The American Journal of Clinical Nutrition
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The following articles are being published in the May 2019 issue of *The American Journal of Clinical Nutrition (AJCN)*, a publication of the American Society for Nutrition. Full summaries and analyses are available on the ASN website. Links to the articles are below. Articles published in AJCN are embargoed until the article appears online either as in press (Articles in Press) or as a final version. The embargoes for the following articles have expired.

Metabolic profiling: A promising tool to understand the effects of dietary fat on cardiovascular risk.
Metabolic profiling furthers our understanding of the effects of dietary fat on cardiovascular risk.
Ulven S, Christensen JJ, Nygard O, Svardal A, Leder L, Ottestad I, Lysne V, Laupsa-Borge J, Ueland PM, Midttun O, Meyer K, McCann A, Andersen LF, Holven KB. Using metabolic profiling and gene expression analyses to explore molecular effects of replacing saturated fat with polyunsaturated fat – a randomized controlled dietary intervention study. *The American Journal of Clinical Nutrition* 2019;109(5):1239-50

Eating disorder prevalence: A systematic literature review
Integrating eating disorder prevalence data confirm that eating disorders are highly prevalent worldwide, especially in women.
Galmiche M, Pierre D, Lambert G, Tavolacci MP. Prevalence of eating disorders over the 2000-2018 period: a systematic literature review. *The American Journal of Clinical Nutrition* 2019;109(5):1402-13

Fortified human milk positively impacts growth in hospitalized preterm infants
Current study supports recommendations for routine nutritional fortification of human milk for hospitalized preterm infants.
Belfort MB, Edwards, EM, Greenberg LT, Parker MG, Ehret DY, Horbar JD. Diet, weight gain, and head growth in hospitalized US very preterm infants: a 10-year observational study. *The American Journal of Clinical Nutrition* 2019;109(5):1373-79

Metabolic profiling: A promising tool to understand the effects of dietary fat on cardiovascular risk.

Background: Metabolic profiling and gene expression analyses are new tools being used by scientists to learn more about the interplay between diet and health. It is hopeful that these emerging technologies will not only provide a better understanding of nutritional impacts on disease but will also facilitate a shift from population-based dietary recommendations to individualized dietary prescriptions. For example, studies have shown that replacing saturated fatty acids with polyunsaturated fatty acids has been linked with reduced risk of cardiovascular disease. Yet, beyond changes in blood lipids, scientists lack comprehensive knowledge of metabolic dysregulation among those at risk of cardiovascular disease. Therefore, metabolic profiling may help to identify novel biomarkers associated with cardiovascular disease risk. In a recent study published in the June 2019 issue of *The American Journal of Clinical Nutrition*, Dr. Ulven (University of Oslo) and colleagues investigated metabolic alterations paralleling improved fat quality of the diet.

Study Design: A total of 99 adults participated in this eight-week double blind, randomized controlled dietary intervention trial. Healthy subjects with moderate hypercholesterolemia were randomly assigned to either the control diet group or the experimental diet group. Based on minimum intake of the food items, the omega-6 polyunsaturated fatty acid content of food items in the control diet group was 4.2 g/d and 12.9 g/d in the experimental group food items. The saturated fatty acid content was 19.2 g/d and 5.7 g/d in the control food items and the experimental food items, respectively. The content of monounsaturated fatty acids in the food items was the same in both groups. Metabolite and gene expression analyses were measured at baseline and at eight weeks follow-up.

Results and Conclusions: In this randomized controlled dietary intervention study among individuals with moderate hypercholesterolemia, the concentration of atherogenic lipoprotein particles was reduced after replacing saturated fatty acids with polyunsaturated fatty acids. Many metabolites associated with cardiovascular disease risk were favorably altered in the experimental diet group compared to the control diet group. Several genes involved in lipid metabolism and inflammation were also favorably changed during intervention. Important biomarkers of cardiovascular disease risk were likewise reduced in the experimental diet group compared to the control diet group. The results of this study support a beneficial dietary effect of replacing saturated fatty acids with polyunsaturated fatty acids. Few studies of this magnitude have been performed to profile metabolites known to be associated with cardiovascular risk. Metabolic profiling clearly has the potential to further our understanding of the effects of dietary fat on cardiovascular risk.

Reference

Ulven S, Christensen JJ, Nygard O, Svardal A, Leder L, Ottestad I, Lysne V, Laupsa-Borge J, Ueland PM, Midttun O, Meyer K, McCann A, Andersen LF, Holven KB. Using metabolic profiling and gene expression analyses to explore molecular effects of replacing saturated fat with polyunsaturated fat – a randomized controlled dietary intervention study. *The American Journal of Clinical Nutrition* 2019;109(5):1239-50

For more information

For the complete article, please go to: https://academic.oup.com/ajcn/article/109/5/1239/5480602
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Eating disorder prevalence: A systematic literature review

Background: Eating disorders were first described in the Diagnostic and Statistical Manual of Mental Disorders in 1980. Since then, diagnostic criteria used to define and diagnose eating disorders have broadened to include behaviors that may not strictly meet all the conditions for anorexia nervosa, bulimia nervosa, or binge eating disorder. For this reason, it can be difficult to estimate the prevalence of eating disorders in various population groups. In a recent study published in the June 2019 issue of *The American Journal of Clinical Nutrition*, Dr. Pierre Dechelottee (Rouen University) and colleagues conducted a systematic review on the prevalence of eating disorders. Studies were carried out in various countries and with different methods of classification and evaluation. The purpose of this systematic review was to describe the full range of prevalence studies published between 2000 and 2018, to determine if a comparison was possible, and to reconstruct the evolution of eating disorder prevalence studies over recent years.

