

Kyle Flack, PhD., RD, LD

Department of Dietetics and Human Nutrition  
Assistant Professor  
Appointment date: August 2017  
Regular Title Series  
FY 2023 DOE: 75% research, 20% instruction, 5% service

**EDUCATION:**

*Iowa State University, Aims, IA*  
Dietetic Internship (completed January 2017)

*Virginia Polytechnic Institute and State University, Blacksburg, VA*  
Doctor of Philosophy (Received Jan 2014)  
Human Nutrition, Foods and Exercise  
Dissertation: "The Effects of Resistance Training on Aged Skeletal Muscle and Mitochondrial Function"

*Ferrum College, Ferrum, VA*  
Bachelor of Science (Received May 2009)  
Major: Health Sciences  
Minors: Biology and Chemistry

**PROFESSIONAL EXPERIENCE**

Assistant Professor

*University of Kentucky*  
*Department of Dietetics and Human Nutrition*  
*College of Agriculture, Food and Environment*

Fall 2017-  
Current

Research Molecular Biologist (Post-Doc)

*USDA-ARS-NPA*  
*Grand Forks Human Nutrition Research Center, Grand Forks, ND*  
*Human Obesity Prevention Research Project, Healthy Body Weight*  
*Research Unit Research Leader: James Roemmich, PhD*

Fall 2014-  
August 2017

Graduate Research Assistant

*Resist-Diabetes NIH funded clinical trial*  
*Virginia Polytechnic Institute and State University*  
*Department of Human Nutrition, Foods and Exercise;*  
*Principal Investigators: Brenda M Davy, PhD, RD,*  
*Richard Winett, PhD*

Fall 2011-  
Spring 2014

Graduate Research Assistant

Fall 2010-

*Human Nutrition, Foods and Exercise*  
*Virginia Polytechnic Institute and State University*  
*Laboratory of Eating Behaviors and Weight Management*  
*Director: Brenda M Davy, PhD, RD.*

Fall 2011

Graduate Teaching Assistant

*Human Nutrition, Foods and Exercise*  
*Virginia Polytechnic Institute and State University*  
*Courses: Metabolic Nutrition (HNFE3025);*  
*Nutrition and Physical Performance (HNFE 4174)*

Fall 2009-  
Spring 2010

**DISTRIBUTION OF EFFORT**

	<i>Research</i>	<i>Instruction</i>	<i>Service</i>
<i>FY 2018</i>	60	35	5
<i>FY 2019</i>	60	35	5
<i>FY 2020</i>	60	35	5
<i>FY 2021</i>	50	45	5
<i>FY 2022</i>	44	51	5
<i>FY 2023</i>	75	20	5
<i>6-year mean</i>	58.2	36.8	5

**RESEARCH**

**SCOPUS H-index: 15**

**Total citations: 857**

**Total Peer-Reviewed Scholarly Publications: 38**

**First Author Publications: 19**

**Senior Author Publications: 5**

- 1. Flack K.D.**, Anderson, R.E. 3<sup>rd</sup>, McFee, K.F., Day, B.T. Characterizing Motor Impulsivity of Individuals Classified as Overweight to Obese. *Sports Medicine and Health Science*. Accepted August 31<sup>st</sup>, 2023, available online first: <https://doi.org/10.1016/j.smhs.2023.08.003>. Role: I conceptualized the study, acquired funding, mentored and trained students, composed manuscript.
- 2. Anderson R.E.** 3<sup>rd</sup>, Casperson S.L., Kho H., **Flack K.D.** The Role of Dietary Protein in Body Weight Regulation among Active-Duty Military Personnel during Energy Deficit: A Systematic Review. *Nutrients*. 15(18):3948, 2023\* Role: I aided in the conceptualization of the manuscript, co-composed and revised the manuscript
- 2. Wheeler, N.B.**, Colella, J.A., Anderson, R.E. 3<sup>rd</sup>, McFee, K.F., **Flack K.D.** Late-Stage Attentional Bias towards Food Cues Varies According to Weight Status. *Medical Research Archives 11 (6)*, 2023\* Role: I conceptualized the study, acquired funding, mentored and trained students, provided final editorial decisions.

