

出國報告（出國類別：出席國際會議）

第十三屆世界運動心理學研討會
13th World Congress of Sport Psychology

服務機關：國立體育大學 競技與教練科學研究所

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摘要

第十三屆世界運動心理學大會是由國際競技運動心理學會 (International Society of Sport Psychology) 所舉辦，該學會對於競技運動表現與一般健康促進的研究的學術發展是非常重要的國際組織。此外，有發行學會的官方期刊，刊名為 International Journal of Sport and Exercise Psychology。該期刊收錄的文章質量都相當高，皆是很值得依循參考的文章。

本人在研討會海報發表 1 篇，以及 3 篇共同作者。透過本次活動，呈現自己研究結果於國際研討會，能與各國學者互相交流，獲得許多寶貴的經驗。此外，研討會的座談會與工作坊都是來自各國頂尖的學者，聆聽這些學者的演講，真是受益良多，也為未來的研究路途變得更加寬廣。

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出席國際會議出國報告

一、目的

本次參加由國際競技運動心理學會舉辦的第十三屆世界運動心理學大會。該學會在運動心理學領域佔有重要地位，其引領著運動心理學的研究與發展。因此，該學會舉辦之研討會吸引了各國運動心理領域的學者前來參加與分享研究成果。藉著會議的參與，可以了解目前當代運動心理學的研究發展與趨勢，增進對研究的視野。此外，可與各國學者進行學術交流，以及獲得對於研究的不同觀點，促使未來研究與世界接軌。

二、過程

本人於 7 月 21 日早上從住宿地點到會場辦理報到手續。完成報到手續與領取手冊與資料後，即去聆聽第一場的工作坊。該場講者為佛羅里達州大學 (Florida State University) 的 Gershon Tenenbaum，該學者在競技運動心理學領域的學術表現非常優異，並於此研討會獲頒優秀學者獎。演講的主題是關於如何提升運動員的運動表現，其以認知控制的角度講述提升運動表現的機制，例如：知覺 (perception)、決策 (decision making)、注意力 (attention)。此外，該學者亦說明如何藉由研究發現的機制與模式，應用於實際的競技運動上。這些論點與應用的方式，日後可提供給教練與選手參考，對於競技運動表現有極大的幫助。接下來是聆聽國內知名學者洪聰敏博士的演講，其講述內容是關於如何透過神經回饋訓練提升競技運動的專注。該學者除講述研究發現以外，並現場示範神經回饋訓練。其先記錄某位參與者專注時，腦波的區域。接著，請參與者試著專注，並控制大腦的活動於最佳區域範圍，神經回饋儀器會以響聲來提醒參與者是否將腦波控制於最佳範圍內。幾位參與者在現場接受訓練後，皆可見其對於自己大腦活動的控制能力增加。這對於高科技應用於競技運動有非常大的突破。

7 月 22 日最重要的內容為本人與實驗室伙伴們的海報發表，發表題目為：A Pilot Study of Acute Exercise Effect on Neurocognitive Function: Role of BDNF。本篇研究發現與過去研究相似，急性健身運動改善執行功能。然而在 BDNF 的濃度卻未有明顯增加的現象。其可能原因可能 BDNF 不是運動引起認知表現變化的機制。此外，本研究屬於前導研究，所以實驗參與人數較少。仍需再更多的樣本數，方能更確認本研究的結果。在發表期間，受到許多學者的關注。除了提出樣本數的問題外，且提到在採集血液時，須注意其採集的時間應相同，避免身體在一天的時間內有不同的變化，而影響了結果。這些建議使未來研究的視角更為寬廣。此外，實驗室其他伙伴的發表也大受好評，其中與我的方向較相關為宋岱芬的研究，其題目為 Obesity, Cardiovascular fitness, and cognitive function。其結果發現體適能較高的參與者比體適能較低的參與者有更佳的抑制能力 (inhibitory ability)。然而在肥胖與不肥胖的參與者之間未發現有顯著差異，這個結果與過去研究不一致。目前該研究人數還需增加，方能更明確瞭解肥胖與認知功能之間的關係。該研究發現得以支持規律運動的參與者會有較佳的執行功能，此結果提供了強韌的證據可以鼓勵更多人從事健身運動。

7 月 23 日是實驗室主持人張育愷博士的口頭發表。該場次為以色列 Netz 博士組織的一個座談會 (symposium)，張博士發表的題目是 Effect of Physical Activity on Working Memory

Among older Adults: An ERP Study。該篇研究發現身體活動不僅促進工作記憶，並且提升 P3 與 N1 的震幅。此外，進一步提出工作記憶的不同階段，所使用的大腦資源亦有差異。例如：在工作記憶編碼時，會有較大的 P3 震幅，而在提取階段時，則是 N1 震幅較大。這個觀點代表在探討有關工作記憶的議題時，應考量其屬於工作記憶的哪個階段，讓研究能更具體化。

7 月 24 日主辦單位安排了旅遊行程，當天天氣非常晴朗，艷陽高照。我們去參觀了鳥巢、水立方，以及天安門廣場。這些都是之前在電視看到的熱門景點，今天實際看了現場的建築，真是壯觀。實驗室成員亦在各景點拍照留念。

7 月 25 日除了聽幾場座談會外，最重要的是晚上的頒獎典禮。本次研討會實驗室主持人張育愷博士獲頒優秀學者獎，並且是唯一獲獎的亞洲人。因此，所有實驗室伙伴都到場觀禮，觀看這榮耀的一刻。不僅實驗室的成員，還包括所有台灣的學者與研究生們都感到非常驕傲。在此刻，老師的研究一直跟著國際的趨勢發展，值得學習效法的典範。

