



המרכז הרפואי תל-אביב
ע"ש סוראסקי
איכילוב



דנה
בי"ח דנה דואק לילדים

Plastics in Pediatrics – an Emerging Health Concern

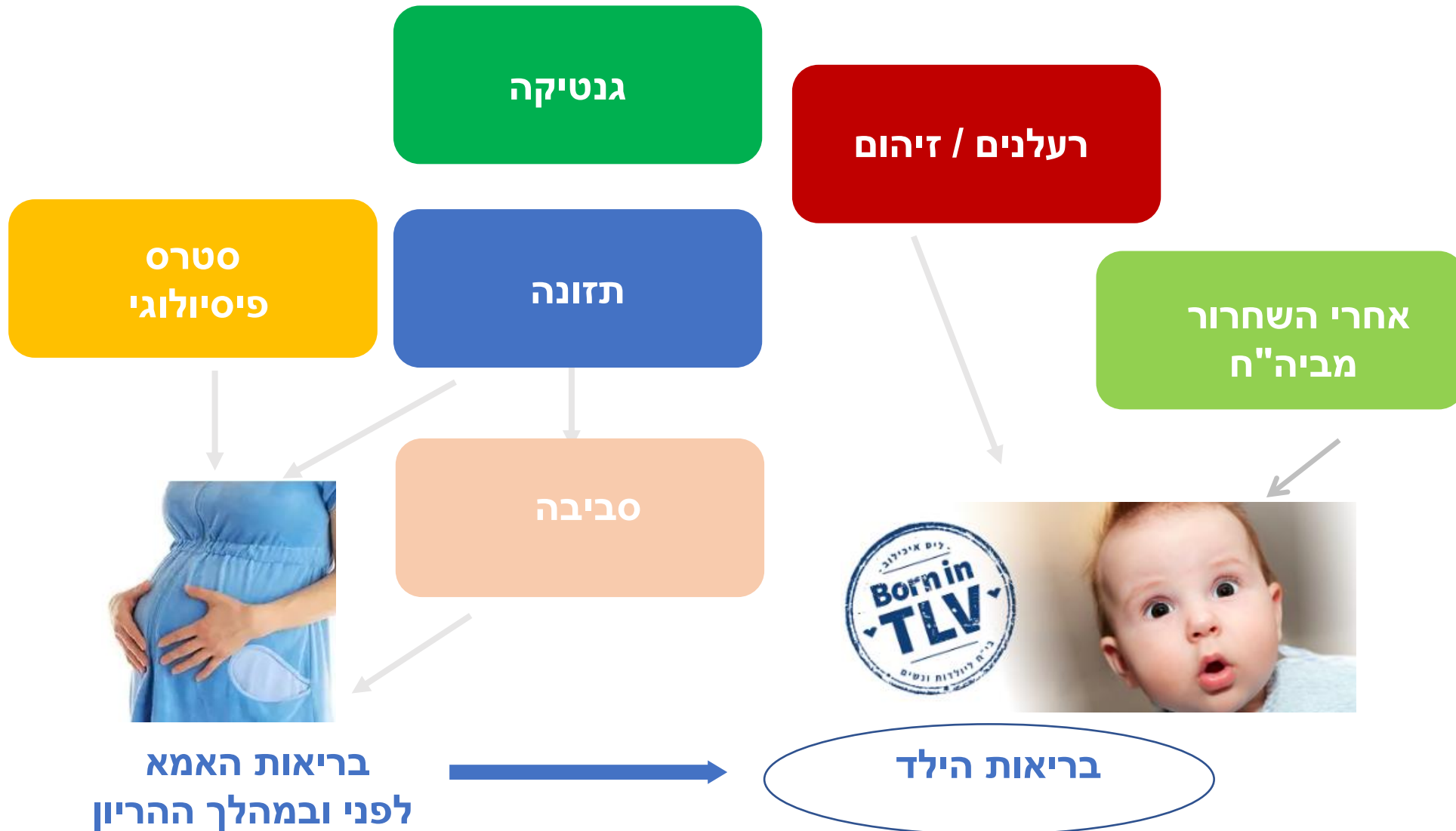


פרופ' דרור מנדל
ביה"ח דנה דואק לילדים

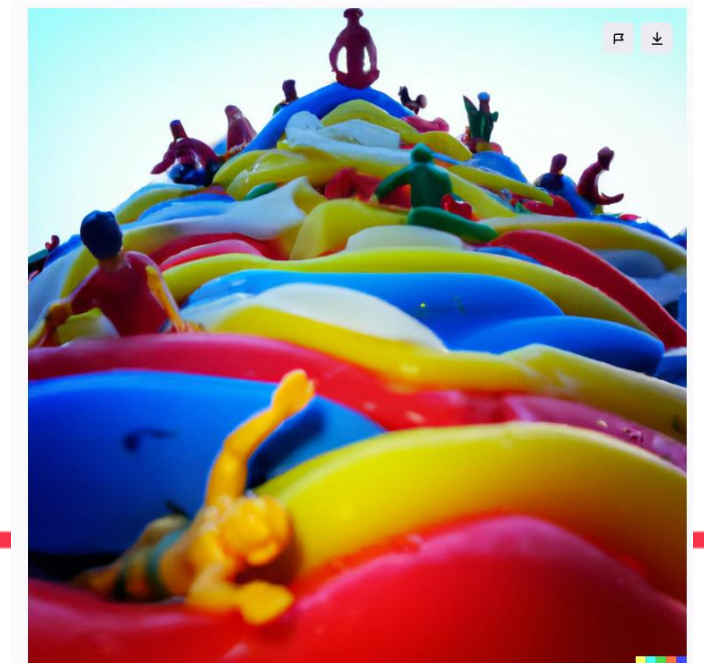
משרד לוחם מסיכה
למנוח הים, האדם והסביבה
צולל
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נזקי הפלסטיק
לבריאות האדם,
החי והסביבה

12:00 | 10.1.23
מרכז רפואי תל אביב סוראסקי



- The global production of plastics has reached the impressive amount of more than **350 million tons per year**.
- **250,000 tons** of plastic litter is estimated to
- be floating in the **oceans**.