3. **Flack K.D.**, Stults-Kolehmainen M.A., Creasy S.A, Khullar S, Boulosa D, Catenacci V.A., King N. Altered Motivation States for Physical Activity and Appetite for Movement as Compensatory Mechanisms Limiting the Efficacy of Exercise Training for Weight Loss. *Frontiers in Psychology*. 14:1098394, 2023. Role: I aided in the conceptualization of the manuscript, co-composed and revised the manuscript.
4. **Flack K.D.**, Vitek L, Fry C.S., Stec D.E., Hinds T.D. Cutting Edge Concepts: Does Bilirubin Enhance Exercise Performance? *Frontiers in Sports and Active Living*. 4:1040687, 2023. Role: I aided in the conceptualization of the manuscript, composed and revised the manuscript.
5. Rastmanesh R, **Flack K.D.** Dietary Temperature's Influence on Energy Balance in humans: Protocol for a Randomized Controlled Trial and Crossover Design. *JMIR Research Protocols*. 3(12):e42846. 2023. Role: I aided in composing and revising the manuscript.
6. Fang X, Davis X, **Flack K.D.**, Duncan C, Fangyoung L, White M, Grilo C, Small D.M. Dietary Adaptation for Weight Loss Maintenance at Yale (DAWLY): Protocol and Predictions for a Randomized Controlled Trial. *Frontiers in Nutrition*. 9:940064; 2022. Role: I aided in composing and revising the manuscript.
7. Anderson, R.E. 3<sup>rd</sup>, **Flack K.D.** Food-Related Stimuli Impair Inhibitory Control In Adults Classified as Overweight to Obese. *Current Developments in Nutrition*. 14(6): 1046. 2022.\* Role: I conceptualized the study, acquired funding, mentored and trained students, provided final editorial decisions.
8. Ufholz K.E, **Flack K.D.**, Roemmich J.N. The Influence of Active Viedo Game Play Upon Physical Activity and Screen-Based Activities in Sedentary Children. *PLoS One*. 17(6): e0269057, 2022. Role: I aided in data collection and reporting, composing and revising the manuscript.
9. Thomas, D.T., DelCimmuto, N.R., **Flack, K.D.**, Stec, D.E., & Hinds, T.D., Jr. Reactive Oxygen Species (ROS) and Antioxidants as Immunomodulators in Exercise: Implications for Heme Oxygenase and Bilirubin. *Antioxidants*. 11(2), 179, 2022. Role: I aided in composing and revising the manuscript.
10. **Flack, K.D.**, Anderson, R.E. 3<sup>rd</sup>, McFee, K.F., Kryscio, R., Rush, C.R. Exercise increases attentional bias towards food cues in individuals classified as overweight to obese. *Physiology & behavior*. 247, 2022. Role: I conceptualized the study, acquired funding, mentored and trained students, composed manuscript.
11. Pankey C., **Flack K.D.**, Ufholz K. E, Roemmich J. N. Influence of Fat-Free Mass and Resting Metabolic Rate on Increased Food Reinforcement after Exercise Training. *Sport Sciences for Health*. 2022. Role: I conceptualized the study, provided final editorial decisions.
12. Hays H. M., **Flack K.D.** Energy Compensation with Exercise and Dietary-Induced Weight Loss. *Journal of Clinical Exercise Physiology*. 10(2): 51-61, 2021.\* Role: I conceptualized the study, acquired funding, mentored and trained students, provided final editorial decisions.
13. Perszyk E.E, Hutelin Z, Trinh J, Kanyamibwa A, Fromm S, Davis X.S, Wall K.M, **Flack K.D.**, DiFeliceantonio AG, Small DM. Fat and Carbohydrate Interact to Potentiate Food Reward in Healthy Weight but Not in Overweight or Obesity. *Nutrients*. 6;13(4):1203, 2021. Role: I aided in composing and revising the manuscript, aided in instrument development.
14. Fromm S, Perszyk E.E, Kanyamibwa A, Wall K.M, Hutelin Z, Trinh J, Davis X.S, Green B.G, **Flack K.D.**, DiFeliceantonio A, Small D.M. Development of MacroPics: A novel food picture set to dissociate the effects of carbohydrate and fat on eating behaviors. *Appetite*. 159:105051, 2021. I aided in composing and revising the manuscript, aided in instrument development.

15. **Flack K.D**, Hays, H.M., Moreland J, Long D.E. Exercise for Weight Loss: Further Evaluating Energy Compensation with Exercise. *Medicine & Science in Sports & Exercise*. 52(11): 2466-2475, 2020. Role: I conceptualized the study, acquired funding, mentored and trained students, composed manuscript.
16. **Flack K.D**, Hays H.M., Moreland J. The consequences of exercise-induced weight loss on food reinforcement. A randomized controlled trial.” *PloS one*. 15(6), 2020. Role: I conceptualized the study, acquired funding, mentored and trained students, composed manuscript.
17. **Flack K D**, Hays H.M, Moreland J. Incentive sensitization for exercise reinforcement to increase exercise behaviors.” *Journal of Health Psychology*, 1359105320914073, 2020. Role: I conceptualized the study, acquired funding, mentored and trained students, composed manuscript.
18. Mason J.H, Morris C, Long D.E, Sanden M.N, & **Flack K. D**, A Comparison of Body Composition Estimates Between the Norland DXA, the IDXA, and the BODPOD in Overweight to Obese Adults. *Measurement in Physical Education and Exercise Science*. 24(1): 65-73, 2019. \* Role: I conceptualized the study, acquired funding, mentored and trained students, provided final editorial decisions.
19. **Flack K.D**, Pankey C., Ufhloz K.E, Johnson L., Roemmich J.N. Genetic Variations in the Dopamine Reward System Influence Exercise Reinforcement and Tolerance for Exercise Intensity. *Behavioural Brain Research*. 375, 2019. Role: I conceptualized the study, composed manuscript.
20. Ufholz K.E, **Flack K.D**, Johnson L, & Roemmich J.N. Active video games to promote traditional active play: increasing the reinforcing value of active play among low-active children. *Games for Health Journal*. 10.1089/g4h.2019.0040, 2019. Role: I aided in data collection and reporting, composing and revising the manuscript.
21. **Flack K.D**, Ufholz K.E, Johnson L, & Roemmich J.N. Increasing the Reinforcing Value of Exercise in Overweight Adults. *Frontiers in Behavioral Neuroscience*. 13(265). 2019. Role: I conceptualized the study, composed manuscript.
22. **Flack K. D**, Ufholz K.E, Johnson L, & Roemmich J.N. Inducing incentive sensitization of exercise reinforcement in sedentary adults - a randomized controlled trial. *PLoS One*. 14(5). 2019. Role: I conceptualized the study, composed manuscript.
23. **Flack K.D**, Ufholz K.E, Casperson S, Jahns L, Johnson L, and Roemmich J.N. Decreasing the Consumption of Foods with Sugar Increases Their Reinforcing Value: A potential Barrier for Dietary Behavior Change. *Journal of the Academy of Nutrition and Dietetics*. 19(7) 1099-1108, 2019. Role: I conceptualized the study, composed manuscript.
24. **Flack K.D**, Ufholz K, Johnson L, Fitzgerald J.S, Roemmich J.N. Energy Compensation in Response to Aerobic Exercise Training in Overweight Adults. *American Journal of Physiology-Regulation, Integrative and Comparative Physiology*,315(4): R619-R626, 2018. Role: I conceptualized the study, composed manuscript.
25. **Flack K.D**, Ufholz K.E, Johnson L, & Roemmich J.N. The reinforcing value and liking of resistance training and aerobic exercise as predictors of adult's physical activity. *Physiology & behavior*. 179: 284-289, 2017. Role: I conceptualized the study, composed manuscript.
26. **Flack K.D**, Ufholz K.E, Johnson L, & Roemmich J.N. Aerobic and resistance exercise reinforcement and discomfort tolerance predict meeting activity guidelines. *Physiology & behavior*. 170: 32-36, 2017. Role: I conceptualized the study, composed manuscript.

