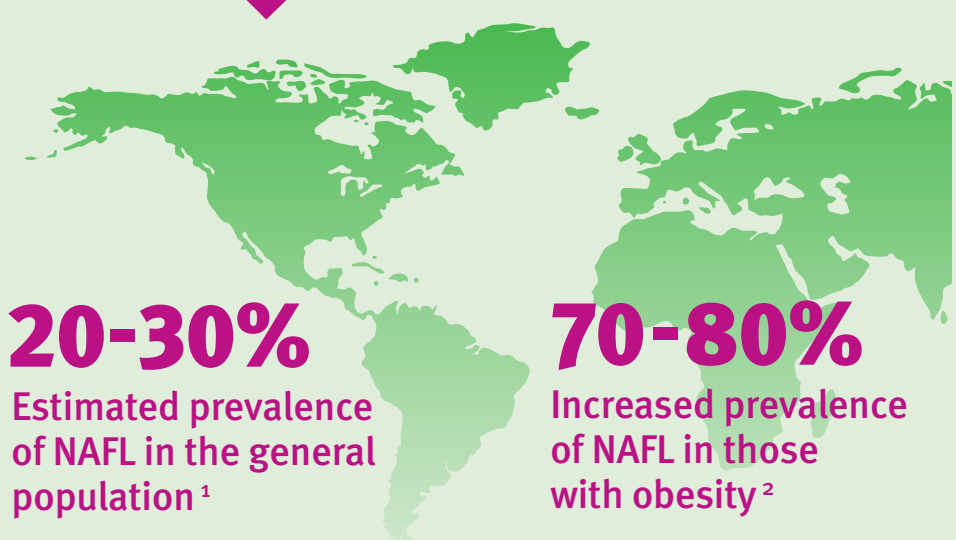


NUTRITION AS A PRIMARY PREVENTION STRATEGY FOR NON-ALCOHOLIC FATTY LIVER (NAFL)



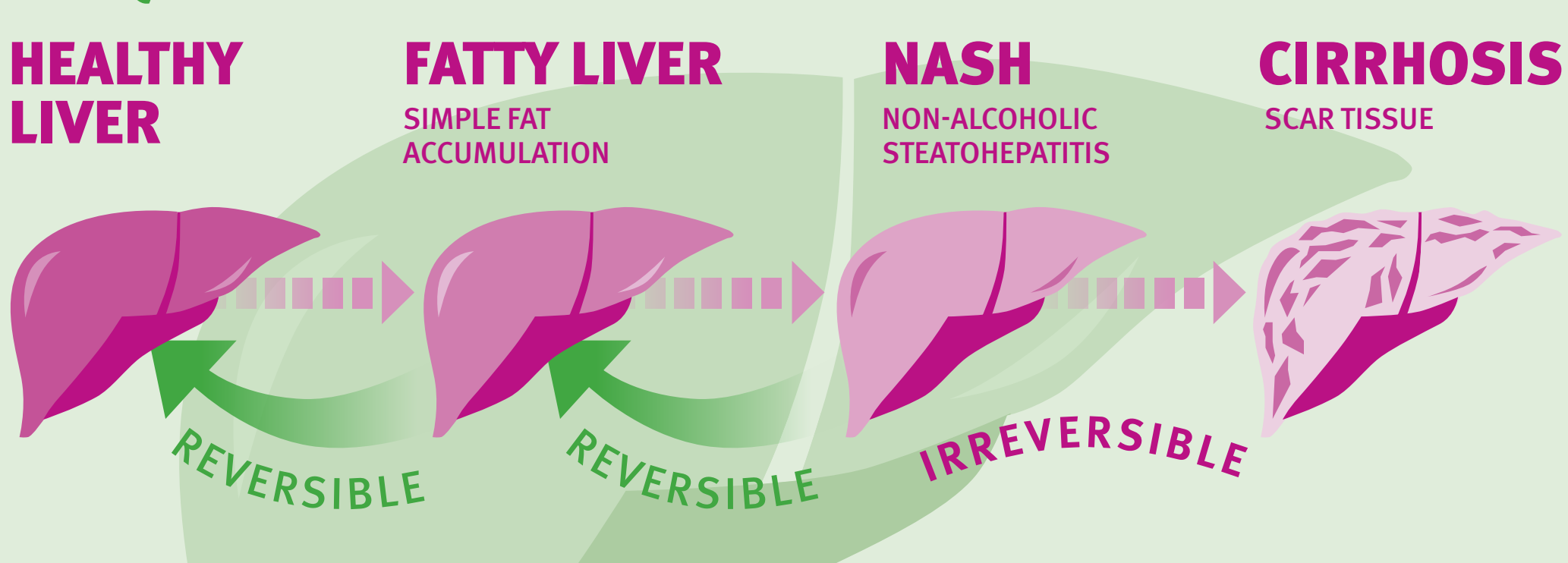
1.5 billion
people are overweight or obese worldwide³

