A Psychological Probe into the Willingness of Physical Fitness Training for Middle School Students in Intensive Physical Training

Wenpu Sun[1], Yusong Teng[2], Yichen Bao[2]*

Abstract

To investigate the impact of psychological treatment on the level of mental and physical exhaustion experienced during intense physical training. This study examined the psychological analysis of physical training in high-intensity physical activity, dividing the two groups into the experimental and control groups using the SAS and SDS self-assessment scales. Randomly chosen 40 healthy male subjects, aged 20±5 years, 175(5±.0) cm in height, and 70±(10) kg in weight, were used in the study. Data processing was carried out using the statistical program SPSS16.0, and measurement data were reported by the mean and standard deviation (x ± S). Following the test, the experimental group's FAI factor score was much lower than that of the control group, and the number of tiredness complaints was also dramatically decreased; The total SAS and SDS scores were lower after the intervention than they were before; following the experiment, FAI factor 1 was associated with the full SAS and SDS scores before the intervention. Three areas of high-intensity physical training show the significance of sports psychology: psychological pre-training, psychological adjustment during high-intensity physical training, and psychological bearing training during high-intensity physical training. The degree and duration of nervous system stimulation during high-intensity physical activity determine how the athlete's psychological endurance under intense load adapts to the burden.

Keywords: High-intensity physical training; Physical training will; Psychological intervention

Introduction

For intense physical exercise, mental preparation is crucial, as it can increase emotions and strengthen the relationship between the state of awareness and biological reaction. General Secretary Xi emphasized at the national health and wellness conference in August 2016 that "Sports are an integral aspect of establishing a healthy China and play a significant role in enhancing the physical quality and health of the population. Physical activity is not simply a means of exercise, but also of instruction." To improve the physical quality of the entire population, the 2016 outline of the "healthy China 2030" plan indicated that school health education should be increased, classroom education should be combined with extracurricular practice, and scientific fitness knowledge and fitness methods should be popularized. It is essential to support the improvement of the entire population's physical quality, strengthen physical education in the classroom, and investigate and implement scientific fitness training methods (Depiazzi et al., 2019). When an athlete arrives at the training site, it is imperative that all of his actions serve the training and that any internal and external interruptions that could compromise the training effect are eliminated. Training courses are of the highest quality to maximize the development of potential. Athletes must be intellectually and emotionally prepared, and there is a significant difference between set and unprepared athletes' training outcomes. Unprepared time investment is a waste of time; planned time investment can improve the effectiveness of an athlete's training. Therefore, preparation activities will contribute positively to athletes' high-intensity physical training.

The literal meaning of "mental weariness" is "mental exhaustion." It refers to the mental exhaustion brought on by arduous mental labor, severe nervous system strain, or long-term monotonous and tedious employment. It manifests as agitation, loss of desire, difficulty concentrating, sluggish thought, depression, lower work efficiency, longer reaction time, and poor work accuracy. Its progression will result in headaches, vertigo, sleeplessness, and dysfunction of the cardiovascular, respiratory, and digestive systems. Its output is intimately tied to job features and individual emotional elements, as well as its employees' attitudes, expectations, and motivations. In sports training, the psychological load is frequently inconsistent with the activity and physiological load, contributing to its uniqueness. When the training load and physiological burden are incredibly light, the psychological load may be quite heavy, and when they are

[1] Zhejiang Yuexiu Foreign Languages University, Shaoxing, China
[2] Liaoning Normal University School of Physical Education, Dalian, China
Corresponding Author's Email: byc9163@163.com

cumbersome, the psychological load may be very light. This discrepancy results in a distinction between mental and physical tiredness. In competitive sports, psychological exhaustion is the inability to maintain the initial level of psychological activity when psychological and physiological resources are repeatedly depleted and not replenished promptly while coping with endogenous and exogenous stressors. That is, the phenomena of declining psychological function, expressed mainly in the changes in emotional, cognitive, behavioural, and physiological dimensions. The content of high-intensity physical training is depicted in Figure 1. (Giri, Saalmann, & Rost, 2020). Regarding the psychology of high-intensity physical training, scholars have had few in-depth discussions. This paper explores the critical role of sports psychology in high-intensity physical training from three perspectives: psychological preparation before high-intensity physical training, psychological adjustment during high-intensity physical training, and psychological endurance training in an extreme state during high-intensity physical training to provide psychological support for high-intensity physical training. A retrospective examination of physical fitness training among 40 men was randomly selected.