27. Davy BM, Winett RA, Savla J, Marinik EL, Baugh ME, **Flack KD**, Halliday TM, Kelleher SA, Winett SG, Williams DM, Boshra S. Resist diabetes: A randomized clinical trial for resistance training maintenance in adults with prediabetes. *PLOS ONE*, 12 (2):e0172610, 2017. Role: I served as graduate research assistant of the clinical trial.
28. **Flack KD**, Johnson L, Roemmich JN. Aerobic and Resistance Exercise Reinforcement and Discomfort Tolerance Predict Meeting Activity Guidelines. *Physiology and Behavior*, 170:32-36, 2017. Role: I conceptualized the study, composed manuscript.
29. **Flack KD**, Siders WA, Johnson L, Roemmich JN. Cross-Validation of Recent and Longstanding Resting Metabolic Rate Prediction Equations. *Journal of the Academy of Nutrition and Dietetics*, 116 (9): 1413-22, 2016. Role: I conceptualized the study, composed manuscript
30. **Flack KD**, Davy BM, DeBerdinis M, Boutagy N , McMillan RP, Hulver MW, Frisard MI, Anderson A, Salva JT, Davy KP. Resistance Exercise Training and in Vitro Skeletal Muscle Oxidative Capacity in Older Adults. *Physiology Reports*, 4(13) pii:e12849, 2016. Role: I conceptualized the study, composed manuscript- PhD Thesis.
31. Eikenberg JD, Savla J, Marinik EL, Davy KP, Pownall J, Baugh ME, **Flack KD**, Boshra S, Winett RA, Davy BM. Prediabetes phenotype influences improvements in glucose homeostasis with resistance training. *PLOS ONE*, 11(2):e0148009, 2016. Role: I served as graduate research assistant of the clinical trial.
32. Winett RA, Davy BM, Savla J, Marinik EL, Winett SG, Baugh ME, **Flack KD**. Using response variation to develop more effective, personalized behavioral medicine?: evidence from the Resist Diabetes study. *Translational Behavioral Medicine*, 4(3):333-8, 2014. Role: I served as graduate research assistant of the clinical trial.
33. Halliday TM, Davy BM, Clark AG, Baugh ME, Hedrick VE, Marinik EL, **Flack KD**, Savla J, Winett S, Winett RA. Dietary intake modification in response to a participation in a resistance training program for sedentary older adults with prediabetes: findings form the Resist Diabetes study. *Eating Behaviors*, 15(3):379-82, 2014. Role: I served as graduate research assistant of the clinical trial.
34. Hedrick VE, Savla JS, Comber DL, **Flack KD**, Estabrooks PA, Nsiah-Kumi P, Ortmeier S, Davy BM. Development of a brief questionnaire to assess habitual beverage intake (BEVQ-15): Sugar-sweetened beverages and total beverage energy intake. *Journal of the Academy of Nutrition and Dietetics*, 112:840-849, 2012. Role: I served as graduate research assistant on this pilot trial.
35. **Flack KD**, Davy BM. Resistance training and increased protein intake: Strategies to treat prediabetes in older adults? *SCAN's Pulse*, 31(2), 2012. Role: I conceptualized the study, composed manuscript
36. **Flack KD**, Davy KP, Hulver MW, Winett RA, Frisard MI, Davy BM. Aging, resistance training, and diabetes prevention. *Journal of Aging Research*, 2011:127315, 2010. Role: I conceptualized the study, composed manuscript
37. Dennis EA, Dengo AL, Comber DL, **Flack KD**, Savla JS, Davy KP, Davy BM. Water consumption increases weight loss during a hypocaloric diet intervention in middle-aged and older adults. *Obesity*, 18(2):300-307, 2010. Role: I served as graduate research assistant on this clinical trial.
38. Dennis EA, **Flack KD**, Davy BM. Beverage consumption and adult weight management: A review. *Eating Behaviors*, 10:237-246, 2009. (in the top ten "most downloaded" articles from the journal: 2010, 2011). Role: I served as graduate research assistant on this clinical trial.

\*Student as first author

### Peer Reviewed Extension Publications

Role: Conceptualized publications, trained students, composed portions of each, revised and approved final draft.

Flack, K.D., Hays, H.M, Moreland, J. *Carbohydrates and Athletic Performance*. (2019). University of Kentucky College of Agriculture, Food and Environment Cooperative Extension Service. FCS3-621

Flack, K.D., Hays, H.M, Moreland, J. *Dietary Fat and Athletic Performance*. (2019). University of Kentucky College of Agriculture, Food and Environment Cooperative Extension Service. FCS3-622

Flack, K.D., Hays, H.M, Moreland, J. *Hydration and Athletic Performance*. (2019). University of Kentucky College of Agriculture, Food and Environment Cooperative Extension Service. FCS3-623

Flack, K.D., Hays, H.M, Moreland, J. *Protein and Athletic Performance*. (2019). University of Kentucky College of Agriculture, Food and Environment Cooperative Extension Service. FCS3-624

Flack, K.D., Hays, H.M, Moreland, J. *Supplements and Athletic Performance*. (2019). University of Kentucky College of Agriculture, Food and Environment Cooperative Extension Service. FCS3-625

Flack, K.D., Hays, H.M, Moreland, J. *Vitamins, Minerals, and Athletic Performance*. (2019). University of Kentucky College of Agriculture, Food and Environment Cooperative Extension Service. FCS3-626

### Grant Funding

Source	Amount funded	As PI	As Co-I
Nationally Competitive	\$4,069,227	-	\$4,069,227
University of Kentucky	\$55,056	\$55,056	-
<b>Total funding with all collaborators</b>	<b>\$4,124,283</b>	<b>\$55,056</b>	<b>\$4,069,227</b>
<b>Total funding to University of Kentucky</b>	<b>\$171,936</b>	<b>\$55,056</b>	<b>\$116,930</b>

### Nationally Competitive Funded Proposals

NIH RO1 (NIDDK): 1R01DK126295-01A1 10/01/2020-10/01/2025

*Targeting the Gut-Brain Axis to Facilitate Weight Loss in High Fat Diet Consumers.*

Clinical trial assessing oleoylethanolamide (OEA) effects on weight loss-induced Dorsal Striatal blunting in adults with overweight/obesity.

