Intermittent Fasting
What are the key nutritional considerations for use with physique athletes and general population clients

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The Irrelevant Stuff

- Registered Nutritionist (RNutr)
- Published in Peer Reviewed Journal
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  - Clinical Nutrition & Sports Nutrition
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- Vocational Qualifications
  - ISAK accredited & CSCS
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Intermittent Fasting

Discuss the Biggest Worries with IF

- What possible draw backs could there be?
- Can’t Compete?
- Can’t Train?
- Too Hungry?
- Lose Muscle?
- Not Optimal for Muscle Growth?
- Slows Metabolism?
- Cortisol will Increase?
- NEW: Missed periods & early onset menopause!

Slows metabolism? Crash diet?

- A 27-year-old male weighing – 207kg
- Fasted supervised for 382 days
- Patient’s weight post fast – 82 kg

"The amount of weight lost by Mr A.B. was 276 lb, with an average rate of loss of 0.72 lb/day. That’s 125.2 kg = 0.33 kg/day"
Eating more meals is more better...

- Evidence tends to come from observational studies
  - Increased MF inversely associated with BMI
- 3 vs 6 meals on a weight loss diet (Cameron et al, 2010)
  - “We conclude that increasing MF does not promote greater BW loss”
  - When studies use “doubly-labelled water to assess total 24 h energy expenditure (they) find no difference between nibbling and gorging.”
  - “There is no evidence that weight loss on hypoeenergetic regimens is altered by meal frequency.”

Muscle Loss?

“In contrast, less fat free mass was lost in response to intermittent calorie restriction (CR) versus daily CR. These findings suggest that these diets are equally as effective in decreasing body weight and fat mass, although intermittent CR may be more effective for the retention of lean mass.”

1 Meal vs. 3 Meals per day

- Two 8-wk treatment periods (Normal weight adults)
- All kcals for weight maintenance in 3 meals/d or 1 meal/d
- There were no significant effects of meal frequency on heart rate, body temperature or most blood variables
1 Meal vs 3 Meals per day

- 1 meal/d, subjects had
  - significant increase in hunger
  - significant modification of body composition (fat mass decreased)
  - significant increases in total, LDL and HDL concentrations
  - significant decrease in concentrations of cortisol

Even some suggestion that fewer meals could be better!

- Eating two larger meals a day (breakfast and lunch, B2) is more effective than six smaller meals (A6) in a reduced-energy regimen for patients with type 2 diabetes; a randomised crossover study
  - Better maintained REE? More EEE? Lower EI?

- Results, B2 vs. A6:
  - Sig. decrease in BW, greater decrease in B2
  - Sig. decrease in HFC, greater decrease in B2
  - Sig. decrease in fasting plasma glucose in B2, with no sig. increase in A6
  - Sig. increase in OGIS, greater increase in B2
Breakfast Skipping & Concentration

- The effect of breakfast versus no breakfast on brain activity in adolescents when performing cognitive tasks, as assessed by fMRI – Fulford et al. 2015
  - There was no statistically significant improvement in task performance
- The effect of breakfast prior to morning exercise on cognitive performance, mood and appetite later in the day in habitually active women – Veasey et al. 2015
  - Breakfast was significantly detrimental for working memory mid-afternoon and mental fatigue and tension later in the day
- The relationship between habitual breakfast consumption frequency and academic performance in adolescents
  - Habitual breakfast consumption frequency did not significantly predict performance in cognitive ability testing

Carbohydrates eaten mostly at dinner

- 6 months of 1300-1500kcals
  - 45-50% carbs (170g ish)
  - 30-35% fat
  - 20% protein
- Control received carbs evenly split throughout meals & snacks
- Experimental received majority of carb allotment at dinner
  - Around 100-120g carbs at dinner

Results: Experimental Group

- lost more weight (-11 kg vs -9 kg)
- body fat (-7% vs -5%) (non significant)
- stayed fuller
- Reduced abdominal circumference more

Hormonal Profile Improved

- Fasting glucose and Average daily insulin concentrations
- Homeostasis model assessment for insulin resistance (HOMA(IR))
- T-cholesterol, LDL, HDL
- C-reactive protein (CRP), TNF-α, Interleukins-6 (IL-6)
Breakfast is best...

- Overweight/Obese women with metabolic syndrome
- 12 Week Hypocaloric Diet
  - 1 Group Front-Loaded Calories (700kcal B; 500kcal L; 200kcal D)
  - 1 Group Rear-Loaded Calories (200kcal B; 500kcal L; 700kcal D)
- BW & Waist Circumference Reduced
  - Greater reductions in Large Breakfast Group
- Fasting Glucose, Insulin, Ghrelin concentrations as well as HOMA-IR and HOMA-B Reduced
  - Greater reductions in Large Breakfast Group
- Insulin Sensitivity Improved (ISI)
  - Greater improvements in Large Breakfast Group

"Our results demonstrate that high-calorie breakfast shows increased compliance and is more beneficial than high-calorie dinner for weight loss, insulin sensitivity, and hunger suppression."
Intermittent vs. Daily Energy Restriction

3 months weight loss, 1 month maintenance

Interventions

- 25% daily energy restriction – Mediterranean, HP (25% E) (DER)
- 2 days @ ~600kcals (70% restriction) then eucaloric diet (IECR)
- IECR but unlimited lean meat/fish, eggs, tofu, MUFA/PUFA (IECR+PF)

Results

- Insulin resistance reduced with the IECR and IECR + PF diet
  - Resting insulin and HOMA-IR
  - Reductions with the IECR diet were significantly greater compared with the DER diet
  - Both IECR groups had greater reductions in body fat but not weight, compared with the DER group

  "Reductions in fasting insulin and insulin resistance were greater with IER than with CER.” (Harvie et al, 2011)

Results

In the short term, IECR is superior to DER with respect to improved insulin sensitivity and body fat reduction.
SUMMARY

- It’s worth trialing in yourself and willing clients
- It possibly/probably has unique benefits
- The ‘optimal’ protocol is yet to be decided
  - And will vary with goal
- Necessary to get amazing results?
  - Certainly not
- Needs adjustments for muscle gain

Questions?