Figure. 1 High-intensity physical training content

Changes in cognitive beliefs about fatigue and altered conscious effort through mental skill training may be possible "fatigue management strategies" that affect the central nervous system and positively affect athletic performance. The early application objects of high-intensity interval training in competitive sports, mainly track and field athletes. High-intensity interval training is currently utilized extensively in a variety of competitive sports. This study revealed that previous research on high-intensity interval training in competitive sports has primarily concentrated on track and field, rowing, and cycling, with only a few researchers examining its effect on the unique physical fitness of basketball and football players. The top results and accomplishments are as follows: High-intensity interval training is a training method in which the load intensity is greater than the anaerobic threshold (ANT) or the maximum lactate steady-state (MLSS) load intensity for a short time (15s-5min), repeated many times, and the interval time is between a few seconds and a few minutes (Su et al., 2020). It consists mainly of the workout method, load quantity, load intensity, load times, intermittent intensity, duration, intermittent duration, group number, intergroup intensity, intergroup duration, and multigroup duration. Zwingmann et al. (2021) defines intermittent training in the following manner: The intermittent training approach necessitates a specific training load and interval duration so that the body can exercise intensely in a short period and continue the next activity without adequate recovery. High-strength intermittent training method, intensive intermittent training method, and developmental intermittent training method are recurrent training approaches (Zwingmann et al., 2021). The duration of each interval in high-intensity interval training is typically less than 40 seconds. The heart rate load index can exceed 85 percent of the maximum heart rate. Generally, the interval

period is determined by a lowered heart rate of no more than 120 beats per minute. Foreign scholars High-intensity interval training is defined by Zhao (2021) as intervals of short duration (10 seconds) or medium duration (5 minutes) in which the load intensity exceeds the anaerobic threshold and rest, or low-intensity exercise is performed between intervals (Wirth, 2019). " Yan, Z. Z., defined high-intensity interval training as rest or low-intensity exercise between 95%-100% of the maximal oxygen uptake intensity and 30 seconds to 5 minutes of exercise time (Zhang & Mao, 2021). Scholars R. Chu described HIIT as the following: exercise intensity, maximal lactate homeostasis, limitless load time, complete rest or low-intensity activity in the interval, and the interval can be short or long (Gade et al., 2019). When examining high-intensity interval training, ege, D. n. defined it as a short-term, high-intensity exercise for the body between two exercises with insufficient recovery, with the intensity exceeding the anaerobic threshold intensity or reaching the maximum oxygen uptake intensity (Ege et al., 2020). According to Shields and others, high-intensity interval training demands repeated high-intensity exercises in a short period, and the interval between exercises is insufficient. Typically, low-intensity exercises or no exercise rest are performed during the interval, and the training intensity is near the maximum oxygen uptake intensity. In the case of the short interval, high-intensity training is repeated for a brief period, ranging from 10s to 15s (Mohammadkhani et al., 2020). According to Bertollo M., high-intensity intermittent training refers to a training approach in which the practitioner exercises for tens of seconds at maximum intensity, rests briefly, and then repeats the short-term full-force activity (Wang et al., 2020). Under the condition of achieving the same training effect, repeated high-intensity training and interspersed recovery interval training can significantly reduce the total duration of training by increasing the training intensity, thereby considerably reducing the total energy consumption of training and the amount of exercise in comparison to continuous training. In the study by Yu, J. on the effect of high-intensity intermittent training on the exercise tolerance of amateur track and field athletes, the subjects were stratified into three groups: high-intensity periodic treadmill training, medium-intensity continuous treadmill training, and a control group without any exercise training (Yu & Liu, 2021). The results demonstrated that the high-intensity intermittent training group's total exercise time and exercise tolerance increased significantly before and after the training, making it the most effective strategy. J. Wang conducted a four-week study on high-intensity intermittent training with speed skaters. The high-intensity systematic training method can improve the aerobic endurance ability of speed skaters in a relatively short amount of time, has a positive effect on the improvement of aerobic endurance quality, and is a more effective training method for developing the glycolysis and energy supply metabolic system of the experimenters (Wu et al., 2020). In addition, Tang X. stated that short-term high-intensity and medium-intensity intermittent mixed oxygen and anaerobic training should be gradually increased in China's short-distance speed skating training (Tang et al., 2021). A short-term high-intensity discontinuous training mode was implemented for swimming to investigate the dynamic change characteristics and laws of muscle oxygen parameters during short-term high-intensity periodic training, as well as the changes and correlation of heart rate and subjective fatigue, feeling before and after training (Perricone et al., 2021).