Study Design: A literature search of English or French studies published between 2000 and 2018 was performed. Relevant studies were included in the systematic review on the prevalence of eating disorders. A total of 94 studies with accurate eating disorder diagnosis and 27 with broad eating disorder diagnoses were included in the final analyses. Prevalence data were summarized as lifetime prevalence, defined as the occurrence of eating disorders at any point in life before the interview, point prevalence, defined as the proportion subjects affected with eating disorders at a specific point in time, and by 12-months prevalence, defined as the proportion of subjects with eating disorders that occurred in the 12-months preceding the study interview. Weighted means, which assign some data points more weight than others, were computed.

Results and Conclusions: Weighted means of lifetime eating disorders were 8.4% for women and 2.2% for men, whereas the weighted means of 12-months eating disorder prevalence were 2.2% for women and 0.7% for men. Among the studies that reported eating disorder point prevalence, the weighted means were 5.7% for women and 2.2% for men. The point prevalence means in America were 4.6%, 2.2% in Europe and 3.5% in Asia. The prevalence of eating disorders as broad categories resulted in means of total point prevalence of any eating disorder of 19% in women and 14% for men. Despite the complexity of integrating all eating disorder prevalence data, the most recent studies confirm that eating disorders are highly prevalent worldwide, especially in women. Moreover, the weighted means of eating disorder point prevalence increased over the study period from 3.5% for the 2000-2006 to 7.8% for the 2013-2018 periods, respectively. This study confirms that eating disorders tend to affect mainly women and are highly prevalent in adolescents. This review also highlights that the American continent tends to have higher prevalence for all eating disorders.

Reference

Galmiche M, Pierre D, Lambert G, Tavolacci MP. Prevalence of eating disorders over the 2000-2018 period: a systematic literature review. *The American Journal of Clinical Nutrition* 2019;109(5):1402-13

For more information

For the complete article, please go to: https://academic.oup.com/ajcn/article/109/5/1402/5480601

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Fortified human milk positively impacts growth in hospitalized preterm infants

Background: Transitioning from the intrauterine environment to life outside the womb requires numerous physiological adaptations. Generally, by 37 gestational weeks, most babies are physically capable of making this adjustment. But, for those born too early, this transition can be difficult and is often associated with serious health challenges. In fact, the earlier in a pregnancy that babies are born, the more support that is needed for proper growth and development. Growth failure among very preterm infants is a serious concern, and nutritional standards for postnatal feeding is one of the most debated issues. Because bioactive factors in human milk protect against life-threatening complications of preterm birth, human milk is extremely important. Yet, because nutrient requirements are higher for preterm than for full term infants, nutrient fortification of human milk is recommended. However, strategies for nutrient fortification may not optimally meet nutrient requirements for all very low birth weight preterm infants. In a recent study published in the June 2019 issue of *The American Journal of Clinical Nutrition*, Mandy Brown Belfort (Brigham and Women's Hospital) and colleagues investigated differences in weight gain and head growth among very preterm infants fed human milk only, human milk with fortifier, or infant formula only. Researchers also described trends in the magnitude of these differences over time.

Study Design: This study tested the hypothesis that human milk diets contribute to slower weight gain and head growth *vs*. infant formula only. A second aspect of the study was to document how the relationship of human milk with growth has diminished over time. Researchers studied all surviving infants born at 22-29 gestational weeks or 401-1500 g birth weight. Diets at hospital discharge were categorized as human milk only, human milk with formula or fortifier, or infant formula only. Weight gain and head circumference measures were taken from the clinical record at birth and at discharge. Weight gain velocity and average weekly rate of head growth were also calculated. To examine growth trends over 10 years, adjusted mean growth for each diet group in each year was examined.

Results and Conclusions: Weight gain and head growth were fastest in the infant formula only group. Weight gain and head growth were also faster in the mixed diet group *vs*. human milk only, and in the infant formula only *vs*. mixed diet group. Relative to the infant formula-only group, weight gain velocity improved over time in both human milk groups. It appears that the mixed diet group catches up in terms of weight gain relative to the infant formula only group. Differences in growth parameters diminished over the 10-year study period. Weight gain in the human milk only group also improved but continued to lag behind the other groups. Head growth improved in both human milk diet groups relative to the infant formula-only group. These results suggest that unfortified human milk does not meet the nutritional requirements of the growing preterm infant and support current recommendations for routine fortification until hospital discharge. However, further work is needed to determine the best approach to fortify human milk for optimal growth.

References

Belfort MB, Edwards, EM, Greenberg LT, Parker MG, Ehret DY, Horbar JD. Diet, weight gain, and head growth in hospitalized US very preterm infants: a 10-year observational study. *The American Journal of Clinical Nutrition* 2019;109(5):1373-79

For more information

For the complete article, please go to: https://academic.oup.com/ajcn/article/109/5/1373/5475054

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