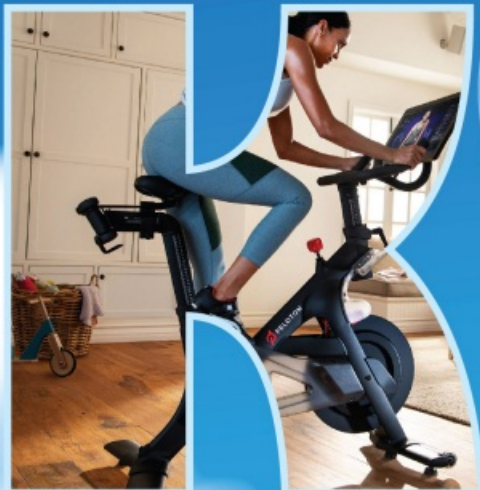


# HONG KONG RECREATION REVIEW

# 康樂動向

Volume 36  
2024

二〇二四年  
第三十六期



Hong Kong Recreation Management Association  
香港康樂管理協會





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# 香港如何打造一個以體育運動產業化為基礎平台的運動大型盛事化策略



周鵬·劉永松  
香港浸會大學



## 體育運動普及化盛事化造福香港

香港近年來積極推動大型體育盛事，推廣體育文化，一方面可以提高市民的健康意識和健康水平，宣揚積極向上的人生態度；另一方面可以藉着大型體育盛事吸引外來遊客，發展經濟，塑造香港作為亞洲盛事之都形象。從小處着眼，推廣運動文化，鼓勵市民有規律做運動，可以增進健康，紓緩工作壓力，減少患上慢性疾病的機率，其帶來的好處非金錢所能衡量。對個人而言，更健康的體魄可以提升生活質量；對社會而言，增進市民健康可以長遠減少醫療開支。平心而論，本港的社區體育設施尚算完善，各主要社區、屋邨都有不同類型的運動場，相反是很多場地日常使用率偏低。政府部門應多投入資源，在社區多舉辦活動，鼓勵市民培養恒常運動的習慣，建立熱愛體育運動的文化，同時進一步擴大大學校體育推廣計

劃的涵蓋範圍等等。從大處着眼，舉辦體育盛事可以吸引更多過夜遊客，促進旅遊業以及相關的酒店、餐飲和零售業的發展，更可以提高香港的國際知名度，帶動本地消費。

本港在舉辦體育盛事方面有着豐富的經驗，著名的國際七人欖球賽有超過40年歷史，渣打馬拉松、國際龍舟邀請賽、高爾夫球公開賽、世界女排大獎賽等，都是備受海外關注的大型體育賽事。本港近年還積極鞏固盛事之都的地位，發展多項新型體育盛事，香港單車節、Formula E電動方程式錦標賽香港站、電競音樂節等，都是近年新引入的潮流項目。體育運動是好事，既要普及化，又要盛事化。香港雖然地方細小，但有着美麗的天然海岸線，可以因地制宜地發展合適的體育活動，讓更多的體育項目在本地生根發芽，造福市民的同時，亦成為香港的生動招牌。



## 香港舉辦大型體育盛事的優勢條件

首先，香港基本法保障香港體育業在法律上高度自治，賦予香港特區政府在體育政策制定上的高度自主權。體育管理和體育對外交往上的高度自治權。香港既與內地具有密切和深入的政治、經濟和文化關係，又與國際市場緊密聯繫，香港可以充分發揮在“一國”和“兩制”的雙重優勢，借助粵港澳大灣區在國家發展大局中重要的戰略地位，聯通國內外資源，通過舉辦大型體育賽事帶動相關體育產業發展。致力於將香港建設成為中國體育盛事“超級聯繫人”作用。其次，香港雄厚的經濟實力和較高的對外開放水平為體育盛事的開展提供了強大的經濟支持與廣闊的市場保障。再次，香港作為自由貿易港，體育業可以促進構建“雙循環”新發展格局。香港可以推進內地參與國際大循環，吸引國際體育組織、人才、產業、資金與技術，融入內地體育產業鏈與供應鏈。香港可以藉助自由貿易港的優勢，建立國際賽事中心，擔當國際賽事聚集地、中轉站的角色，為國際賽事在內地舉辦鋪路。與此同時，香港作為全球信息和資訊中心，國際體育組織總部集聚。香港與世界各國的網絡無縫對

接，這為賽事籌備過程中的信息溝通提供了最基本的渠道。最後，香港作為中西方文化匯集的國際都市，在舉辦大型國際賽事過程中，還可以將中國傳統文化融入其中。比如FIBA 3x3世界巡迴賽是世界籃聯最高級別的三人籃球賽，2023年成功在香港舉辦，期間主辦方還安排了舞龍舞獅表演”。

## “五化”推動體育發展，促進協同效應

香港體育發展的規劃是體育精英化，體育普及化，體育盛事化，體育專業化，體育產業化。若要行之有效地推動體育發展，“五化”等同奧運五環，環環緊扣。當中普及化更是基礎所在，而精英、盛事、專業和產業（四化）必須同時同步配合推行，才能產生最大的協同效應。在體育普及化方面開展的原因不言而喻，要達至擴大運動人口，必須由學童時期開始培養。體育課正正是普及化的基礎，為學童提供穩定的運動時間，才能真正提升校園體育氛圍。而體育校隊的訓練和學界比賽的參與，則是精英化的「青苗」。政府當局亦需要從政策和支援層面上協調，學校才能予以配合，以免活動重疊或重複，浪費資源，確保師生不會



只為應付，導致疲於奔命，而產生體育怠倦，對推動體育發展造成負面影響。此外，香港特區文化體育及旅遊局通過推廣社區體育，鼓勵市民參與各式各樣的體育活動，在社區建立熱愛體育的文化，協助他們培養健康生活模式。政府用於推廣普及體育的開支，佔體育發展整體經常開支的最大部分。在2022-23年度，預計用於推廣普及體育的開支約為60億元，佔體育發展整體開支約84%。文化體育及旅遊局與其他政府部門及相關團體，包括康文署、衛生署、教育局、中國香港體育協會暨奧林匹克委員會（港協暨奧委會）、香港殘疾人奧委會、體育總會、地區體育會、其他體育團體及學校等，均在社會上各層面為市民提供多元化的社區體育活動，鼓勵不同階層、年齡、能力和興趣的人士恆常參與體育活動，推廣普及體育的文化。全港學界體育比賽在某程度上也是香港年青運動員走向精英的台階。在盛事化方面，政府

優化「M」品牌計劃，鼓勵更多團體在香港舉辦大型國際體育活動。香港學界體育聯會亦主辦埠際、大灣區、亞洲等學界比賽，正朝着學界體育節的盛事化方向發展。香港隨着啟德和白石體育園的落成，更能提供多元化及符合國際標準的場地，推廣全民運動，支援學界體育發展，讓本地運動員有更多機會在香港作賽，同時提升香港的體育形象。政府應持續推動“M”品牌系列賽事提檔升級，申辦田徑、足球、籃球、排球、乒乓球、羽毛球、網球、檯球、游泳等市場化程度高、國際影響力大，以





及馬拉松、馬術、帆船、搏擊、劍擊、攀岩、街舞等在香港發展潛力強的單向體育賽事，構建高端體育賽事體系。至於體育的專業化，則需要靠體育界別及相關持份者在其專業範疇上不斷完善、追求卓越，才能令香港體育發展更趨專業化。最後，運動產業化方面，誠如香港浸會大學劉永松教授所言，運動產業化有三個重點：體育能以專業化提升運動成績，引發群眾參與，達致普及化；加強體育職業配套，推動運動發展成為終身事業，培養專業教練，吸納更多年青人參與；推動運動科技的軟硬件發展，也有助體育產業化。

政府還應優化體育產業發展環境，加大政策扶持力度。香港應制定體育產業相關的財政、稅收、金融、土地和公共服務等政策，形成國際化、法治化、公平化的跨境體育產業投資、貿易規則新體系，優化區域協同、跨境協調、城市合作、產業分工和社會治理等機制，為體育賽事的舉辦和產業發展提供優惠和便利。安排財政資金用於扶持體育產業，設立體育產業發展專項資金、體育人才工作專項經費等。積極搭建體育產業融資對接平台，鼓勵金融機構針對性開發體育金融產品。政府採購、購買服務等適當向體育企業傾斜，擴大購買公共體育服務的範圍，把體育賽事、體育活動、體育後備人才培養等項目交由體育企業承辦。

將體育設施建設、體育產業項目用地納入城市規劃，優先安排“奧運電競產業基地”或“奧運電競科技小鎮”產業用地。發揮賽事帶動引領作用，建設世界體育賽事中心。積極申辦大型綜合性運動會，爭取世界錦標賽、盃賽、公開賽等國際頂級賽事落戶。不斷提升賽事品質和服務水平，確保賽後遺產利用體系基本完備，促進賽事與文創、娛樂、購物、餐飲、住宿、交通、物流、建築、傳媒、廣告等上下游行業深度聯動，提升賽事市場化配置水平。積極引進國際體育組織的總部或分支，使香港形成以單項國際體育組織集聚為特點的“城市會客廳”。舉辦國際體育論壇會議、體育產業投資洽談展銷會，搭建香港與世界體育合作交流的平臺。把握體育數字化風口，加快奧運電競產業發展。創新數字體育消費新業態，利用物聯網、大數據、雲計算、人工智能、區塊鏈、5G等新科技，培育壯大電子競技、線上賽事、在線健身、居家健身等新業態。重點發展奧運電競業，加快布局比賽、培訓、資格認證、硬件研發生產、智能穿戴設備、軟件改造升級、數據分析等產業鏈，吸引優秀電競人才，率先進行全球性奧運電子競技體育娛樂生態大開發。加強體育文化交流合作，推動體育協同發展。利用粵港澳大灣區在體育設施、辦賽、人才、項目資源等方面優勢，以香港為龍頭，以澳門、廣州、深圳為依托，推進粵港澳



大灣區“9+2”城市共同申辦大型體育賽事，打造多中心聯動發展的粵港澳大灣區體育產業新模式。推動粵港澳大灣區與“一帶一路”沿線國家和地區在體育基礎設施建設、體育用品製造業轉移、體育金融資本合作、體育賽事合作等方面對接，加強中外體育合作交流。吸引和鼓勵社會資本進入體育產業領域，開發創新型的“體育+”融合發展的商業模式，引進體育產業基地、體育產業園區及體育產業群建設等項目，引進體育產業節慶、體育展會、體育論壇等活動，發展體育文化、體育旅遊、體育傳媒、體育中介、體育社交、體育康復、體育科技等產業。

## 推動體育盛事化的策略

首先，推動體育賽事巨棒帶動體育產業發展，成為香港重要經濟增長點。體育與文化、旅遊、金融等多業態融合發展，形成以體育競

賽表演業、體育運動用品業、體育金融服務業、體育休閒旅遊業為重點，投資主體多元化的體育產業體系。其次，進一步優化體育產業發展環境。體育管理機制進一步理順，體育產業政策更加完善，形成一整套體育產業發展意見和管理辦法，形成國際化、法治化、公平化的跨境體育產業投資、貿易規則新體系，吸引世界一流體育機構或總部落戶，令國際體育交流更加廣泛，體育城市的品牌國際影響力更加突出。最後，進一步健全體育賽事體系。建立科學的體育賽事戰略規劃、評估與決策機制，統一實施賽事頂層設計與總體布局，以舉辦具有較大影響力的國際級、國家級高端賽事為重點，建立與國際接軌、與內地互聯的體育賽事發展模式，助力內地體育競賽表演業復蘇。進一步推進體育產業協同。促進粵港澳大灣區與其他城市體育產業更加密切聯通互動，推動粵港澳大灣區體育合作取得新進展，形成多中心聯動發展的粵港澳大灣區體育產業新模式。到





2032年，香港加快形成與世界體育中心城市定位相匹配的產業發展格局，以高端體育賽事為中心的競賽表演業更加完善，以國際競爭力強的體育企業為主體的市場體系更加合理，以體育科技創新發展為引領的產業體系更加發達，以產業政策和營商服務為重點的支撐體系更加健全，體育綜合競爭力世界領先，成為輻射全球的體育資源配置中心城市。到2037年，香港回歸祖國40周年之際，香港國際體育組織林立、國際體育賽事系列化、體育市場供給充足豐富、體育消費愈加旺盛、體育對其他產業帶動作用強勁，躋身於世界體育產業發達城市行列，達到與世界著名體育城市相媲美的體育業發展水平，成為中國體育“橋頭堡”和世界體育中心。

RMA



#### 參考資料

香港特區政府 (2010年1月8日)。《立法會秘書處擬備的背景資料簡介 推動體育發展》(立法會CB (2) 652/09—10 (04) 號文件)。香港：民政事務委員會。

香港特區政府 (2011年4月)。《2011年1月5日開始舉行的立法會會議“推動長遠體育發展”議案辯論進度報告》。香港：民政事務局。2012年6月19日擷取自網頁  
<http://www.legco.gov.hk/yr10-11/chinese/counmtg/motion/cm0105-m6-prpt-c.pdf>

Ho, G., Yiu, E. Y. M., & Lam, M. H. S. (2019). The Hong Kong games in the eyes of local sports and recreation students. In *The Sports Development of Hong Kong and Macau* (pp. 23-39). Routledge.

Andreff, W. (2012). The winner's curse: Why is the cost of mega sporting events so often underestimated. *International handbook on the economics of mega sporting events*, 37-69.

De Nooij, M. (2014). Mega sport events: a probabilistic social cost—benefit analysis of bidding for the games. *Journal of Sports Economics*, 15(4), 410-419.

De Nooij, M., & van den Berg, M. (2018). The bidding paradox: Why politicians favor hosting mega sports events despite the bleak economic prospects. *Journal of Sport and Social Issues*, 42(1), 68-92.



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# Impact of COVID-19 on Exercise Intention among University Students



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## Introduction

Physical activity level and exercise participation have always been a heated discussion around the globe because of the health benefits they bring. According to Warburton et al. (2006), regular physical activity is shown to have an association with a reduced risk of premature death and contributes to the primary and secondary prevention of some chronic diseases. Engaging in physical activity with levels higher than the guidelines' recommendations is more likely to gain further health benefits. The World Health Organization pointed out that physical activity helps reduce depression and anxiety symptoms in all age groups (World Health Organization, 2020). Moreover, Cekin (2015) also stated that regular physical activity is beneficial to enhancing self-esteem, optimism, and happiness among emerging adults, specifying the university student age group. Therefore, it can be concluded that regular physical activity brings both physical and psychological health benefits, especially to our focused group.

Though most people are clear about what exercising brings about, 1 in 4 adults worldwide could not meet the WHO recommendations for physical activity (World Health Organization, 2018) with some countries reaching 70% levels of inactivity due to technological development

and urbanization. Hong Kong's situation is relatively less severe, having about 1 in 6 community-dwelling adults with insufficient physical activity (Centre for Health Protection, 2020). The problem of inactivity already existed before the pandemic. Yet, when COVID-19 crashed in, this issue went further alarming. Along with the closure of facilities, working from home, and other social distancing measures in Hong Kong, the frequency of sedentary behaviours (sitting/ lying) has significantly increased with the frequency of physical activity or exercising (walking/ moderate-intensive sports/ high-intensive sports) significantly reduced (J. Wang et al., 2021). Despite the reduced physically active behaviours, COVID-19 also substantially affected citizens' mental health (E. P. H. Choi et al., 2020).

About one-third of Hong Kong university students were found to be physically inactive (Abdullah et al., 2005) and about one-half had symptoms of mild to severe anxiety (Lun et al., 2018) before the coronavirus even became a pandemic. COVID-19 has also negatively affected Hong Kong people's mental health, causing depression and anxiety (E. P. H. Choi et al., 2020). Regardless of the coronavirus, university students had been under tremendous stress. Over 50% of university students have some degree of depression or anxiety



symptoms (Lun et al., 2018). It is believed that COVID-19 levels up students' pressure. It is concluded that university students could not benefit from the health advantages of staying active. They have extrinsic factors of social environment, and physical environment affected their individual decisions on whether to participate in sports (Deliens et al., 2015). The theory of planned behaviour (TPB) is used in this study to measure university students' exercise intention before COVID-19 and during COVID-19 fifth wave. Since intention is a significant predictor of exercise behaviour (Norman & Conner, 2005), examining their intention to physical activity during COVID-19 could be a strong indicator of their future exercise participation level.

COVID-19 is a coronavirus transmitted through respiratory droplets. Since the virus is highly contagious and virulent, it has been declared by the World Health Organization as a Public Health Emergency of International Concern and characterized as a pandemic in January and March 2020 respectively (World Health Organization, 2022). The alternative to home-based workouts is to exercise outdoors with a mask. Yet, it increases the physiological burden on one's body, including the increase in heart rate and perceived exertion (Wong et al., 2020). Affected by the coronavirus, foreign regions found a significant reduction in physical activity, mobility, walking and increased sedentary behaviours, especially severe during lockdown (Park et al., 2022; Stockwell et al., 2021). The related population in this problem also includes university students (López-Valenciano et al., 2021).

While the relationship between the variables (external environment, gender, exercise type, exercise experience level) and exercise intention was not much discussed in previous studies, especially in the age group of university students, this study would look into the relationship within. With the exercise rate in Hong Kong having aroused much concern before the pandemic with the university students being a serious group, it is worth investigating whether their exercise intention remained low both before and during the COVID-19 times and whether the variables pose an effect on their exercise intention.

