



## Science Corner

### Objectively measured physical activity and risk of atrial fibrillation

Physical activity may be a modifiable risk factor for atrial fibrillation (AF), but associations have mostly been based on self-reported physical activity levels. In an attempt to address whether more objectively measured levels of activity are associated with risk of AF, investigators recently analyzed 93,669 participants in the UK Biobank prospective cohort study without history of AF who wore a wrist-based accelerometer for 1 week to assess physical activity levels, and they followed the participants for both AF and stroke as outcomes.<sup>1</sup> The mean age of study participants was  $62 \pm 8$  years and 57% were women. Over a median of 5.2 years, 2338 incident AF events occurred. After adjusting for age, sex, and risk factors for AF, those whose activity was at least 150 minutes per week of moderate to vigorous activity (consistent with American Heart Association guidelines for primary prevention) had an 18% lower risk of AF (hazard ratio (HR) 0.82, 95% CI 0.75–0.89) and a 24% lower risk of stroke (HR 0.76, 95% CI 0.64–0.90). Of note, there was only a weak correlation between physical activity levels determined from accelerometers and self-report (Spearman  $r = 0.16$ ), and self-reported activity was *not* associated with incident AF or stroke. The authors concluded that accelerometer-derived measures of physical activity are associated with lower risks of AF and stroke, and that future studies may want to use objective measures of activity.

**Implications for ARCADIA (and a message for our patients):** While we don't know whether physical activity is similarly associated with atrial cardiopathy in the absence of atrial fibrillation, it is likely that it is, and it is likely that physical activity among patients with ESUS and atrial cardiopathy would reduce their risk of stroke, AF and other adverse events. The AHA, US Department of Health and Human Services (and other international societies) recommend at least 150 minutes weekly of moderate or more vigorous aerobic physical activity.<sup>2</sup> But what is "moderate physical activity"? One way to think about it is anything that gets your heart rate up! Technically, it means activities that are 3-6 METs (metabolic equivalents of task). In simple terms, this includes walking briskly (2.5 to 4 mph), playing doubles tennis, biking, or even raking the yard. An easy suggestion is to have patients take a thirty minute brisk walk 5 times weekly. It is also a good idea to mix up strength training with aerobic training to maximize benefits. Despite all the known benefits of exercise, only about 20% of adults get adequate physical activity: let's make sure we encourage our ARCADIA patients to get active!

#### References:

<sup>1</sup>Khurshid S, Weng LC, Al-Alusi MA, Halford JL, Haimovich JS, Benjamin EJ, Trinquart L, Ellinor PT, McManus DD, Lubitz SA. Accelerometer-derived physical activity and risk of atrial fibrillation. *Eur Heart J.* 2021 Jul 1;42(25):2472-2483.

<sup>2</sup>U.S. Department of Health and Human Services. Physical Activity Guidelines for Americans, 2nd edition. Washington, DC: U.S. Department of Health and Human Services; 2018.

### Reminder from WebDCU Team

#### Form 126 (End of Study) - PI Review/Signature

- GCP Guidelines state: "The investigator should ensure the accuracy, completeness, legibility and timeliness of the data reported to the sponsor in the CRFs and in all required reports."
- Updated guidance says, "To comply with the requirement of maintain accurate case histories clinical investigator(s) should review and electronically sign the completed eCRF for each subject before the data are archived or submitted".
- So, compliance with the guidance would either be for a physical (wet ink) sign off of the CRF (for instance a free standing CRF PI's statement page, i.e. Form 126 or an electronic signature (which WebDCU does not currently have).
- Therefore, our current requirement for all WebDCU studies is that the site PI prints F126 and signs with a physical (wet ink) signature. No note-to-files are allowed.



Just For Fun!