Roles: In charge of dietary measures; intake analysis, reporting, training staff on how to collect food records, issue 24 hr recalls, and assess habitual intake via FFQ.

PI: Small DM

Co-Is: Masheb R, Li F, **Flack KD**, Davis X

Total Funding Amount: \$4,069,227. **Total to UK subcontract: \$116,930 (Flack effort: 11%).**

### Internal (University of KY) Funded Proposals

University of Kentucky Center of Biomedical Research Excellence (COBRE): Center of Research in Obesity and Cardiovascular Disease Pilot Grant 10/01/2020- 07/31/2021

*Food Reinforcement, Attentional Bias, and Inhibitory Control as Mechanisms of Energy Compensation with Exercise*

Clinical trial evaluating the effects of acute bout of exercise on behavioral processes that influence energy intake (food reinforcement, attentional bias towards food cues, and impulse control).

Roles: Conceptualized study, composed grant, trained staff, performed assessments, analyzed data.

**PI: Flack KD**

Co-I: Rush CR

Total Funding Amount: \$49,981

Effort: 0 CM, project funds only

University of Kentucky Center for Clinical and Translational Research (CCTS) Small Grants Program:

Early Career Pilot grant 09/01/20 – 09/01/21

*Maximal Strength Training to Target Skeletal Muscle Efficiency*

Pilot trial evaluating the effectiveness of a novel strength training program at reducing skeletal muscle efficiency in adults with obesity.

Roles: Conceptualized study, composed grant, trained staff, performed assessments, analyzed data.

**PI: Flack KD**

Co-I: Kern PA

Total Funding Amount: \$5,084

Effort: 0 CM, project funds only

2018 Research Activity Award: College of Agriculture, Food and Environment.

*Exercise for Weight Control* clinical trial (additional funds used to purchase supplies to supplement department start-up funds).

**PI: Flack KD**

Total Funding Amount: \$1,200

### **Internal Student Funding**

Fall 2023 Undergraduate Research Activity Award. Hunter Hardin, *Bioelectrical Impedance Scale Validation*. Total Funding Amount: \$1,000.

Spring 2023 Undergraduate Research Activity Award. Hannah Kho, *Bioelectrical Impedance Scale Validation*. Total Funding Amount: \$1,000.

Spring 2023 Undergraduate Research Activity Award. Tyler Makosy, *Analysis of Physiological and Behavioral Attributes of Division I Athletes as it Relates to Sport-Specific Performance, Injury, and Student-Athlete Wellness*.

Total Funding Amount: \$1,000

Spring 2023 Undergraduate Research Activity Award. Madelyn Boyd, *Analysis of Physiological and Behavioral Attributes of Division I Athletes as it Relates to Sport-Specific Performance, Injury, and Student-Athlete Wellness*.

Total Funding Amount: \$1,000

### **Nationally Competitive Pending Proposals**

NIH R01 (NIDDK): 1R01DK137819-01A1

07/01/2024-06/30/2029

*Evaluating Energy Compensation and Weight Loss in Fasted State vs. Fed State Exercise*

**PI: Flack KD**

Co-Is: Creasy SA, Catenacci VA, Thompson K, Hays L  
Total Grant Award: \$3,276,938, Flack effort: 30%

NIH R01 (NIDDK): 1R01DK140387-01

07/01/2024-06/30/2027

*Understanding the Neural Underpinnings to Exercise-Induced Increases in Energy Intake*

**PI: Flack KD**

Co-Is: Johnson N, Powell DK, Thompson K, Small DM  
Total Grant Award: \$600,000, Flack effort: 25%

NIH R01 (NIDDK): 1R01DK140387-01

07/01/2024-06/30/2027

*Improving Weight Loss Outcomes from Exercise with Novel Supplementation*

**Co-PI: Flack KD, Hinds TD**

Co-Is: Kryscio R  
Total Grant Award: \$600,000, Flack effort: 25%

Department of Defense- Peer Reviewed Medical Research Program (PRMRP)

*The Dose-response effects of sleep restriction on neuroregulation*

PI: Best S

Co-Is: **Flack KD**, Bollinger LM, Glueck AC  
Total grant Award: \$3,015,375, Flack effort: 10%

**Nationally Competitive Non-Funded Proposals**

NIH R01 (NIDDK): 1R01DK137819-01

01/01/2024-12/31/2029

*Evaluating Energy Compensation and Weight Loss in Fasted State vs. Fed State Exercise*

**PI: Flack KD**

Co-Is: Creasy SA, Catenacci VA, Stromberg AJ, Long DE  
Total Grant Award: \$2,978,389, Flack effort: 30%  
Scored: 44<sup>th</sup> Percentile

NIH R01 (NIDDK): 1R01DK136544-01A1

01/01/2024-12/31/2029

*Novel Mechanisms Promoting Compensation to Energy Expended During Exercise*

**PI: Flack KD**

Co-Is: Creasy SA, Catenacci VA, Stromberg AJ, Long DE  
Total Grant Award: \$3,554,586, Flack effort: 30%  
Not Discussed

NIH R01 (NIDDK): 1R01DK136544-01

07/01/2023-06/31/2028

*Novel Mechanisms Promoting Compensation to Energy Expended During Exercise*

**PI: Flack KD**

Co-Is: Creasy SA, Catenacci VA, Stromberg AJ, Long DE  
Total Grant Award: \$2,978,389, Flack effort: 30%  
Scored: 37<sup>th</sup> Percentile