300 million
people have type II diabetes⁴

39%
Prevalence of raised cholesterol among adults globally⁵



BY 2030 NAFL IS PREDICTED TO BECOME THE MOST FREQUENT INDICATION FOR LIVER TRANSPLANTATION⁶

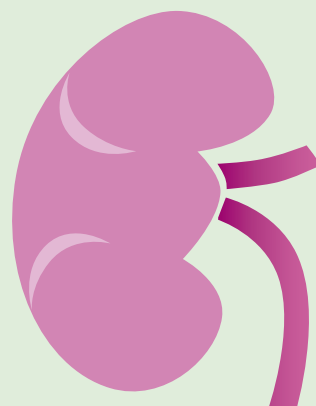


A MULTISYSTEM CONDITION

- The metabolic associations of fatty liver are:⁷
- **TYPE II DIABETES**
 - **INSULIN RESISTANCE**
 - **CARDIOVASCULAR CONDITIONS**



NEW RESEARCH
suggests that NAFL may play a part in the pathogenesis of cardiovascular conditions and chronic kidney conditions⁸



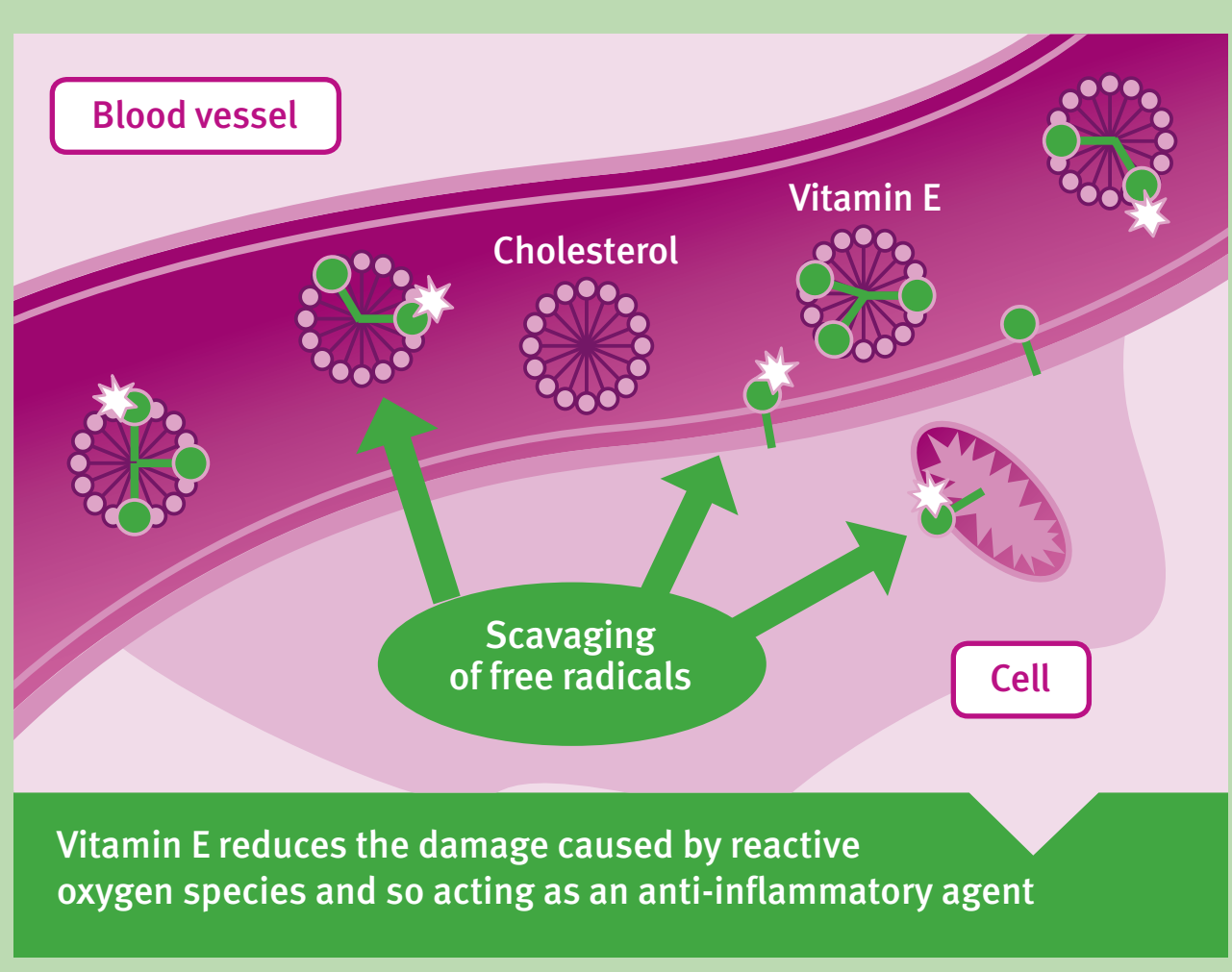
NO APPROVED DRUG currently available for the treatment of NAFL

