

Shih-Chun (Alvin) Kao, M. Ed.

Updated October 16, 2016

Work Address

Department of Kinesiology and Community Health

University of Illinois at Urbana-Champaign

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<http://kch.illinois.edu/research/labs/neurocognitive-kinesiology/>

Education

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| 2013 – Present | Doctoral student, Department of Kinesiology and Community Health, emphasis in Biobehavioral Kinesiology
University of Illinois at Urbana-Champaign, IL
Anticipated graduation date: Summer, 2018
Advisor: Charles H. Hillman, Ph.D. |
| 2008 – 2011 | Master of Education, Department of Physical Education,
National Taiwan Normal University, Taipei, Taiwan
Advisor: Tsung-Min (Ernest) Hung, Ph.D. |
| 2004 – 2008 | Bachelor of Education, Department of Physical Education,
National Kaohsiung Normal University, Kaohsiung, Taiwan |

Professional Experience

Research Experience:

- 2013 - Present Doctoral Research Assistant, Neurocognitive Kinesiology Laboratory
University of Illinois, Urbana-Champaign, IL
Responsible for creation of experimental protocols, implementation of task design, data collection, data reduction, and data analysis for studies that examine the effect of fitness/acute exercise on cognitive function using electroencephalography. (Laboratory Director: Charles Hillman, Ph.D.).
- 2011 - 2012 Research Assistant, Sport and Exercise Psychophysiology Laboratory
National Taiwan Normal University, Taipei, Taiwan
Responsible for creation of experimental protocol, participant recruitment, data collection, and data reduction including the implementation of task design, database management, and equipment preparation for study examines the effect of acute aerobic exercise on cognitive function using electroencephalography. Additional duties include the coordination, training, and supervision of undergraduate and graduate research activities (Laboratory Director: Tsung-Min Hung, Ph.D.).
- 2009 - 2010 Graduate Research Assistant, Sport and Exercise Psychophysiology Laboratory
National Taiwan Normal University, Taipei, Taiwan
Responsible for participant recruitment, data collection, and reduction including the creation of experimental protocols, implementation of task design, administration of intervention, database management, coordination of manpower, and equipment preparation for study that investigated if neurofeedback training or attentional training improved pistol shooting performance by enhancing attention and reducing anxiety as reflected by EEG activity and salivary cortisol in elite shooters. Additional duties include the coordination, training, and supervision of undergraduate and graduate research activities (Laboratory

Director: Chung-Ju Huang, Ph.D.).

Current Research Projects:

FITKids2	An afterschool physical activity intervention in children to examine if improvements in cardiorespiratory fitness lead to better cognitive performance, from both behavioral and neuroelectric perspectives.
NIKE	An acute exercise paradigm in 9-10 children to investigate if modality of exercise modulates the effect of acute exercise on cognitive function in the aspects of neuroelectric, behavioral, and academic performance.
HIIT	An acute exercise paradigm in 18-24 young adults to investigate the effect of aerobic exercise and high intensity interval training on cognitive function in the aspects of inhibitory control and working memory performance.
ExerStim	An investigation in the effects of acute aerobic exercise and transcranial direct current stimulation on cognitive function in the aspects of inhibitory control, working memory, and vigilance.

Teaching Experience:

2014 - Present	Teaching Assistant, Social Science of Human Movement (KIIN140), Department of Kinesiology and Community Health, University of Illinois at Urbana-Champaign Responsibilities include leading weekly discussion sections, grading assignments, and holding office hours.
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Other Experience:

2009 – 2011	Executive Editor, Bulletin of Sport and Exercise Psychology of Taiwan, Society for Sport and Exercise Psychology of Taiwan Responsible for coordination of peer-review processing, format correction, and typesetting.
2008 – 2009	Swimming Coach, Chi-Lin Primary school, Taipei, Taiwan
2004 – 2007	Swimming Coach, Taichung San-Hsin Swimming Pool, Taichung, Taiwan

2004 – 2007

Lifeguard, Taichung San-Hsin Swimming Pool, Taichung,
Taiwan

Honors

Fall 2013

University of Illinois List of Teachers Ranked as Excellent by
Their Students (KIN 140).