With the relationship between the pandemic and the reduction of physical activity, the purpose of this study focuses on the university students' intention to exercise and their actual participation before and during the pandemic. Specifically, the research objectives would be:

- 1) To investigate whether COVID-19 affect exercise intention and the actual behaviour among university students



- 2) To examine if there is a significant gender difference in exercise intention and actual participation
- 3) To investigate whether different exercise type (individual vs team sport) has an association with exercise intention and actual participation
- 4) To examine if there is a significant exercise experience difference in exercise intention and actual participation

The coronavirus indeed changes people's lifestyles. Yet, whether it changes their intention to engage in exercise is important to whether they will subsequently engage in physical activity. University students are the future pillars and working force of society. Finding out the current university students' situation allows a better understanding and prediction of the future physical activity phenomenon. Some studies have done similar investigations and looked into the relationships between exercise motivation, self-efficacy, and exercise behaviours (DeJong et al., 2021; F. Wang et al., 2022). Others discussed the exercise motivations during COVID-19 (Breiner et al., 2021; Lautenbach et al., 2021; Leyton-Román et al., 2021a; Uroh & Adewunmi, 2021; Vučković et al., 2022). However, as COVID-19 is a recent discussion, there are limited years of analysis in terms of this topic and its consequences to global citizens. Since different countries have started to relax their epidemic preventive policies, people adjusting themselves to a 'new normal'. There is still room for discussing exercise patterns and intentions in this new era. This study could serve as a reference for both the government and educational institutions on the future planning to increase Hong Kong adults' exercise intention, hence developing them into regular exercise participation and higher physical activity level.

## Method

**Participants:** The target population of this study is university students in Hong Kong. The sample size was set as 200 undergraduate students. Their age ranged from 18-25, categorized as young adults group. The convenience sampling method was adopted in recruiting subjects from the universities. A set of Google Form questionnaires was distributed to each participant.

**Measurements:** The questionnaire consists of five parts. Part 1 was the informed consent attached to be checked before participation. Part 2 was the collection of participants' demographic variables, including gender, exercise type, exercise experience, and major type. Part 3 was to gather participants' exercise and sedentary behaviours before and during COVID-19. Parts 4 and 5 were the Theory of Planned Behaviour (TPB) developed by Ajzen (2010) and modified by González et al. (2012). These two parts were to examine the Attitude (EA), Subjective Norms (SN), and Perceived Behavioural Control (PBC) under COVID-19 that affects participants' Behavioural Intention (BI). There are in total 19 questions in Sections 4 and 5 respectively. Questionnaire items involved wordings of 'Before COVID-19' and 'During the COVID-19 fifth wave' to ensure participants recall their accurate situation in terms of different timelines instead of their current exercise situation. The scale adopted a 7-point Likert Scale, ranging from '1= Strongly Disagree' to '7= Strongly Agree'. A higher score on the scale indicates a stronger exercise intention. The only difference between these two sections was the timeline to be recalled. In Part 4, the timeline is before the pandemic when there were no restrictions in terms of the usage of face masks, delivery of teaching at school, or suspension of sports facilities and competitions. Part 5 aimed at investigating participants' exercise intention during the fifth wave of coronavirus in Hong Kong, where social-distancing measures were implemented strictly, including the ban on dine-in eatery services after 6 pm, social gatherings capped at two, suspension of face-to-face teaching, and suspension of operations of scheduled premises (sports facilities, cinema, and massage parlours). The Attitude (EA) was measured in questions 1.1-1.6 (Section 4, 5) about the participants' general feelings on exercising at least 6 times in two weeks before and during covid-19 for being 'not important - very important', 'very unpleasant - very pleasant', and so forth. The Subjective Norm (SN) was measured in questions with the element 'the majority of people important to me...', which are questions 2, 5, 6,

and 12 in sections 4 and 5. The Perceived Behavioural Control (PBC) was measured in questions 3, 4, 7, 8, 9, 10, 11, 13, and 14. This set of questionnaires was developed and testified by González et al. (2012) on the base of Ajzen's Theory of Planned Behaviour. The measurements of the survey questions were found adequate reliability and validity (both internal and external). However, the predictive validity of physical activity participation was incomplete (González et al., 2012). Thus, the questionnaire set by this study included the part to record participants' actual exercise participation instead of prediction through their exercise intention, creating sufficient and accurate information of participants' exercise patterns. The responses from participants of the 7-point Likert scale of each of the sectors (EA, SN, and PBC) would be generated into composite EA, SN, and PBC scores (Strongly Disagree - Strongly Agree: score 1-7) respectively. The final exercise intention composite score was calculated with the average of the three sectors. The comparison of 'I did not have difficulties exercising at least 6 times in two weeks before/ during COVID-19', and question 8 on 'How much control do you believe you had to exercise at least 6 times in two weeks before/ during COVID-19' can also reflect whether the COVID situation poses an exercise barrier to participants from their perspective. A sample of the questionnaire was attached in Appendix.

**Statistical Analysis:** The data analysis of this study is performed with the IBM SPSS Statistics software (Version 29.0). The significance level was set as 95%. The adopted statistical methods included frequency distribution, Spearman's Rank Correlation Coefficient, and independent sample t-test. Frequency distribution was used to locate the demographic information differences of the participants, demonstrating the overall background of the sample population and responding to Objective 1 (finding the TPB composite scores of all participants). Spearman's Correlation was used to find the relationship between exercise intention and actual participation, in responding to Objective 4. As for independent t-tests, it was used to compare the means of different variable groups in the same situation (e.g. mean differences of different genders in exercise intention composite scores during COVID-19), referring to Objectives 2, and 3.

## Analysis of Data

### Descriptive Statistics:

The purpose of this study was to find out the exercise intention of university students before and during the



pandemic severe times and to explore whether there is a difference between the two time periods. The objectives were specified to examine group differences in exercise intention. Descriptive statistics were used to compare the means of exercise intention and participants' actual participation before and during the pandemic (Objective 1). Regarding objectives 2 and 3, independent-sample t-tests were used to compare the independent variables (gender, exercise type) with exercise intention and actual participation. In objective 4, correlation analysis was used to examine the relationship between exercise experience level and exercise intention. A total number of 240 sets of questionnaires were received. It was observed that the general exercise intention before and during COVID-19 had a significant decrease.

**Table 1.** Descriptive statistics of Demographic information of participants

	Number of Participants	% in sample
<b>Gender</b>		
Male	98	41%
Female	142	59%
<b>Exercise Type</b>		
Team Sport	135	56%
Individual Sport	105	44%
<b>Exercise Level</b>		
Amateur	92	38%
Hong Kong League Team/ District Team	30	13%
University Sports Team	79	33%
Hong Kong Team	39	16%
<b>Major Type</b>		
Sport-related	107	45%
Non-sport-related	133	55%

#### a. Exercise Intention Before and During COVID-19

By comparing the composite scores of the participants before and during COVID-19 (Objective 1), it was found that the average exercise intention (EI) among the whole research group greatly decreased. Before COVID-19, the mean exercise intention was 5.34, having the composite scores for EA, SN, and PBC of 6, 4.81, and 5.21 respectively. During COVID-19 fifth wave, the average exercise intention was 4.08 (EA= 4.31, SN= 3.88, PBC= 4.05). The mean exercise intention has a 20.5% decrease by comparing before and during the pandemic.

**Table 2.** TPB Composite Scores Before & During COVID-19

	EA	SN	PBC
Composite Scores (Mean) of each question	Q1.1 5.15/ 4.34	Q2 4.85/3.88	Q3 5.53/ 4.23
	Q1.2 5.19/ 4.28	Q5 4.84/ 3.92	Q4 5.25/ 4.27
	Q1.3 4.53/ 3.87	Q6 4.7/ 3.8	Q7 5.2/ 4.17
Before/ During COVID-19	Q1.4 5.21/ 4.5	Q12 4.83/ 3.93	Q8 5.04/ 3.91
	Q1.5 5.08/ 4.53		Q9 5.17/ 4.13
	Q1.6 4.84/ 4.31		Q10 5.02/ 4.13
			Q11 5.2/ 4.01
			Q13 5.18/ 3.51
			Q14 5.31/ 4.13
Average total	6/ 4.31	4.81/ 3.88	5.21/ 4.05
Before/ During			
% Changed	-28.2%	-7.2%	-22.3%
EI score		5.34/ 4.08	
Before/ During		(-20.5%)	

EA = Attitude, SN = Subject Norm, PBC = Perceived Behavioural Control

EI = Exercise Intention

#### b. Actual Participation Before and During COVID-19

The actual participation was measured through the average score of participants' responded exercise intensity, time, and frequency. The mean exercise intensity before the pandemic was (3.81 = Intense and sustained exercise of more than moderate intensity) and during the COVID-19 fifth wave was (2.63 = Low to moderate intensity) (-30.97%), implying that the study group had performed less intensive exercise after the coronavirus comes in. The mode of exercise intensity had changed from 'A high-intensity, long-lasting exercise with rapid breathing and excessive sweating' (5) to 'A low-intensity, less intense exercise' (2). The number of students choosing (5) has greatly reduced from 98 to 15 (-85%) for the period of during COVID-19 fifth wave.

As for exercise duration, the mean before and during the COVID-19 fifth wave outbreak was 4.42 (Between '31-59 mins' and 'More than 59 mins') and 3.62 (Between '21-20 mins' and '31-59 mins') respectively, indicating that the overall exercise time has reduced (-18.10%). The mean for exercise frequency was slightly reduced. The mean before the pandemic was 3.54 (in between 'Once or twice a week' and 'Three to five times a week'), and the mean during the pandemic was 2.70 (in between 'Two to three times a month' and 'Once or twice a week') (-23.73%). Overall, the actual participation had dropped by 23.96%.

Therefore, the general exercise intention and actual participation (including all three aspects of exercise intensity, duration, and frequency) before and during the pandemic had significantly dropped.

**Table 3.** Actual Participation Composite Scores Before & During COVID-19

	Before COVID	During COVID	% Change
Intensity	3.81	> 2.63	-30.97%
Duration	4.42	> 3.62	-18.10%
Frequency	3.54	> 2.70	-23.73%
Total	11.77	> 8.95	-23.96%

#### c. Correlation between Exercise Experience and Exercise Intention/ Actual Participation

In terms of exercise experience, it was categorized into 4 levels – 'Hong Kong Team' (39 responses), 'University Sports Team' (79 responses), 'Hong Kong League Team/ District Team' (30 responses), and 'Amateur' (92 responses). Spearman's Rank Correlation Coefficient was used to identify the relationship between exercise experience level and exercise intention by composite scores (Objective 4). It was found that exercise level was significantly negatively related (Correlation Coefficient: -0.44) to exercise intention before the pandemic ( $p < 0.001$ ). With a higher level of exercise experience, the participants had a slightly lower exercise intention before COVID-19. Regarding the time period during the fifth wave, Spearman's Correlation found an even lower negative correlation between exercise level and exercise intention (Correlation Coefficient: -0.30), meaning that the correlation was not very significant between two.

**Table 4.** Spearman's Correlation between Exercise Level & Exercise Intention

Exercise Intention	Correlation Coefficient
EI Before COVID	-0.44
EI During COVID	-0.30

EI = Exercise Intention



As for actual participation, the correlation was similar, a higher exercise level indicated relatively lower actual participation unexpectedly. Before COVID-19, exercise level has a significant negative correlation to exercise intensity (-0.54), duration (-0.36) and frequency (-0.55). However, during COVID-19, the negative correlation was less significant, having a correlation coefficient of -0.30 (Intensity), -0.34 (Duration), and -0.37 (Frequency) to actual participation.

**Table 5.** Spearman's Correlation between Exercise Level & Actual Participation

Actual Participation	Correlation Coefficient
(Before) Intensity	-0.54
(Before) Duration	-0.36
(Before) Frequency	-0.55
(During) Intensity	-0.30
(During) Duration	-0.34
(During) Frequency	-0.37

#### d. Gender Difference in Exercise Intention and Actual Participation

There were 98 male and 142 female responses in the study. An independent-sample t-test was applied to measure the separate values of males and females in terms of their intention and actual participation during the two time periods (Objective 2). For exercise intention, the mean difference (composite scores from 1-7) between male and female groups before COVID-19 was 0.33 (Male: 5.20, Female: 4.87), and during COVID-19 fifth wave was 0.02 (Male: 4.09, Female: 4.07). It implies that the gender differences in exercise intention before the pandemic was more obvious, with men having 6.6% higher intention than women. However, the gender exercise intention difference before COVID-19 was not significant ( $p = 0.869$ ), during the fifth wave was significant ( $p = 0.003$ ), and the gender difference gap was narrowed by 93.9% in this timeframe. Another finding from this test was that



males had a greater range of exercise intention reduction than females (EI Before – EI During) (Male: -1.11 (-21%), Female: -0.8 (-16.43%)) by comparing the two times periods. Even so, the male group had higher exercise intention than the female group both before and during COVID-19.

**Table 6.** Mean in Exercise Intention between Male & Female

	EI Before	EI During	Time Period Diff.
Male	5.20	4.09	-1.1 (-21.15%)
Female	4.87	4.07	-0.8 (-16.43%)
Group Diff.	0.33	0.02	-0.31 (-93.94%)
	<b>Male&gt;Female</b>	<b>Male&gt;Female</b>	
	6.55%	0.49%	

EI = Exercise Intention

Regarding the gender difference in the actual participation, it was found that the male group had insignificant higher actual participation before ( $p = 0.47$ ) yet significantly higher than females during the pandemic ( $p = 0.012$ ) (On a scale of 1-5, with 5 being the highest intensity/ duration/ frequency). Before COVID-19, Males had intense and sustained (4.01), above-an-hour duration (4.53), and at least 2 times per week (3.72) exercise on average. As for the female group, they had on average intense (3.68), above-an-hour duration (4.35), and at least 2 times per week (3.41). During the pandemic, the percentage drop in actual participation (intensity, duration, and frequency) in male and female groups was alike, showing that they had similar changes in exercise/ inactivity patterns during the fifth wave. At the same time, the gender difference gap was slightly narrowed in all domains by comparing before and during the pandemic.

**Table 7.** Mean in Actual Participation between Male & Female

	Male	Female	Diff.
(Before) Intensity	4.01	3.68	0.33
(Before) Duration	4.53	4.35	0.18
(Before) Frequency	3.72	3.41	0.31
(Before) Total	12.26	11.44	
(During) Intensity	2.78 (-30.67%)	2.54 (-30.98%)	0.24 (-27.27%)
(During) Duration	3.69 (-18.54%)	3.56 (-18.16%)	0.13 (-27.78%)
(During) Frequency	2.87 (-22.85%)	2.59 (-24.05%)	0.28 (-9.68%)
(During) Total	9.34 (-23.82%)	8.69 (-24.04%)	

(% change) = comparison of the same category's before and during COVID

#### e. Different Exercise Types in Exercise Intention and Actual Participation

Exercise Type was divided into Team Sports (135 responses) and Individual Sports (105 responses). The mean of exercise

intention and actual participation of the university students playing different exercise types were compared with the independent-sample t-test (Objective 3). From an overall perspective, the students playing individually have a lower intention to exercise during the COVID-19 fifth wave (yet insignificant), while the team sports players have more actual participation in these two time periods.

Specifically, the mean difference between the Individual Sport (IS) group and Team Sport (TS) group before the pandemic was 0.61 (IS: 4.66, TS: 5.27), and during the COVID-19 fifth wave was 0.37 (IS: 3.87, TS: 4.24). The difference in exercise intention of two time periods between Individual Sport and Team Sport was found to be in a similar range, with Team Sport having a slightly higher drop (-19.54% < -16.95%). Participants who play Individual Sports were discovered with especially low exercise intention during the fifth wave (3.87). It almost dropped below half on a scale of 1-7, which was an explainable result as Individual Sports players do not always have a companion to exercise with. Under the pandemic or not, they could be influenced by surrounding environmental factors more easily than Team Sports players. With the same rationale, the study group of Team Sport showed a higher EI both Before and During COVID-19. However, both exercise intention before and during COVID-19 was not found to be significant (Before  $p = 0.745$ , During  $p = 0.669$ ).



**Table 8.** Mean in Exercise Intention between Individual Sport & Team Sport

	EI Before	EI During	Time Period Diff.
IS	4.66	3.87	-0.79 (-16.95%)
TS	5.27	4.24	-1.03 (-19.54%)
Group Diff.	0.61	0.37	-0.24 (-48.98%)
	<b>TS &gt; IS</b>	<b>TS &gt; IS</b>	
	12.29%	9.12%	

EI = Exercise Intention, IS= Individual Sport, TS= Team Sport

Concerning the actual participation between Team Sports and Individual Sports, it was observed that both exercise types had mean intensity, duration, and frequency lowered from before COVID to during the fifth wave. Before the pandemic, the average of IS subjects had a moderate intensity (3.40), half-an-hour or above (4.01), and once or twice a week (3.25) exercise pattern. Then decreased to low intensity (2.49), about half an hour (3.38), and three times a month (2.66) norm during covid. As for the TS group, before the virus widespread, had intense and sustained (4.14), more than one hour (4.74), about three times per week (3.76) exercise rate, then reduced to low intensity (2.75), about 45 mins (3.80), less than once a week (2.74) mode. Team Sports group participants had a larger range of percentage decrease than the Individual Sports group in terms of all domains (intensity, duration, and frequency) during COVID-19. The Exercise Type difference gap was narrowed by 40% and above for each sector. The Team Sports group had significantly higher AP in both timeframes (Before  $p < 0.001$ , During  $p = 0.039$ )

**Table 9.** Mean in Actual Participation between Individual Sport & Team Sport

	Individual Sport	Team Sport	Diff.
Before COVID-19	3.40	4.14	0.74
Intensity			
Duration	4.01	4.74	0.73
Frequency	3.25	3.76	0.51
Total	10.66	12.64	
During COVID-19	2.49 (-26.76%)	2.75 (-33.57%)	0.26 (-64.86%)
Intensity			
Duration	3.38 (-15.71%)	3.80 (-19.83%)	0.42 (-42.47%)
Frequency	2.66 (-18.15%)	2.74 (-27.13%)	0.08 (-84.31%)
Total	8.53 (-19.98%)	9.29 (-26.50%)	

(% change) = comparison of the same category's before and during COVID

#### f. Summary of Results

In response to this study's research objectives, a few analytic conclusions were made:

- 1) During COVID-19, both general exercise intention and actual participation had greatly decreased (EI: -20%, AP: -23.96%) among university students, showing that COVID-19 has an adverse effect on exercise intention and participation.
- 2) Males had significantly higher exercise intention and actual participation during the pandemic. Yet, there was no significant gender difference in terms of EI and AP before the pandemic, and the percentage change of EI and AP compared to before and during COVID-19.
- 3) The Team Sports group had significantly higher actual participation in two time periods, but exercise type had an insignificant difference in exercise intention. Also, Team Sports had a larger decrease in both exercise intention and actual participation during the pandemic.
- 4) Exercise experience level was significantly negatively correlated to exercise intention and actual participation. A higher level of exercise experience implied a lower intention and participation in physical activity.