This paper examines sports psychology in high-intensity physical training from three perspectives: psychological preparation before high-intensity physical training, psychological adjustment during high-intensity physical training, and psychological endurance training in an extreme state during high-intensity physical training. It seeks to give psychological support for vigorous physical exercise. Based on the literature and sports training expertise on high-intensity interval training, this study concludes that high-intensity interval training is a type of interval training approach. The fundamental needs of high-intensity interval training emphasize training load intensity and duration. The power of the exercise exceeds 85 percent of the maximal heart rate and is separated by two training sessions of lower intensity or rest. On average, the interval heart rate is 120 beats per minute.

Methodology

Data and methods

Forty male health subjects, aged 20 ±5 years, with a height of 175 (±5.0) cm and a body mass of 70 ± (10) kg, were randomly selected.

Research methods

In the single-blind, randomized experiment, 40 individuals were randomly assigned to the experimental or control group. From the first to the seventh day of the investigation, the other meals consumed by the two groups were identical. Throughout the trial, the two groups of experimenters maintained the original training intensity and did not provide any psychological cues. The test was administered on day eight of the experiment. After the 5000m unarmed barrier-free running test, the experimenter asked the participant if he was weary, conversed with him, and

administered the SAS and SDS self-assessment measures. Before the inquiry, he instructed the experimenter step-by-step and requested him to complete the filling independently. If there was any ambiguity in the filling procedure, he instantly provided an explanation and administered psychological intervention to forty test subjects. Before and after the intervention, SAS and SDS tests were administered.

In light of the current state of physical education, the features of physical and mental growth and the requirements of the graduation physical examination are examined. Following sports training and physiology principles, four categories of high-intensity intermittent training were determined by consulting relevant literature, and 24 single training movements necessary for a high-intensity periodic training program were selected using the Delphi method. 16 types of high-intensity intermittent combined training methods mainly utilized to improve endurance and strength were assembled using heart rate monitoring, and the high-intensity periodic training program was optimized (Mundle, Afenya, & Agarwal, 2021). Any single action selected by any expert in the first round will advance to the second round of screening. After the initial inspection by professionals, eight single training acts are discarded. The 24 individual exercises required by the high-intensity intermittent training regimen (see Table 1).