NIH R43 (NIGMS): R43DK130746

10/01/2023-09/30/2024

*The PreventScripts Prevention-Focused Remote Monitoring Platform: An Implementation Pilot Study in the Primary Care Clinic Setting*

**MPI: Flack, KD; Roper KL, Harless, B**

Total Grant Award: \$179,292, Flack effort: 15%

Not Discussed

PCORI (Patient Centered Outcomes Research Institute) 07/01/2023-06/30/2028

*UK-MAP- University of Kentucky Multidisciplinary Approaches to Prevention of Secondary Fractures*

PI: Madhumathi Rao

**Co-Is: Flack KD**, Beshear DD, Malluche HH, Stiles JN, Kitzman HP, McDowell M.; Christian J, Webb CJ, Westgate P, Johnson FN, Roper KL, Mudd G, Weaver DT, Lima F, Zuelzer AD, Aneja A, Landy DC

Total grant Award: \$5,564,429, Flack effort: 10%

American College of Sports Medicine Research Foundation Grant 07/01/2023-06/30/2024

*Effects of Fasted Exercise on Skeletal Muscle Efficiency in Trained Athletes*

**PI: Flack KD**

Co-I: Best SA

Total Grant Award: \$10,000 Flack effort: 0.42%

American College of Sports Medicine Research Foundation Grant 07/01/2023-06/30/2024

*Energy Deficits Induced by Dietary Restriction vs. Exercise: Effects on Mechanisms Controlling Feeding Behaviors*

**PI: Flack KD**

Co-I: Creasy SA

Total Grant Award: \$10,000, Flack effort: 0.42%

American College of Sports Medicine Research Foundation Grant 07/01/2023-06/30/2024

*Exploring the Role of Bilirubin in Exercise and Sport Performance*

**PI: Flack KD**

Co-I: Hinds TD

Total Grant Award: \$10,000, Flack effort: 0.42%

Collegiate and Professional Sports Dietetics Association 07/08/2022-02/10/2024

*Effects of Fasted Exercise on Skeletal Muscle Efficiency in Trained Athletes*

**PI: Flack KD**

Co-I: Best SA

Total Grant Award: \$14,973, Flack effort: 0 CM, project funds only

NIH R43 (NIDDK): 1R43DK130746-01A1 10/01/2022-03-21-2023

*PreventScripts Prevention-Focused Remote Monitoring Platform: An Implementation Pilot Study in the Primary Care Clinic Setting.*

**MPI: Flack KD**, Roper KL; Harless B

Total Grant Award: \$222,359, Flack effort: 10%

Not Discussed

NIH R01 (NIDDK): 1R01DK128234-01A1 05/01/2022-04/30/2025

*Novel Mechanisms Functioning to Resist an Exercise-Induced Energy Deficit*

**PI: Flack KD**

Co-Is: Rush CR; Stromberg AJ; Hays LR; Long DE

Total grant award: \$1,295,286, Flack effort: 35%

Not Discussed

NIH R01 (NIDDK): 1R01DK125733-01A1 01/01/2022-12/31/2026

**PI: Flack KD**

*Attenuating the Metabolic Compensatory Response to Weight loss*

Co-Is: Kern PA, Kosmac K, Sullivan P, Schoeller D, BM Davy, Slade E

Total grant award: \$2,904,406, Flack effort: 40%

Not Discussed

NIH RO1 (NIDDK): 1R01DK128234-01 01/01/2021-01/01/2023

**PI: Flack KD**

*The Effect of Exercise on Food Reinforcement, Attentional Bias, and Inhibitory Control for Food Cues*

Co-Is: Rush, CR, Stromberg AJ

Total Funding Amount: \$866,928, Flack effort: 40%

Scored: 51<sup>st</sup> percentile

NIH R01 (NIDDK): 1R01DK125733-01A1 08/03/2020-08/03/2025

**PI: Flack KD**

*Attenuating the Metabolic Compensatory Response to Weight loss*

Co-Is: Walton R, Kern PA, Sullivan P, Schoeller, Slade, E

Total grant award: \$1,827,631, Flack effort: 40%

Not Discussed

NIH R21 (NIDDK): 1R21DK119726-01 08/03/2020-08/03/2025

*Exercise for weight control: Does time of day exercise is performed influence eating behaviors and associated weight loss with an exercise program?*

**PI: Flack KD**

Total grant award: \$900,000, Flack effort: 40%

Not Discussed

NIH DP2: 1DP2OD027162-01 08/15/2019-08/15/2024

*Why am I not Losing Weight?! New Insights into Energy Compensation with Exercise*

**PI: Flack, KD**

Total grant award: \$2,500,000, Flack effort: 75%

Not Discussed

American Diabetes Association: Pathways to stop diabetes: 1/1/2019-1/1/2026

**PI: Flack, KD**

*Novel Moderators of Eating Behaviors, Weight Loss, and Diabetes Outcomes with Exercise.*

Co-Is: Rush, CR., Tannock, L.

Total grant award: \$1,625,000, Flack effort: 40%

**Internal (University of KY) Non-Funded Proposals**

University of Kentucky Igniting Research Collaborations: Spring 2023

**PI: Flack KD**

Co-I: Best SA

*Effects of Fasted Exercise on Skeletal Muscle Efficiency in Trained Athletes*

Total funding Amount: \$37,052, Flack effort: 0 CM, project funds only

University of Kentucky Igniting Research Collaborations: Spring 2020

PIs: **Flack KD, Hinds TD**

*PRE-CLINICAL TRIAL: Determine if Milk Thistle Supplementation Improves Exercise Outcomes in Obese Subjects in Kentucky.*

Total funding Amount: \$35,432

Effort: 0 CM, project funds only

University of Kentucky Center for Clinical and Translational Research (CCTS), Early Stage Investigator  
Award: Fall 2019

*The Influence of Exercise on Attentional Bias and Inhibitory Control for Food Cues.*

**PI: Flack KD**

Co-I/ mentor: Rush CR.

