



Sex as a Biological Variable (SABV) Train-the-Trainer eLearning Course References and Resources

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Office of Research on Women's Health (ORWH) Resources

ORWH Webpage: <https://orwh.od.nih.gov/>

NIH SABV Webpage: <https://orwh.od.nih.gov/sex-gender/nih-policy-sex-biological-variable>

ORWH Director's Blog: <https://orwh.od.nih.gov/about/director/messages/one-year-into-nih-sabv-policy>

NIH ORWH Social Media

NIH ORWH YouTube Channel: <https://youtube.com/playlist?list=PLI6ZFt-nFaVIOfK3J1zHgBCY4Uk4g690J>

NIH ORWH Facebook Channel: <https://www.facebook.com/NIHORWH/>

NIH ORWH Twitter Channel: https://twitter.com/NIH_ORWH

NIH SABV Videocasts

SCORE Annual Meeting Keynote: Sex Differences Research and the Health of Women: An Editor's Perspective: <https://videocast.nih.gov/watch=40061>

The SABV Panel of the 30th Anniversary event begins at about the 3:00 mark of this videocast: <https://videocast.nih.gov/watch=40060>

Key SABV Documents

SABV Policy- NOT-OD-15-102 <https://grants.nih.gov/grants/guide/notice-files/not-od-15-102.html>

Reading Room: News and Journal Articles about Studying Sex and Gender
<https://orwh.od.nih.gov/sex-gender/reading-room-news-and-journal-articles-about-studying-sexgender>

Clayton JA. Studying both sexes: a guiding principle for biomedicine. *FASEB J.* 2016;30(2):519-524. doi:10.1096/fj.15-279554 <https://pubmed.ncbi.nlm.nih.gov/26514164/>

Relevant Reference Materials

Arnegard, M. E., Whitten, L. A., Hunter, C., & Clayton, J. A. (2020). Sex as a Biological Variable: A 5-Year Progress Report and Call to Action. *Journal of Women's Health, 29*(6), 858-864. [doi:10.1089/jwh.2019.8247](https://doi.org/10.1089/jwh.2019.8247)

Nicole C. Weitowich and Teresa K. Woodruff. Implementation of the NIH Sex-Inclusion Policy: Attitudes and Opinions of Study Section Members. *Journal of Women's Health.* Jan 2019.9-16. <http://doi.org/10.1089/jwh.2018.7396>



Module 1: Introduction to the SABV Train the Trainer Course

Presented in the order they appear within each Module

Slide 1.5: Welcome to Your Training

One year into the NIH SABV policy, sex and gender in science gain steam. (2017, March 22). Office of Research on Women's Health. <https://orwh.od.nih.gov/about/director/messages/one-year-into-nih-sabv-policy>

How sex and gender affect health (And why knowing matters). (2020, June 11). Office of Research on Women's Health. <https://orwh.od.nih.gov/about/director/messages/how-sex-and-gender-affect-health-and-why-knowing-matters>

Slide 1.20: Challenge Your Assumptions

NIH Office of Research on Women's Health, interview with Dr. Larry Cahill, 2015, <https://youtu.be/pLyiOS46csl>

Slide 1.22: ORWH Resources

NIH Policy on Sex as a Biological Variable. (n.d.). Office of Research on Women's Health. <https://orwh.od.nih.gov/sex-gender/nih-policy-sex-biological-variable>

Sex as a Biological Variable: A Primer. (n.d.). Office of Research on Women's Health. <https://orwh.od.nih.gov/career-development-education/e-learning/sabv-primer>



Module 2: Training Planning and Preparation

Presented in the order they appear within each Module

Slide 2.2: Reach All Learners

Evaluation of sex- and gender-based medicine training in post-graduate medical education: A cross-sectional survey study. (2016, October 14). *Biology of Sex Differences*.

<https://link.springer.com/article/10.1186/s13293-016-0097-3>

Slide 2.5: Seven Principles of Human Learning

6. Learning with understanding: Seven principles (2002). The National Academies Press.

<https://www.nap.edu/read/10129/chapter/8#118>

Frequently asked questions (FAQs). Rigor and Reproducibility. (n.d.). NIH Grants & Funding Site.

<https://grants.nih.gov/faqs#/rigor-and-reproducibility.htm?anchor=alphaHeader4056>

Questions & answers. (n.d.). Office of Research on Women's Health. <https://orwh.od.nih.gov/sex-gender/nih-policy-sex-biological-variable-sabv/questions-answers>

Slide 2.12: Establish Common Terminology: Sex vs. Gender

Infographic: How SEX and GENDER Influence Health and Disease

https://orwh.od.nih.gov/sites/orwh/files/docs/SexGenderInfographic_11x17_508.pdf

Reporting sex, gender, or both in clinical research. (2016, November 8). JAMA Network | Home of JAMA and the Specialty Journals of the American Medical Association.

<https://jamanetwork.com/journals/jama/fullarticle/2577142>

Slide 2.13: Address Gender Biases

NIH Office of Research on Women's Health, interview with Dr. Londa Schiebinger, 2015,

<https://youtu.be/GAOLxEpHrwQ>



Module 3: In-person Instructor-led Training

Presented in the order they appear within each Module

Slide 3.4: ORWH Resources

NIH Policy on Sex as a Biological Variable. (n.d.). Office of Research on Women's Health.

<https://orwh.od.nih.gov/sex-gender/nih-policy-sex-biological-variable>

Sex as a Biological Variable: A Primer. (n.d.). Office of Research on Women's Health.