Table 1

24 single movements of high-intensity intermittent training

Category	Category 2	Category 2	Category 3	Category 4
Quantity	8	8	4	4
	Two-handed touchdown jump	Standing long jump		
	Standing split jump	Knee lift jump		
	Switching jump	Upper knee lift jump	Supine support and abdominal retraction	100m
Training means	Cross jump	Left and right step jump	Prone support split leg	200m
	Zigzag jump	Step backwards	Prone support lunge exchange jump	400m
	Lunge	Back kick run	Prone and leg swing	800m
	Abdominal sprawl	High leg lift		
	Abdominal retraction jump	Left and right rags		
Remarks	Develop jumping ability	Develop leg explosiveness	Develop core strength	Develop endurance

Psychological intervention measures

Psychological preparation before the test

For high-intensity physical exercise, psychological preparation is essential. It can enhance emotion and strengthen the connection between consciousness and biological reaction during high-intensity physical activity. Two components comprise psychological preparation for high-intensity physical training: physical and mental preparation and behavioral practices before training. When the experimenter arrives at the training site, all of his activities must serve the training, and any internal or external interference that may harm the training effect must be eliminated to enhance the training course's quality (Qiu et al., 2021). The experimenter must be intellectually and emotionally ready to reach their full potential. Before training, there is a significant difference between being prepared and not being prepared. It is a waste of time to invest a great deal of time without preparation, and the experimenter will achieve twice the training effect with half the effort if they invest time beforehand.

Specific psychological intervention measures

To improve communication, we should introduce ourselves to the experimenter, explain the cause of this time, and have a favorable impression of the experimenter through their words, expressions, attitudes, and actions to raise the experimenter's sense of trust in us.

Plan publicity and education, patiently explain the production of slides and blackboard newspapers, intuitively introduce the content and function of physical fitness enhancers, explain that there will be no harm to the human body, inform the experimenters that they are required to participate voluntarily, and the items and questionnaire contents that the volunteers must cooperate with, and patiently listen to the experimenters' questions that need to be answered. Through methodical discourse, once or twice

every day for 15 minutes, minimize the pressure of the experimenters and eradicate psychological barriers.
Strengthen the role, respond at any time, integrate into the life of the experimenters throughout the implementation of the scheme, ensure the rigor and safety of the performance of the scheme, and timely respond to the questions raised by the experimenters when completing the SAS, SDS, and Fai questionnaires, so that the experimenters have no psychological concerns and cooperate with the completion of the scheme with confidence and zeal (Zhao, 2021).

Behavior procedure before high-intensity physical training

To guarantee that the experimenter is in a healthy mental and emotional condition, the behavior technique performed before training is used to evaluate several crucial variables that will impact the quality of training. (1) Establish an environment for training. The environment for training may be disruptive, neutral, or beneficial. To ignore or avoid interference, the experimenter may employ evasive coping mechanisms. (2) Examine training facilities and equipment. As with other types of training, equipment is crucial to successful physical exercise. If the equipment is not calibrated correctly and in good functioning condition, it is difficult for the experimenter to demonstrate their optimum performance during training. Therefore, inspecting the training equipment's condition thoroughly before use is vital. Similarly, the training ground should be checked to prevent such accidents whenever feasible. (3) Identify a training companion. In physical training, a relationship with a friend who can coordinate training needs will allow the experimenter to get superior results in his training. Good companions give the experimenter a competitive setting and a cooperative environment, both beneficial to enhancing the desire for training. (4) Specify training goals. The experimenter must be aware of the objective of each training session. To activate the connection between the state of consciousness and the biological response of the body and to devote yourself totally, which must be active, you must comprehensively comprehend the training objectives. The experimenter must understand the function of each training task and how it relates to the entire physical training regimen. (5) Complete enlightenment of the mind Before training, the researcher can adapt himself to the optimal degree of arousal by various means. Due to the unique characteristics of each experimenter, the procedures employed by each may change. Music, stretching, appearance, olfactory stimulation, etc., may assist the experimenter in achieving his optimal level of spirit and emotion stimulation.