Total Funding Amount: \$25,000

Effort: 0 CM, project funds only

CCTS KL2 program (career development) 2019

**PI: Flack, KD**

Co-Is: Rush CR, Small DM

Biological and Neurobehavioral Compensatory Mechanisms that Resist an Exercise-Induced Negative Energy Balance.

University of Kentucky Igniting Research Collaborations: Spring 2019

*The effect of exercise on attentional bias and inhibitory control*

**PI: Flack, KD**

Co-I: Rush, CR

Total funding Amount: \$30,000

Effort: 0 CM, project funds only

American Cancer Society Pilot Project Grant. Fall 2018

*The effects of resistance exercise in correcting metabolic abnormalities and lean tissue loss in breast cancer survivors to prevent unwanted weight gain.*

**PI: Flack KD**

Co-I: Xue, R

Total funding amount: \$25,000.

University of Kentucky Center of Biomedical Research Excellence (COBRE): Center of Research in Obesity and Cardiovascular Disease Pilot Grant Fall 2018

*Development of Auction Task to Assess Food Reinforcement in Americans*

**PI: Flack KD**

Co-I: Small DM

Total funding Amount: \$50,000

Effort: 0 CM, project funds only

University of Kentucky Center for Clinical and Translational Research (CCTS), Early Stage Investigator  
Award: Spring 2018

*The Influence of Exercise on Attentional Bias and Inhibitory Control for Food Cues*

**PI: Flack KD**

Co-I/ mentor: Rush CR.

Total Funding Amount: \$25,000

Effort: 0 CM, project funds only

CCTS KL2 program (career development) Fall 2017

*Biological and Neurobehavioral Compensatory Mechanisms that Resist an Exercise-Induced Negative Energy Balance.*

**PI: Flack KD**

Co-Is: Daugherty A, Roemmich JN, Bastin S

## **Presentations / Abstracts**

### *National*

**Flack K.D.**, Matutina D.A, Hinds T.D. *Milk Thistle Supplementation to Improve Weight Loss with Aerobic Exercise, A Pilot Trial.* Submitted for poster or oral presentation at the Obesity Society Annual Meeting, Dallas, TX, 2023.

**Flack K.D.**, Anderson, R.E., 3rd, McFee, K.F., Rush, C.R. *Acute Exercise Increases Attentional Bias Towards Food Cues.* Accepted for poster presentation at 2022 American College of Sports Medicine conference, San Diego, CA, 2022.

Anderson R.E., McFee, K.F, **Flack K.D.** Food-related Stimuli Impair Inhibitory Control in Adults Classified as Overweight to Obese. Submitted for poster or session at 2022 American Society for Nutrition, Virtual, 2022.\*

**Flack K.D.**, Ufholz K, Johnson L, Roemmich JN. *Genetic variations in the dopaminergic reward system are associated with exercise reinforcement.* Accepted for oral presentation at 2019 American Society of Nutrition conference, Baltimore, MD, 2019.

Hays H.M., Moreland J., **Flack K.D.** *Energy Compensation with Exercise is not Dependent on Dose.* Accepted abstract for poster session at The Obesity Society annual meeting, Las Vegas, NV, 2019.\*

Moreland J., Hays H.M., **Flack K.D.** *The Role of Appetite Regulating Hormones in the Compensatory Response to Exercise.* Accepted abstract for oral session at The Obesity Society annual meeting, Las Vegas, NV, 2019.\*

**Flack K.D.**, Hays H.M., Moreland J., *We can Increase Your Motivation to Exercise.* Accepted abstract for poster session at The Obesity Society annual meeting, Las Vegas, NV, 2019.

Moreland J., Hays H.M., **Flack K.D.** *Appetite-Regulating Hormones in Energy Compensation with Exercise.* Accepted for oral presentation at The Obesity Society annual meeting, Las Vegas, NV, 2019.

Sophie P. Fromm, Arsene Kanyamibwa, Alexandra G. DiFeliceantonio, Kathryn M. Wall<sup>1</sup>, **Kyle D. Flack**, Barry Green and Dana M. Small. *Ability to Estimate Caloric Load and Expected Satiation Varies by Macronutrient Content.* Accepted abstract for poster session at SSIB, 2019.

Chris L. Pankey, **Kyle D. Flack**, Kelsey Ufholz, LuAnn Johnson, James N. Roemmich<sup>1</sup>. *Reconsidering the Energy Homeostasis Hypothesis. The Proposed Role of Fat-Free Mass (FFM) and Resting Metabolic Rate (RMR) in the Drive for Increased Energy Intake After Weight Loss.* Accepted abstract for poster session at Nutrition 2019.

Kelsey Ufholz, **Kyle D. Flack**, LuAnn Johnson, and James N. Roemmich. *Video Games, Active Video Games, and active sports: changes in motivation for active play among sedentary children.* Accepted abstract for Poster session at SBM, 2019. Daniel

Kelsey Ufholz, **Kyle D. Flack**, and James N. Roemmich. *Exercise Preference and Tolerance as Mediators between Exercise Motivations and Behavior*. Accepted abstract for Poster session at SBM, 2018.

Kelsey Ufholz, **Kyle D. Flack**, and James N. Roemmich. *Even a little exercise increases motivation to be more physically active: self-determination theory and exercise dosage*. Accepted abstract for Poster session at SBM, 2018.

**Flack KD**, Ufholz K, Johnson L, Roemmich J. *Energy Compensation During Exercise for Weight Loss in Overweight Adults*. Accepted for oral presentation at 2018 Nutrition America conference, Vancouver, BC, 2018.

### **Local (University of Kentucky)**

Kho H.E., **Flack K.D.** Dietary Change after 4 Months of the LEARN Behavioral Weight Loss Program. University of Kentucky Undergraduate Research Symposium, 2023.\*

Banks S.M., Kho H.E, **Flack K.D.** Validation of the RENPHO Bioelectrical Impedance Body Composition Scale. University of Kentucky Undergraduate Research Symposium, 2023.\*

**Flack K.D.**, Matutina D.A, Hinds T.D. *Bilirubin and Exercise: A Novel Pairing for Obesity Treatment*. Accepted for poster presentation at the University of Kentucky Rising Stars Symposium (UK Diabetes and Obesity Research Priority Area). Lexington, KY, 2023.

