Fat burning increases by up to 50% when in ketosis.

Because muscle glycogen stores are depleted.

Eric Berg says you should deplete your muscle glycogen stores (which contains up to 2000 kcal) before you really maximize fat burn. Is it true?

Yes. To really maximize it.

TL;DR:

- «Fat metabolism can increase by **20-50% during exercise or recovery** when muscle glycogen is low and carbs aren't refilled.»
- «When glycogen stores are depleted (without exercise), **resting fat oxidation** increases modestly—typically by **10-55% over 24 hours ... even when total calories match.»**

— perplexity.ai full answer:

Adults typically store 300-500 grams of **glycogen in skeletal muscles**, equating to about **1200-2000 kcal** (since glycogen yields ~4 kcal/g).[1][5]

Storage Breakdown
This varies by body size, training status, and diet: sedentary people average ~400g (~80-150 mmol/kg wet muscle weight across ~30kg total muscle mass), while endurance athletes can hit 500-800g with carb-loading. For a 70kg person, it's often cited as ~400g muscle + 100g liver, with muscle holding 75-80% of total body glycogen.[2][3][4]

Energy Context
Depleting these stores (e.g., via fasting/exercise) releases that energy as glucose locally in muscles, shifting metabolism toward fat—but full depletion rarely occurs, dropping only to ~10-50% in active fibers. Daily fluctuations refill ~30-50% via meals without high carbs.[1][2]

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Fat metabolism can increase by 20-50% during exercise or recovery when muscle glycogen is low and carbs aren't refilled, based on studies shifting from normal to depleted states.

Quantified Boosts
In steady-state cycling with low glycogen (e.g., ~217 mmol/kg vs. ~396 mmol/kg normal), fat oxidation rises from ~0.38 g/min to ~0.55 g/min—a roughly 45% jump—while carb use drops. Respiratory quotient (RQ) falls from 0.91 (high-carb reliance) to 0.81 (fat-dominant), signaling up to 30-40% more fat burned over 24 hours post-exercise on low-carb/high-fat diets.[1]

[4]

Context Factors
Boosts are acute (during/soon after low-glycogen workouts) and amplified in fasted/low-carb scenarios via enzyme tweaks like lower PDH activity. Long-term net fat loss still hinges on calorie deficit, not just percentage shifts. Individual results vary by fitness and duration.[4][5]

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When glycogen stores are depleted (without exercise), **resting fat oxidation** increases modestly—typically by **10-55% over 24 hours**—depending on the extent of depletion and energy balance.

Quantified Increases
Studies in metabolic chambers show **~57% higher 24-hour fat oxidation (717 vs. 456 kcal/day) after fasted morning exercise causing transient glycogen deficits (~18% of total stores), vs. fed states, even when total calories match**. In recovery post-depletion, fat use rises via elevated plasma fatty acids and enzyme shifts (e.g., lower PDH), often ~0.1-0.4 g/min more than baseline, as **carbs partition toward refill instead of oxidation**.[2][3][5]

Mechanisms
Low glycogen signals AMPK activation and fat-metabolism genes (e.g., CPT1a), boosting lipid uptake/oxidation independent of exercise; this persists 4-24 hours until refed. Effect is transient and smaller at pure rest (~20-30% bump) vs. low-intensity activity.[1][2]

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