

## Evaluating Weight Gain Regimens for Sport and Occupation

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Athletes, military personnel and those in physical occupations often desire weight gain ideally as lean body mass (LBM) to improve performance and effectiveness in sport, military endeavours and occupational tasks. While much is known about the energy restriction required to reduce body fat mass, much less is understood about the energy and macronutrients needed to promote healthy gains in total body mass. Despite this, sport nutrition texts and other sources commonly state that athletes should increase energy intake by ~500 kcal (2.1 MJ) per day in combination with rigorous resistance exercise training, with an emphasis on adequate protein (1.2- 2.0 g/kg) and carbohydrate, and judicious inclusion of healthy fat-containing foods (e.g., nuts, seeds, peanut butter, trail mix, avocado, etc.). This regimen targets weekly gains of about 0.5 kg. Additional recommendations include consuming larger portions at meals, increasing meal (and snack) frequency, supplementing with energy-dense liquids such as fruit juice, smoothies, and commercially-available supplements, and timing intake in relation to exercise and/or bedtime. This session will review the research and practice of healthy weight gain for athletes within the context of the typical text book recommendations that target weight gain through combined hyperenergetic nutrition and resistance exercise training regimens. Focus will be placed on: a) the potential benefit(s) of total body mass gain for certain sports and occupations; b) what is known about the energy and macronutrients needed to support LBM gains and the cost of muscle tissue accretion; and c) the potential metabolic adaptations that may lead to resistance to weight gain. The latest research addressing resistance exercise training for hypertrophy along with practical nutrition tips to help achieve weight gain goals will briefly be discussed. -Overall the session serves to highlight gaps in knowledge related to healthy weight gain with an overall objective of encouraging research to help design better evidence-based, healthy weight gain regimens.