三、心得與建議

參加第十三屆世界運動心理學大會，感到收穫良多。在此會議上聆聽了多場的演講，以及看了需多海報發表，並且與學者直接的交流，真的是受益良多。此外，能在國際會議上呈獻自己的研究，可與不同學者給予的立即回饋與交流，獲得非常寶貴的建議，對於未來研究能與國際接軌。感謝學校對於本人出席此次國際會議的支持，讓本人的視野更加寬廣，增進未來研究的創造性與嚴謹度。

四、活動照片



海報發表



實驗室成員於報到會場合照



與國外演講者合照



實驗室主持人張育愷博士獲頒優秀學術獎

五、附錄



會議手冊封面

girls, BMI=24.4±3.1 kg/m²) or control group (N=28, 54% girls, BMI=24.3±2.8 kg/m²). The children in the intervention group were engaged in fun-based physical exercise and sports (approx. 3 hours or more per day) in a day camp for six weeks. At the camp, food intake was prepared and served according to the Danish national dietary recommendations. No calorie restriction was enforced. Children allocated to the control group received a standard intervention, which consisted of one weekly physical activity session and a meeting with a dietitian. Primary outcome for the current report is executive functioning, which was measured by Trail making test (TMT) and Stroop color-word test.

After the 6-week intervention, the reduction in BMI was larger in the intervention group (adjusted mean difference, -0.28(95% CI -0.75,-1.81), p<0.001). TMT task and Stroop task performances were improved significantly in both groups after intervention (all p<0.001). However, there was no significant difference in the changes in TMT task and Stroop task scores between the groups (all p>0.05).

The preliminary results demonstrated that the 6-week physical activity intervention program for overweight children did not exert greater benefits on TMT task and Stroop task performances compared with the control group. Further research with larger samples and longer intervention periods is needed to confirm the beneficial effects of physical activity on cognitive function in children.

Keywords: physical activity, obesity, executive function, cognition

A Study on the Relationship between Perceived Autonomy Support, Physical Self-Esteem and Life Satisfaction of Junior High School Students in PE Class: Based on Basic Needs Theory

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Abstract: This investigation tested a Basic Needs Theory (BNT) model of physical self-esteem and life satisfaction with adolescent students participating in junior high school physical education PE classes in China. Direct relationships among perceived autonomy support in PE class, basic needs satisfaction in PE class, physical self-esteem and life satisfaction were tested in the model. The mediating roles of basic needs satisfaction and physical self-esteem were also tested. Junior high school students(N=200) completed scales pertaining to perceived autonomy support in PE, basic needs satisfaction in PE, physical self-esteem and life satisfaction. Results from structural equation modeling revealed a good fit of the data to the hypothesized model. In the structural model all direct associations between variables were significant. Basic needs satisfaction in PE was a partial mediator in the relationship between perceived autonomy support in PE and physical self-esteem. Besides, physical self-esteem partly mediated the relationship between basic needs satisfaction and life satisfaction. The overall model accounted for 37% of variance in junior high school students' physical self-esteem in China. BNT seems to fit our collective culture, and appears to be a solid framework to explain the phenomenon of exercise which can promote mental health in PE class and psychological benefits of exercise.

Keywords: basic needs theory, perceived autonomy support, physical self-esteem, life satisfaction

Reflective and Impulsive Determinants of Exercise Behavior

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Abstract: Models employed in exercise psychology highlight the role of the reflective system but ignore the impulsive system for explaining behavior change. However, exercise behavior seems to be governed not only by measured attitudes and goal-directed behavior but also by impulsive influences. We proposed a model that exercise behavior is determined by (1) reflective precursors, which contain attitude behavior, subjective norms, perceived behavior control, social support, positive outcome expectations, and exercise self-efficacy; (2) impulsive precursors, which are reflected by the affect association on exercise. We assessed the exercise behavior, reflective precursors (as measured via self-report) and impulsive precursors (as measured via Single Category Implicit Association Test) of 433 college students. The model was examined using the method of structural equation modeling. The overall goodness-of-fit indices of the model was satisfactory, $\chi^2(26)=2.676$, RMSEA=0.027, TLI=0.99, IFI=0.99, CFI=0.98, and NFI=0.97. The results supported that both the reflective precursors and the impulsive precursors can predict exercise behavior.

Keywords: exercise, reflective system, impulsive system, SC-IAT

Acute Exercise Effect on Neurocognitive Function: Role of BDNF

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Abstract: Extensive research has found beneficial effects of acute exercise on cognition, particularly executive function. According to studies utilizing neuroelectric measures, namely event-related potential (ERP), a majority of studies observed a greater P3 amplitude following acute exercise, implying that facilitated cognitive performance resulting from acute exercise was attained through increased attentional resources. Alternatively, some recent evidence has shown that brain-derived neurotrophic factor (BDNF) might also play a role in mediating the relationship between acute exercise and cognition; however, only a few studies have examined this issue. Therefore, the purpose of the present study was to explore the effect of acute exercise on neurocognitive function using the Stroop Test and its induced P3 component of ERP, as well as on BDNF. Using a within-subject focus and a counterbalanced design, ten college students were required to perform the Stroop task and ERP, circulating concentrations of BDNF after both acute exercise and reading treatments were assessed. The results revealed that acute exercise leads to better Stroop performance and increased P3 amplitude. Furthermore, the higher concentrations of BDNF were induced by acute exercise compared to the reading treatment. The findings suggest that the positive effect of acute exercise on cognitive performance may be through increased allocation of attentional resources as well as enhanced neurotrophic factors.

Keywords: aerobic exercise, executive function, Stroop Test, P3

Effect of Cardiovascular Fitness on Executive Function among Young Obese Adults: A Pilot Study

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