## Discussions

This study aimed to investigate the impact of COVID-19 on exercise intention and the actual participation of university students. Among the 240 participants, different variable groups were established (gender, exercise experience level, and exercise type). By discussing the exercise intention and actual participation by composite scores between the variable types, findings of group variance were observed.

Based on the analytic findings, it was discovered that COVID-19 had a significant adverse effect on both the exercise intention and actual participation among all variable groups and the general sample population. Before the data was analyzed, it was expected that males in the gender group, team sports in the exercise type group, and higher exercise experience levels would have higher exercise intention and actual participation. However, some results were obvious yet not significant.





Males only were significantly higher in EI and AP during the pandemic, and Team Sports participants were significantly higher in actual participation only but not exercise intention.

The Team Sports group had a higher drop in exercise intention when comparing the two timeframes – before and during the fifth wave. It could be related to the social-distancing measures of down to 4-person groups. Team Sports players cannot meet or gather with more teammates. A Korean study (C. Choi & Bum, 2020) looked into how the type of exercise would affect participants' psychological anxiety and exercise engagement will. Results have shown that individuals who participate in group sports would be more anxious about their health as they engage in exercise that involves more people, infection rate would be higher. As well as they had the intention of discontinuing group sports activity in the future. A similar issue could happen in this study that Team Sports students are less willing to join group exercise because of the worry of being infected during the pandemic.

Other than the research objectives, it was also found that exercise intention was somehow positively correlated to actual participation. By comparing participants 'EI Before COVID' and 'AP Before COVID', 'EI During COVID' and 'AP During COVID', there were positive correlations of 0.62 and 0.45 respectively. It proved that with a higher intention for physical activity, there could be a larger exercise engagement. The relationship was more significant before the coronavirus. The possible explanation was that the pandemic affected participants' exercise intention at different levels, and the change of intention through percentage in different domains (EA, SN, PBC) could lead to different ranges of effect. Therefore, the correlation between exercise intention and

actual participation was reduced during the fifth outbreak.

Another interesting finding not mentioned in the research results was the difference in Major Type. It was not the main objective of this study, yet the results were unexpected. As sports-related majors students have more active time, including physical education lessons, and sports-related events to be attended in their courses, it was expected that students of sports majors would have higher exercise intention and actual participation. However, sport-related major students in 'EI Before', 'AP Before', and 'EI During' showed a significantly ( $p < 0.05$ ) lower value than the non-sport-related students. As exercise-related instructions provided by the school were found to have no significant effect on adolescents (Vilhjalmsson & Thorlindsson, 1998), the above finding about sport-related students having less intention from the current study could be explained.

An additional unexpected result gathered from the study was the negative correlation between exercise level and exercise intention. With a higher exercise level, a lower exercise intention and actual participation were observed. A former study found that cognitive commitment to physical activity does not have significant predictive power on the 3-month exercise adherence (Kang et al., 2020), but the same study investigated that behavioural commitment and competence had a significant influence on exercise adherence. Another case reflected that the athlete's perceived performance could be predicted by the satisfaction of the need for competence and intrinsic motivation (Almagro et al., 2020). The study results suggest that individuals commit to physical activities in different ways. Playing at a higher level/ having a better performance does not imply or predict a higher exercise intention and exercise adherence. Different variable groups of participants could have diverse patterns.

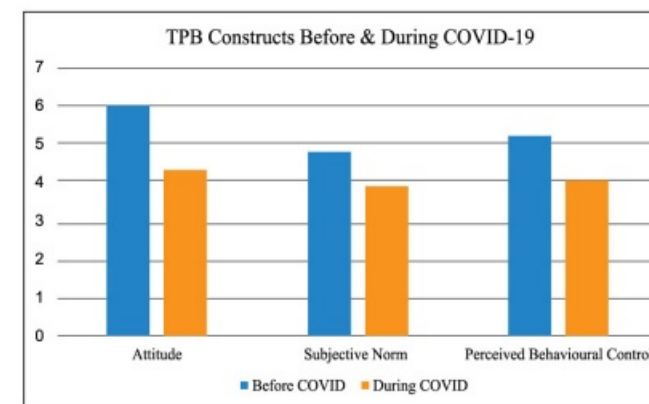


Figure 1. TPB Constructs (Mean) Before & During COVID-19

From the Theory of Planned Behaviour Constructs results, it was noticed that Attitude and Perceived Behavioural Control had a larger decrease when comparing the two timelines. Therefore, it was suggested that COVID-19 infection and the strict social-distancing measures during the fifth wave had a negative effect on specifically university students' EA and PBC. They developed comparatively negative view towards participating in physical activity and their perception of the emergence of pandemic factors (possibly towards the policies) impeded their actual participation. Hence, the intention to physical activity had greatly reduced in the fifth wave.

## Conclusion and Recommendations

This study aimed to investigate the exercise intention and actual participation patterns of university students under COVID-19. The results showed that COVID-19 posed a negative effect on students' exercise intention and participation. Although the Male group and Team Sports group had a generally higher intention and engagement in physical activities, participants from all variable groups (gender, exercise type, exercise level) suffered from a big decrease in EI and AP. To conclude, the pandemic had a huge impact on both the university students' exercise intention and participation. Further studies should locate such problems and search for remedial interventions for future pillars.

The physical activity amount of the questionnaire was set to be 6 times in 2 weeks, even as the participants showed an average exercise duration of 60



minutes, the volume was still near the benchmark (1.8 hours) in the recommendation of 1.5-5 hours per week of moderate-to-vigorous intensity of physical activity from World Health Organization (World Health Organization, 2020). Still, the sample population failed to illustrate high engagement rate in the study, implying that further interventions should be conducted for the interest of their health and wellness. Interventions of developing a positive attitude towards physical activity during COVID-19 would be a useful tool to enhance people's exercise intention and the rate of physical activity (Jang et al., 2021). Besides, institutions could adopt different measures in exercise intervention to increase participation from the root (exercise intention), such as autonomy-based exercise training intervention through online PE classes during the pandemic (Dana et al., 2021). Different approaches could pose various effects on the psychological component of participants (, including EA, SN, and PBC). Having their family members participate in exercise activities and having a sense of satisfaction in PE at school also poses an effect on university students' intention to exercise (Carballo-Fazanes et al., 2020). It proves the importance of educational support in encouraging physical activity (family, institutions, policy etc.). When the motivation and intention to physical activity rise from these mediums, it is believed that the exercise engagement of young adults would increase. It is suggested that further studies could focus on the effectiveness of different exercise intention interventions, so as to find out the specific methods of curing the local physically inactive problem.



## References

- Abdullah, A. S. M., Wong, C. M., Yam, H. K., & Fielding, R. (2005). Factors related to non-participation in physical activity among the students in Hong Kong. *International Journal of Sports Medicine*, 26(7). <https://doi.org/10.1055/s-2004-821315>
- Ahn, J., Jeon, H., & Kwon, S. (2016). Associations between self-regulation, exercise participation, and adherence intention among Korean University students. *Perceptual and Motor Skills*, 123(1). <https://doi.org/10.1177/0031512516659874>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Ajzen, I. (2010). Constructing a theory of planned behavior questionnaire. *Biofeedback and Selfregulation*, 17. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Almagro, B. J., Sáenz-López, P., Fierro-Suero, S., & Conde, C. (2020). Perceived performance, intrinsic motivation and adherence in athletes. *International Journal of Environmental Research and Public Health*, 17(24). <https://doi.org/10.3390/ijerph17249441>
- Breiner, C. E., Miller, M. L., & Hormes, J. M. (2021). Changes in eating and exercise behaviors during the COVID-19 pandemic in a community sample: A retrospective report. *Eating Behaviors*, 42. <https://doi.org/10.1016/j.eatbeh.2021.101539>
- Bungum, T., Dowda, M., Weston, A., Trost, S. G., & Pate, R. R. (2000). Correlates of physical activity in male and female youth. *Pediatric Exercise Science*, 12(1). <https://doi.org/10.1123/pes.12.1.71>
- Carballo-Fazanes, A., Rico-Díaz, J., Barcala-Furelos, R., Rey, E., Rodríguez-Fernández, J. E., Varela-Casal, C., & Abelaíras-Gómez, C. (2020). Physical activity habits and determinants, sedentary behaviour and lifestyle in university students. *International Journal of Environmental Research and Public Health*, 17(9). <https://doi.org/10.3390/ijerph17093272>
- Castro, O., Bennie, J., Vergeer, I., Bosselut, G., & Biddle, S. J. H. (2020). How Sedentary Are University Students? A Systematic Review and Meta-Analysis. In *Prevention Science* (Vol. 21, Issue 3). <https://doi.org/10.1007/s11212-020-01093-8>
- Cekin, R. (2015). Psychological Benefits of Regular Physical Activity: Evidence from Emerging Adults. *Universal Journal of Educational Research*, 3(10). <https://doi.org/10.13189/ujer.2015.031008>
- Centre for Health Protection. (2020). *Physical Activity*. Centre for Health Protection. <https://www.chp.gov.hk/en/healthtopics/content/25/8804.html>
- Chan, H. Y., Chen, A., Ma, W., Sze, N. N., & Liu, X. (2021). COVID-19, community response, public policy, and travel patterns: A tale of Hong Kong. *Transport Policy*, 106. <https://doi.org/10.1016/j.tranpol.2021.04.002>
- Chatzisarantis, N. L. D., Yli-Piipari, S., Schriefer, L. S., Wang, D., Barkoukis, V., & Hagger, M. S. (2019). Is the relationship between physical activity intentions and behaviour convex? A test across 13 studies. *Psychology of Sport and Exercise*, 43. <https://doi.org/10.1016/j.psychsport.2019.01.013>
- Cheng, X., & Chen, W. (2022). Understanding Residents' Physical Activity Intention and Behavior Amid COVID-19 Pandemic. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.760702>
- Choi, C., & Bum, C. H. (2020). Changes in the type of sports activity due to COVID-19: Hypochondriasis and the intention of continuous participation in sports. *International Journal of Environmental Research and Public Health*, 17(13). <https://doi.org/10.3390/ijerph17134871>
- Choi, E. P. H., Hui, B. P. H., & Wan, E. Y. F. (2020). Depression and anxiety in Hong Kong during covid-19. *International Journal of Environmental Research and Public Health*, 17(10). <https://doi.org/10.3390/ijerph17103740>
- Crisafulli, A., & Pagliaro, P. (2021). Physical activity/inactivity and COVID-19. In *European Journal of Preventive Cardiology* (Vol. 28, Issue 16). <https://doi.org/10.1177/2047487320927597>
- Dana, A., Khajeaflaton, S., Salehian, M. H., & Sarvari, S. (2021). Effects of an Intervention in Online Physical Education Classes on Motivation, Intention, and Physical Activity of Adolescents during the COVID-19 Pandemic. In *International Journal of School Health* (Vol. 8, Issue 3).
- DeJong, A. F., Fish, P. N., & Hertel, J. (2021). Running behaviors, motivations, and injury risk during the COVID-19 pandemic: A survey of 1147 runners. *PLoS ONE*, 16(2 February). <https://doi.org/10.1371/journal.pone.0246300>
- Deliens, T., Deforche, B., de Bourdeaudhuij, I., & Clarys, P. (2015). Determinants of physical activity and sedentary behaviour in university students: A qualitative study using focus group discussions. *BMC Public Health*, 15(1). <https://doi.org/10.1186/s12889-015-1553-4>
- Fagaras, S.-P., Radu, L.-E., & Vanvu, G. (2015). The Level of Physical Activity of University Students. *Procedia - Social and Behavioral Sciences*, 197, 1454–1457. <https://doi.org/10.1016/j.sbspro.2015.07.094>
- Fallon, K. (2020). Exercise in the time of COVID-19. *Australian Journal of General Practice*, 49. <https://doi.org/10.31128/AJGP-COVID-13>
- Fen, Y. S., & Sabaruddin, N. A. (2009). An Extended Model of Theory of Planned Behaviour in Predicting Exercise Intention. *International Business Research*, 1(4). <https://doi.org/10.5539/ibr.v1n4p108>
- González, S. T., López, M. C. N., Marcos, Y. Q., & Rodríguez-Marín, J. (2012). Development and Validation of the Theory of Planned Behavior Questionnaire in Physical Activity. *The Spanish Journal of Psychology*, 15(2). [https://doi.org/10.5209/rev\\_sjop.2012.v15.n2.38892](https://doi.org/10.5209/rev_sjop.2012.v15.n2.38892)
- Grasdalsmoen, M., Engdahl, B., Fjeld, M. K., Steingrimsdóttir, Ó. A., Nielsen, C. S., Nielsen, C. S., Eriksen, H. R., Lønning, K. J., Lønning, K. J., & Sivertsen, B. (2020). Physical exercise and chronic pain in university students. *PLoS ONE*, 15(6). <https://doi.org/10.1371/journal.pone.0235419>
- Gündoğdu, N., Demirgüç, A., Çiçek, C., & Ergun, N. (2022). Evaluation of the relationship between the disease severity and the level of physical activity in patients followed up with COVID-19 diagnosis. *Saudi Medical Journal*, 43(6), 579–586. <https://doi.org/10.15537/smj.2022.43.6.20220005>
- Huang, W. Y., Wong, S. H. S., Sit, C. H. P., Wong, M. C. S., Sum, R. K. W., Wong, S. W. S., & Yu, J. J. (2019). Results from the Hong Kong's 2018 report card on physical activity for children and youth. *Journal of Exercise Science and Fitness*, 17(1). <https://doi.org/10.1016/j.jesf.2018.10.003>
- Jang, D., Kim, I., & Kwon, S. (2021). Motivation and Intention Toward Physical Activity During the COVID-19 Pandemic: Perspectives From Integrated Model of Self-Determination and Planned Behavior Theories. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.714865>
- Kang, S., Lee, K., & Kwon, S. (2020). Basic psychological needs, exercise intention and sport commitment as predictors of recreational sport participants' exercise adherence. *Psychology and Health*, 35(8). <https://doi.org/10.1080/08870446.2019.1699089>
- Kaushal, N., Keith, N. C., Aguiñaga, S., & Hagger, M. S. (2020). Social cognition and socioecological predictors of home-based physical activity intentions, planning, and habits during the covid-19 pandemic. *Behavioral Sciences*, 10(9). <https://doi.org/10.3390/bs10090133>
- Kwok, C., Leung, P., Poon, K., & Fung, X. (2021). The effects of internet gaming and social media use on physical activity, sleep, quality of life, and academic performance among university students in Hong Kong: A preliminary study. *Asian Journal of Social Health and Behavior*, 4(1). [https://doi.org/10.4103/shb.shb\\_81\\_20](https://doi.org/10.4103/shb.shb_81_20)
- Kwok, K. O., Li, K. K., Chan, H. H. H., Yi, Y. Y., Tang, A., Wei, W. I., & Wong, S. Y. S. (2020). Community Responses during Early Phase of COVID-19 Epidemic, Hong Kong. *Emerging Infectious Diseases*, 26(7). <https://doi.org/10.3201/eid2607.200500>
- Lautenbach, F., Leisterer, S., Walter, N., Kronenberg, L., Manges, T., Leis, O., Pelikan, V., Gebhardt, S., & Elbe, A. M. (2021). Amateur and Recreational Athletes' Motivation to Exercise, Stress, and Coping During the Corona Crisis. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.611658>
- Lee, P. H., Kuo, S. Y., Ou, T. S., Lin, Y. K., Chi, M. J., Chen, S. R., Lin, P. C., & Lai, H. R. (2020). Predicting Exercise Intentions and Behaviors of Taiwanese Children in a Longitudinal Sample. *Journal of Pediatric Nursing*, 51. <https://doi.org/10.1016/j.pedn.2019.08.008>
- Leyton-Román, M., de la Vega, R., & Jiménez-Castuera, R. (2021). Motivation and Commitment to Sports Practice During the Lockdown Caused by Covid-19. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.622595>
- Liška, D., Barcalová, M., Liptáková, E., Jančoková, L., Vojtaško, L., & Gurín, D. (2021). The level of physical activity of university students in Slovakia during COVID - 19 pandemic. *Pedagogy of Physical Culture and Sports*, 25(5). <https://doi.org/10.15561/26649837.2021.0505>
- Lodewyk, K. R. (2018). Associations between trait personality, anxiety, self-efficacy and intentions to exercise by gender in high school physical education. *Educational Psychology*, 38(4). <https://doi.org/10.1080/01443410.2017.1375081>
- López-Valenciano, A., Suárez-Iglesias, D., Sanchez-Lastra, M. A., & Ayán, C. (2021). Impact of COVID-19 Pandemic on University Students' Physical Activity Levels: An Early Systematic Review. In *Frontiers in Psychology* (Vol. 11). <https://doi.org/10.3389/fpsyg.2020.624567>
- Lu, Y. J., Lai, H. R., Lin, P. C., Kuo, S. Y., Chen, S. R., & Lee, P. H. (2022). Predicting exercise behaviors and intentions of Taiwanese urban high school students using the theory of planned behavior. *Journal of Pediatric Nursing*, 62. <https://doi.org/10.1016/j.pedn.2021.07.001>
- Lun, K. W. C., Chan, C. K., Ip, P. K. Y., Ma, S. Y. K., Tsai, W. W., Wong, C. S., Wong, C. H. T., Wong, T. W., & Yan, D. (2018). Depression and anxiety among university students in Hong Kong. *Hong Kong Medical Journal*, 24(5). <https://doi.org/10.12809/hkmj176915>
- Massie, A. S., Johnston, H., Sibley, D., & Meisner, B. A. (2022). Factors Associated With the Intention to Begin Physical Activity Among Inactive Middle-Aged and Older Adults. *Health Education and Behavior*, 49(1). <https://doi.org/10.1177/10901981211030867>
- Modena, R., Fornasiero, A., Callovi, A., Savoldelli, A., Pellegrini, B., Schena, F., & Bortolan, L. (2022). Exercising at the time of the COVID-19 pandemic: acute physiological, perceptual and performance responses of wearing face masks during sports activity. *Journal of Sports Medicine and Physical Fitness*, 62(11). <https://doi.org/10.23736/S0022-4707.21.12668-4>
- Molanorouzi, K., Khoo, S., & Morris, T. (2015). Motives for adult participation in physical activity: type of activity, age, and gender. *BMC Public Health*, 15(1). <https://doi.org/10.1186/s12889-015-1429-7>
- Moreno-Quispe, L. A., Apaza-Panca, C. M., Távora-Ramos, A. P., & Mamani-Cornejo, J. (2021). Level of physical activity of Peruvian university students during confinement. *Journal of Human Sport and Exercise*, 16(Proc2). <https://doi.org/10.14198/jhse.2021.16.Proc2.62>
- Nelson, T. F., Gortmaker, S. L., Subramanian, S. V., & Wechsler, H. (2007). Vigorous physical activity among college students in the United States. *Journal of Physical Activity & Health*, 4(4). <https://doi.org/10.1123/jpah.4.4.496>
- Norman, P., & Conner, M. (2005). The Theory of Planned Behavior and exercise: Evidence for the mediating and moderating roles of planning on intention-behavior relationships. In *Journal of Sport and Exercise Psychology* (Vol. 27, Issue 4). <https://doi.org/10.1123/jsep.27.4.488>
- Norman, P., Conner, M., & Bell, R. (2000). The theory of planned behaviour and exercise: Evidence for the moderating role of past behaviour. *British Journal of Health Psychology*, 5(3). <https://doi.org/10.1348/135910700168892>
- Park, A. H., Zhong, S., Yang, H., Jeong, J., & Lee, C. (2022). Impact of COVID-19 on physical activity: A rapid review. *Journal of Global Health*. <https://doi.org/10.7189/jogh.12.05003>
- Rueggsegger, G. N., & Booth, F. W. (2018). Health benefits of exercise. *Cold Spring Harbor Perspectives in Medicine*, 8(7). <https://doi.org/10.1101/cshperspect.a029694>
- Santos, A. P. R. dos, Souza, J. N. V. A., Silva, B. R. V. S., Costa, E. C., Oliveira, M. C. de P. O., Aquino, J. M. de, Santos, M. A. M. dos, Barros, M. V. G. de, Silva, L. M. P. da, & Correia Junior, M. A. de V. (2022). Impact of Covid-19 on the mental health, quality of life and level of physical activity in university students. *Revista Brasileira de Atividade Física & Saúde*, 27. <https://doi.org/10.12820/rbafs.27e0266>
- Seefeldt, V., Malina, R. M., & Clark, M. A. (2002). Factors affecting levels of physical activity in adults. In *Sports Medicine* (Vol. 32, Issue 3). <https://doi.org/10.2165/00007256-200232030-00001>





