

Strokes: Basics of Diagnosis, Prevention and Survival

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- I have no financial disclosures

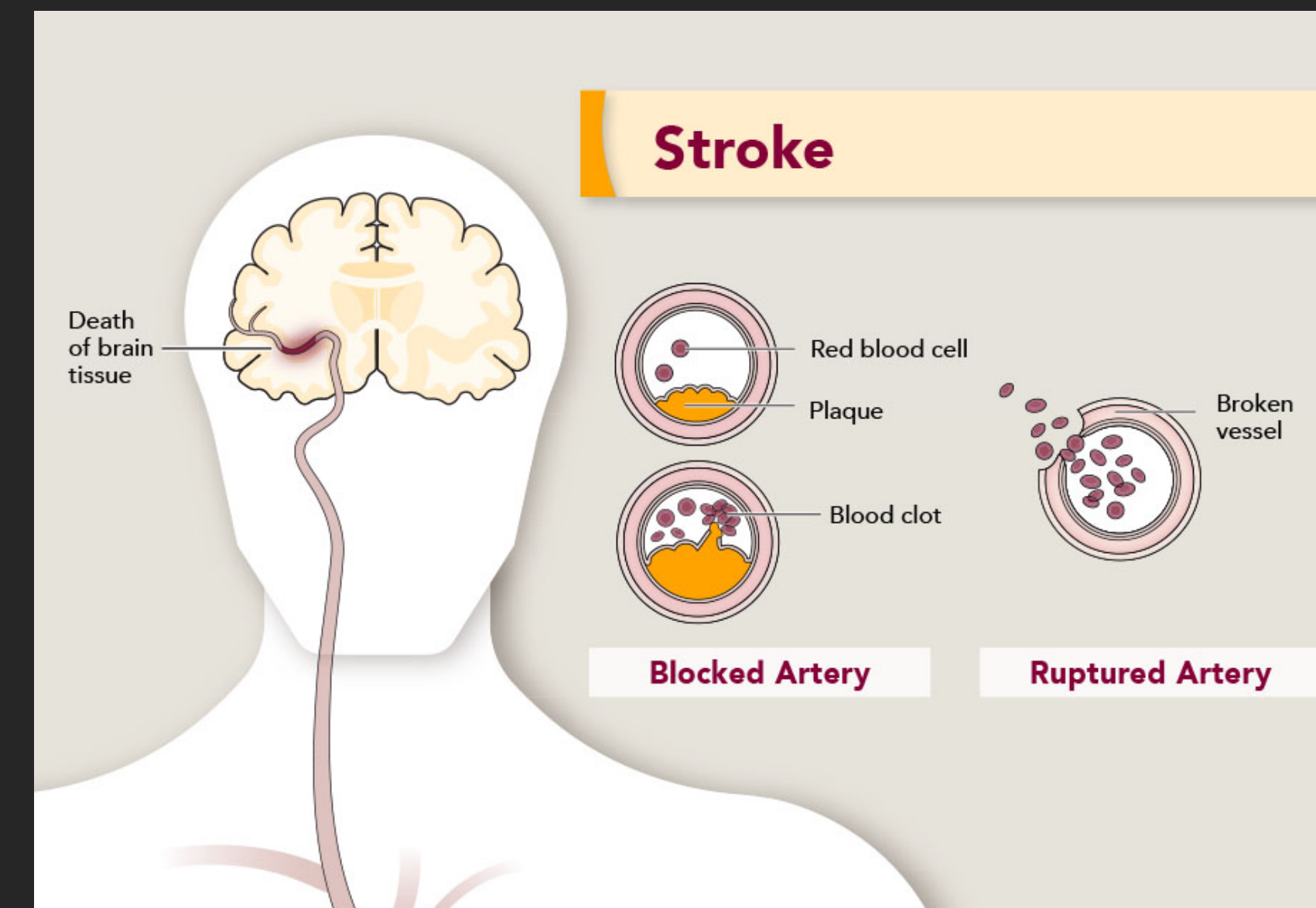
Objectives

- Discuss basic stroke pathophysiology and main causes
- Discuss common risk factors for stroke
- Review how to identify stroke symptoms
- Talk about basic management
- Learn about prevention strategies

What is a stroke?

- Sudden loss of focal brain function due to a disruption in blood flow
- 2 types of stroke:
 - Ischemic (blood vessel is blocked)
 - Hemorrhagic (blood vessel ruptures or tears)
- → cells die due to lack of oxygen and nutrients

Image courtesy CDC.gov



What is a TIA?