ARCADIA Inclusion/Exclusion Criteria Word Search

T V P Y K G D A B L E T O R A N D O M I Z E O O G S M Q P S  
 T L E I S G W H H H G S V J T E A N E M I A I H F L B E C N  
 C I E Y S Y R I N N R O T Q K S Z C Q J M W H K B Q V H O W  
 X C U O M A P S A S E N B A Z U I C Y Q H F L T R P W Y Y K  
 M A I W O X F T Z B V E D Z H S Q Y P G O O I K Z V L P R E  
 B R F Y D T X O V A N I D F V V N X B V I Y Z N T N W E C L  
 L D Y M I C L R A F P T A F R C W C S Q D B Y A C V V R P E  
 E I O I F A J Y K I R T P V O A S W K E N A L C F J G C D V  
 E A G X I U I O U B M Q L E C R J G T L O X R E G K F O O A  
 D C E E E I Q F B D E G O U B A A Q H Y T H W Q E F C A E T  
 I R E U D D P I J M T V D E Y K P N Q M A Z D B Y D H G C E  
 N H P A R T I C I P A N T I N A N O T H E R S T U D Y U G D  
 G Y F Y A Q C H I B L E F T V E N T R I C U L A R E F L N C  
 H T V C N V N I H S S K D L F X I I D Y C N Z H S U W A B R  
 I H Y E K L Q O V Q W U X Q D W H E Q U E O X K U Y C B R E  
 S M N M I P B H Y I Q C C V V V O P R O W Z A H B Y W I T A  
 T M U K N O W N A P I X A B A N A L L E R G Y G X F V L J T  
 O O A J N T A T R I A L M Y X O M A U F Q H K X U F B I I I  
 R N B L A C U N A R S T R O K E X G K C U B F Q Y L X T R N  
 Y I S K S O O D F F J J R G V A R E C J O K Y O J V A Y U I  
 X T O E I F F L Y J J T I Y A E N D O C A R D I T I S N H N  
 M O J H O L I B R P K Q R Q Y B C E T L A X C D W F W S T E  
 A R U N A B L E T O O B T A I N C O N S E N T R N N Y V K X  
 D I I D Z X N Q N I W U F G F H T N T P R O B N P I V E P Q  
 H N O U F R Y K Y E V R N U M X V K B K Q N G N M F C C H T  
 E G F O G V S H P Q E J J M X O J G M D D V U X U A R H M I  
 D L P A T U K R S T H R O M B O C Y T O P E N I A K R O A M  
 O Q Y M E C H A N I C A L V A L V E X T P D Y C N J U B K J  
 W U O I G M K Z F D C U X N N J J B Q D L I L N U M P O M J  
 R Y W R T J K B J V Y A N T I P L A T E L E T N E E D E D S

July's Crossword Puzzle  
Answers

ACROSS

- 2. Arcadian
- 3. Conmeds
- 7. NTproBNP
- 8. Quarantine
- 9. Check the EMR
- 12. Prohibited Medication
- 13. WebDCU
- 14. UAE Report
- 16. Seven
- 18. Randomization

DOWN

- 1. Wallet Card
- 4. eConsent
- 5. Atrial Fibrillation
- 6. Rebeca and Pam
- 10. Event Packet
- 11. Apixaban
- 15. Webinar
- 17. DICOM

WORD LIST

- |                           |                              |                    |
|---------------------------|------------------------------|--------------------|
| THROMBOCYTOPENIA          | GI BLEED                     | MODIFIED RANKIN    |
| UNABLE TO OBTAIN CONSENT  | ESUS                         | LACUNAR STROKE     |
| CARDIAC RHYTHM MONITORING | ECHO                         | ATRIAL MYXOMA      |
| NEED FOR ANTICOAGULANT    | NIHSS                        | ABLE TO RANDOMIZE  |
| KNOWN APIXABAN ALLERGY    | AFIB                         | HYPERCOAGULABILITY |
| ELEVATED CREATININE       | NTPROBNP                     | HISTORY OF ICH     |
| LEFT VENTRICULAR EF       | ANEMIA                       | MECHANICAL VALVE   |
| ANTIPLATELET NEEDED       | ECG                          | ENDOCARDITIS       |
| BLEEDING HISTORY          | PARTICIPANT IN ANOTHER STUDY |                    |

## ARCADIA Contacts

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**For an emergency that requires knowing whether patient is taking apixaban (Eliquis) or aspirin**

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### Greek Culture Corner “Who is the Greek god of fire?”

This year has been a tragic year for wildfires, and—sadly—a potential harbinger of future devastation. The Western US has been in a drought that has contributed to several large wildfires this summer, threatening enormous swaths of California, Oregon, Colorado and other Western states. Fires have also affected parts of Europe, including the Greek islands and the Peloponnese (where the original paradisiacal Arcadia was located). In this context, we wondered who the original Greek god of fire was?

Some say Hephaestus was the god of fire. According to myth, Hephaestus, who was born lame, was cast out in disgust by his goddess mother, Hera. His father was Zeus. He was a blacksmith and craftsman, and he forged weapons for the gods, including the winged helmet and sandals worn by Hermes. He also made armor for certain privileged mortals, including Achilles. As god of fire, he was the patron of craftsmen everywhere; his workshop used natural volcanic fires.

Not be left out, Hestia, the goddess of the hearth, may also be considered a goddess of fire. When the gods Apollo and Poseidon both sought her hand in marriage she swore to remain a maiden forever, whereupon Zeus gave her the honor of presiding over all sacrifices. While these honors may reflect her importance in family life more generally—the hearth being the symbol of the home—fire is of course central to the hearth.

Still others cite Prometheus, a Titan, as a god of fire. At the very least, Prometheus was responsible for stealing fire from the gods and giving fire to humankind, thereby starting civilization. While the gods may not have appreciated this, Prometheus is generally considered a champion of humanity, allowing the flourishing of the arts and sciences. He paid a price, of course: Prometheus' eternal torment was to be bound to a rock to have his liver (the seat of human emotions to ancient Greeks) eaten daily, repeatedly, by an eagle. Presumably this would have continued to this day if not for Heracles' freeing him. Ultimately, Prometheus has come to represent human striving and the quest for scientific knowledge, including its unintended negative consequences. Climate change, and its resultant forest fires, may be considered a perfect example of this, given its now virtually certain origins in human industrialization.



*The Torture of Prometheus*, painting by [Salvator Rosa](#) (1646–1648).