- Sidebottom, C., Ullevig, S., Cheever, K., & Zhang, T. (2021). Effects of COVID-19 pandemic and quarantine period on physical activity and dietary habits of college-aged students. *Sports Medicine and Health Science*, 3(4). <https://doi.org/10.1016/j.smhs.2021.08.005>
- Stockwell, S., Trott, M., Tully, M., Shin, J., Barnett, Y., Butler, L., McDermott, D., Schuch, F., & Smith, L. (2021). Changes in physical activity and sedentary behaviours from before to during the COVID-19 pandemic lockdown: A systematic review. In *BMJ Open Sport and Exercise Medicine* (Vol. 7, Issue 1). <https://doi.org/10.1136/bmjsem-2020-000960>
- Tavakol, Z., Ghannadi, S., Tabesh, M. R., Halabchi, F., Noormohammadi, P., Akbarpour, S., Alizadeh, Z., Nezhad, M. H., & Reyhan, S. K. (2021). Relationship between physical activity, healthy lifestyle and COVID-19 disease severity; a cross-sectional study. *Journal of Public Health (Germany)*. <https://doi.org/10.1007/s10389-020-01468-9>
- The Curriculum Development Council. (2017). *Physical Education: Key Learning Area Curriculum Guide (Primary 1- Secondary 6)*. [https://www.edb.gov.hk/attachment/en/curriculum-development/kla/pe/curriculum-doc/PEKLACG\\_e.pdf](https://www.edb.gov.hk/attachment/en/curriculum-development/kla/pe/curriculum-doc/PEKLACG_e.pdf)
- Prevention and Control of Disease (Wearing of Mask) Regulation, Pub. L. No. Cap. 599I (2020). <https://www.elegislation.gov.hk/hk/cap599I/en?pmc=1&m=1&pm=0>
- Uroh, C. C., & Adewunmi, C. M. (2021). Psychological Impact of the COVID-19 Pandemic on Athletes. *Frontiers in Sports and Active Living*, 3. <https://doi.org/10.3389/fspor.2021.603415>
- Vankim, N. A., & Nelson, T. F. (2013). Vigorous physical activity, mental health, perceived stress, and socializing among college students. *American Journal of Health Promotion*, 28(1), 7-15. <https://doi.org/10.4278/ajhp.111101-QUAN-395>
- Vilhjalmsson, R., & Thorlindsson, T. (1998). Factors related to physical activity: A study of adolescents. *Social Science and Medicine*, 47(5). [https://doi.org/10.1016/S0277-9536\(98\)00143-9](https://doi.org/10.1016/S0277-9536(98)00143-9)
- Vučković, V., Krejač, K., & Kajtna, T. (2022). Exercise Motives of College Students after the COVID-19 Lockdown. *International Journal of Environmental Research and Public Health*, 19(12), 6977. <https://doi.org/10.3390/ijerph19126977>
- Wang, F., Gao, S., Chen, B., Liu, C., Wu, Z., Zhou, Y., & Sun, Y. (2022). A Study on the Correlation Between Undergraduate Students' Exercise Motivation, Exercise Self-Efficacy, and Exercise Behaviour Under the COVID-19 Epidemic Environment. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.946896>

- Wang, J., Yeoh, E. K., Yung, T. K. C., Wong, M. C. S., Dong, D., Chen, X., Chan, M. K. Y., Wong, E. L. Y., Wu, Y., Guo, Z., Wang, Y., Zhao, S., & Chong, K. C. (2021). Change in eating habits and physical activities before and during the COVID-19 pandemic in Hong Kong: a cross-sectional study via random telephone survey. *Journal of the International Society of Sports Nutrition*, 18(1). <https://doi.org/10.1186/s12970-021-00431-7>
- Warburton, D. E. R., Nicol, C. W., & Bredin, S. S. D. (2006). Health benefits of physical activity: The evidence. In *CMAJ* (Vol. 174, Issue 6). <https://doi.org/10.1503/cmaj.051351>
- Webb, T. L., & Sheeran, P. (2006). Does changing behavioral intentions engender behavior change? A meta-analysis of the experimental evidence. *Psychological Bulletin*, 132(2). <https://doi.org/10.1037/0033-2909.132.2.249>
- Wong, A. Y. Y., Ling, S. K. K., Louie, L. H. T., Law, G. Y. K., So, R. C. H., Lee, D. C. W., Yau, F. C. F., & Yung, P. S. H. (2020). Impact of the COVID-19 pandemic on sports and exercise. *Asia-Pacific Journal of Sports Medicine, Arthroscopy, Rehabilitation and Technology*, 22. <https://doi.org/10.1016/j.asmart.2020.07.006>
- World Health Organization. (2018). Global action plan on physical activity 2018-2030: more active people for a healthier world. In *World Health Organization*. <https://apps.who.int/iris/bitstream/handle/10665/272722/9789241514187-eng.pdf>
- World Health Organization. (2020). *Guidelines on Physical Activity and Sedentary Behaviour*. <https://apps.who.int/iris/bitstream/handle/10665/336656/9789240015128-eng.pdf?sequence=1&isAllowed=y>
- World Health Organization. (2022). *Timeline: WHO's COVID-19 response*. World Health Organization. <https://apps.who.int/iris/bitstream/handle/10665/351782/WHO-EURO-2022-1772-41523-63024-eng.pdf?sequence=1&isAllowed=y>
- Yazıcı, T. (2016). Understanding college student's motivation for physical activity participation: The role of gender, sport type and activity level. *Journal of Human Sciences*, 13(3), 5189-5200. <https://doi.org/10.14687/jhs.v13i3.3888>
- Yu, Y., Lau, J. T. F., & Lau, M. M. C. (2021). Levels and factors of social and physical distancing based on the Theory of Planned Behavior during the COVID-19 pandemic among Chinese adults. *Translational Behavioral Medicine*, 11(5). <https://doi.org/10.1093/tbm/ibaa146>



# The Influence of the Coaching Style on Athletes' Anxiety Level

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## Introduction

In all sports, whether individual or team sports, the coach has an essential role in the team. The coach determines the progress of an athlete's sporting techniques, strategies used in a game, and the positions held by different athletes in a game. Each coach has their own unique coaching style and approach to training and applies this to the athletes' daily training. A coach's coaching style refers to the various verbal and physical behaviors that a coach demonstrates when coaching athletes to achieve their training goals (Ramis et al., 2017). The most common coaching styles are divided into three main categories: authoritarian, laissez-faire, and democratic coaching styles.

Coaches who use authoritarian coaching are usually harsher, more result-oriented, and more efficient. Athletes must follow their coach's instructions and orders during training and competition. Any decisions are made and decided by the coach without the athletes being allowed to have a voice. Coaches who use a democratic coaching style allow athletes to participate in the decision-making process and emphasize team spirit.

Laissez-faire coaching is a style of instruction in which the coach mostly defers to the athletes' decision-making. Due to their independence, athletes have been proven to benefit from this coaching approach in developing greater self-confidence.

Athletes may experience anxiety due to this coaching approach since they are left to their own devices and may not receive the support or direction, they need to make the best choices. A democratic coaching approach involves the athlete and the coach working together to make decisions. This coaching style allows athletes to feel like they are part of the decision-making process and encourages them to take ownership of their decisions. This can help reduce anxiety as athletes feel in control of their destinies. This coaching style can help foster a sense of trust and respect between the coach and the athlete, which can also help reduce anxiety levels.

Anxiety is a common emotion faced by athletes during training and competition. Anxiety refers to the subjective perception and feeling of stress and triggers activity in the autonomic nervous system (Englert & Bertrams, 2012). The level of anxiety in athletes varies according to a variety of factors. Internal influences include the athlete's own psychological qualities and values. External influences, such as the environment and competition from teammates. In particular, the coach's coaching style is significantly related to the athlete's anxiety. In addition, anxiety is subdivided into cognitive and physical anxiety (Frederiksen et al., 2021). Cognitive anxiety entails an individual's psychological perceptions, such as feeling uneasy, depressed or unpleasant external stimuli, while physical anxiety refers to an individual's physical perceptual



responses, such as blushing, heart rate and sweating symptoms. This means that an increase in cognitive anxiety leads to a decrease in performance levels, while physical anxiety has an inverted U-shaped relationship with performance, meaning that performance gradually changes as anxiety levels rise, with optimal performance occurring when physical anxiety rises above a certain optimal level (Putra & Guntoro, 2022). However, when physical anxiety rises above this optimal level again, performance gradually decreases.

An athlete's cognitive anxiety, also known as the fear of failure, the fear of not performing to expectations, or the fear of performing below standards, can be significantly influenced by the coaching approach. This kind of anxiety can show up in various ways, such as feeling overburdened or unsure of one's ability to handle the demands of the activity (Weikang Zhu, & Bin Wei, 2015). It is crucial to explore how different coaching techniques might alter an athlete's anxiety level to enhance performance and prevent detrimental psychological repercussions. Coaches can employ strategies to change an athlete's anxiety level, such as positive or negative reinforcement, providing constructive comments, or supplying support and direction. A positive coaching approach can boost confidence while lowering anxiety

levels. In contrast, a negative coaching approach can have the opposite impact.

Athletes should feel supported and encouraged; thus, coaches should be mindful of how their approach may impact their anxiety level and take appropriate action. Athletes should also be conscious of their anxiety levels and act to control them (Weikang Zhu, & Bin Wei, 2015). Reduce anxiety and boost confidence through cognitive reframing, relaxation techniques, and positive self-talk. Athletes should work with their coach to create a more positive and encouraging environment by recognizing how their coaching approach affects their anxiety levels. Coaches and athletes may collaborate to maximize performance and prevent adverse psychological impacts by being aware of how coaching style affects an athlete's anxiety. Examining this issue can enhance athletes' emotional and physical health and overall performance.

The coach's position in the team is always a dominant role in the process of achieving the goals of the sports team. Coaching style has a direct impact on the techniques and strategies that athletes should learn and how training and competition should be organized. Coaching style also determines how athletes are trained and how much autonomy is given to athletes, including determining competition



strategy and content of training (Weikang Zhu, & Bin Wei, 2015). In addition to learning the techniques of the sport, athletes must also have a vision for the competition, show good discipline and maintain focus to achieve the best performance. All these learning processes involve the participation of coaches. This has led to a significant focus on coaching style as a factor influencing athletes. This study was conducted to investigate the relationship between different coaching styles and the anxiety levels of university student athletes.

### *The types of coaching styles:*

There are three main types of coaching styles. They are: democratic coaching style, Laissez-faire coaching style and authoritarian coaching style. The democratic coaching style places the athlete at the center of the coaching process and the coach-athlete relationship is more of a partnership (Weikang Zhu, & Bin Wei, 2015). The coach supports and acknowledges the athlete's personal views and feelings and encourages the athlete to make their own choices, self-motivate and regulate their own behavior, rarely using pressure and demands to control the athlete (Kim et al., 2021)). This means that coaches create an atmosphere that emphasizes skillfulness and allows athletes to make their own comparisons, that they put themselves in the athletes' shoes and provide care and attention, and that they explain the reasons for their involvement and commitment. Carroll and Allen (2020) believe that coaches who use a democratic coaching style are the best for athletes because the coach relates to the athlete's desired outcome, meets the athlete's psychological needs, increases their motivation and continued involvement, and enhances the athlete's performance.

A strong emphasis on structure and discipline distinguishes the authoritative teaching approach. Control and outcomes are essential to these coaches. They have a transparent chain of command and expectations for players and tend to be more directive than other coaching philosophies (Matosic et al., 2016). They also encourage athletes to be responsible for their development and to view failures as opportunities for success. Athletes may benefit from an authoritative teaching approach to decreasing their anxiety levels. When athletes are held to a high-performance standard, they are more likely to exert extra effort to achieve (Weikang Zhu, & Bin Wei, 2015). Athletes are aware of their roles and responsibilities, which can help to reduce tension and concern.

Authoritarian coaches are primarily result-focused, giving instructions to athletes and controlling their behavior and thoughts. Controlling behaviors include making demands, assigning training tasks in a coercive, pressurized,



and authoritarian manner, and using rewards and punishments to control athletes to complete tasks.

Imposing the coach's personal way of thinking and behaving on their athletes (Bartholomew et al., 2010). Athletes have less opportunity to express their thoughts and opinions and mostly act in response to the demands given by their coach.

Controlling behavior by coaches leads to a certain degree to negative effects on the athlete, such as failure to meet the athlete's psychological needs, reduced motivation to participate and other negative consequences such as eating disorders and depression (Bartholomew et al., 2011). When athletes are subjected to long periods of rigorous training and stressful situations, and are faced with the prospect of not meeting social or personal expectations, it is easy for them to withdraw from training.