Investigation tools

The Self-Rating Anxiety Scale (SAS) is comparable to the Self-Rating Depression Scale (SDS) in scale construction and assessment procedures. A four-point self-rating scale for assessing the subjective sensations of nervous patients comprises the remaining 20 items. SAS is for adults suffering from anxiety problems. In addition, it has more considerable applicability than SDS. Using SAS and SDS, the degree of anxiety and depression was measured. SAS and SDS each have 20 items assessed on a four-point scale: 1 represents no or very little time, 2 indicates a minor portion of the time, 3 suggests a substantial amount of time, and 4 shows the majority or all of the time. SAS and SDS scores are below 50. More than fifty points can be regarded as positive, suggesting that anxiety and despair are evident. The severity of anxiety and hopelessness increases as the score increases.
The Fatigue Assessment Scale (FAI) consists of 29 statements and answer choices. Each item is a fatigue-related description. Score according to level 1 7: 7 points for total agreement, 1 point for total disagreement, and 4 points for partial agreement. FAI primarily consists of four elements or subscales. Factor 1 is the fatigue severity scale, which is used to quantify the fatigue degree; Factor 2 is the environmental specificity scale of fatigue, which is used to measure the sensitivity of fatigue to a specific environment; Factor 3 is the fatigue outcome scale, which is used to measure the potential psychological consequences of fatigue; and Factor 4 is the fatigue response scale to rest and sleep, which is used to determine whether fatigue responds to rest or sleep. • Implementing a cognitive belief training program on fatigue and pain tolerance, according to Gao, X et al., promotes the trainer's conviction that "humans have the power to master the relationship between the mind and the body, and to transcend strength barriers and push present limitations." This strengthening of cognitive beliefs not only enables them to have a correct understanding and comprehension of the relationship between humans and minds but also improves their willpower efforts in the training process, giving them the confidence to remove obstacles, confront difficulties, and achieve breakthroughs. own constraints (Gao & Kim, 2019).

Statistical treatment

The measurement data were described by mean ± standard deviation ($x \pm s$). Paired t-test was used for intra-group comparison. ANOVA was used for inter-group comparison. $\chi 2$-test was used for comparison of fatigue complaints of soldiers. The difference was statistically significant ($P < 0.05$). Data processing was completed by statistical software SPSS16.0.

Results and Discussion

FAI test results

Table 2

Comparison of FAI factor scores of two groups of experimenters before and after the experiment

Group	Time	Factor 1	Factor 2	Factor 3	Factor 4
Experience group	Before experiment	5.8±0.6	4.7±0.6	5.1±0.8	6.0±0.7
	After experiment	5.6±0.51)2)	4.5±0.51)	5.2±0.4	6.0±0.6
Control group	Before experiment	5.9±0.6	4.6±0.7	5.2±0.6	6.1±0.7
	After experiment	6.0±0.5	4.6±0.7	5.3±0.6	6.1±0.5

Note: before the experiment, the factors of the two groups were compared, p>0.05. Compared with before the experiment in the group, 1) p<0.05. Compared with after the experiment in the battle group, 2) p<0.05

As can be seen from Table 2, after high-intensity physical training, 9 subjects complained of fatigue, and 4 subjects in the control group complained. Seven days after the experiment, three issues in the experimental group complained of fatigue after high-intensity physical training, and two in the control group complained. The number of subjects complaining of fatigue in the experimental group decreased significantly (P < 0.05), and there was no significant difference between the groups.

SAS and SDS scores before and after psychological intervention

Table 3

Comparison of SAS and SDS scores before and after psychological intervention

Time	SAS	SDS
Before intervention	49.5±4.8	46.1±5.0
After intervention	45.3±4.5	41.9±5.3
P	<0.01	<0.05

As can be seen from Table 3. Correlation between fatigue and SAS, SDS scores after the experiment, the correlation analysis between FAI factor 1 and SAS, SDS scores before the intervention found that factor 1 (5.79 ± 0.48) was correlated with SAS, SDS scores, R values were 0.787 and 0.842, respectively, P < 0.01.

