Pengaruh konseling diet optimasi asam lemak omega-3 menggunakan linear programming terhadap kadar omega-3 plasma, kajian khusus pada anak berisiko overweight, overweight, dan obes usia 12-24 bulan di Jakarta Timur = Influence of optimized omega-3 fatty acids enhanced counseling developed by linear programming on plasma omega-3 fatty acids

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Abstrak

Latar belakang: Edukasi nutrisi dalam bentuk konseling merupakan bagian penting dalam manajemen obesitas anak. Asam Lemak Omega-3 (AL omega-3) merupakan salah satu nutrien esensial yang bermanfaat dalam penanganan obesitas terkait dengan kerjanya yang meningkatkan oksidasi lemak, menurunkan proses adipogenesis, dan memodulasi rasa lapar-kenyang. Sampai saat ini beluan ada rekomendasi nutrisi yang mengikutsertakan optimalisasi AL omega-3 dalam diet pada anak dengan berat badan berlebih dan obesitas. Linear programming merupakan metode untuk membuat rekomendasi makanan yang mempertimbangkan pula ketersediaan makanan, pola makan, dan juga harga makanan dalam proses pembuatannya.
Tujuan: Penelitian ini bertujuan untuk melihat pengaruh konseling diet optimalisasi AL omega-3 menggunakan linear programming terhadap kadar asam lemak omega-3 plasma dibandingkan dengan konseling standar.
Metode: Penelitian ini dilakukan pada 39 anak berisiko overweight, overweight, dan obes usia 12-24 bulan di Jakarta Timur dengan disain uji klinis acak terkontrol.
Hasil: Konseling diet optimalisasi asam lemak omega-3 menyebabkan peningkatan asupan asam linolenat yang bermakna dibandingkan dengan kelompok kontrol (278,011 435,56 vs -44,498 407,785, p=0,035). Tidak terdapat perbedaan perubahan bermakna pada kadar AL omega-3 plasma di antara kelompok perlakuan dan kelompok kontrol.
Kesimpulan: Konseling diet optimalisasi asam lemak omega-3 menggunakan linear programming tidak menimbulkan perubahan bermakna pada kadar asam lemak omega-3 plasma, meskipun berhasil meningkatkan variasi bahan makanan sumber asam lemak omega-3.
<hr><i>Background: Education in the form of counseling is an indespensable part of pediatric obesity management. Omega-3 polyunsaturated fatty acids (PUFA) are beneficial essential nutrients in obesity management, given their effects on lipid homeostasis, specifically by increasing lipid catabolism, decreasing adipogenesis, and modulating appetite. Until now, there is no nutritional recommendation focusing on omega-3 PUFA for overweight and obese children. Linear programming is one method to generate specific nutritional recommendation that also considering the food affordability, availability, and food consumption pattern.
Objective: To investigate the differences of plasma omega-3 PUFA changes between group that received omega-3 PUFA optimized using linear programming dietary counseling and control group with standard counseling.
Method: This study is an open clinical trial with parallel design, 39 children aged 12-24 months with BMI Z score > +1 based on WHO growth curve were randomly assigned by block randomization with stratification

into enhanced counseling with omega-3 optimization using linear programming or general counseling group. Both counseling were conducted once weekly for 10 weeks. At baseline and endline, the following parameters were measured: fat intake, omega-3 intake, ratio of omega-6/omega-3 intake, eating behaviour, plasma concentration of omega-3, and plasma omega-6/omega-3 ratio.
Results: After the intervention, -linolenic acid intake was significantly increased compared to control group (278,011 435,56 vs. -44,498 407,785, p=0,035). There were no significant differences in changes of plasma omega-3 FA between the intervention and control group.
Conclusion: Omega-3 FA optimized dietary counseling using linear programming was partially successful in improving thee variation of omega-3 FA food sources, however there were no significant changes in plasma omega-3 FA.</i>