Laissez-faire is a coaching style that encourages athletes to make decisions independently and work independently. This coaching approach encourages athletes' independence and autonomy by controlling the training and competition environment (Thanh & Quang, 2022). While doing so may offer athletes a sense of ownership and control, it also can make them more anxious. Athletes who get laissez-faire coaching may experience stress or uncertainty due to their coach's lack of direction and instruction. A more directed coach can



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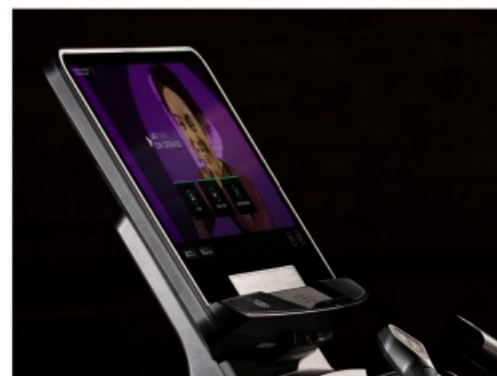
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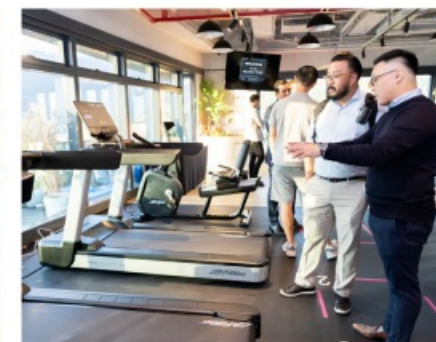
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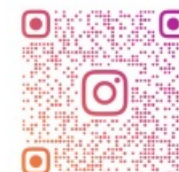
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產品發布會當日，Life Fitness 同事專業地現場展示了 Discover SE4 控制台另一最新特色 - 影片隨拍隨上載到控制台功能。只需要一套簡單的 KOL 自拍神器，便可以輕鬆又專業地進行拍攝，然後登入 Halo Facility 帳戶，快速地把完成的視頻上載到控制台上。這是一個大好機會向賓客示範 SE4 控制台新功能的易用性，亦是一個難得的機會讓大家於百忙之中聚首一堂，令到是次產品發布會更有意義。當然還要藉此機會感謝大家多年來對 Life Fitness 的全力支持。

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give players the structure and direction they need to feel secure in their talents and performances. Adolescents trying to make decisions independently and accept responsibility for their actions may make them more anxious. In addition, the coach is not actively assisting the athletes in managing their anxiousness when they take a lax attitude (Aldhaferi, 2021). The coach may not provide the support and encouragement needed to help the athletes cope with their anxiety. This could make the athletes feel more anxious and uncertain as they try to navigate their training and competitive environment. Overall, the laissez-faire coaching style can potentially lead to increased anxiety levels in athletes (Thanh & Quang, 2022). While this coaching style has benefits, athletes may need more support and guidance from their coach to manage their anxiety and perform at their best.

In addition, the Self-Determination Theory (SDT) framework examines the impact of coaching style on athletes, both in terms of performance and experience, by analyzing the proportional distribution of coaching styles between democratic and authoritarian types. SDT provides substantial evidence that the use of authoritarian control strategies by coaches can have a negative impact on athletes, while democratic coaching styles offer the advantage of being a healthier alternative to leadership styles (Adie et al., 2012).

### *Sport anxiety:*

As athletes compete more intensely on the field of play, their psychological state is also being put to the test. The impact of psychological changes in athletes is becoming increasingly important. Most anxiety is experienced during training and in the middle of a competition, due to the psychological stress caused by the uncertainty of the outcome of a late game. Research points to the fact that everyone experiences anxiety as a naturally occurring human psychological effect (Donner & Lowry, 2013). Anxiety can manifest psychologically as emotions such as apprehension, restlessness and fear. Physically, it can manifest as sweating, shouting and flushing. The presence of anxiety in an athlete means that the athlete is in a state of burden and stress and is a negative psychological response (Dziembowska et al., 2015). Sport anxiety has been studied as a core term in sport psychology and refers primarily to an athlete's tendency to worry about current or anticipated situations that are potentially threatening to their self-esteem during training or competition (Weikang Zhu, & Bin Wei, 2015). This includes the negative impact of not being able to overcome obstacles or achieve goals in a competition, resulting in an emotional state of nervousness, anxiety and fear as a result of a setback to

the athlete's self-confidence and self-esteem, and an increased sense of guilt and failure (Generator, 2017). Athlete anxiety is a common psychological phenomenon in sporting competitions, but the anxiety felt by different people changes according to the situation encountered, for example the intensity of anxiety is not constant, but changes over time.

Competition anxiety has three components, namely emotional experiences, cognitive representations, and physiological changes. Both coaches and sports psychologists attach great importance to competition anxiety, as it directly affects the performance of athletes in competition, especially pre-competition anxiety (Englert & Batrams, 2012). Currently, athletes' emotions are increasingly valued by coaches and athletes in various events, as they are an important covariate that affects athletes' performance and performance. Anxiety in sport is a normal physical and psychological reaction, but high or low levels of anxiety can have a negative impact on the athlete and fluctuate over the course of the competition. The main causes of anxiety in athletes are related to their surroundings. For example, the fear of not being able to face their coach, parents, teammates if they fail (Matosic et al., 2016). Or the media and fans have high expectations of the athlete, causing the athlete to worry that he or she will not finish the competition and disappoint them. This is an intangible psychological emotion that can cause a great deal of psychological anxiety. In addition, there are other reasons such as the individual psychological quality of the athlete.

In addition, Putra and Guntoro (2022) suggest that 'state anxiety' can occur in specific situations and temporarily cause a state of unease in athletes. It is a conscious, subjective feeling triggered by stress and apprehension; anxiety levels increase during the race as the race approaches, but decrease as the athlete enters the race, and fluctuate during the race as the race progresses (Aldhaferi, 2021). Furthermore, the success of selective attention can be affected by anxiety, as the attention of anxious people is automatically occupied by threatening stimuli, which can be internal or external. This leaves less attention available for the actual task, which leads to decreased performance. Another possible explanation for the decline in performance in anxious athletes is from self-control, as paying selective attention appears to be a self-controlling behavior (Englert & Batrams, 2012). Attentional regulation appears to be the most important form of self-control as it influences all other forms of self-control performed. Self-control has been defined as the ability to override and change an individual's primary or automatic focus of attention or other automatic tendencies.

### *The effects of anxiety on sport performance:*

Anxiety is a key psychological factor affecting sport performance and is one of the main areas of research in sports psychology. The level of anxiety is inextricably linked to an athlete's own psychological quality during on-field competition, which directly affects performance (Englert & Batrams, 2012). Given the need for athletes in competitive sports to perform well under pressure, sporting competitions can be perceived as potentially threatening evaluative situations and therefore may elicit higher levels of anxiety. There are significant differences in anxiety levels on the playing field between athletes of different sporting levels. These negative emotions and behaviors can lead to detrimental effects on sport performance.

The level of anxiety is influenced by an athlete's ability to focus on negative stimuli, which can lead to excessive anxiety and affect overall performance. Sports anxiety can improve athletic performance to some extent; however, excessive anxiety can lead to uncontrolled emotions such as fear and worry (Ramis et al., 2017). The psychological effects can produce a physiological phenomenon of excessive muscle tension. Anxiety leads to significant changes in behavior, including excessive excitement or depression, confused thinking, lack of calm and logical thinking, distracted by coaching instructions (Strahler et al., 2010). This effect seems to depend on the individual's cognitive, behavioural and physiological responses as well as the situation itself.

In addition, high levels of anxiety experienced prior to and during competition are associated with reduced sport performance as well. Athletes with high expectations of competition exhibit higher levels of pre-competition anxiety (Ford et al., 2017). Athletes with a high level of skill, generally have a higher level of psychological tolerance and self-regulation, and show more confidence on the field and therefore have a more stable level of anxiety control. Conversely, anxiety levels are significantly higher when skill levels are low (Englert & Batrams, 2012).

However, excessive expectations often lead athletes to increase the demands on their abilities, hoping for quick results, and often the psychological pressure is so great that it triggers sporting anxiety, which in turn restricts the level of performance that should be possible (Lazarus, 2000). On the other hand, athletes with low technical skills and low expectations are more relaxed and have higher self-confidence in the game. This shows that the

level of anxiety and the state of mind of the athlete affects the athletes' performance.

### **Method**

**Participants:** Student athletes from different universities in Hong Kong who had received regular sports training. The age group was 18-22 years or 22 years and above, the number of subjects was set at 150, and there was no restriction on the gender of the subjects. The target group used a purposive sample that included athletes from both individual and team sports.

**Questionnaires:** Before starting the questionnaire, participants were asked to confirm that they were completing the questionnaire voluntarily and to ensure that they signed a consent form after explaining the content and importance of the questionnaire. Athletes' anxiety was assessed using the sport competition anxiety test (SCAT). The Coaches' Leadership Style Scale was used to measure the leadership style of coaches (yang, 2011).

**Procedure:** The questionnaire was administered face-to-face to university student-athletes from different universities in Hong Kong from January to March 2023. The questionnaires were distributed by scanning a QR code after confirming that the test takers are regularly participating in practice under the guidance of their coaches and that they are answering the questionnaire honestly. In order to protect the privacy of the subjects, the contents of the questionnaire are not divulged.

**Statistical analysis:** The collected data results were analyzed using SPSS for descriptive statistics and correlation coefficients. A pre-procedural control was adopted during the administration process and the Harman one-way test was used to test for common method bias for the three scales before statistical processing of the data. Pearson Correlation was used to compare coaching style and athletes' anxiety level.

### **Analysis of Data**

#### *Sport anxiety:*

**Table 1**  
*Gender*

	N	%
female	69	46.0%
male	81	54.0%

There were a total of 150 participants, out of which 69 (46%) were female, and 81 (54%) were male.



**Table 2**  
 Age

	N	%
18	18	12.0%
19	18	12.0%
20	16	10.7%
21	28	18.7%
22	31	20.7%
Over 22	39	26.0%

Of the total number of participants, 12.0% were 18 years old, which is the smallest age group in the study. Another 12.0% of the participants were 19 years old, followed by 10.7% of the participants being 20 years old. The age group with the highest number of participants was 22 years old, with 31 participants, representing 20.7% of the total sample. The age group with the second-highest number of participants was over 22 years old, with 39 participants representing 26.0% of the sample. Finally, the age group with the third-highest number of participants was 21 years old, with 28 participants, representing 18.7% of the total sample.


**Descriptive Statistics Table 3**  
 Descriptive Statistics

	N	Min	Max	Mean	Std. Deviation	Kurtosis		Kurtosis	
						Statistic	Std. Error	Statistic	Std. Error
Authoritative	150	1.00	6.75	4.0300	1.32317	-.151	.198	-.571	.394
Democratic	150	1.76	5.00	3.3881	.79695	.129	.198	-.691	.394
Laissez-faire	150	1.63	4.63	3.0458	.64977	.093	.198	.028	.394
Coaching styles	150	2.00	5.38	3.4873	.84691	.200	.198	-.525	.394
Anxiety	150	1.00	4.00	2.7128	.62460	-.485	.198	.063	.394
Valid N (listwise)	150						.198		

The table above shows the descriptive statistics for four coaching styles (authoritative, democratic, laissez-faire, and overall coaching styles) and anxiety level.

The minimum and maximum scores for each variable range from 1.00 to 6.75 for the authoritative coaching style, 1.76 to 5.00 for the democratic coaching style, 1.63 to 4.63 for the laissez-faire coaching style, 2.00 to 5.38 for the overall coaching style, and 1.00 to 4.00 for anxiety.

The mean scores for the coaching styles range from 3.0458 to 4.0300, indicating that the participants perceived the authoritative coaching style as the most effective. The table shows that the mean score for the authoritative coaching style was 4.03.

The table also provides information on the anxiety levels of the athletes, with a mean score of 2.71 and a standard deviation of 0.62. The skewness of -0.485 suggests that the data is slightly negatively skewed, meaning that more athletes reported lower levels of anxiety. The kurtosis value of 0.063 indicates that the distribution is relatively normal.


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**Relationship Statistical Tests Table 4**

Correlations between coaching styles and athletes' anxiety levels

		Coaching styles	Anxiety
Coaching styles	Pearson	1	.646**
	Correlation		
	Sig. (2-tailed)		<.001
Anxiety	N	150	150
	Pearson	.646**	
	Sig. (2-tailed)	<.001	
	N	150	150

\*\* . Correlation is significant at the 0.01 level (2-tailed)

The examination has exhibited a correlation coefficient of 0.65, accompanied by a p-value of 0.001, indicating a moderate to formidable affirmative correlation between the methods employed by coaches and the levels of anxiety manifested by athletes.

The utilization of a rather considerable sample size of 150 participants in this inquiry augments the certainty in the precision of the outcomes. Moreover, the inferior and superior confidence intervals (C.I.) furnish a spectrum of values in which the genuine correlation coefficient is prone to descend. The inferior and superior C.I. values in this case are 0.541 and 0.730, respectively, showing a high level of confidence in the validity of the true correlation coefficient.

**Regression Analysis Table 5**

Comparison in coaching style affect the anxiety levels of athletes

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
(Constant)	.436	.161			2.707	.008
Authoritative	-.029	.040	-.061		-.730	.467
Democratic	-.013	.076	-.016		-.169	.866
Laissez-faire	.800	.082	.832		9.713	<.001

a. Dependent Variable: Anxiety

$Anxiety = 0.436 - 0.029 Authoritative - 0.013 Democratic + 0.800 Laissez-faire$

The table shows the unstandardized and standardized coefficients of the regression model. The unstandardized coefficients (B) indicate the magnitude and direction of the relationship between each coaching style and athlete anxiety, holding other variables constant. The standardized coefficients (Beta) represent the impact of each coaching

style on athlete anxiety, relative to the other predictors in the model.

The results suggest that only the Laissez- faire coaching style has a statistically significant effect on athlete anxiety levels, as indicated by the t-value of 9.713 and p-value of <.001.

The regression model presented in the table predicts that for every unit increase in the Laissez-faire coaching style, athlete anxiety levels will increase by 0.800, holding other variables constant. Conversely, for every unit increase in the Authoritarian coaching style and Democratic coaching style, athlete anxiety levels will decrease by 0.029 and 0.013, respectively, holding other variables constant.

The findings from the table align with previous studies that have examined the impact of coaching styles on athlete mental health. For instance, a study by Carroll and Allen (2020) found that athletes who perceive their coaches to be more controlling and uninvolved are more likely to experience negative mental health outcomes, such as anxiety and depression. Additionally, a study by (Matosic et al., (2016) found that coaches who adopt a more autonomy-supportive coaching style can positively impact athletes' mental wellbeing.

**ANOVA Table Table 6**

Comparison in anxiety levels between males and females

Anxiety * 1.		Sum of Squares	df	Mean Square	F	Sig.
Gender	Between Groups (Combined)	1.632	1	1.632	4.274	0.040
	Within Groups	56.497	148	0.382		
	Total	58.128	149			

The Research Objective 3 examines whether there is a significant difference in anxiety levels between boys and girls for the same coaching style. The ANOVA table presented in the question provides information on the results of the analysis.

The ANOVA table is used to test the null hypothesis that there is no significant difference in anxiety levels between boys and girls for the same coaching style. The table reports the sum of squares (SS), degrees of freedom (df), mean square (MS), F-value, and significance level (Sig.).



The table shows that the sum of squares for the between-groups (combined) variable is 1.632, with 1 degree of freedom. The within-groups sum of squares is 56.497, with 148 degrees of freedom. The total sum of squares is 58.128, with 149 degrees of freedom.

The mean square for the between-groups variable is 1.632, while the mean square for the within-groups variable is 0.382. The F-value is 4.274, with a significance level of 0.040.

The significant F-value indicates that there is a significant difference in anxiety levels between boys and girls for the same coaching style. The significance level of 0.040 is below the standard alpha level of 0.05, which suggests that we can reject the null hypothesis and conclude that there is a significant difference in anxiety levels between boys and girls for the same coaching style.

The results of the ANOVA table revealed that there is a significant difference in anxiety levels between boys and girls for the same coaching style. This finding is consistent with previous research that has examined gender differences in sports and anxiety levels. For instance, a study by Hanton et al. (2009) found that female athletes tend to experience higher levels of anxiety than male

athletes. Another study by Sundgot-Borgen and Torstveit (2010) also found that female athletes are more likely to experience symptoms of anxiety and depression than male athletes.

## Discussions

### Relationship between coaching styles and athletes' anxiety levels

The results of the research demonstrate a considerable and meaningful correlation between the anxiety levels of athletes and their coaches' style of coaching, with a correlation coefficient of 0.65 and a p-value of 0.001. This implies that coaches who exhibit harsh or intense coaching styles may inadvertently contribute to increased anxiety levels among their athletes. In contrast, coaches who adopt a more supportive and positive style of coaching may assist in alleviating the anxiety levels of their athletes.

The research underscores the vital role of coaches in shaping the mental wellness of athletes. Coaches must be cognizant of how their coaching style can impact an athlete's level of anxiety and consider employing a more affirmative and supportive approach to coaching. Past





research suggests that coaches who stress the importance of communication, building relationships, and providing consistent feedback may be better equipped to assist athletes in managing anxiety levels (Dziembowska et al., 2015; Weikang Zhu, & Bin Wei, 2015; Generator, 2017).

According to recent research, worried athletes are more likely to experience several unfavorable effects, including subpar performance, an increased risk of injury, and a decreased motivation to participate in sports (Gould et al., 2016; Perry & Clough, 2019). Coaches must be aware of how their approaches affect players' levels of anxiety and must use strategies that promote good mental health considering the negative consequences of anxiety. Along with encouraging and supportive coaching, coaches can use a variety of tactics and treatments to assist athletes in managing their anxiety levels. These include deep breathing, gradual muscular relaxation, and visualization. It has been discovered that all of these techniques are successful at lowering anxiety in athletes (Schinke et al., 2020). Cognitive-behavioral interventions, which target negative thought patterns and behaviors, have also been identified as a successful strategy in reducing anxiety levels among athletes (Mazzer & Ricciardelli, 2020).

Recent research has shed light on the significance of social support in alleviating anxiety levels among athletes. Coaches have the potential to play a crucial part in providing social support to their athletes, resulting in reduced anxiety levels and favorable mental health outcomes (Poczwardowski et al., 2020). Social support can be provided in multiple ways, including emotional, informational, and tangible support (Holt & Dunn, 2020). Coaches who extend high levels of social support can create a constructive and supportive atmosphere, aiding athletes in managing anxiety levels and coping with stress.