Day B.T., **Flack K.D.** Deficits in Motor Impulsivity is Specific to Food Cues Among Individuals Classified as Overweight to Obese. University of Kentucky Undergraduate Research Symposium, 2022.\*

Colella J.A., Wheeler N.B., **Flack K.D.** Attentional Bias Towards Food Cues Varies with Weight Status. University of Kentucky Undergraduate Research Symposium, 2022.\*

Anderson R.E., **Flack K.D.** *Effects of Maximal Strength Training on Muscle Glycolytic Activity in Sedentary Individuals Classified as Obese*. Accepted abstract for poster session at CCTS Spring Research Days, Lexington, KY, 2021.\*

\*Student served as first author

## SUMMARY OF SCHOLARLY ACTIVITY FROM RESEARCH CONDUCTED AT UKY

Study*	Budget	First Author Publications	Senior Author Publications (students served as first author)	MS student theses supported	Presented Abstracts
Exercise and Weight Control; NCT03413826	\$75k (department start-up funds)	3	2	3	3
Maximal Strength Training	\$5k (CCTS pilot grant)	0	1	1	1
AB/IC; NCT04651218	\$50k (COBRE pilot grant)	2	1	1	4
Bilirubin and Exercise; NCT04717726	\$70k (College of Medicine)**	1	0	1	2

\*Included only studies served as PI and conducted at UKY

\*\*Co-I Terry Hinds funded through department funds

## SUMMARY OF ALL SCHOLARLY ACTIVITY SINCE FALL 2017\*

First Author Publications	Co-Author Publications	Senior Author Publications (students served as first author)	MS students graduated	Presented Abstracts; First Author	Presented Abstracts; Co-Author
14	8	5	7	6	14 (9 senior)

\*Including collaborations outside of UKY and studies served as Co-I

### Scientific Leadership

#### *Department Level:*

Graduate faculty member, University of Kentucky, Department of Dietetics and Human Nutrition, 2017-present

Graduate enrollment committee, University of Kentucky University of Kentucky, Department of Dietetics and Human Nutrition, 2017-present

#### *College Level:*

Committee member: CAFE Diversity, Equity, Inclusion and Acceptance committee, 2022-present.

#### *National Level:*

American College of Sports Medicine (ACSM) Nutrition Interest Group co-chair. 2023-current

Guest Editor, *Frontiers in Sports and Active Living* Special issue: Debates in Physical Activity in the Prevention and Management of Diseases. 2022-2023.

Guest Editor, *Nutrients* Special issue: Dietary Protein and Obesity. 2022-2023.

Professional Memberships:

Member: Collegiate and Professional Sports Dietitians Association

Member: Academy of Nutrition and Dietetics

Member: American College of Sports Medicine

Member: The Obesity Society

## **Invited Talks / Presentations**

### ***National***

“Exercise for Weight Loss.” Princeton University, March 2022.

“Exercise for Weight Loss.” Princeton University, December 2021.

“Energy Compensation with Exercise.” ACSM Nutrition Brew, April 2021.

### ***Local (University of Kentucky)***

“Milk Thistle, Lactobacillus and Exercise Clinical Trial.” University of Kentucky Chandler Hospital, NICU, October 2022.

“Food Reinforcement, Attentional Bias, & Inhibitory Control as Mechanisms of Energy Compensation with Exercise.” University of Kentucky Center of Research in Obesity and Cardiovascular Disease. February 2022.

“Exercise and Eating: Behavioral physiology’s influence on weight loss and how we can use it to reach our ideal body weight.” Central Bank employee workshop, Lexington, KY. 2018

“Energy Compensation with Exercise.” CCTS Participant Recruitment Services Workshop, Lexington, KY. 2018

“Is a Postdoc Right for Me?” invited panelist, Graduate Student Congress, Lexington, KY. 2019

## **Honors & Awards**

Invited Reviewer: NIH NIDDK-C subcommittee, June 16-17, 2021.

Invited Reviewer: NIH NIDDK, The Physiology of the Weight Reduced State Clinical Trial Consortium, December 13, 2021.

Invited Reviewer: University of Kentucky, BBDOC, Advancing Research Collaboration (ARC). April 5, 2023.

## **INSTRUCTION + STUDENT MENTORING**

### **Graduate Student Thesis Committees: 9 Committees – Chair for 7, Member for 2**

1. Don Matutina “Effects of Exercise, Milk Thistle, and Lactobacillus Supplementation on Bilirubin and Metabolism”. Summer 2023 (anticipated). **Chair**
2. Emily Norman “Ideal Body Weight and Body Fat Percentage Predict Relative Energy Deficiency in Sport (RED-S) Scores in Collegiate Athletes”. Spring 2023. Committee member
3. Kylie McFee “The Effects of Exercise on Attentional Bias and Inhibitory Control for Food Cues”. Spring 2022. **Chair**
4. Rob Anderson “Maximal Strength Training can Increase Metabolism in Adults Classified as Obese.” Spring 2022. **Chair**
5. Stephanie Daniel “Colorectal Surgery and Nutrition.” Fall 2021 (Plan B, non-thesis). **Chair**
6. Jack Moreland “Appetite-Regulating Hormones in Energy Compensation with Exercise.” Fall 2020. **Chair**
7. Michael Hays “Energy Compensation with Exercise is not Dependent on Dose.” Spring 2019. **Chair**
8. Jalyn Mason. “A Comparison of Body Composition Estimates Between the Norland DXA, the iDXA, and the BodPod in Overweight to Obese Adults.” Spring 2018. **Chair**
9. Thomas Ard. “Effectiveness of a Face-to-Face Weight Loss Intervention Paired with Mobile Technology Among Rural Adults in Kentucky.” Fall 2017. Committee member.