- Transient ischemic attack
- Symptoms are “transient” and resolve after a period of minutes to hours
- Warning sign of a stroke
- No permanent brain damage

Risk factors for stroke

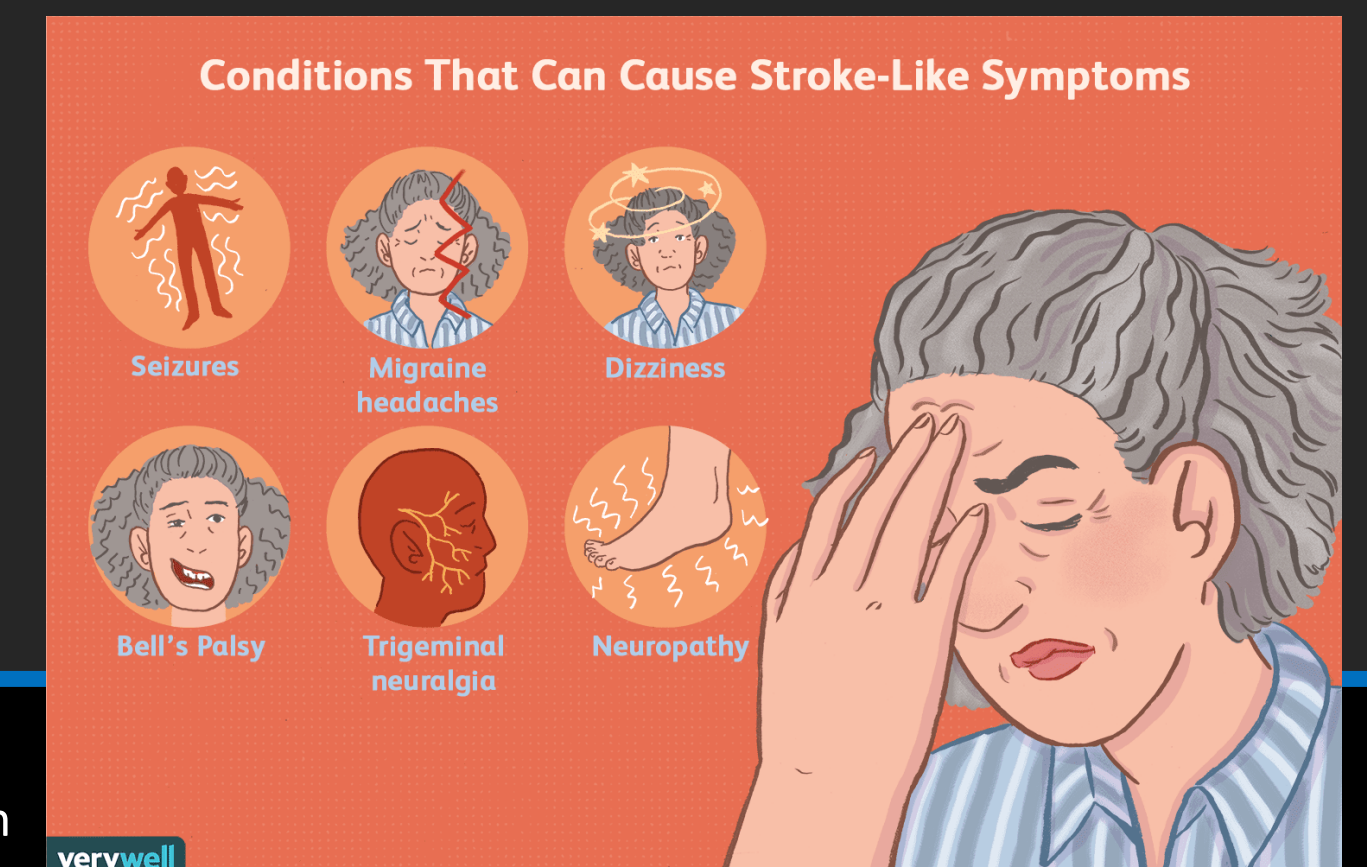
- High blood pressure
- High cholesterol
- Diabetes
- Smoking/tobacco products
- Atrial fibrillation/flutter
- Excessive alcohol use
- Illicit drugs (methamphetamine, cocaine)
- Sleep apnea
- Family history

Clinical presentation

- Weakness on one side of the body
- Sensory loss on one side of the body
- Facial droop
- Vision LOSS (usually both eyes)
 - Amaurosis fugax = graying/blackening of vision in ONE EYE; appears like a curtain coming down
- Aphasia (inability to speak and/or comprehend)
- Eye deviation (both eyes pushed to one side)
- Neglect (not attending to one side of the body)
- Vertigo + nausea, vomiting +/- altered consciousness

Conditions that can mimic a stroke

- Seizure
 - Shaking/twitching +/- loss of consciousness, eye deviation, urinary or bowel incontinence
- Migraine
 - Neurologic symptoms precede the migraine headache pain and start to resolve when the pain starts
 - Vision symptoms are usually flashing lights, zigzag lines etc., as opposed to vision loss



How to check for a stroke on a friend/family member



American Stroke Association
A division of the American Heart Association

Together to End Stroke®

SPOT A STROKE™

F.A.S.T.



