protocols: extended wakefulness (EW) or extended wakefulness with displaced sleep (EWD). Following 3 baseline nights with 10-h bedtimes, the subjects had 8 days with 5-h bedtimes, either from 0030 to 0530 every night (EW protocol), or with daytime sleep (0900-1400) on the 2nd, 3rd, 5th and 6th nights (EWD protocol). The recovery period (two 12h nights and one 10h night) were identical for both protocols. Food was given as meals (breakfast, lunch and dinner) and the subjects also had free access to various snack items. In the EWD protocol, a midnight meal was served when sleep was displaced.

Results : Total sleep time over the 8 days of sleep restriction was similar in both protocols. Daily energy intake was 26%±6% higher during sleep deprivation than during recovery for both protocols ($p<0.05$). Energy intake during breakfast and lunch was the same for both protocols whereas dinner intake was higher in EW subjects ($p<0.05$). Energy derived from snacks was higher in EWD subjects ($p<0.05$), especially during days of daytime sleep. The snacks had higher carbohydrate and lower protein content than the meals ($p<0.05$).



Sleep Deprivation Increases Energy Intake and Displaced Sleep Increases Preference for Snacks

Ulf Holmbäck, Forskare 2, Forskare 3
University of USA

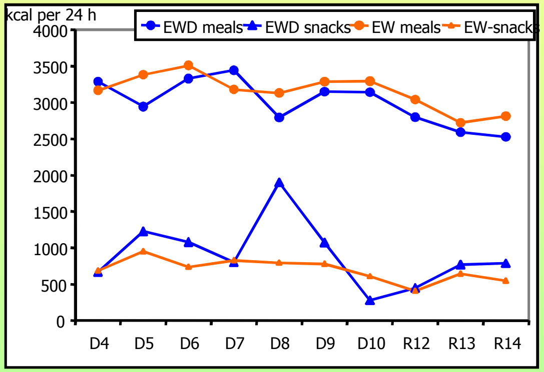
Aim: To study whether circadian misalignment (sleeping during the daytime) impacts food intake separately from sleep loss

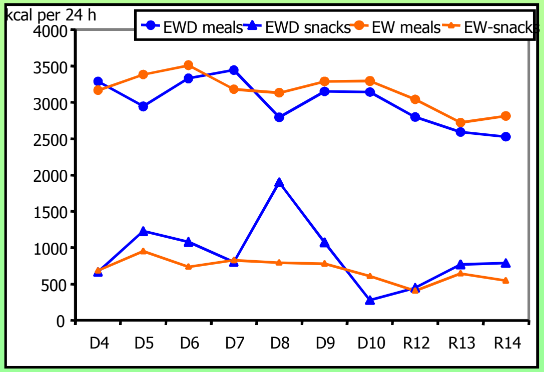
Conclusion: Circadian misalignment was associated with a higher proportion of energy intake from snacks relative to meals.

Introduction: Sleep loss has been associated with increased appetite. Epidemiological studies have shown that shift workers, who are chronically sleep deprived, have an increased risk of obesity. It is not known whether circadian misalignment (sleeping during the daytime) impacts food intake during sleep loss.

Methods : 18 healthy males (age 24±1 y, BMI 23.1±0.5 kg/m2) participated in one of two protocols: extended wakefulness (EW) or extended wakefulness with displaced sleep (EWD). Following 3 baseline nights with 10-h bedtimes, the subjects had 8 days with 5-h bedtimes, either from 0030 to 0530 every night (EW protocol), or with daytime sleep (0900-1400) on the 2nd, 3rd, 5th and 6th nights (EWD protocol). The recovery period (two 12h nights and one 10h night) were identical for both protocols. Food was given as meals (breakfast, lunch and dinner) and the subjects also had free access to various snack items. In the EWD protocol, a midnight meal was served when sleep was displaced.

Results : Total sleep time over the days of sleep restriction was similar in both protocols. Daily energy intake was higher during sleep deprivation than during recovery for both protocols. Energy intake during breakfast and lunch was the same for both protocols whereas dinner intake was higher in EW subjects . Energy derived from snacks was higher in EWD subjects especially during days of daytime sleep. The snacks had higher carbohydrate and lower protein content than the meals.





Frågor och funderingar?

Ulf.Holmback@pubcare.uu.se