Funding

1. Travel Grant Award for attending NASPSPA (North American Society for Psychology of Sport and Physical Activity) 2010 conference from Sport Administration in Taiwan, \$1300 (May 2010).
 2. Travel Grant Award for attending 15th World Congress of psychophysiology from department of physical education in National Taiwan Normal University, \$330 (September 2010).
 3. Awarded a Ministry of Education in Taiwan funded 2-year scholarship to study PhD program in department of kinesiology, University of Illinois at Urbana-Champaign (Since Summer 2013).
 4. Awarded a Sports Administration Ministry of Education in Taiwan funded scholarship for excellent research paper in sports science, \$2500 (October 2015).
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Publications

Peer-Reviewed Journal Articles (in print or accepted):

1. **Kao, S. C.**, Westfall, D. R., Parks, A. C., Pontifex, M. B., & Hillman, C. H. (accepted). Muscular and aerobic fitness, working memory, and academic achievement in children. *Medicine & Science in Sports & Exercise*.

2. Chaddock, L., Erickson, K. I., Chappell, M. A., Johnson, C. I., Kienzler, C., Knecht, A., Drollette, E. S., Raine, L. B., Scudder, M. R., **Kao, S. C.**, Hillman, C. H., & Kramer, A. F. (accepted). Aerobic fitness is associated with greater hippocampal cerebral blood flow in children. *Developmental Cognitive Neuroscience*.
3. **Kao, S. C.**, Drollette, E. S., Scudder, M. R., Raine, L. B., Daniel, R. W., Pontifex, N. B., & Hillman, C. H. (accepted). Aerobic fitness is associated with cognitive control strategy in preadolescent children. *Journal of Motor Behavior*.
4. Luque-Casado, A., Perakakis, P., Hillman, C. H., **Kao, S. C.**, Llorens, F., Guerra, P., & Sanabria, D. (2016). Differences in sustained attention capacity as a function of aerobic fitness. *Medicine & Science in Sports & Exercise*, *48*(5), 887-895.
5. Hillman, C. H., Khan, N. A., & **Kao, S. C.** (2015). The Relationship of Health Behaviors to Childhood Cognition and Brain Health. *Annals of Nutrition and Metabolism*, *66*, 1-4.
6. **Kao, S. C.**, Huang, C. J., & Hung, T. M. (2014). Neurofeedback training reduces frontal midline theta and improves putting performance in expert golfers. *Journal of Applied Sport Psychology*, *26*, 271-286.
7. **Kao, S. C.**, Huang, C. J., & Hung, T. M. (2013). Frontal midline theta is a specific indicator of optimal attentional engagement during skilled putting performance. *Journal of Sport & Exercise Psychology*, *35*, 470-478.
8. **Kao, S. C.**, Huang, C. J., & Hung, T. M. (2010). Biofeedback training and self-control of arousal and attention in sport. *International Journal of Sport & Exercise Psychology (Chinese section)*, *8*, 223-245.
9. **Kao, S. C.**, Huang, C. J., & Hung, T. M. (2009). EEG signatures of attention in superior sport performance. *Quarterly of Chinese Physical Education*, *23*, 1-16.

Manuscripts Submitted for Review:

1. Tsai, Y. J., Hung, C. L., **Kao, S. C.**, Huang, C. J., Yang, H. C., & Hung, T. M. Physical fitness is associated with cognitive control in kindergarten children. Submitted to *Journal of School Health*.

2. **Kao, S. C.**, Westfall, D. R., Soneson, J., Gurd, B. J., & Hillman, C. H. Effects of acute aerobic exercise and high-intensity interval training on inhibitory control. Submitted to *Psychophysiology*.

Abstracts/Posters (in print or accepted):

1. Westfall, D. R., **Kao, S. C.**, Scudder, M. R., Pontifex, M. B., & Hillman, C. H. (2016). The association between aerobic fitness and congruency sequence effects in preadolescent children. *Medicine & Science in Sports & Exercise*.
2. **Kao, S. C.**, Park, A. C., Komisarz, C. E., Neufield, M., Pontifex, M. B., & Hillman, C. H. (2016). Cardiorespiratory and muscular fitness is related to working memory and mathematics in preadolescent children. *Medicine & Science in Sports & Exercise*.
3. Scudder, M. R., Drollette, E. S., Raine, L. B., Pontifex, M. B., Moore, R. D., **Kao, S. C.**, Khan, N. A., Kramer, A. F., & Hillman, C. H. (2015). The influence of socioeconomic factors on neuroelectric, cognitive, and academic achievement in preadolescent children. *Psychophysiology*.
4. Drollette, E. S., Raine, L. B., Scudder, M. R., Pontifex, M. B., Moore, R. D., **Kao, S. C.**, Pindus, D. M., Khan, N. A., Kramer, A. F., & Hillman, C. H. (2015). Dimorphic sex differences in conflict monitoring and the flexible modulation of cognitive control in young children: an ERP investigation. *Psychophysiology*.
5. Luque-Casado, A., Perakakis, P., Guerra, P., Llorens, F., **Kao, S. C.**, Hillman, C. H., & Sanabria, D. (2015). Sport practice, cardiorespiratory fitness and vigilance in young adults: an event-related brain potential study. *European College of Sport Science*.
6. Khan, K. A., Raine, L. B., Drollette, E. S., Scudder, M. R., **Kao, S. C.**, Kramer, A. F., Donovan, S. M., & Hillman, C. H. (2015). Gestational Deficits have Selectively Negative Long-Term Effects on Cognitive Control among Female Preadolescents. *Journal of the Federation of American Societies for Experimental Biology*, 29, 900-18.
7. **Kao, S.**, & Hung, T. (2010). Examining attention-related EEG differences between best and the worst shooting performances in consideration of separate aiming times. *International Journal of Psychophysiology*, 77(sup), s297-298.