FACE Drooping



ARM Weakness



SPEECH Difficulty



TIME to Call 911

Learn more at [stroke.org](https://www.stroke.org)

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Stroke management

- A lot of these therapies are *time dependent*
- The faster a patient presents to the hospital after symptom onset, the more treatment options they may have!!



Image courtesy Steemit.com

How do we treat strokes at the hospital

Ischemic stroke

- Intravenous medications (clot busting medicine)
- Catheter based procedure to remove the clot
- Blood pressure control
- Carotid stent or carotid endarterectomy (CEA)
- Oral medications
 - Blood thinners (aspirin, plavix, warfarin, etc)
 - Cholesterol-lowering medications (statins)
 - Blood sugar control (insulin, metformin)

Hemorrhagic stroke

- Blood pressure reduction
- Medication to reverse any blood thinners
- Neurosurgical consultation if needed

Long term management

- Combination of medication and lifestyle measures

Risk factor management

Risk factors

- Modifiable:
 - Hypertension
 - High cholesterol
 - Diabetes
 - Smoking
 - Physical inactivity
- Unmodifiable
 - Age
 - Race and ethnicity
 - Sex
 - Family history, genetic disorders

Blood pressure

- Be sure to follow regularly with a PCP!
- Get a home blood pressure cuff
- Check blood pressures once or twice a day and RECORD them in a log to show your doctor
- Take your medications at the same time everyday
- BP goal less than 130/80 mmHg
- Cut back on salt in your diet
 - AHA recommends no more than 2,300mg/day and **ideally less than 1,500mg per day**

Cholesterol

- LDL = the “bad” cholesterol
- After a stroke, LDL goal is <70
- Statin medications help lower LDL (atorvastatin, rosuvastatin, simvastatin, pravastatin, etc)
- There are alternative medications to statins
- Avoiding foods with high fat content
 - Fried foods, butter, oils, red meat, baked goods

Blood sugars/diabetes

- Can be managed by a PCP or endocrinologist
- Fasting blood sugars should be <100
- HgbA1c = 3 month average of blood sugars
 - Goal is <7% after a stroke
- Medications
 - Metformin, insulin, etc
- Consistent carbohydrate diet
 - Avoid simple sugars (baked goods, raw sugar, sugary drinks)
 - Incorporate complex carbs (vegetables, whole grains)

AHA Sugar Recommendation

To keep all of this in perspective, it's helpful to remember the American Heart Association's recommendations for sugar intake.

- **Men** should consume no more than 9 teaspoons (36 grams or 150 calories) of added sugar per day.
- **For women**, the number is lower: 6 teaspoons (25 grams or 100 calories) per day. Consider that one 12-ounce can of soda contains 8 teaspoons (32 grams) of added sugar! There goes your whole day's allotment in one slurp.

Atrial fibrillation

- Abnormal heart rhythm (arrhythmia) that makes the heart more prone to developing small blood clots
- Can be asymptomatic
- Symptoms can include sensation of fast, fluttering or pounding heartbeat (palpitations), chest pain, dizziness, fatigue, lightheadedness, shortness of breath
- Talk to a cardiologist and/or PCP
- Sometimes requires a **blood thinner** (warfarin, apixaban, rivaroxaban, etc) to prevent strokes
 - Very important not to miss doses of this type of medication

Lifestyle habits

- Smoking....don't do it!
- Alcohol...ok, but only in moderation (no more than 2 drinks/day for men and 1 per day for women)
- Illicit drugs...stay away!

Mediterranean diet

- High intake of plant-based foods (fruits, vegetables, legumes)
- High consumption of whole grains and cereals
- Increased consumption of fish
- Low consumption of meat and meat products (red meats and processed meats are discouraged)
- Favor monounsaturated fats over saturated fats
- Low to moderate red wine consumption
- Moderate consumption of milk and dairy products
- Discourages soda, pastries, sweets, baked goods, spread fats

Exercise

- Moderate intensity aerobic activity 10minutes 4x/week
- or
- Vigorous intensity activity for 20 or more minutes twice a week
- Light intensity activity for 30 minutes a day
- Exercise can also help relieve stress, improve sleep



How much **physical activity** do you need?

Here are the American Heart Association recommendations for adults.



Fit in 150+

Get at least 150 minutes per week of moderate-intensity aerobic activity or 75 minutes per week of vigorous aerobic activity (or a combination of both), preferably spread throughout the week.



Move More, Sit Less

Get up and move throughout the day. Any activity is better than none. Even light-intensity activity can offset the serious health risks of being sedentary.



Add Intensity

Moderate to vigorous aerobic exercise is best. Your heart will beat faster, and you'll breathe harder than normal. As you get used to being more active, increase your time and/or intensity to get more benefits.