Coaches have a vital role in influencing the psychological welfare of their athletes. It is critical for them to understand how their coaching techniques affect how anxious their athletes are. This demonstrates how crucial it is for coaches to care for the psychological well-being of their athletes. The use of relaxation techniques, cognitive-behavioral therapies, social support, and a constructive and encouraging coaching style can all assist athletes control their anxiety levels and foster positive mental health effects.

### Different coaching styles affect the anxiety levels of athletes

Based on the regression analysis, it was found that the coaching styles of authoritarian and democratic had a

negative impact on the anxiety levels of athletes. However, the Laissez-faire coaching style had a positive effect on athlete anxiety.

Notwithstanding, the statistical analysis indicated that only the Laissez-faire coaching style had a significant effect on athlete anxiety levels, as demonstrated by the t-value of 9.713 and p-value of less than .001. The regression model presented in the table predicted that for every unit increase in the Laissez-faire coaching style, athlete anxiety levels increased by 0.800, holding other variables constant. Conversely, for every unit increase in the Authoritarian coaching style and Democratic coaching style, athlete anxiety levels decreased by 0.029 and 0.013, respectively, holding other variables constant.

Research on the impact of coaching styles on athlete anxiety levels has yielded mixed results. Recent studies have discovered that a coaching style that leans towards democracy by prioritizing shared decision-making and cooperation may decrease athlete's anxiety levels through the enhancement of their control and autonomy (Gao et al., 2021). Conversely, other studies have unveiled that an authoritarian coaching style, which puts emphasis on strict regulations and discipline, could provoke an upsurge in athlete anxiety levels due to the creation of a stressful and intimidating environment (Jowett & Shanmugam, 2016).

The research conducted indicates that the coaching styles of both authoritarian and democratic nature may have adverse effects on the anxiety levels of athletes.

Previous studies have discovered that athletes may experience anxiety in response to intense pressure and high expectations from their coaches, which corroborates the current findings (Sagar et al., 2017). Additionally, the study revealed that the Laissez-faire coaching style, which accentuates minimal structure and guidance, may have an exceptionally potent and detrimental impact on the anxiety levels of athletes.

The connection between coaching styles and athlete anxiety levels is a complex and multifaceted one. Numerous variables, such as an athlete's unique personality features and coping mechanisms, as well as the demands and circumstances of the sport itself, might alter how coaching approaches affect anxiety levels (Mullin et al., 2019). To attain better mental health outcomes, coaches may also need to adjust their coaching tactics to match the needs and preferences of each athlete (Ntoumanis et al., 2020).

The findings of this study highlight how important it is for coaches to develop a coaching technique that takes

**TANITA**

Made in JAPAN

**Professional Body Composition**

**COMPACT LIGHTWEIGHT ACCURATE**

**詳盡分析全身**

超過30項身體組成數據

- 肌肉量
- 體脂率
- 內臟脂肪
- 體水份率
- 腿部肌肉分數
- 四肢肌肉平衡

**RD-545** 專業家用體組成磅

**MC-780MA** 專業體組成磅

體重 體脂率 體水份率 內臟脂肪 肌肉量

肌肉質量 100 推定骨量 基礎代謝量 體內年齡 Age 四肢測量





was set at 0.040. The significant F-value indicated that there was a noteworthy variance in the anxiety levels experienced by boys and girls subjected to the same coaching style. As the significance level of 0.040 was found to be lower than the standard alpha level of 0.05, it led to the rejection of the null hypothesis. Hence, it can be concluded that there was a considerable difference in anxiety levels experienced by boys and girls for the same coaching style.

The discovery of a significant contrast in levels of anxiety experienced by boys and girls when exposed to the same coaching style carries great importance. It implies that coaches must factor in gender when deciding how to communicate with their athletes. Various studies have demonstrated that boys and girls react differently to coaching methods and techniques (Biddle & Mutrie, 2008). For instance, studies have shown that inspiring instructors who emphasize the social aspects of sport would better elicit a positive response from female players. Boys, however, seem to gain more from a coach who places a high importance on performance and competition (Barker et al., 2013; Sagar et al., 2013).

Research indicates that age and the kind of sport may also have an impact on the association between coaching techniques and anxiety levels, in addition to gender. For instance, younger athletes may be more susceptible to experiencing anxiety due to a harsh coaching style. On the other hand, due to the distinct pressure and expectations connected with each, athletes who participate in solo sports may suffer various degrees of anxiety contrasted to individuals who engage in team sports. Both Serpa et al. (2018) and Oglesby and Barfield (2010) published studies demonstrating these results.

When athletes of both sexes receive the same coaching, there is a definite difference in the level of anxiety they feel. This point highlights how crucial it is for coaches to consider the distinctive qualities of their athletes and modify their instructional strategy accordingly. When choosing the best strategy for each athlete, coaches should consider the player's gender, age, and sport.

## Conclusions

The study's major goal was to ascertain whether there was a connection between coaching style and anxiety levels. It was discovered that when coaches were authoritative as opposed to laissez-faire, players' anxiety levels were lower. It was found that, even when the identical coaching tactics were used, male and female athletes' levels of anxiety were substantially different.

players' mental health issues into account. Coaches must be conscious of how their coaching style can affect athlete anxiety levels and be open to adapting their approach accordingly. Additionally, coaches may have to provide resources and support to aid athletes in managing their anxiety levels and fostering positive mental health outcomes.

### Significant difference in anxiety levels between boys and girls for the same coaching style

The Research Objective 3 examined whether there was a significant difference in anxiety levels between boys and girls for the same coaching style. The results indicated that the sum of squares for the between-groups (combined) variable was 1.632, with 1 degree of freedom. The within-groups sum of squares was 56.497, with 148 degrees of freedom. The total sum of squares was 58.128, with 149 degrees of freedom.

The within-groups variable's mean square was 0.382 and the between-groups variable's mean square was 1.632, according to the statistical analysis of this study. The F-value was found to be 4.274, and the significant cutoff

This finding relates to the second research goal, which examined how coaching strategies affected anxiety levels in athletes of different sexes. Finally, the third research objective explored the relationship between different coaching styles and anxiety levels among athletes.

The management of athletes' anxiety levels has been proven to be critically dependent on coaching style. Coaches must be aware of the enormous effect their teaching methods can have on athletes' anxiety levels. Coaches should therefore strive to use a coaching approach that

lowers anxiety and improves performance. To achieve this goal, coaches may consider using an authoritative coaching style that prioritizes structure and precise communication and motivates athletes to take responsibility for their performance.

Coaches ought to consider the variances in anxiety levels between genders and customize their coaching style accordingly. When coaching female athletes, a different approach may be necessary to aid in managing their anxiety levels. Research RMA

## References

- Adie, J. W., Duda, J. L., & Ntoumanis, N. (2012). Perceived coach-autonomy support, basic need satisfaction and the well-and ill-being of elite youth soccer players: A longitudinal investigation. *Psychology of Sport and Exercise*, 13(1), 51-59.
- Aldhaheeri, A. (2021). Do school leaders in the Emirate of Abu Dhabi predominantly practice a transformational, transactional, or laissez-faire style of leadership?. *International Journal of Organizational Analysis*, (ahead-of-print).
- autonomy-supportive and controlling interpersonal behaviours: A multimethod study. *International Journal of Sports Science & Coaching*, 16(2), 236-248. <https://doi.org/10.1177/1747954120958621>
- Barker, D., Barker-Ruchti, N., Gerber, M., Gerlach, E., Sattler, S., & Pühse, U. (2013). Swiss youths, migration and integrative sport: A critical-constructive reading of popular discourse. *European Journal for Sport and Society*, 10(2), 143-160.
- Bartholomew, K. J., Ntoumanis, N., & Thøgersen-Ntoumani, C. (2010). The controlling need satisfaction and the well- and ill-being of elite youth soccer players: A longitudinal investigation. *Psychology of Sport and Exercise*, 13(1), 51-59. <https://doi.org/10.1016/j.psychsport.2011.07.008>
- Bartholomew, K. J., Ntoumanis, N., Ryan, R. M., Bosch, J. A., & Thøgersen-Ntoumani, C. (2011). Self-determination theory and diminished functioning. *Personality and Social Psychology Bulletin*, 37(11), 1459-1473. <https://doi.org/10.1177/0146167211413125>
- Biddle, S.J.H., & Mutrie, N. (2008). *Psychology of physical activity: Determinants, well-being and interventions*. 2nd Edition, Routledge, London and New York.
- Carroll, M., & Allen, J. (2020). 'Zooming in' on the antecedents of youth sport coaches' *Pflügers Archiv - European Journal of Physiology*, 465(5), 601-626. <https://doi.org/10.1007/s00424-013-1271-7>
- Donner, N. C., & Lowry, C. A. (2013). Sex differences in anxiety and emotional behavior.
- Dziembowska, I., Izdebski, P., Rasmus, A., Brudny, J., Grzelczak, M., & Cysewski, P. (2015). Effects of heart rate variability biofeedback on EEG Alpha asymmetry and anxiety symptoms in male athletes: A pilot study. *Applied Psychophysiology and Biofeedback*, 41(2), 141-150. <https://doi.org/10.1007/s10484-015-9319-4>
- Englert, C., & Bertrams, A. (2012). Anxiety, ego depletion, and sports performance. *Journal of Sport and Exercise Psychology*, 34(5), 580-599. <https://doi.org/10.1123/jsep.34.5.580>
- Englert, C., & Bertrams, A. (2012). Anxiety, ego depletion, and sports performance. *Journal of Sport and Exercise Psychology*, 34(5), 580-599. <https://doi.org/10.1123/jsep.34.5.580>
- Ford, J., Ildefonso, K., Jones, M., & Arvinen-Barrow, M. (2017). Sport-related anxiety: Current insights. *Open Access Journal of Sports Medicine*, 8, 205- 212. <https://doi.org/10.2147/oaajm.s125845>
- Frederiksen, K. P., Stavestrand, S. H., Venemyr, S. K., Sirevåg, K., & Hovland, A. (2021). Physical exercise as an add-on treatment to cognitive behavioural therapy for anxiety: A systematic review. *Behavioural and Cognitive Psychotherapy*, 49(5), 626-640. <https://doi.org/10.1017/s1352465821000126>
- Gao, T., Fisch, A., & Chen, D. (2021). Making Pre-trained Language Models Better Few-shot Learners. In *Proceedings of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing (Volume 1: Long Papers)*, pages 3816-3830, Online.
- Generator, M. (2017). Anxiety and Concentration among Archery Athletes. *Open Journal Systems - Universitas Negeri Surabaya*. interpersonal style in a coaching context: Development and initial validation of a psychometric scale. *Journal of Sport and Exercise Psychology*, 32(2), 193-216. <https://doi.org/10.1123/jsep.32.2.193> <https://journal.unesa.ac.id/index.php/jppt/article/view/1675/1113>
- Gould, D. J., Creedon, S., Jeanes, A., Drey, N. S., Chudleigh, J., & Moralejo, D. (2017). Impact of observing hand hygiene in practice and research: a methodological reconsideration. *Journal of Hospital Infection*, 95(2), 169-174.
- Hanton, S., Mellalieu, S. D., & Hall, R. (2009). Self-confidence and anxiety interpretation: A qualitative investigation. *Psychology of Sport and Exercise*, 10(3), 467-475.





- Holt, N. L., & Dunn, J. G. (2020). Social support in sport and exercise groups. In M. R. Beauchamp & M. A. Eys (Eds.), *Group dynamics in exercise and sport psychology* (3rd ed., pp. 131-148). Routledge.
- Jowett, S., & Shanmugam, V. (2016). Relational coaching in sport: Its psychological underpinnings and practical effectiveness. In R. Schinke, K.R. McGannon, & B. Smith (Eds.), *Routledge international handbook of sport psychology* (pp. 471-484). Routledge.
- Kim, S., Park, S., Love, A., & Pang, T. C. (2021). Coaching style, sport enjoyment, and intent to continue participation among artistic swimmers. *International Journal of Sports Science & Coaching*, 16(3), 477-489.
- Kogoya, K., Guntoro, T. S., & Putra, M. F. (2022). Sports event image, satisfaction, motivation, Stadium atmosphere, environment, and perception: A study on the biggest multi-sport event in Indonesia during the pandemic. *Social Sciences*, 11(6), 241. <https://doi.org/10.3390/socsci11060241>
- Lazarus, R. S. (2000). How emotions influence performance in competitive sports. *The Sport Psychologist*, 14(3), 229-252. <https://doi.org/10.1123/tsp.14.3.229>
- Martens, R. (1977). Sport competition anxiety test. *PsycTESTS Dataset*.
- Matosic, D., Ntoumanis, N., & Quested, E. (2016). Antecedents of need supportive and controlling interpersonal styles from a self-determination theory perspective: A review and implications for sport psychology research. *Sport and Exercise Psychology Research*, 145-180. <https://doi.org/10.1016/b978-0-12-803634-1.00007-8>
- Mazzer, K. R., & Ricciardelli, L. A. (2020). Cognitive-behavioral interventions for athletes: A systematic review. *Journal of Clinical Sport Psychology*, 14(1), 1-25.
- Mullin, E.M., Gaudreau, P., & Crocker, P.R.E. (2019). The role of passion for sport and level of personal goal attainment in athletes' experience of burnout and engagement. *International Journal of Sport Psychology*, 50(3), 269-287.
- Ntoumanis, N., Ng, J.Y.Y., Prestwich, A., Quested, E., Hancox, J.E., Thøgersen-Ntoumani, C., Deci, E.L., Ryan, R.M., Lonsdale, C., Williams, G.C. (2020). A meta-analysis of self-determination theory-informed intervention studies in the health domain: Effects on motivation, health behavior, physical and psychological health. *Health Psychology Review*, 14(4), 585-601.
- Perry, C. K., Damschroder, L. J., Hemler, J. R., Woodson, T. T., Ono, S. S., & Cohen, D. J. (2019). Specifying and comparing implementation strategies across seven large implementation interventions: a practical application of theory. *Implementation Science*, 14(1), 32.
- Poczwardowski, A., Sherman, C. P., & Ravizza, K. (2004). Professional philosophy in the sport psychology service delivery: Building on theory and practice. *The Sport Psychologist*, 18(4), 445-463.
- Putra, M. F., & Guntoro, T. S. (2022). Competitive state anxiety Inventory-2R (CSAI-2R): Adapting and validating its Indonesian version. *International Journal of Human Movement and Sports Sciences*, 10(3), 396-403. <https://doi.org/10.13189/saj.2022.100305>
- Ramis, Y., Torregrosa, M., Viladrich, C., & Cruz, J. (2017). The effect of coaches' controlling style on the competitive anxiety of young athletes. *Frontiers in Psychology*, 8. <https://doi.org/10.3389/fpsyg.2017.00572>
- Ramis, Y., Torregrosa, M., Viladrich, C., & Cruz, J. (2017). The effect of coaches' controlling style on the competitive anxiety of young athletes. *Frontiers in Psychology*, 8. <https://doi.org/10.3389/fpsyg.2017.00572>
- Sagar, A., Arif, E., Solanki, A.K., Srivastava, P., Janech, M.G., Kim, S.H., Lipschutz, J.H., Kwon, S.H., Ashish, ., & Nihalani, D. (2017). Targeting Neph1 and ZO-1 protein-protein interaction in podocytes prevents podocyte injury and preserves glomerular filtration function. *Scientific Reports*, 7(1), 9302.
- Sagar, S.S., Lavallee, D., & Spray, C.M. (2013). Coping with the effects of fear of failure: A preliminary investigation of young elite athletes. *Journal of Clinical Sport Psychology*, 7(4), 348-365.
- Schinke, R. J., Papaioannou, A., Chang, Y. K., Kim, Y. H., & Duda, J. L. (2020). Physical activity, health and well-being in an imposed social distanced world. *International Journal of Sport and Exercise Psychology*, 18(4), 414-419.
- Strahler, K., Ehrlenspiel, F., Heene, M., & Brand, R. (2010). Competitive anxiety and cortisol awakening response in the week leading up to a competition. *Psychology of Sport and Exercise*, 11(2), 148-154. <https://doi.org/10.1016/j.psychsport.2009.10.003>
- Sundgot-Borgen, J., & Torstveit, M. K. (2010). Prevalence of eating disorders in elite athletes is higher than in the general population. *Clinical Journal of Sport Medicine*, 20(2), 94-98.
- Thanh, N. H., & Quang, N. V. (2022). Transformational, transactional, laissez-faire leadership styles and employee engagement: evidence from Vietnam's Public Sector. *Sage Open*, 12(2), 21582440221094606.
- Weikang Zhu, & Bin Wei. (2015). 排球竞赛中运动员焦虑产生的原因与调节研究- 期刊.
- yang Yong. (2011). 我国优秀青少年篮球队群体凝聚力研究. 北京体育大学出版社.



