



## NEWS RELEASE

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## Short Duration of Breastfeeding and Maternal Obesity Linked to Fatty Liver in Adolescents

*Novel study finds evidence for association between breastfeeding duration and maternal obesity and development of nonalcoholic fatty liver disease in adolescents, reports the Journal of Hepatology*

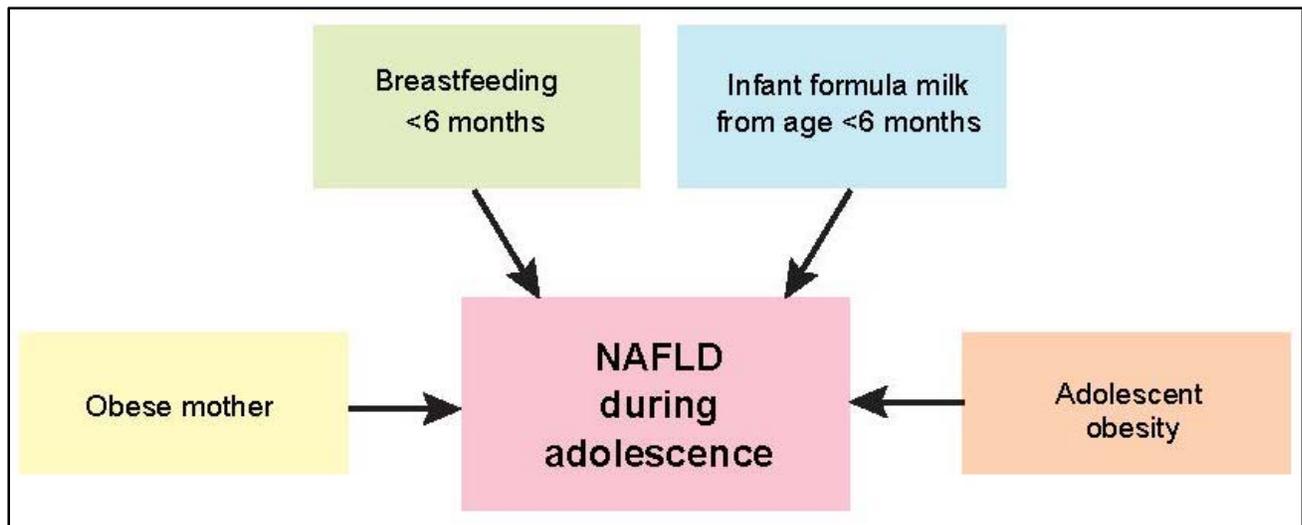
**Amsterdam, The Netherlands, June 12, 2017** – Infants who were breastfed for less than six months before starting infant formula milk and infants who had mothers who were obese at the start of pregnancy, were much more likely to develop nonalcoholic fatty liver disease (NAFLD) as adolescents, according to a novel [study](#) in the [Journal of Hepatology](#).

Non-alcoholic fatty liver disease (NAFLD) is the most common liver disorder in developed countries, affecting up to one in four adults. It occurs when fat accumulates within the liver cells in people who do not consume excessive alcohol and is commonly associated with obesity and insulin resistance. According to the U.S. National Health and Nutrition Examination Survey, NAFLD in adolescents has doubled in the last 20 years.

“There have been studies into the benefits of breastfeeding on other diseases, but there is little information about benefits of breastfeeding linked to liver disease,” explained lead investigator Oyekoya T. Ayonrinde, MBBS, of the School of Medicine and Pharmacology, The University of Western Australia, Perth, the Department of Gastroenterology and Hepatology, Fiona Stanley Hospital, Murdoch, and Faculty of Health Sciences, Curtin University, Bentley, Western Australia. “We therefore examined records of Australian adolescents to establish if infant nutrition and maternal factors could be associated with the subsequent diagnosis of NAFLD.”

Investigators performed liver ultrasound on more than 1,100 adolescents aged 17 years, who have been followed since before birth as part of the Western Australian Pregnancy (Raine) Cohort study. Records detailing maternal pregnancy and infant feeding were correlated with the presence of NAFLD during late adolescence.

NAFLD was diagnosed in about 15% of the adolescents examined. Ninety-four percent had been breastfed as infants. The duration of breastfeeding before starting supplementary milk was four months in 55% and six months in 40%. Adolescent children of women who were obese at the start of pregnancy were twice as likely to have NAFLD, while those fed infant formula milk before completing six months of breastfeeding had a 40% increased likelihood of NAFLD. Interestingly, offspring of mothers who smoked at the start of pregnancy had a significantly increased risk of NAFLD.



Caption: Breastfeeding for less than six months before commencing infant formula milk and maternal obesity at the start of pregnancy, as well as obesity in adolescent offspring, influence the risk of non-alcoholic fatty liver disease (NAFLD) in adolescents.

