

Ironman Race Nutrition

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One Step Beyond

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General Info

- You need a detailed race day nutrition plan.
- Plan should include hourly consumption targets for
 - Fluid
 - Calories
 - Electrolytes

About calories

- On average, athletes burn 6-800 calories per hour during an Ironman.
- More economical athletes (good form) use less than otherwise
- Larger athletes on the high side
- 13 hour * 700 calories = 9100 cal

About nutrition

- 100 lb female pro in 10 hours = ~5-6000 cals
- 220 lb male AGer in 13 hrs = ~10-12,000 cals

The facts

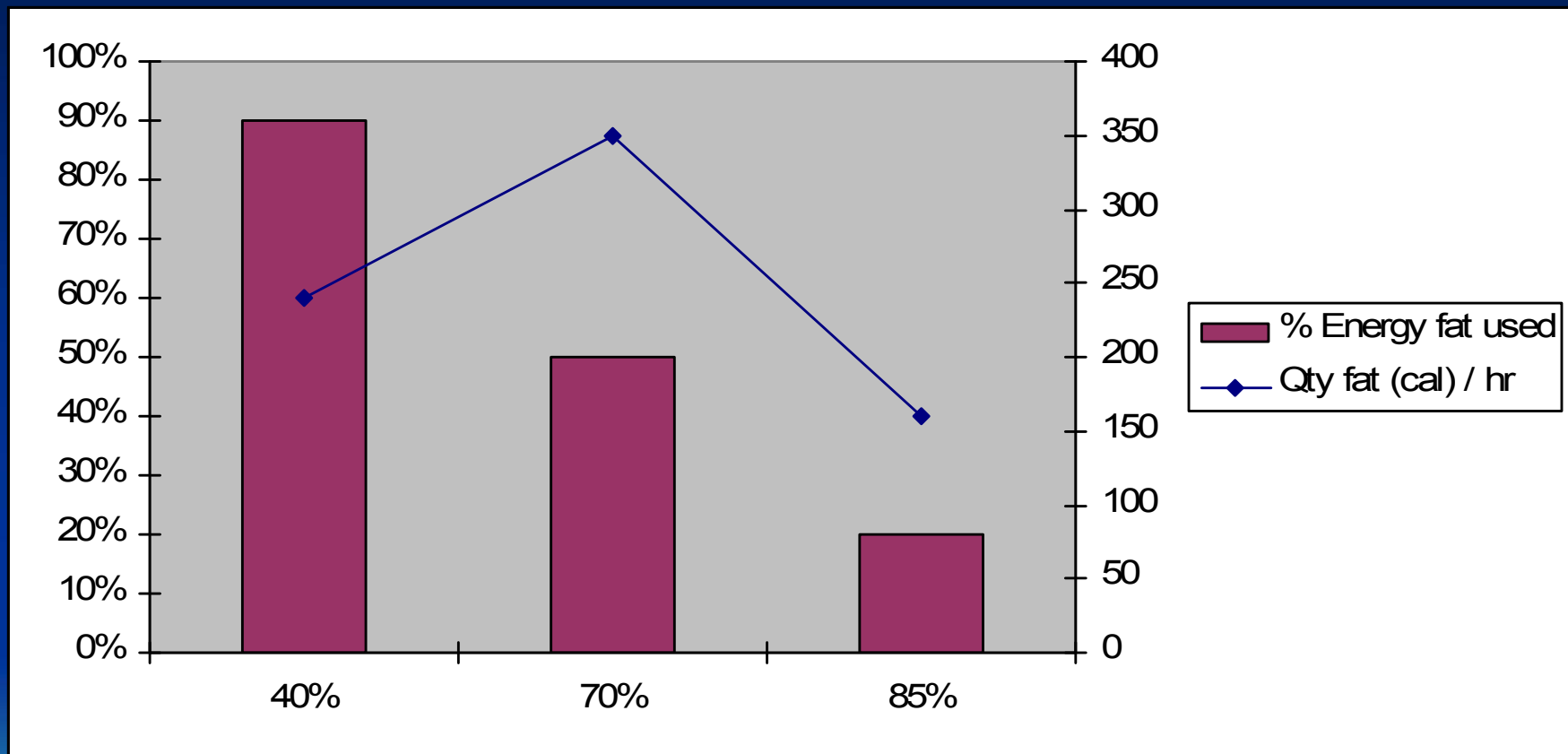
- Stored liver/muscle glycogen = 1500-2200 calories
- Stored fat = 70-80,000 calories
- Aerobic effort of ~60-75% max HR results in metabolism of about 50/50 stored fat to glycogen & blood glucose*
- Protein (muscle) is burned at lesser amounts