8. Hung, S., Chan, Y., Ho, C., Hung, C., **Kao, S.**, Tsai, Y., Liao, J., & Hung, T. (2010). Physical fitness and event-related potentials in ADHD children. *International Journal of Psychophysiology*, 77(sup), s247.
9. Hung, T., Chan, Y., Ho, C., Hung, C., Liao, J., **Kao, S.**, Tsai, Y., & Hung, S. (2010). Motor ability and cognitive performance: Event-related brain potential and task performance indices of executive control in children with attention-deficit / hyperactivity disorder. *International Journal of Psychophysiology*, 77(sup), s248.
10. Hung, C., Chan, Y., Ho, C., Liao, J., **Kao, S.**, Tsai, Y., Hung, S., & Hung, T. (2010). An event-related potentials study to examine the relationship between motor ability and inhibitory control in children with ADHD. *International Journal of Psychophysiology*, 77(sup), s247-248.
11. Liao, J., Chan, Y., Ho, C., Hung, C., **Kao, S.**, Tsai, Y., Hung, S., & Hung, T. (2010). Physical fitness and neurocognitive function in attention-deficit / hyperactivity disorder (ADHD) children. *International Journal of Psychophysiology*, 77(sup), s248.
12. **Kao, S. C.**, & Hung, T. M. (2010). Comparison of different aiming time on shooting performance and EEG in skilled pistol shooters. *Journal of Sport & Exercise Psychology*, 32(sup), s181.

Presentation & Symposia (Not include Abstracts):

1. **Kao, S.**, Shih, C., Chang, C., Hsieh, T., Huang, C., & Hung, T. (2011). *Frontal Midline Theta Differences between Successful and Unsuccessful Golf Putts*. Paper presented at the 13th European Congress of Sport Psychology, Madeira, Portugal.
2. Hung, T., & **Kao, S.** (2011). *Effects of Neurofeedback Training on Competitive Mental State and Golf Putting Performance*. Paper presented at the 13th European Congress of Sport Psychology, Madeira, Portugal.
3. Lin, J., Chen, H., **Kao, S.**, & Hung, T. (2011). *A Comparison of EEG Alpha Power between Successful and Failed Putts for an Amateur Golf Player*. Paper presented at the 13th European Congress of Sport Psychology, Madeira, Portugal.
4. **Kao, S. C.**, & Hung, T. M. (2009). *Biofeedback training and self-control of arousal and attention in sport*. International Sport & Exercise Psychology Conference, Taipei, Taiwan.

5. **Kao, S. C.**, & Hung, T. M. (2009). *The EEG signatures of superior performance*. Paper presented at the 12th International Society of Sport Psychology, Morocco, Marrakesh.
6. Hung, T. M., & **Kao, S. C.** (2009). *Enhance concentration by EEG & HR biofeedback training [Workshop]*. The 12th International Society of Sport Psychology, Morocco, Marrakesh.

Ad-Hoc Journal Reviewer

PeerJ	2015
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Professional Development

Fall 2014	Mini ERP boot camp
Summer 2010	Sport counseling workshop

Certificate/Licensures

2014	UIUC center for Teaching Excellence, Certificate in Foundations of Teaching
2013 - Present	Certificate in American Heart Association CPR/First Aid

Professional Affiliations

2015 - present	American College of Sports Medicine
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2010	International Organization of Psychophysiology
2010	North American Society for Psychology of Sport and Physical Activity
2009	International Society of Sport Psychology

Services

2011 - 2012	Recruited Taiwanese Army
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