<https://orwh.od.nih.gov/career-development-education/e-learning/sabv-primer>

Slide 3.10: Activity: Solutions to Nervous Habits

Spieler, Claire, "Using Awareness Training to Decrease Nervous Habits in Public Speaking" (2015).

Graduate Theses and Dissertations. <https://scholarcommons.usf.edu/etd/5577>

Slide 3.12: Benefits of Considering the SABV Policy

Sex as a Biological Variable: A Primer. (n.d.). Module 1, Lesson 3. Office of Research on Women's Health. <https://orwh.od.nih.gov/career-development-education/e-learning/sabv-primer>

Clayton JA. Studying both sexes: A guiding principle for biomedicine. *FASEB J.* 2016;30(2):519-24.
Sorge RE, Mapplebeck JC, Rosen S, et al. Different immune cells mediate mechanical pain hypersensitivity in male and female mice. *Nat Neurosci.* 2015;18(8):1081-3.

McCarthy MM, Woolley CS, Arnold AP: Incorporating sex as a biological variable in neuroscience: what do we gain? *Nat Rev Neurosci* 2017, 18:707-708.

Joel D, McCarthy MM: Incorporating Sex As a Biological Variable in Neuropsychiatric Research: Where Are We Now and Where Should We Be? *Neuropsychopharmacology* 2017, 42:379-385.



Module 4: Virtual Instructor-led Training

Presented in the order they appear within each Module

Slide 4.7: Activity: Webcam Video “Do’s and Don’ts”

Webcam tips & best practices for a virtual world. (2019, April 2). Event Strategy Group. <https://esg.us/webcam-tips-best-practices/>

Slide 4.8: Virtual Training Features

Bye, boring trainings! How to make learning & development interactive with Zoom. (2020, June 25). Zoom Blog. <https://blog.zoom.us/make-learning-trainings-interactive-zoom/>

Chatbox:

SABV Instructor Guide – Module 3: SABV and Analyses
Topic 1 – Reflection on module material, Page 15

Whiteboard:

SABV Instructor Guide – Module 3: SABV and Analyses
Topic 3 – Questions frequently asked about SABV in regard to rigor and transparency, Page 17

Breakouts:

SABV Instructor Guide Example – Module 4: SABV and Reporting
Topic 2 – Considering SABV in the reporting of biomedical research and approaches to reporting data by sex, Page 21

4.12: Virtual Meeting Takeaways

7 takeaways for facilitating effective virtual meetings. (2020, April 7). Meridian Institute. <https://merid.org/takeaways-facilitating-virtual-meetings/>



Module 5: One-on-One and Group Training

Presented in the order they appear within each Module

Slide 5.2: Mentor Diversity Not Sameness

(n.d.). Education, Research and Patient Care | USF Health. <https://health.usf.edu/medicine/mdprogram/rise/scholars-resources/~media/3228213B7B1345A180E65C3E87A6DAB3.ashx>

Slide 5.3: Four Tips for One-on-One Training

Exploring the possibility of one-on-one mentoring as an alternative to the current student support system in medical education. (n.d.). PubMed Central (PMC). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5990895/>

Slide 5.4: Teach Back Method

Train-the-trainer instructor guide. (n.d.). Agency for Healthcare Research and Quality. <https://www.ahrq.gov/teamsteps/lep/traintrainers/lepigtrainer.html#teachback>



Module 6: SABV Best Practices

Presented in the order they appear within each Module

Slide 6.2: Dispel the Myths about the SABV Policy

Frequently asked questions (FAQs). Rigor and Reproducibility. (n.d.). NIH Grants & Funding Site.
<https://grants.nih.gov/faqs#/rigor-and-reproducibility.htm?anchor=alphaHeader4056>

Slide 6.3: ORWH Resources

NIH Policy on Sex as a Biological Variable. (n.d.). Office of Research on Women's Health.
<https://orwh.od.nih.gov/sex-gender/nih-policy-sex-biological-variable>

Sex as a Biological Variable: A Primer. (n.d.). Office of Research on Women's Health.
<https://orwh.od.nih.gov/career-development-education/e-learning/sabv-primer>

Slide 6.4: What is Scientific Rigor?

[Rigor and Reproducibility in NIH Applications: Resource Chart](#)

Slide 6.5: SABV in Biomedicine Checklist

SABV in biomedicine checklist. (n.d.). Gendered Innovations | Stanford University.
https://genderedinnovations.stanford.edu/methods/SABV_checklist.html

For full text, see Cornelison, T. L., & Clayton, J. A. (2017). Considering Sex as a Biological Variable in Biomedical Research. *Gender and the Genome*, 1(2), 89-93. Reproduced by permission of the authors.

NIH policy and guidelines on the inclusion of women and minorities as subjects in clinical research. (n.d.). NIH Grants Site. <https://grants.nih.gov/policy/inclusion/women-and-minorities/guidelines.htm>

Slide 6.6: SABV Across the Scientific Translational Spectrum

Translational science spectrum. (2020, March 19). National Center for Advancing Translational Sciences. <https://ncats.nih.gov/translation/spectrum>

Belfer, I., White, J., Hunter, C., DelCarmen-Wiggins, R., & Gorodetsky, E. (2018). Considering sex as biological variable (SABV) in research: A primer for pain investigators. *The Journal of Pain*, 19(3), S96. <https://doi.org/10.1016/j.jpain.2017.12.208>

Reviewer Guidance to Evaluate SABV-Decision Tree

https://grants.nih.gov/grants/peer/guidelines_general/SABV_Decision_Tree_for_Reviewers.pdf