Dietary supplementation (omega-3, vitamin supplementation, and/or other supplementation) resulted in small improvements in ASD anxiety and/or affect (five trials; n=163; Hedges’ g: 0.48; 95% CI, 0.17–0.80), autistic general psychopathology (13 trials; n=608; Hedges’ g: 0.3; 95% CI, 0.13–0.45), behavioral problems and impulsivity (nine trials; n=386; Hedges’ g: 0.34; 95% CI, 0.12–0.55), hyperactivity and irritability (12 trials; n=516; Hedges’ g: 0.29; 95% CI, 0.12–0.46), global severity (11 trials; n=774; Hedges’ g: 0.34; 95% CI, 0.20–0.48), social-autistic (24 trials; n=949; Hedges’ g: 0.37; 95% CI, 0.23–0.50), and stereotypes and restrictive/repetitive behaviors (16 trials; n=595; Hedges’ g: 0.27; 95% CI, 0.11–0.43).

Omega-3 supplementation resulted in small improvements in general language (six trials; n=221; Hedges’ g: 0.31; 95% CI, 0.06–0.57) and social-autistic (seven trials; n=259; Hedges’ g: 0.31; 95% CI, 0.07–0.55).

Vitamin supplementation alone resulted in small improvements in behavioral problems and impulsivity (four trials; n=241; Hedges’ g: 0.40; 95% CI, 0.16–0.65), global severity (four trials; n=112; Hedges’ g: 0.46; 95% CI, 0.07–0.86), hyperactivity and irritability (four trials; n=251; Hedges’ g: 0.43; 95% CI, 0.18–0.67), general language (six trials; n=299; Hedges’ g: 0.35; 95% CI, 0.17–0.58), stereotypes and restricted/repetitive behaviors (three trials; n=110; Hedges’ g: 0.53; 95% CI, 0.17–0.90).

LIMITATIONS:
- Heterogenous nature of ASD and study designs makes generalization challenging.
- Restrictive diets not evaluated due to limited number of studies.
- Effect sizes very small across all studies suggesting nonspecific effect.

Ancient solutions to the obesity epidemic

Effect of Ramadan Fasting on Weight and Body Composition in Healthy Non-Athlete Adults: A Systematic Review and Meta-Analysis

Fernando HA, Zibellini J, Harris RA, Seimon RV, Sainsbury A. Effect of Ramadan Fasting on Weight and Body Composition in Healthy Non-Athlete Adults: A Systematic Review and Meta-Analysis. Nutrients. 2019; 11(2):478.

KEY TAKEAWAY:
- Fasting, without encouragement to change lifestyle, during Ramadan resulted in significant but transient reduction in weight of questionable clinical significance, fat mass, and fat-free mass, especially in overweight/obese subjects.

STUDY DESIGN:
- Systemic review and meta-analysis.

BACKGROUND: Islam is the second largest world religion and hundreds of millions of Muslims fast from food and water during daylight hours for the month of Ramadan. Ramadan’s effect on weight are well documented, but its influence on body composition including fat mass and fat-free mass are unclear.

PATIENTS: Patients—Healthy (no medications, non-pregnant/breastfeeding) nonathlete adults, 16- to 70-year-old participating in Ramadan (without intention to change physical activity or diet).

INTERVENTION: Intervention—Fasting from sunrise to sunset for 29 to 30 days of Ramadan.

CONTROL: Control—Pre-Ramadan weight, fat mass, and fat-free mass (subjects served as own controls).
OUTCOME: Outcome—Pre-Ramadan versus post-Ramadan change in weight and body composition (fat mass and fat-free mass). Pre-Ramadan versus follow-up (2–5 weeks after Ramadan) change in weight, fat mass, and fat-free mass.

METHODS BRIEF DESCRIPTION: Literature review of six databases for healthy individuals over 16 years old participating in Ramadan and reporting pre-Ramadan versus post-Ramadan weight, and body composition. Meta-analysis conducted using random-effects model. Authors adhered to Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines and the Cochrane Handbook.

INTERVENTION (# IN THE GROUP): Ramadan fasting, N: 2,947.

COMPARISON (# IN THE GROUP): none—cohort.

FOLLOW UP PERIOD: 2 to 5 weeks after Ramadan fasting completion.

RESULTS:
• A) Pre-Ramadan versus post-Ramadan measurements demonstrated a significant reduction in:
  • 1. Weight (89 studies, n=2,877; –1.3 kg; 95% CI, –1.6 to –1.1).
  • 2. Fat percentage (24 studies, n=633; –1.1%; 95% CI, –1.5 to –0.59).
• B) Pre-Ramadan versus follow-up at two to five weeks demonstrated a significant reduction in weight (43 studies, n=1,276; –0.59 kg; 95% CI, –0.99 to –0.20).
• C) At two to five weeks of follow-up, there was no longer a significant difference in:
  • 1. Fat percentage (13 studies, n=384; 0.61 kg; 95% CI, –0.62 to 1.8).
  • 2. Fat-free mass (seven studies, n=147; –0.23 kg; 95% CI, –0.69 to 0.24).

LIMITATIONS:
• Risk of selection bias as all participants intended to participate in Ramadan.
• Discrepancy in how different studies reported overweight/obesity (body mass index categories).
• Methods used to report body composition (skin calipers and bioelectrical impedance) are unreliable/variable.

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The authors declare no conflicts of interest.