THE RESULTING CLINICAL IMPLICATION?
People affected by NAFL may benefit from more intensive surveillance and early prevention interventions, to lower the risk of extra hepatic chronic complications

PRIMARY PREVENTION THROUGH NUTRITIONAL SOLUTIONS

Vitamin E and polyunsaturated fatty acids (PUFAs) independently improved liver histology in a number of clinical studies⁹⁻¹⁶

- ✓ **Vitamin E acts as an antioxidant and anti-inflammatory compound**
- ✓ **PUFAs can improve liver tissue**
- ✓ **Recommended as a primary prevention for specific risk groups**



800IU/day daily dose of vitamin E improves liver histology in non-diabetic adults with biopsy-proven NASH¹⁷

THREE STEPS TO A HEALTHY LIVER

- 1 MAINTAIN A HEALTHY LIFESTYLE.** A good diet and exercising regularly may help prevent liver damage
- 2 CONSIDER A DIETARY SUPPLEMENT.** It may be difficult to obtain the recommended levels of vitamin E and PUFAs from food alone
- 3 TALK TO YOUR DOCTOR** about ways to improve your liver health



HOW CAN WE HELP?

DSM has a portfolio of innovative, high quality and safe nutrients to lower key drivers for NAFL

MAINTAIN A HEALTHY LIVER, PREVENT LIVER DISEASE

FIND OUT MORE: www.dsm.com/human-nutrition



HEALTH · NUTRITION · MATERIALS

¹ Fatty Liver Disease: NASH and Related Disorders, Blackwell Publishing, 2005 ² Fabbrini E, Sullivan S, Klein S. Obesity and nonalcoholic fatty liver disease. Hepatology, Feb 2010;51(2):679-89. doi: 10.1002/hep.2328 ³ WHO <http://www.who.int/mediacentre/factsheets/fs311/en/> ⁴ WHO <http://www.who.int/mediacentre/factsheets/fs312/en/> ⁵ Ibid. ⁶ Mina Shaker, Adam Tabbaa, Mazen Albeldawi, Naim Alkhouri. Liver transplantation for nonalcoholic fatty liver disease: New challenges and new opportunities. World J Gastroenterol 2014 May 14; 20(18): 5320-5330 ⁷ Byrne et al., Journal of Hepatology 2015 vol. 62, 547-564 ⁸ Cusi K., Curr Opin Endocrinol Diabetes Obes 2009; 16:141-9 ⁹ Chalasani et al. Hepatology, vol. 55, no. 6, 2012 ¹⁰ Pacana et al. Curr Opin Clin Nutr Metab Care 2012; 15:641-648 ¹¹ Wu D, Mejdani SN., Leukoc Biol, 2008, 84(4):900-914 ¹² Cheng J. et al. PLoS ONE 2012, 7(9):E44106 ¹³ Landrier JF. et al. Endocrinology, 2009;150:5318-5325 ¹⁴ Sookkian, S. et al., Clin Liver Dis 16 (2012) 467-485 ¹⁵ Bouzianas et al. Nutr. Rev., vol. 71, NO. 11, 2014 ¹⁶ Parker et al., Journal of Hepatology 2012 VOL. 56, 944-951 ¹⁷ Sanyal et al. N Engl J Med, 2010.