### **Undergraduate Research Mentoring: 9 Undergraduate Students**

1. Michael Hays (Dietetics) 2017-2018: Learned laboratory tests for body composition, metabolic rate, food and exercise reinforcement. Performed assessments on Exercise for Weight Control clinical trial.
2. Jack Moreland (Dietetics) 2017-2018: Learned laboratory tests for body composition, metabolic rate, food and exercise reinforcement. Performed assessments on Exercise for Weight Control clinical trial.
3. Izzy Thomas (Human Nutrition) 2019-2020: Learned BodPod and RMR assessment methodology as part of Rob Anderson’s thesis project and conducted tests on paying clients.
4. Nicholas Wheeler (Medical Laboratory Sciences), 2018-2022: Learned BodPod and RMR assessment methodology as part of Rob Anderson’s thesis project and conducted tests on paying clients. Performed additional analysis and recruited subset of participants in conjunction with NCT04651218 for a first author publication (accepted 4/2023). Second author on Jordan Colella’s research poster (2022).
5. John Kelley (Biochemistry and Neuroscience, Pre-Med), 2020-2022: Learned BodPod and RMR assessment methodology, conducted tests on paying clients. Served as mentor for EXP-396 (experiential leaning course through the honors college), fall 2021.

6. Bridgette Day (Human Nutrition), 2021-2022: Learned BodPod and RMR assessment methodology, conducted tests on paying clients, learned dietary intake analysis, analyzed food records from clinical trial performed at Yale University, produced one first author abstract (poster presentation, 2022). Received DHN-591 credit for fall 2021 and spring 2022, served as mentor for Certificate in Nutrition for Human Performance.
7. Jordan Colella: (Human Nutrition), 2021-2022. Learned BodPod and RMR assessment methodology, conducted tests on paying clients. Ran additional analysis and recruited subset of participants for separate study in conjunction with NCT04651218. Produced one first author abstract (poster presentation, 2022) and second author publication (accepted 4/2023).
8. Hannah Kho: (Human Nutrition), 2022-current. Learned BodPod and RMR assessment methodology, conducted body composition assessments (BodPod and BIA) for a BIA validation study. Learned dietary intake analysis and analyzed food records from clinical trial performed at Yale University, Produced one first-author abstract (poster presentation, 2023) and was second author on another abstract (poster, 2023). Received credit for DHN-591 in fall 2022 and spring 2023. Received CAFE Undergraduate Research Activity Award, 2022.
9. Sarah Banks: (Human Health Sciences), 2022-current. Learned BodPod and RMR assessment methodology. Aided in the recruitment, data analysis, and interpretation of results for BIA validation study. Produced one first-author abstract (poster presentation 2023). Received credit for DHN-591 for spring 2023, served as mentor for Certificate in Nutrition for Human Performance.
10. Hunter Hardin: (Dietetics), 2023-current. Learned dietary intake analysis and analyzed food records from clinical trial performed at Yale University. Planning on submitting abstract for 2024 undergraduate research symposium. Received CAFE Undergraduate Research Activity Award, 2023.

### **Faculty Development Instructional Activities**

CELT: Mid-Semester feedback and review, DHN 608 (Spring 2022 and 2023)

CELT workshops: Teaching Portfolios and Philosophy Statements (2018); Slide Design Workshop (2018); Discussion About Teaching Large Classes (2018); Engaging Students and Encouraging Attendance (2022); Assignment Design Lab (2023); First Generation Student Roundtable (2023).

<i>Courses Taught</i>	<i>Semester, Year</i>
DHN 608: Chronic Disease Management and Process	Spring 2021, 2022, 2023
DHN 774: Seminar in Nutrition and Food Systems	Fall 2017, 2018
DHN 408G: Seminar in Dietetics & Human Nutrition	Fall 2018, Spring 2022, 2023
DHN 101: Human Nutrition and Wellness	Spring/Fall 2019 + 2020, Summer Sessions I and II 2020, Spring 2021
DHN-591; Independent study (Performance Nutrition Research)	Fall 2021, Spring 2022 (Bridgette Day); Fall 2022 (Hannah Kho); Spring 2023 (Hannah Kho and Sarah Banks).

Current Course: DHN-608; Chronic Disease Management and Process

- Updated and revised course content (2021)
- Created online section (2022)
- Currently working with library's open access resources to modify for larger 2023 class.

*Summary of courses taught, evaluations and enrollment*

<b>Course</b>	<b>Term</b>	<b>Course quality (College average = 4.3, DHN average = 4.6)</b>	<b>Teaching quality (College average = 4.5, DHN average = 4.6)</b>	<b>Surveys completed</b>	<b>Total enrollment</b>
<b>DHN 608</b>	<b>Spring 2021</b>	<b>4.13</b>	<b>4.13</b>	<b>8</b>	<b>12</b>
<b>DHN 608</b>	Spring 2022	NA- response limit not reached			<b>8</b>
<b>DHN 608</b>	Spring 2023	NA- response limit not reached			4
<b>DHN 774</b>	<b>Fall 2017</b>	<b>4.7</b>	<b>4.6</b>	<b>10</b>	<b>10</b>
<b>DHN 774</b>	<b>Fall 2018</b>	<b>3.88</b>	<b>4.13</b>	<b>8</b>	<b>8</b>
<b>DHN 408G</b>	Fall 2018	3.72	4.44	18	21
<b>DHN 408G</b>	Spring 2022				
<b>DHN 408G</b>	Spring 2023	TBD	TBD	TBD	
<b>DHN 101</b>	Spring 2019	4.5	4.43	259	357
<b>DHN 101</b>	Fall 2019	4.43	4.26	307	355
<b>DHN 101</b>	Spring 2020	4.55	4.5	288	392
<b>DHN 101</b>	Summer 2020	4.5	4.57	14	25
<b>DHN 101</b>	Summer 2020	4.63	4.51	46	67
<b>DHN 101</b>	Fall 2020	4.22	4.39	262	387
<b>DHN 101</b>	Spring 2021	4.3	4.37	226	386

Evaluation scores represent University of Kentucky student evaluations assessed at end of each semester on a 5.0 scale.