# 中國學生體質與健康調研制度 及政策發展歷程

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學生時期的健康是人一生健康的重要基礎，學生體質水準不僅能反映其當下健康狀況，更與全生命期心血管疾病、高血壓、糖尿病、腫瘤和精神疾病等的發生有密切關聯 (Juraschek et al., 2014; Karstoft et al., 2013; Sassen et al., 2009; Sawyer et al., 2012)。增強學生體質是提升全生命期健康乃至提高國家整體健康水準的重要手段之一 (Kuruvilla et al., 2016; Patton et al., 2016)。本文以學生體質與健康調研制度建立和發展為主線，梳理相關政策脈絡，分析演進特徵，以期為學生體質與健康全面發展提供借鑒和參考。本文將學生體質與健康調研制度及政策發展歷程分為萌芽階段（1949—1977年），建立階段（1978—1989年）、成型階段（1990—2005年）、發展階段（2006—2015年）和新時代（2016年至今）5個時期。

## 1. 萌芽階段（1949—1977年）

我國兒童生長發育的研究始於20世紀前10年，但數量極為有限，且樣本量較小。新中國成立之初的十幾年間，許多城市進行了數以百計的關於兒童生長發育的調查，研究樣本量開始擴大，但研究內容多限於形態指標。二十世紀七十年代末，學生體質與健康問題凸顯。1975年，中國醫學科學院兒科研究所在全國九個省會以上城市對6~17歲學生生長發育進行調查，並與日本比較，發現我國學生絕大部分資料都比日本同齡學生低。由此引發學校體育衛生專家和國家的關注（教育部體育衛生與藝術教育司，2010；馬軍，2015a，2015c）。

## 2. 建立階段（1978—1989年）

1978年12月，中共十一屆三中全會的召開，開啟了改革開放歷史新時期，學生體質與



健康事業開始勃發。1979年5月，經國務院批准，國家體委、教育部、衛生部和共青團中央于江蘇省聯合召開了“全國學校體育衛生工作經驗交流會”，也稱為“揚州會議”。這是自新中國成立以來規模最大的學校體育衛生工作會議。會議上我國著名衛生專家、北京大學兒童青少年衛生研究所名譽所長葉恭紹教授、北京體育學院副院長徐英超教授積極倡議建立學生體質與健康調研制度，呼籲國務院有關部門支持這一制度的建立。會議還討論了《中、小學體育工作暫行規定（試行草案）》、《中、小學衛生工作暫行規定（草案）》、《高等學校體育工作暫行規定（試行草案）》和《高等學校衛生工作暫行規定（草案）》，並於1979年和1980年相繼發佈。這四個《暫行規定》是我國首次針對學校體育衛生工作發佈的法規性質檔，它們的發佈與實施拉開了學校體育衛生工作法規建設的序幕。

根據《1978-1985年全國科學技術發展規劃綱要（草案）》要求，國家體委、教育部、衛生部於1979年組織北京、天津、上海及遼寧、湖北等13個省的省會，一共16個城市及其郊區實施“中國青少年兒童身體形態、機能與素質調查研究”，對20多萬7~25歲漢族城鄉學生進行測試，測試內容包括身體形態、生理機能、身體素質3方面共20項指標，初步摸清了我國學生體質與健康現狀，制定了具有較強代表性的形態、機能和素質的評價標準以及各指標的正常範圍(馬軍，2015a，2015c)。

1985年，由國家教委牽頭，多部門參與，在全國29個省（自治區、直轄市）設立1279個觀測點，對包括漢族在內28個民族7~22歲的大、中、小學生的形態、機能、素質和健康四方面共29項指標進行調查研究，共檢測人數984 872人。該項調研，是中國歷史上最大規模的學生體質與健康調研，也是世界上少有的大規模體質與健康調研。該項成



果獲得1988年國家教委科學技術進步一等獎、國家科技進步二等獎。1985年全國學生體質與健康調研工作的圓滿成功，為學生體質與健康調研制度的形成奠定了堅實基礎。

1987年底，經國務院批准，由國家教委、國家體委、衛生部、國家民委、國家科委、財政部聯合下發的《關於中國學生體質、健康狀況調查研究結果和加強學校體育衛生工作的意見》〔（87）教體字022號〕，明確提出建立定期開展學生體質與健康調研（監測）的制度，每五年進行一次大規模調研，每一年進行小規模體質健康監測，標誌著學生體質與健康步入制度化、規範化管理新時期。1989年6月，國家教委、國家體委、衛生部、國家民委、國家科委聯合印發了《全國學生體質、健康狀況監測實施方案》，全國學生體質與健康調研工作體系開始運轉（教育部體育衛生與藝術教育司，2010）。

### 3. 成型階段（1990—2005年）

在認真總結四個《暫行規定》近十年實踐經驗的基礎上，國家教委、國家體委、衛生部會同財政部、人事部、建設部共同制定了《學校體育工作條例》與《學校衛生工作條例》。該兩項《條例》於1990年經國務院批准頒發，是新中國成立以來，國家制定的關於學校體育衛生工作的最高行政法規，使學校體育衛生工作能有法可依、有章可循。1993年中共中央、國務院頒佈的《中國教育改革和發展綱要》提出要求，20世紀90年代的學校體育衛生工作要以貫徹落實《學校體育工作條例》和《學校衛生工作條例》為核心(張文鵬，2015; 馬軍，2015b; 高曉峰，2017)。



學校體育工作法制化的另一大進展是1995年《中華人民共和國體育法》的頒佈。這是新中國成立以來第一部體育法律，填補了體育領域的立法空白。在第三章的十七至二十三條中，明確了學校體育工作的職責，使得學生體質與健康逐步形成了法律、行政法規和規範性檔互相銜接的政策體系，為學生體質與健康的發展提供了法律保障(鄒昌店 & 楊濤，2023)。

在完善法制的基礎上，國家政策強調“健康第一”的指導思想。1999年6月，《中共中央國務院關於深化教育改革全面推進素質教育的決定》首次從行政法規的角度明確提出“健康第一”的指導思想，肯定了學校體育衛生工作在全面推進素質教育中的地位和作用，也凸顯了體育承擔的學生體質與健康促進的重要職責(陳永利，2009)。

此時期內，學生體質與健康調研制度開始逐漸成型。1991年，國家教委、國家體育總局、衛生部、國家民委和科技部中央5部委共同組織、領導第二次全國學生體質與健康調研，也是1987年全國學生體質與健康調研制度化後進行的第一次調研。此次調研覆蓋30





個省（自治區、直轄市），包括漢族在內18個民族，增加了月經初潮（女）和首次遺精（男）兩個指標。從1991年起，歷次學生體質與健康調研的公告、資料以及部分研究報告都會彙編成集，並用統一的藍色封面進行出版，全國學生體質與調研“藍皮書”自此成為學生體質與健康研究領域的重要資料寶典。此後，在1995年、2000年和2005年，共進行了3次全國學生體質與健康調研，工作體系逐漸成型（教育部體育衛生與藝術教育司，2010；桂春燕 & 祁國鷹，2012）。

#### 4. 發展階段（2006—2015年）

2006年12月，在國務院領導下，教育部、國家體育總局、共青團中央聯合召開了新中國成立以來第一次全國學校體育工作會議，會後教育部和國家體育總局下發了《關於進一步加強學校體育工作，切實提高學生健康素質的意見》，進一步強調學校體育工作在素質教育中的重要地位，凸出學生體質與健康的關鍵性。同月，教育部、國家體育總局和共青團中央共同發佈《關於開展全國億萬學生陽光體育運動的通知》，決定在全國各學校廣泛、深入地開展全國億萬學生陽光體育活動。該活動從2007年開始，在全國大中小學校掀起了陽光體育運動熱潮（教育部體育衛生與藝術教育司，2010）。

2007年1月，教育部派出調研組在8個省進行全面調查，瞭解學校體育衛生工作的基本情況以及相關資訊，收集改進體育衛生工作的意見和建議，實地考察學校體育衛生工作開展情況及基礎設施現狀，並總結影響學校體育衛生工作開展的主要問題及原因。在此基礎

上，教育部、國家體育總局及共青團中央起草了《加強學校體育工作增進學生體質健康的意見》，在充分聽取專家及領導意見後，形成上報國務院的《關於加強青少年體育增強青少年體質的意見（送審稿）》。最終，於2007年5月7日，《中共中央國務院關於加強青少年體育增強青少年體質的意見》（簡稱“中央7號檔”）正式印發（教育部體育衛生與藝術教育司，2010）。這是新中國成立以來針對青少年體育工作的最高規格的檔，是針對學生體質與健康影響最大、內容最全的政策，為學校體育衛生工作的改革和發展、為學生體質與健康創造了良好的社會環境，提供了有力的政策支援。

與此同時，多項重要文件的發佈助力促進學生體質與健康。2007年教育部和國家體育總局聯合發佈《國家學生體質健康標準》，並於2014年進行修訂。《國家學生體質健康標準》測試貫徹“健康第一”的指導思想，幫助學生發現自身不足，促進學生積極參加體育鍛煉，保障體質健康發展。2012年教育部等出臺《關於進一步加強學校體育工作若干意見的通知》，提出建立健全學校體育的監測評價機制，將學校體育工作納入地方政府工作報告，強化了政府的監督機制。為更好地服務國家五年規劃的制定，第七次全國學生體質與健康調研提前至2014年進行，歷時三十年的資料資料成為學生健康相關政策制定的重要依據（張一民，2014；甄志平 & 毛振明，2008；鄒昌店 & 楊濤，2023）。

#### 5. 新時代（2016年至今）

2016年中共中央、國務院印發了《“健康中國2030”規劃綱要》，把人民健康置於

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重視程度的增加。不同于《九十年代兒綱》主要注重嬰幼兒死亡率和受教育權益，《兒綱（2001—2010年）》主要注重兒童青少年營養水準，《兒綱（2021—2030）》在主要目標中強調：“中小學生國家學生體質健康標準達標優良率達到60%以上。”

2019年進行的第八次全國學生體質與健康

調研是最近一次調研，其調研指標經過多次發展與改良，目前仍然涵蓋形態、機能、素質和健康4個方面，考慮到學生體質與健康主要問題的發展變化，增加了6周歲學生作為調研物件，修訂了部分調研指標，取消皮褶厚度和串鏡檢查，增加了腰圍、臀圍、小學生1分鐘跳繩、屈光檢測和心理狀況量表(馬軍，2021)。

## 結語

全國學生體質與健康調研是目前唯一的、有全國代表性的、歷時時間最長、體質與健康資料最全的國家級調研，是1987年國務院批准的、堅持了35年之久的王牌調研。全國學生體質與健康調研是學校體育、衛生與健康教育的重要內容，能夠及時、動態、全面、科學地掌握學生體質與健康狀況，有針對性地提出干預和促進學生體質與健康的政策和措施，服務於國家和社會經濟發展的需要，為國家兒童青少年健康相關政策的制定提供科學依據。 RMA

“民族昌盛和國家富強的重要標誌”地位，凸顯人民健康在國家戰略中的重要地位。其中特別提到促進青少年等重點人群的體育活動，並提出了詳細目標：“實施青少年體育活動促進計畫，培育青少年體育愛好，基本實現青少年熟練掌握1項以上體育運動技能，確保學生校內每天體育活動時間不少於1小時。到2030年，學校體育場地設施與器材配置達成率達到100%，青少年學生每週參與體育活動達到中等強度3次以上，國家學生體質健康標準達標優秀率25%以上”，體現學生體質與健康的重要地位和核心作用。同年，國家體育總局發佈《青少年體育“十三五”規劃》，展示新時代高水準創新型青少年體育新格局。2020年，體育總局、教育部發佈《關於深化體教融合促進青少年健康發展的意見》，正式將青少年體質健康促進提升到國家發展層面(李增，2023)。

《中國兒童發展綱要》(簡稱《兒綱》)內容的變化也體現出新時代對學生體質與健康

## 附錄：改革開放以來學生體質健康相關重要政策文件

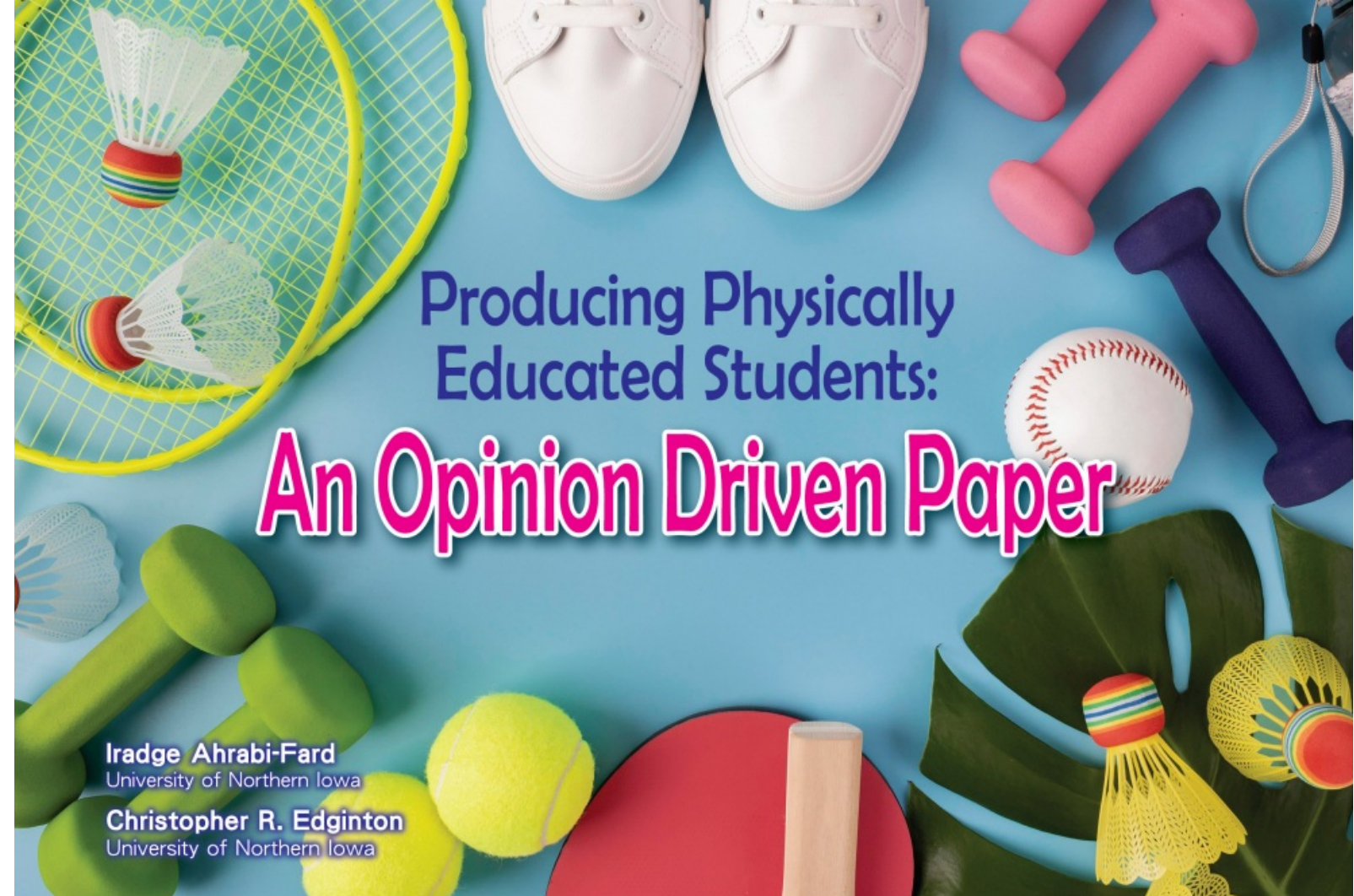
題名	發佈年份	發佈單位	學生體質健康意義
中、小學體育工作暫行規定(試行草案)	1979	教育部、國家體委	我國首次針對中小學校體育工作發佈的法規性質文件
高等學校體育工作暫行規定(試行草案)	1979	教育部、國家體委	我國首次針對高等學校體育工作發佈的法規性質檔
中、小學衛生工作暫行規定(草案)	1979	教育部、衛生部	我國首次針對中小學校衛生工作發佈的法規性質文件
高等學校衛生工作暫行規定(草案)	1980	教育部、衛生部	我國首次針對高等學校衛生工作發佈的法規性質檔
關於中國學生體質、健康狀況調查研究結果和加強學校體育衛生工作的意見	1987	國家教委、國家體委、衛生部、國家民委、國家科委、財政部	從政策上明確建立了定期開展學生體質健康調研制度
學校體育工作條例	1990	國務院批准，國家教委、國家體育運動委員會頒發	新中國成立以來，國家制定的關於學校體育工作的最高行政法規
學校衛生工作條例	1990	國務院批准，國家教委、衛生部頒發	新中國成立以來，國家制定的關於學校衛生工作的最高行政法規
中國教育改革和發展綱要	1993	中共中央、國務院	指明20世紀90年代我國教育改革的方向，推動學校體育衛生工作的基礎建設
中華人民共和國體育法	1995	全國人大	新中國成立以來第一部體育法律
中共中央國務院關於深化教育改革全面推進素質教育的決定	1999	中共中央、國務院	首次從行政法規的角度明確提出“健康第一”的指導思想
關於進一步加強學校體育工作，切實提高學生健康素質的意見	2006	教育部、國家體育總局	進一步明確學校體育工作在素質教育中的重要地位
關於開展全國億萬學生陽光體育運動的通知	2006	教育部、國家體育總局、共青團中央	掀起陽光體育運動熱潮
關於加強青少年體育增強青少年體質的意見	2007	中共中央、國務院	新中國成立以來針對青少年體育工最高規格的檔
國家學生體質健康標準	2007	教育部、國家體育總局	我國首次發佈的涉及到學生體質健康狀況評價的國家標準
中國兒童發展綱要(2011—2020年)	2011	國務院	提出要提高中小學生《國家學生體質健康標準》達成率
關於進一步加強學校體育工作若干意見的通知	2012	教育部、發展改革委、財政部、體育總局	將學校體育工作納入地方政府工作報告
國家學生體質健康標準(修訂)	2014	教育部、國家體育總局	現行的國家學生體質健康標準
“健康中國2030”規劃綱要	2016	中共中央、國務院	戰略層面提出促進青少年等重點人群的體育活動的具體目標
青少年體育“十三五”規劃	2016	國家體育總局	展示新時代高水準創新型青少年體育新格局
關於深化體教融合，促進青少年健康發展的意見	2020	國家體育總局、教育部	正式將青少年體質健康促進提升到國家發展層面
中國兒童發展綱要(2021—2030)	2022	國務院	提出中小學生國家學生體質健康標準達標優良率達到60%以上。