POLICY STATEMENT Organizational Principles to Guide and Define the Child Health Care System and/or Improve the Health of all Children

American Academy
of Pediatrics



DEDICATED TO THE HEALTH OF ALL CHILDREN™

Food Additives and Child Health

Leonardo Trasande, MD, MPP, FAAP,^a Rachel M. Shaffer, MPH,^b Sheela Sathyanarayana, MD, MPH,^{b,c}
COUNCIL ON ENVIRONMENTAL HEALTH

INTRODUCTION

Today, more than 10 000 chemicals are allowed to be added to food and food contact materials in the United States, either directly or indirectly, under the 1958 Food Additives Amendment to the 1938 Federal Food, Drug, and Cosmetic Act (FFDCA) (public law number 85-929). Many of these were grandfathered in for use by the federal government before the 1958 amendment, and an estimated 1000 chemicals are used under a “generally recognized as safe” (GRAS) designation process without US Food and Drug Administration (FDA) approval.¹ Yet, suggested in accumulating evidence from nonhuman laboratory and human epidemiological studies is that chemicals used in food and food contact materials may contribute to disease and disability, as described in the accompanying technical



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The AAP recommends parents follow these guidelines to avoid foods with dangerous chemicals:

- Opt for fresh or frozen fruit and vegetables.
- Don't microwave foods and beverages (including breast milk or formula) in plastic containers.
- Don't wash plastic containers in the dishwasher.
- Choose non-plastic containers (like stainless steel or glass) when possible.
- Look at a plastic product's recycling code (at the bottom) and avoid those with codes three, six or seven. Unless the product is labeled being biobased or greenware.
- Wash hands before handling food or beverages.
- Wash all fruit and vegetables that can't be peeled.



SOCIETY

Level of plastic in children's bodies 'alarming'

Wesley Rahn

09/14/2019

A study by the German Environment Ministry has found almost all children tested have traces of plastic byproducts in their bodies. Some of the chemicals found could affect health and development.



Plastic byproducts were found in **97%** of **blood and urine samples** from 2,500 children tested between 2014 and 2017, according to a study by the German Environment Ministry and the Robert Koch Institute.

- **Breastmilk** is the gold standard for infants' nutrition.

- Moreover, it reflects both the mother's and infant's postnatal exposure.

- What is the role of contaminants in breast milk?









- breastmilk is the gold standard for infants' nutrition.
- Moreover, it reflects both the mother's and infant's postnatal exposure, and hence, it represents an optimal matrix for contaminant biomonitoring.
- What is the role of contaminants in breast milk?

- Polychlorinated bisphenyls (**PCBs**), organochlorine pesticides, polybrominated diphenyl esters
- (**PBDEs**), **phthalates** and phthalate metabolites, per- and polyfluoroalkyl substances (**PFASs**), **phenols**, and **metals** have been detected in human milk.
- Toxic effects –
 - PCBs - a severe impact on endocrine & cognitive systems (reduced IQ and altered behavior)
 - PBDEs - neurotoxic, especially in children (effects on motor, cognitive, and behavioural development)
 - Phthalates have been reported in the literature to negatively impact male reproductive functionality; Moreover, childhood exposure to phthalates was shown to increase the risk of allergic diseases and altered physical/neurocognitive development.

Article

Raman Microspectroscopy Detection and Characterisation of Microplastics in Human Breastmilk

Antonio Ragusa ¹, Valentina Notarstefano ^{2,*}, Alessandro Svelato ³, Alessia Belloni ², Giorgia Gioacchini ², Christine Blondeel ³, Emma Zucchelli ³, Caterina De Luca ³, Sara D'Avino ³, Alessandra Gulotta ⁴, Oliana Carnevali ² and Elisabetta Giorgini ²

- 34 women were analyzed and for the first time **microplastics contamination was found in 26 out of 34 breast milk samples (76%)**.
- The most abundant MPs were composed of polyethylene, polyvinyl chloride, and polypropylene, with sizes ranging from 2 to 12 microm.



ELSEVIER

Environment International



Volume 146, January 2021, 106274





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Plasticenta: First evidence of microplastics in human placenta

Antonio Ragusa ^a, Alessandro Svelato ^a  , Criselda Santacroce ^b, Piera Catalano ^b, Valentina Notarstefano ^c, Oliana Carnevali ^c, Fabrizio Papa ^b, Mauro Ciro Antonio Rongioletti ^b, Federico Baiocco ^a, Simonetta Draghi ^a, Elisabetta D'Amore ^a, Denise Rinaldo ^d, Maria Matta ^e, Elisabetta Giorgini ^c


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Highlights

- For the first time microplastics were detected by Raman microspectroscopy in human placentas.
- Microplastics were found in all placental portions: maternal, fetal and amniochorial membranes.
- Microplastics carry with them substances which acting as endocrine disruptors could cause long-term effects on human health.

המלצות

- להניק, להניק, להניק
- מחקר ארוך טווח על ילדים
- מודעות, חינוך
- מניעה ראשונית היא תמיד הכי חשובה והכי יעילה



"ורוב הזולאים שבאים
על האדם אינם אלא או
מאכילת מאכלים רעים
או מפני שהוא ממלא
בטנו ואוכל אכילה גסה
אפילו ממאכלים טובים"

רמב"ם 1138-1204