Heart rate results of physical training intensity

Heart rate is an effective indication for monitoring physical training intensity. Quantitative analysis, i.e., heart rate monitoring, is used to determine the methods of high-intensity intermittent combination training to control training and interval time and ensure the scientificity and efficacy of physical exercise. The following is the procedure: (1) Use one-to-one wireless heart rate transmission to transmit the chest band and perform 120s heart rate measurements for the prepared Category 1 and 2 combined actions and 90s heart rate measurements for Category 3 combined actions to determine if the experimenter's heart rate reaches high intensity immediately following the combined training. In Category 4, the heart rate continuously increases to a high-intensity level during running training, with the measurement time serving as the standard. (2) The heart rate change after intermittent recovery is reflected on the heart rate monitoring chart (see Figure 2), and the time of heart rate recovery from high intensity to the basic exercise heart rate of 120bmp/min is calculated to determine the appropriate interval time so that the experimenter can intuitively understand the heart rate change when completing the combined action to regulate the training load effectively. The positive intermittent mode has been identified as the intermittent mode. During positive intermittent mode, the subject had a lower rate of phosphocreatine production and a higher rate of lactic acid clearance in muscle, which was more practical than intermittent negative mode. This is a heart rate monitoring chart for an individual who conducted three groups of "zigzag jump and abdominal stretch jump."

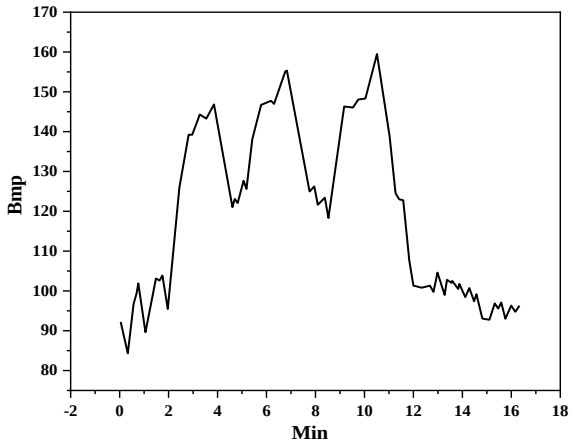

Figure. 2 Heart rate monitoring chart of an experimenter's "zigzag jump and abdominal stretch jump"

As illustrated in Figure 2, three groups of "zigzag jump and abdominal stretch jump" combined activities were done, beginning with a heart rate of 80bmp/min. The heart rate

of group 1 remained in the high-intensity heart rate range for 120 seconds, reaching 154bpm/min. When the combined activity finished, and the jogging rest was performed, the heart rate declined constantly. The interval time was regulated to around 60 seconds to recover to the basic exercise heart rate of 120bpm/min. When executing the second and third groups of activities, it can also be observed that each set of movements lasts 120 seconds, the heart rate reaches a high intensity, and the heart rate returns to its resting level after a 60-second pause. The monitoring chart for training load reveals that the heart rate is "saddle-shaped" with healthy peaks. It is believed that the combination of "zigzag jump and abdominal stretch jump" can excite the body with an adequate exercise load and that developing high-intensity intermittent combined training methods is feasible and effective.

Psychological adjustment in high-intensity physical training

The experimenter's pain and tiredness is the most challenging aspect of high-intensity physical training. Pain and fatigue tolerance is, to a significant degree, a form of mental capacity. For the effectiveness of high-intensity physical exercise, the capacity to withstand pain and exhaustion is one of the most crucial psychological traits. On the other hand, psychological adaptation to high-intensity physical exercise is also evident in goal clarification and achievement (Faccini et al., 2020).

Pain and weariness are adaptive protective responses of the body that prevent additional injury to the body but hinder the experimenter's ability to increase the body's potential further. If the sensation of pain or tiredness can come later, or if the experimenter can withstand more significant pain and fatigue, it will have a favorable effect on the training effect if he can recover fully after training. Numerous psychological abilities from sports psychology can aid in this endeavor. If the researcher attempts to apply the pain/fatigue control method to high-intensity physical training, the endurance of pain/fatigue will increase in training intensity. However, if you let pain and exhaustion go or feel out of control, the tolerance of pain/fatigue and the body's ability to bear training intensity fall naturally. Controlling pain and weariness can be broken down into the following two steps:

Determine your degree of tolerance first. Determine your tolerance for pain and tiredness, as well as how they affect your physical training, as the first step in managing pain and fatigue. The activities mentioned in Table 4 will aid in this endeavor.