Add Muscle

Include moderate- to high-intensity muscle-strengthening activity (like resistance or weight training) at least twice a week.



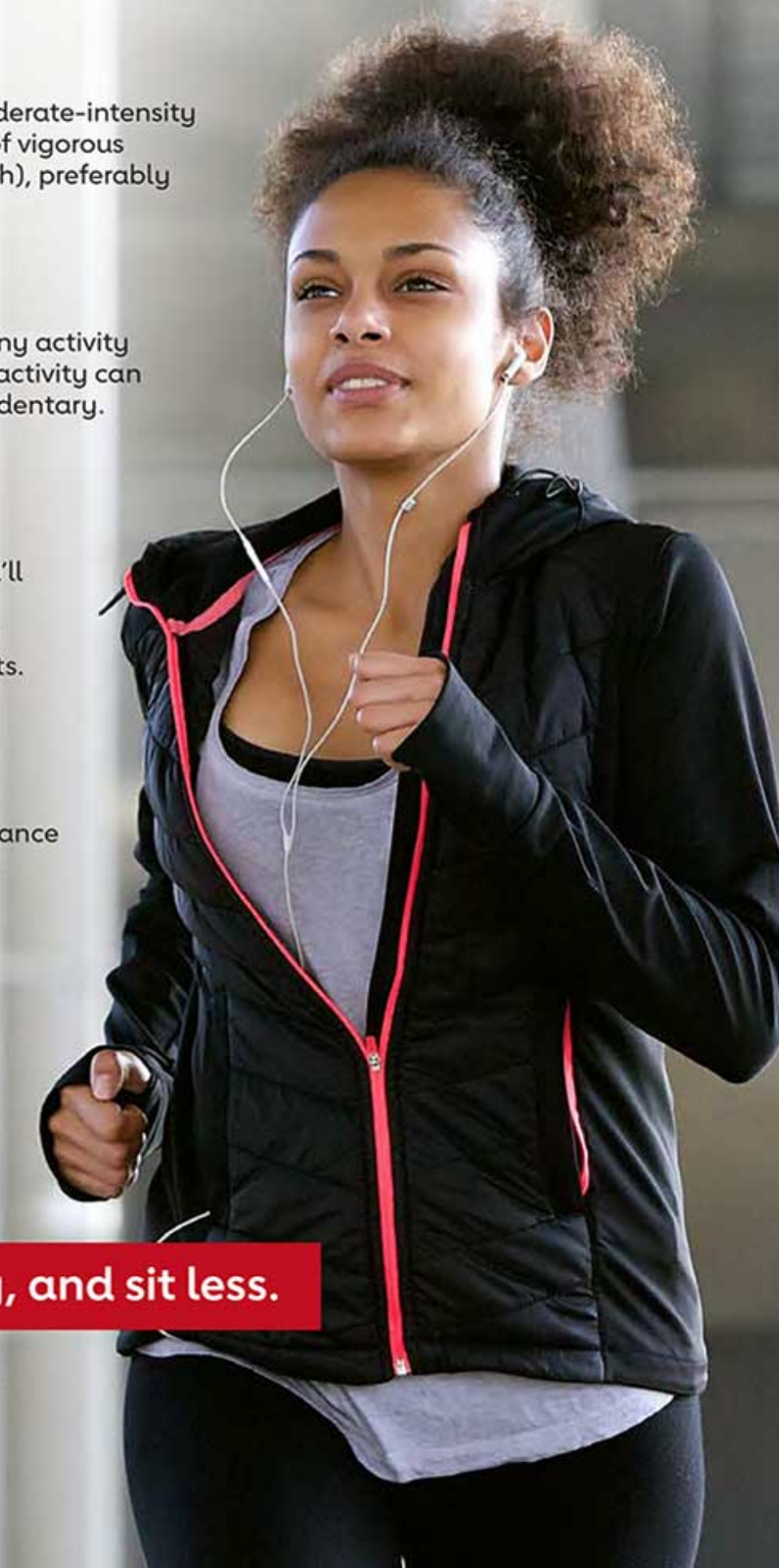
Feel Better

Physical activity is one of the best ways to keep your body and brain healthy. It relieves stress, improves mood, gives you energy, helps with sleep and can lower your risk of chronic disease, including dementia and depression.

Move more, with more intensity, and sit less.

Find out how at heart.org/movemore.

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Other risk factors

- Sleep apnea – need to treat with CPAP
- Obesity – weight loss is recommended, monitor BMI at least annually
- Chronic kidney disease

Stroke Recovery

- It can be a long road
- Typically requires a lot of therapy (physical, occupational, speech, etc)
- Most improvement will occur within the first 6 months
- The brain has the ability to heal itself
 - NEUROPLASTICITY

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