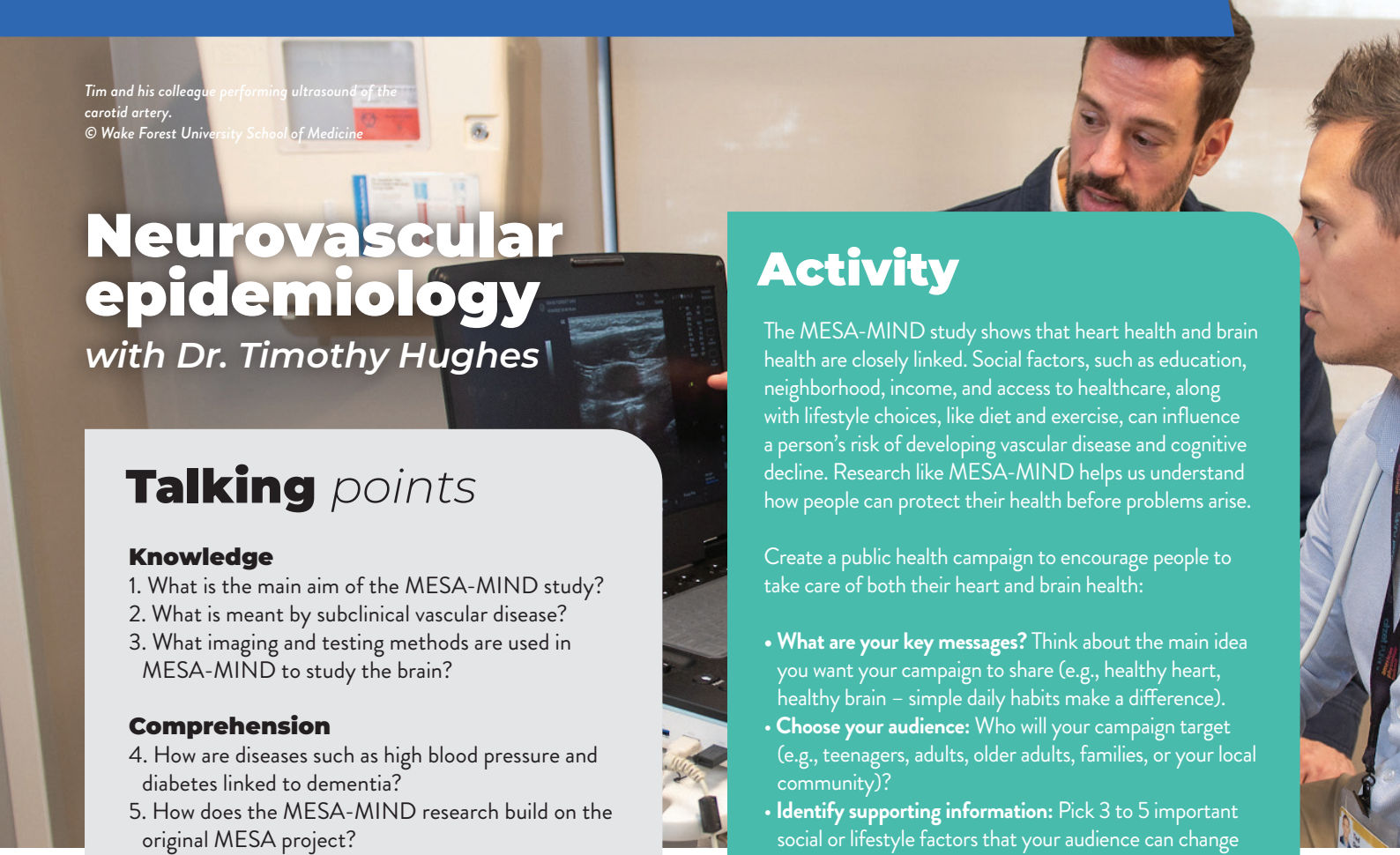

Tim and his colleague performing ultrasound of the carotid artery.
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Neurovascular epidemiology

with Dr. Timothy Hughes

Talking *points*

Knowledge

1. What is the main aim of the MESA-MIND study?
2. What is meant by subclinical vascular disease?
3. What imaging and testing methods are used in MESA-MIND to study the brain?

Comprehension

4. How are diseases such as high blood pressure and diabetes linked to dementia?
5. How does the MESA-MIND research build on the original MESA project?
6. Why is a diversity of participants so important in the MESA-MIND study?

Application

7. How can maintaining healthy blood pressure throughout life help prevent cognitive decline?
8. Based on MESA-MIND's findings, what lifestyle habits could you adopt to protect both your heart and brain health?

Analysis

9. How do vascular factors differ from genetic factors in contributing to dementia risk?
10. Why might early detection of subclinical vascular disease be more effective than treating dementia symptoms later in life?

Evaluation

11. How might the increasing use of artificial intelligence (AI) in medical research change the way we understand and treat diseases like dementia? What are some potential benefits and challenges of relying on AI to make health predictions?

Let us know what you think of this educational and career resource. To provide input, simply scan the QR code or use this link: **redcap.school.wakehealth.edu/surveys/?s=NPK347RYHCR3FNDC**

Activity

The MESA-MIND study shows that heart health and brain health are closely linked. Social factors, such as education, neighborhood, income, and access to healthcare, along with lifestyle choices, like diet and exercise, can influence a person's risk of developing vascular disease and cognitive decline. Research like MESA-MIND helps us understand how people can protect their health before problems arise.

Create a public health campaign to encourage people to take care of both their heart and brain health:

- **What are your key messages?** Think about the main idea you want your campaign to share (e.g., healthy heart, healthy brain – simple daily habits make a difference).
- **Choose your audience:** Who will your campaign target (e.g., teenagers, adults, older adults, families, or your local community)?
- **Identify supporting information:** Pick 3 to 5 important social or lifestyle factors that your audience can change or be aware of, such as maintaining healthy blood pressure, exercising regularly, eating a balanced diet.
- **Choose a medium** that will engage your audience, such as:
  - Posters
  - Social media posts or videos
  - Infographics
  - Classroom or community presentations
- **Design your campaign.** For each factor you highlight:
  - Explain why it matters for heart and brain health
  - Suggest clear actions your audience can take
  - Use visuals, slogans, and symbols to make your campaign memorable

Reflection questions

- How did you decide on your campaign's key message?
- Which social or lifestyle factors were most important to highlight, and why?
- What challenges did you face in making your campaign clear and memorable?
- How might your campaign inspire people to make lasting changes in their lives?
- How could your campaign be adapted to reach different communities or age groups?
- How might other factors, such as genetics or family history, interact with social and lifestyle factors to influence heart and brain health, and how could you include this in your campaign message?

More *resources*

- Visit Timothy's Futurum webpage to read his article in Spanish and to find an animation, podcast, and PowerPoint about his work: **futurumcareers.com/neurovascular-epidemiology-with-dr-timothy-hughes**