“A healthy weight of the mother and support with initiation and persistence with breastfeeding may have later benefits for the liver in their children,” added Dr. Ayonrinde. “This provides additional reasons to support opportunities for women to breastfeed their infants for at least six months while delaying the start of infant formula milk. The important nurturing role of mothers in child health should not be underestimated.”

In an accompanying [editorial](#), Anna Alisi, PhD, of the Liver Research Unit, Bambino Gesù Children’s Hospital, IRCCS, Rome, Italy, and Pietro Vajro, MD, of the Department of Medicine, Surgery and Dentistry, “Scuola Medica Salernitana,” Unit of Pediatrics, University of Salerno, Baronissi (Sa), Italy, commented, “This elegant observational study by Ayonrinde and colleagues is the first epidemiological evidence for the connection between maternal obesity, breastfeeding, and NAFLD.”

“Human breast milk is indeed complex and it may contain various biologically-active constituents with a protective effect upon obesity and obesity-related conditions that remain largely unexplored. The mechanisms for this merit further study.”

Dr. Alisi and Dr. Vajro also emphasized the study’s findings that there is a significantly increased risk of NAFLD in offspring of mothers who smoked at the start of pregnancy. This substantiates the results of a number of previous studies dealing with the epidemiology of childhood overweight and obesity.

“This study further supports the need to encourage comprehensive healthy lifestyles before and during pregnancy and prolonged exclusive breastfeeding for the long-term health benefits of future generations,” they concluded.

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#### Notes for Editors

The articles are “Infant nutrition and maternal obesity influence the risk of non-alcoholic fatty liver disease in adolescents,” by Oyekoya T. Ayonrinde, MBBS, Wendy H. Oddy, PhD; Leon A. Adams, MBBS, PhD; Trevor A. Mori, PhD; Lawrence J. Beilin, MD; Nicholas de Klerk, PhD; and John K. Olynyk, MD (<http://dx.doi.org/10.1016/j.jhep.2017.03.029>), and “Editorial: Pre-natal and post-natal environment monitoring to prevent non-alcoholic fatty liver disease development,” by Anna Alisi, PhD, and Pietro Vajro, MD (<http://dx.doi.org/10.1016/j.jhep.2017.04.016>). They will appear in the *Journal of Hepatology*, volume 67, issue 3 (September 2017) published by Elsevier.

Full text of these articles is available to credentialed journalists upon request; contact Sybrand Boer Iwema at +31 20 485 2781 or [hmsmedia@elsevier.com](mailto:hmsmedia@elsevier.com). Journalists wishing to interview the study authors should contact Dr. Oyekoya Ayonrinde via The University of Western Australia media and public relations office at +61 864886876, [oyekoya.ayonrinde@uwa.edu.au](mailto:oyekoya.ayonrinde@uwa.edu.au), or Jess Reid, Media and PR Advisor, The University of Western Australia, at +61 864886876, +61 415105200, [jess.reid@uwa.edu.au](mailto:jess.reid@uwa.edu.au). Journalists wishing to interview the Editorial's authors should contact their Press Officer at [ufficiostampa@opbg.net](mailto:ufficiostampa@opbg.net). For questions concerning the *Journal of Hepatology*, please contact Editor-in-Chief Rajiv Jalan at [hmsmedia@elsevier.com](mailto:hmsmedia@elsevier.com).

For additional information please refer to the accompanying video at <https://youtu.be/o9aHlkDxcvU> in which Professor John K. Olynyk discusses this study.

The research team credits the Raine study participants and their parents for their ongoing support and sacrifice in participating in this important long-term follow up study. The National Health and Medical Research Council, The University of Western Australia, the Raine Medical Research Foundation, Telethon Kids Institute, the Women's and Infant's Research Foundation, Curtin University, The University of Western Australia Faculty of Medicine, Dentistry and Health Sciences, and Edith Cowan University are acknowledged for their funding of the Raine Study. Further information about the Raine Study can be accessed from [www.rainestudy.org.au](http://www.rainestudy.org.au).

### **About the *Journal of Hepatology***

The *Journal of Hepatology* is the official journal of the European Association for the Study of the Liver (EASL). It publishes original papers, reviews, case reports, and letters to the Editor concerned with clinical and basic research in the field of hepatology. [www.journal-of-hepatology.eu](http://www.journal-of-hepatology.eu)

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In the fifty plus years since EASL was founded, it has grown from a small organization that played host to 70 participants at its first meeting, to becoming the leading liver association in Europe. EASL attracts the foremost hepatology experts as members and has an impressive track record in promoting research in liver disease, supporting wider education, and promoting changes in European liver policy. [www.easl.eu](http://www.easl.eu)

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