*fat utilization increases during sessions lasting more than one hour.

About nutrition

- 160 lb 13 hour guy = about 9100 cals.
- 9100 – 1800 stored glycogen = 7300.
- 50% fat metabolism at 70% max HR = $7300/2 = 3650$.
- This guy needs to consume ~3650 cals to avoid the bonk.

Using fat for fuel



Nutrition

- Swim 1.5hr, Bike 6.5hr, Run 5hr.
- Bike 350 cal / hr = 2275
- Run 200 cal / hr = 1000
- = 3275.
- Where does the rest come from?
 - Breakfast
 - Protein (muscle) breakdown
 - Increased fat utilization during the race

Pre-race nutrition

- Higher carb diet 7-10 days prior
- Extra salt on food 3-4 days prior
- Low fiber diet in final few days
- Day before: big breakfast, medium lunch, smaller dinner, salt everything
- 3-4hrs before: 600-1000 cal
- 1-2hr before: 200 cal carbs
- ~30min before: 1 gel (100cal)
- 10min before: 8oz Gatorade (50cal)

Electrolytes

- Healthy acclimated person may have ~8-9000 mg of stored sodium in tissues
- You can only replace 30-50% of salt and calories during exercise
- Individual fluid and sodium loss rates vary widely
- Consume up to 1g of sodium per hour during the race depending on the conditions
- Endurolyte (1) = 40mg Na, 60mg CL
- Thermolyte (1) = 150mg Na, 225mg CL
- Gatorade (8oz) = 110mg Na
- Gatorade Endurance (8oz) = 200mg Na
- Powerbar Endurance (8oz) = 160mg Na

Calories

- 1 gel = 110 calories, 200mg sodium (Na), 25-50mg caffeine
- 24 oz Gatorade = 150 calories, 330mg Na
- 24 oz Gatorade Endurance = 150 cal, 600mg Na
- 1 scoop Carbopro = 110 calories
- 2 tbsp Hammergel = 91cal, 27mg Na
- 1 scoop HEED = 100 cal, 62mg NaCl
- 1 scoop Sustained Energy = 115cal (3.5g PRO), 37mg Na
- 1 Powerbar Performance bar = 230 cal (45g carb, 9g Pro, 2.5g fat)
- 1 serving Powerbar Endurance = 170cal, 480mg Na
- 8oz Coca-Cola = 97 cal, 33mg Na, 23mg caffeine

Warnings

- Gastric distress (the runs) may result from too much sodium intake (water is pulled from your bloodstream into your gut)
- Gastric distress may result from too much calorie intake – drink gels with water!
- Hyponatremia may result from too little electrolyte consumption during the race

Additional reading

- [Fat metabolism](#) (Gatorade Sports Science):
- [Fat metabolism](#) (Peak Performance Online)
- [Fat metabolism](#) (Peak Performance Online)
- [Carbohydrate loading](#) (Peak Performance Online)
- [Pre-race nutrition](#) (Bob Seebohar)
- [Race nutrition](#) (Kim Loeffler)
- [Sodium consumption](#) (J. Applied Physiology)
- [Electrolyte consumption](#) (E-caps)
- [Hyponatremia](#) (Gatorade Sports Science)