



מרץ, 2019

Israeli Medical Abstracts Repository (IMAR)

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Instructions

Up to 1 page for personal details and abstract text. **Additional lines will be truncated**

Personal details

Research Number: (Merkava Number i.e. 300000-XXXX)

Title: (Strictly as applied to the Ministry of Health)

Principal Investigator: (PI that is signed on the research agreement)

Institute:

Additional investigator(s): (**Only those** who are the original application and signed the front page of the final report)

Institute(s): (Associate to each author by numbered superscripts)

Year (Start): Year (End):

Abstract

Background:

Research Hypothesis:

Aims:

Methods:

Results: Discussion:

Conclusions:

Key words: (up to 5)

Please add publications associated with the project in PubMed format, up to 1 Page only.

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Research Number: 3-00000-9114 (1245321)

Title: Effect of milk components on catch up growth

Principal Investigator: Galia Gat-Yablonski, PhD

PI's Institute: Schneider Children's Medical Center & Tel Aviv University

Other Author(s): Prof. Moshe Phillip

Institute(s): Schneider Children's Medical Center & Tel Aviv University

Year (Start): 2013 Year (End): 2014

Background: There are numerous causes that may lead to growth attenuation. Usually when the restricting factor is resolved, compensatory catch up (CU) growth occurs. However, in many cases the efficiency of the CU growth is not sufficient to place the child back to its genetic growth trajectory and growth deficits are permanent. Furthermore, over the past two decades, it has been increasingly recognized that the risk of adult health disorders, particularly metabolic syndrome, can be markedly increased by infant CU growth. As milk is an important source of nutrients supporting growth and development of infants, we suggest that fortification of food with specific components of milk may make the CU growth process more robust.

Working hypothesis and aims: although the association between nutrition and growth is a common knowledge; the exact nutritional factors required for efficient CU growth are still unknown. The primary aim of the study is to study the effects of different milk components on linear growth and CU growth in food restricted young rats, to improve their CU growth both in efficiency, bone quality and reduced adult onset metabolic complications.

Methods: Pre-pubertal young rats were either fed normal chow ad libitum or subjected to 40% food restriction for 10 day followed by re-feedings, with diets containing whey, casein or a combination of both, as the sole source of dietary protein.

Results & discussion: In spite of the fact that both proteins are of high quality, we found significant differential effect on linear growth, body weight, bone length and growth plate height. Furthermore, a significant effect was observed on bone structure as well as on the microbiome composition. Our results suggest that whey had a better effect on linear growth, bone structure, weight gain and microbiome composition, suggesting it is the basis of the diet for children with growth attenuation. .

5 Keywords: Catch up growth; Growth plate; whey, casein, calcium,



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Publications associated with the project (PubMed Format):

Food restriction followed by refeeding with a casein- or whey-based diet differentially affects the gut microbiota of pre-pubertal male rats. Masarwi M, Solnik HI, Phillip M, Yaron S, Shamir R, Pasmanic-Chor M, Gat-Yablonski G. J Nutr Biochem. 2018 Jan;51:27-39. doi: 10.1016/j.jnutbio.2017.08.014. Epub 2017 Sep 14. PMID: 29091812

Skeletal effect of casein and whey protein intake during catch-up growth in young male Sprague-Dawley rats. Masarwi M, Gabet Y, Dolkart O, Brosh T, Shamir R, Phillip M, Gat-Yablonski G. Br J Nutr. 2016 Jul;116(1):59-69. doi: 10.1017/S0007114516001781. Epub 2016 May 18. PMID: 27189324