Table 4

List of exercises to identify pain and fatigue tolerance

How does pain/fatigue feel?
1. describe the pain/fatigue you experienced during a physical training session
2. when does pain/fatigue occur? Is it intermittent or continuous during training sessions?
3. what exercises can you not do because you feel pain/fatigue?
4. if yes, what methods have you interviewed to reduce pain/fatigue? Are there behaviors, thoughts or feelings that exacerbate pain/fatigue?
5. does pain/fatigue interfere with your pleasure during physical training? What emotions do you experience when you feel pain/fatigue during training?
6. evaluate your ability to endure physical discomfort during physical training. Do you have confidence in your pain/fatigue tolerance?

Fan, X. et al. conducted studies to determine an individual's tolerance level. Identifying your tolerance for pain and tiredness and how they affect physical training is the first step in managing pain and fatigue. Utilize cognitive abilities to control pain and weariness. Breathing regulation, muscle relaxation, presentation, and autosuggestion skills are specific mental abilities that can treat pain and weariness (Fan et al., 2020).

Utilize psychological techniques to manage pain and weariness. Breathing regulation, muscle relaxation, presentation, and self-suggestion skills are common psychological skills that can control pain and exhaustion. Following is a summary of the application of various skills:

a. Breathing regulation skills: belly breathing can increase oxygen intake and soothe the body. This ability can be utilized in strength training, for instance, to alleviate muscle discomfort and exhaustion.

b. Improve muscular sensitivity to tension and relaxation through progressive muscle relaxation exercises. When necessary, relax muscles to alleviate discomfort and tiredness.

c. Presentation skills: use the association approach to concentrate on positive items or emotions, such as the imagining of heroic behavior, the presentation of past achievements, etc. The separation method can also shift attention away from pain and weariness through

arithmetic, sports, singing, reciting English, and vision and hearing.

d. Self-suggestion skills: promote happy feelings and increase state self-confidence via powerful language suggestions. For example, strongly imply that you are in good health and that everything is under control; or delay the onset or development of pain and weariness using solid systematic hints.

Conclusion

The most challenging aspect of high-intensity physical training is the athlete's soreness and exhaustion. Tolerance to pain and tiredness is primarily a mental ability. Before intense physical training, the experimenter's spirit and emotions should be encouraged to increase the link between consciousness and biological reaction. Adding psychological adaptation to high-intensity physical training can increase the experimenter's capacity to bear pain and fatigue; In high-intensity physical training, the adaptive modification of the experimenter's psychological endurance under the intense load state is contingent on the stimulation and duration of the neurological system throughout training. In sports practice, however, experienced coaches use various techniques (such as ideological education, psychological stimulation, passion orientation, humor and ridicule, varying training conditions, etc.) to maintain the excitement of the central nervous system during the experimenter's training to increase psychological endurance. In reality, this raises the bar not just for the scientific character of coach training, but also for the artistic aspect. Our idea is not supported by empirical research, but many practices and practical summaries lend support. This idea must be tested scientifically in the real world. A four-stage program is recommended to train psychological endurance under intense stress. It is considered that the adaptive change of psychological endurance under extreme load in high-intensity physical training is dependent on the intensity and length of the nervous system's excitation. Therefore, targeted psychological training can aid in enhancing the training impact.