## 參考資料

- Juraschek, S. P., Blaha, M. J., Whelton, S. P., Blumenthal, R., Jones, S. R., Keteyian, S. J., Schairer, J., Brawner, C. A., & Al-Mallah, M. H. (2014). Physical fitness and hypertension in a population at risk for cardiovascular disease: the Henry Ford Exercise Testing (FIT) Project. *J Am Heart Assoc*, 3(6), e001268.
- Karstoft, K., Winding, K., Knudsen, S. H., Nielsen, J. S., Thomsen, C., Pedersen, B. K., & Solomon, T. P. (2013). The effects of free-living interval-walking training on glycemic control, body composition, and physical fitness in type 2 diabetic patients: a randomized, controlled trial. *Diabetes Care*, 36(2), 228-236.
- Kuruvilla, S., Bustreo, F., Kuo, T., Mishra, C. K., Taylor, K., Fogstad, H., Gupta, G. R., Gilmore, K., Temmerman, M., Thomas, J., Rasanathan, K., Chaiban, T., Mohan, A., Gruending, A., Schweitzer, J., Dini, H. S., Borrazzo, J., Fassil, H., Gronseth, L., . . . Costello, A. (2016). The Global strategy for women's, children's and adolescents' health (2016-2030): a roadmap based on evidence and country experience. *Bull World Health Organ*, 94(5), 398-400.
- Patton, G. C., Sawyer, S. M., Santelli, J. S., Ross, D. A., Afifi, R., Allen, N. B., Arora, M., Azzopardi, P., Baldwin, W., Bonell, C., Kakuma, R., Kennedy, E., Mahon, J., McGovern, T., Mokdad, A. H., Patel, V., Petroni, S., Reavley, N., Taiwo, K., . . . Viner, R. M. (2016). Our future: a Lancet commission on adolescent health and wellbeing. *Lancet*, 387(10036), 2423-2478.
- Sassen, B., Cornelissen, V. A., Kiers, H., Wittink, H., Kok, G., & Vanhees, L. (2009). Physical fitness matters more than physical activity in controlling cardiovascular disease risk factors. *Eur J Cardiovasc Prev Rehabil*, 16(6), 677-683.
- Sawyer, S. M., Afifi, R. A., Bearinger, L. H., Blakemore, S. J., Dick, B., Ezech, A. C., & Patton, G. C. (2012). Adolescence: a foundation for future health. *Lancet*, 379(9826), 1630-1640.
- 张一民. (2014). 切实提高学生体质健康水平——《国家学生体质健康标准(2014年修订)》解读. *体育教学*, 34(09), 5-10.
- 张文鹏. (2015). 中国学校体育政策的发展与改革研究. 教育部体育卫生与艺术教育司. (2010). 中国学校体育30年. 高等教育出版社.
- 李增. (2023). 我国青少年体质健康促进政策的演进脉络与优化策略.
- 桂春燕, & 祁国鹰. (2012). 我国学生体质健康调研测试指标体系演变的对比分析. *吉林体育学院学报*, 28(01), 91-94.
- 甄志平, & 毛振明. (2008). 《国家学生体质健康标准》指标体系结构与嬗变研究. *西安体育学院学报*(02), 1-9.
- 郇昌店, & 杨涛. (2023). 新中国青少年体质健康政策的演进历程、逻辑转变和优化方向. *成都体育学院学报*, 49(01), 104-110.
- 陈永利. (2009). 改革开放三十年中国学校体育的法规和制度建设回顾与思考. *中国学校体育*(04), 9-11.
- 马军. (2015a). 中国学校卫生/儿少卫生发展. *中国学校卫生*, 36(01), 6-9.
- 马军. (2015b). 中国学校卫生政策体系建设. *中国学校卫生*, 36(02), 161-164.
- 马军. (2015c). 中国学生健康状况监测及学校卫生监测体系建立. *中国学校卫生*, 36(07), 961-964.
- 马军. (2021). 第八次全国学生体质与健康调研精准科学实施及重要意义. *中国学校卫生*, 42(09), 1283-1284+1287.
- 高晓峰. (2017). 中国学校体育政策变迁研究(1904-2014).



## Introduction

There are a number of physical education curriculum designs implemented throughout the world. However, few differentiate the hereditary physical differences of students as the fundamental base of designing a physical education program. Such programs do not address every student's needs in order to develop them to be *the best of themselves*. Such programs tend to focus on aligning students' performance or outcomes on general standards.

The outcome of the physical education programs should be focused on the physically educated student to be able to enhance their physical health throughout their life. The modification of current physical education practice is the recognition of the physical structures and different growth stages of students as the foundation of designing a physical education program to suit variety of students' potential and assemble individual programs. The main difference between this student-centered approach and what is practiced at the present is that each child and youths' hereditary physique and environmentally developed practices are not the same.

Children and youths' height, weight, percentage of slow and fast twitch muscle fibers, bone thickness and structure, stages of growth and prior experiences flagrantly

are quite different. These differences create unequal physical potentials and capabilities. It is not fair to prudently introduce similar physical activities to all and evaluate them based on their performance and capabilities. This not education rather unfair comparison. Current standard method of teaching physical education with similar expectation for performance evaluation is an invalid approach.

A student-centered approach suggests the fostering of individuals who are well informed, capable of developing *personal physical activity culture* matching their own capabilities and interest. In short, students should become proficient and knowledgeable conducting an active healthy lifestyle while becoming and maintaining the best of themselves. Students' primary objective to become the best of themselves is unlike athletes that their effort is to become better than others.

Years of school physical education program should develop physically educated students who have developed a personal and individual physical activity culture. The physically educated student should be knowledgeable about conducting their own active program within their own framework and use such knowledge to promote their own health, leisure and happiness.





In general, contemporary schools are educating students to acquire contemporary information and prepare themselves for further education in route to select a profession and conduct a productive, healthy and happy life. Physical education programs should play an important role by students trying to develop and attain their own physical best plus acquisition of sufficient knowledge about physical health as the basis which contribute to one's productivity and enjoyment of a happy life. In fact, this type of education would result in producing a physically educated student enhanced for life.

The purpose of this opinion-driven paper is to introduce and discuss a conceptual framework which offers a rationale for providing a physical education curriculum that is tied to assisting individuals in developing a personal physical culture. Organized into several sections regarding:

1) factors which influence one's learning experience; 2) role of the home environment; 3) responsibility of schools; 4) school physical education programs; 5) developing a personal physical activity culture; 6) brief physical education guidelines; and 7) school physical education and the physical health of students.

## Factors Influencing One's Learning Experience

Before attending the specifics of the mission of physical education and its crucial educational contribution, there needs to be a clear understanding of several significant elements that are quite influential on quality of formal school education. Also, home education plays a crucial role of preparing students for formal education while supplementing the inadequacies of school programs.

There are four important learning facilitators in preparing ones' learning experience. These are as follows:

- Teacher responsibility (expert in the subject matter and adequacy in pedagogical approach;
- Students' responsibility of being a studious learner;
- Home education preparing the best and most cooperative student while provide leadership for homework and extra out of school required tasks; and
- Classroom learning environment, free from disciplinary disturbances

The crucial contribution of home education and its undeniable influence on the quality of school education is irrefutable. Home education must prepare disciplined learner who take optimal advantage of opportunities provided by the school programs, as an educational unit of society. If home education fails to properly prepare

students for the optimally reception of formal education, there may be adverse and undesirable consequences.

## Home Education

Habits learned and established in the home environment are usually exhibited at school. Poorly prepared individuals at home become less successful and occasionally hinderance to the educational process of others. Reliable home education is, at times, complimentary and supplementary to school education. For instance, when a child requires one to two hours of daily physically active experience for proper growth and development and when schools cannot provide this amount sufficiently, it will become the responsibility of parents to provide access to ample opportunities, in order to comply with school's inadequacy, under the notion of homework. The proper growth and health welfare of students are the responsibility of family and not the educational unit for mass education.

## Major Educational Responsibilities of School

Let us examine the fundamental of the most essential school educational responsibilities. There are four major areas that are pillars of all other educational experiences at school and beyond. These four pillars of educational emphasis should include:

- *Reading*, core ability to be exposed to the immense life enhancing contemporary and validated information;
- *Comprehension*, an in-depth understanding of all the readings and revealing materials;
- *Writing*, the ability to clearly, vibrantly and sufficiently express ideas and concepts; and
- *Physical and Emotional Wellbeing*, foundation of healthy behavior including active lifestyle in order to cope with the demands of life. Learning responsibilities are different than conducting healthy life. An unhealthy physique may adversely affect all other educational activities.



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These four pillars are the gateway to all other learning experiences. The rest of the topics, as important as they are, will offer knowledge and awareness of modern societal living, available professional opportunities, life enhancing information and career choices. School education should not compromise the importance of any of these four priorities. At the same time, these four pillars should not undermine the vital value of other subjects. The four pillars should actually be the facilitator of other subjects.

In this light, physical health portion of the four essential learnings provide an important mission responsibility of school education. Physical education programs for all is a part of these fundamentals and should have priority.

## School Physical Education Programs

As a part of the four pillars, the modern physical education program should endorse learners' maximum participation efforts toward self-enhancing outcomes. The major mission of physical education programs should be to recognize various capabilities and offer distinctively variations or alternative expectation for students to strive to become the best of themselves. Their skill learnings should be leaning toward developing personal physical activity culture to enhance one's quality of life. This type

of education should result in production of physically educated graduates.

Unhealthy physique adversely affects almost all aspects of life. In the meantime, physical health requires advance knowledge of variety of topics that enhance physical health as well as basic physical skills, keeping the individual experience success in participating activities of choice. This type of education requires classroom instruction of a variety of healthy living topics supplementing the development of personal physical activity culture. Therefore, classroom instruction should be a valuable part of becoming a physically educated individual. Developing a physically educated student is possible through both comprehensive and physically active education. In short, students should get involved in a designated curriculum that benefits both their physical and mental capabilities. Evaluation of active physical accomplishment should be based on one's participatory levels and effort, advancing their own progress toward personal goals.

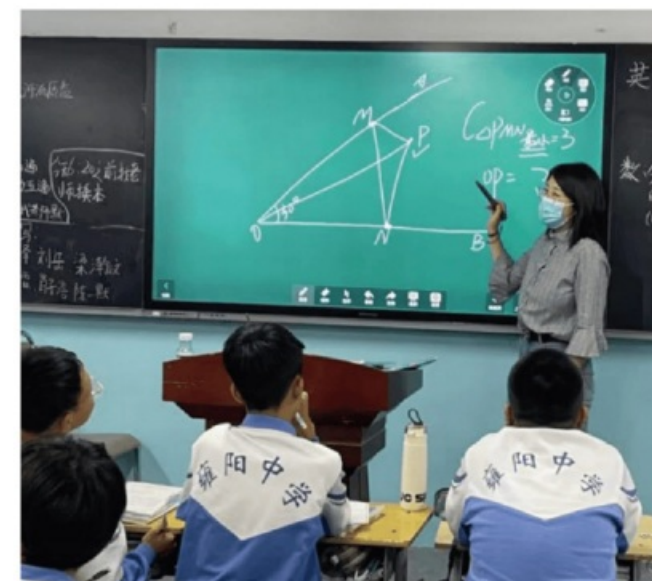
## Developing a Personal Physical Activity Culture

Developing one's self-physical activity culture should be the major objective of physical education programs.

Engaging in physical activity culture and experiencing some degree of success possesses motivational benefits beyond any other sentiment. The best motivation is a successful attempt. Regarding this notion, a variety of age-appropriate skills are introduced and practiced toward the level of competency. This process requires specific instructional approach, emphasis and feedback. Development of physical skills requires instruction of accurate technique plus adequate amount of repetition until desired skill become muscle memory and automatic with freedom of attentional demand to the skill performance. Selected skills should be learned technically correct through adequate amount of repetition. Skills have to become muscle memory (Automatic) with lasting effect. It is important that efforts be corrected with positive verbal persuasion for the tolerance of numerous repetitions.

Skill repetition should continue until it becomes muscle memory and performed adequately repeatedly. When a skill become muscle memory, attention to the skill performance is free and becomes attentive towards the goal of skill and the objectives of the game or activity. Before skill becomes muscle memory, engaging in game situation may produces attentional mistakes. Attentional demands are the key to successful efforts in the game-like activities. This concept is important while students are developing their own personal physical activity culture.

Skills that are muscle memory remain with the individual for a long time. This automatic performance has happened throughout life from infant era of learning to crawl, walk, run and other age-appropriate tasks. Through many repetitions skills have become muscle memory (automatic) resulting in freedom of attention to the goal of skill. Muscle memory skills remains with the individual for a lifetime, like learning to swim or ride a bike.



Successful experience is the best motivator for the desire to repeat the experience. This is the proper way of developing personal physical activity culture. It is the skill of the physical education teacher to provide some degree of successful experience for everyone in their active efforts. Many physical educators attempt to make the physical education class fun. Serious attention is weakened by introducing less strenuous leisure environments which promote fun rather than skill acquisition. As previously mentioned, the best motivation and enjoyable participation is when individuals experience some degree of success, especially in a demanding task. It is often though that fun is the steadfast goal, but it may not necessarily add to one's personal activity culture.

During physical education classes, three types of warm-ups and their proper application should be taught. Warm-up activities which prepare student bodies for activity or games should only use dynamic warm-ups. After exercises, muscles have contracted so many times that static warm-ups are necessary to get them back to a normal state. For improving the ability of muscle groups to be stretched around joints, A PNF type of stretching is the best approach. A physically educated student should know the difference and proper way of stretching for warming up, cooling down and conditioning.

Fitness activities have a temporary effect. There are two types of fitnesses - namely muscular fitness and cardiorespiratory fitness. Muscular fitness is for activities requiring strong or lasting demand on muscle group. Cardiorespiratory fitness is to supply blood with the rate of demand to the entire muscle systems and are at work for the duration of activity. Cardiorespiratory fitness proceeds at a specific pace.

General fitness activities have a temporary affect and, unless they are repeated often, they will be weakened and finally lost within a short period of time. Developing general fitness is not a proper physical education activity. General fitness activities for individuals may not be useful unless they are continually practiced in order to maintain the quality of designated fitness level.

Physical education classes do not have an adequate time allotment to maintain one's fitness level. General fitness is a wasteful activity as it is very difficult to keep students fit at school. However, teaching fitness is a valid teaching effort. As it is difficult to engage students in general fitness activities, it becomes more and more the responsibility of the family to make sure students are active enough to remain physically fit.





## Brief Physical Education Curricular Guidelines

This physical education curricular concept requires an effort at designing a student-centered physical activity culture. Guidelines offered below provide an attempt to reveal the important elements in different levels of schooling. Curriculum design is a specialization that requires more in-depth planning and design. This is especially wherein curriculum design must be personalized as contrasted with a program which ties its outcomes to its standards.

At the lower elementary level, all students need to learn fundamental movements culminate to simple games processing the fundamental skill mobility. From these experiences, the difference between students' physical land skill performance become obvious. This is the time that an expert educator observes the differences and deviate from expecting similar result. This is the time that proper adjustments should be introduced in order to prevent [psychological disappointment and activity resentment. Upper elementary require the use of more complicated fundamental skills with a simple game-like activities.

The middle school is a crucial period to develop personal physical activity culture. The emphasis of providing ample opportunities to develop skill-appropriate personal physical activity culture is an important involvement of middle schoolers. Developed physical activity culture of each individual serve them for the rest of their lives.

During the high school years, students are persuaded to engage in physical activity of their choice with some emphasis on skill conditioning. At this level, classroom instruction regarding healthy habits in physical fitness for health, healthy nutrition, proper rest and recovery and healthy behavior regarding maturity and social life are some of the important topics of senior education.

This approach – a student-centered one aimed at individuals developing a physical activity culture – is one which is supported by both the school and home environments. Each of these environments must provide an appropriate amount of educational experiences and opportunities. If this occurs, the student will be able to develop highly personalized skills and habits which result in a lifelong healthy and happy lifestyle. Schools should introduce a curriculum to develop physical educated students with the crucial use of outside homework. The home environment should ensure that there are opportunities for participation in physical activities beyond the school.

## School Physical Education and the Physical Health of Students

The same as reading, writing and mathematics comprehension which schools are responsible for assisting students gaining skills, knowledge and a level proficiency, physical education programs should be tied to producing physically educated individuals which assist them in leading a healthy, happy life culture. Such skills, knowledge and personal levels of attainment should be the basis of a personal physical activity culture. It is the responsibility of home education to provide ample opportunities to enable student to gain adequate participation to influence their wellbeing and develop their habits for healthy living and active leisure.

One's lifestyle practice is the responsibility of home education to ensure the health and welfare of children and youth. The school, as an educational entity, cannot guarantee the practices which occur outside of its environment. Enjoyable physical activity can be supported within a culture that is supported by positive leisure involvement. Conducting a pleasurable active lifestyle can support one's health, especially activities that require a lifelong commitment. Physically educated students must be enabled and commit to the creation of opportunities that lead to active lifestyles which promote their long term wellbeing. Schools are a source of learning and improving one's capabilities. Parents and individuals are responsible for the application of what individuals learn and apply and with which they engage throughout their lives.

## Concluding Comments

This opinion-driven paper calls for the rethinking of physical education programs to be more individually focused on differences rather than standards. It calls for the development of physically educated students who gain knowledge of how to educate themselves based on their own needs, habits and desires. This educational reform calls for a blending of both the home environment and the school environment in order to be successful in crafting a holistic environment in support of a physical activity culture.



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