References

Depiazzi, J. E., Forbes, R. A., Gibson, N., Smith, N. L., Wilson, A. C., Boyd, R. N., & Hill, K. (2019). The effect of aquatic high-intensity interval training on aerobic performance, strength and body composition in a non-athletic population: systematic review and meta-analysis. *Clinical Rehabilitation, 33*(2), 157-170. https://doi.org/10.1177/0269215518792039

Ege, D. N., Lilleløkken, O., Auflem, M., & Steinert, M. (2020). Dealing with Ecological Validity and User Needs when Developing Simulation Based Training Equipment–Case Study of a Medical Palpation Task Trainer. *Procedia Cirp, 91*, 722-727. https://doi.org/10.1016/j.procir.2020.03.116

Faccini, F., Gazzillo, F., Gorman, B. S., De Luca, E., & Dazzi, N. (2020). Guilt, shame, empathy, self-esteem, and traumas: New data for the validation of the Interpersonal Guilt Rating Scale–15 Self-Report (IGRS-15s). *Psychodynamic psychiatry, 48*(1), 79-100. https://doi.org/10.1521/pdps.2020.48.1.79

Fan, X., Xing, C., Yang, L., Wang, J., & Feng, L. (2020). Fatigue, self-efficacy and psychiatric symptoms influence the quality of life in patients with myasthenia gravis in Tianjin, China. *Journal of Clinical Neuroscience, 79*, 84-89. https://doi.org/10.1016/j.jocn.2020.06.023

Gade, J., Beck, A. M., Andersen, H. E., Christensen, B., Rønholt, F., Klausen, T. W., Vinther, A., & Astrup, A. (2019). Protein supplementation combined with low-intensity resistance training in geriatric medical patients during and after hospitalisation: a randomised, double-blind, multicentre trial. *British Journal of Nutrition, 122*(9), 1006-1020. https://doi.org/10.1017/S0007114519001831

Gao, X., & Kim, M. S. (2019). Influence of personal and psychological factors on fintech service usage intention. *Asia Life Sciences,* (1), 347-358. https://www.researchgate.net/publication/331940681

Giri, S. K., Saalmann, U., & Rost, J. M. (2020). Purifying electron spectra from noisy pulses with machine learning using synthetic Hamilton matrices. *Physical Review Letters, 124*(11), 113201. https://doi.org/10.1103/PhysRevLett.124.113201

Mohammadkhani, R., Khaledi, N., Rajabi, H., Salehi, I., & Komaki, A. (2020). Influence of the maternal high-intensity-interval-training on the cardiac Sirt6 and lipid profile of the adult male offspring in rats. *PloS one, 15*(8), e0237148. https://doi.org/10.1371/journal.pone.0237148

Mundle, R., Afenya, E., & Agarwal, N. (2021). HSR21-064: The Effectiveness of Psychological Intervention on Reducing Distress in Patients With Prostate Cancer: A Literature Meta-Analysis. *Journal of the National Comprehensive Cancer Network, 19*(3.5), HSR21-064. https://doi.org/10.6004/jnccn.2020.7705

Perricone, G., Rotolo, I., Beninati, V., Billeci, N., Ilarda, V., & Polizzi, C. (2021). The Lègami/Legàmi Service—An Experience of Psychological Intervention in Maternal and Child Care during COVID-19. *Pediatric Reports, 13*(1), 142-161. https://doi.org/10.3390/pediatric13010021

Qiu, X., Feng, Z., Xu, T., Yang, X., Hou, Y., & Zhang, X. (2021). Research on Intention Flexible Mapping Algorithm for Elderly Escort Robot. *Scientific Programming, 2021*, 5541269. https://doi.org/10.1155/2021/5541269

Su, X., Chu, Y., Yang, Z., Lei, B.-H., Cao, C., Wang, Y., Liu, Q., & Pan, S. (2020). Intense d-p Hybridization Induced a Vast SHG Response Disparity between Tetrahedral Vanadates and Arsenates. *The Journal of Physical Chemistry C, 124*(45), 24949-24956. https://doi.org/10.1021/acs.jpcc.0c06991

Tang, X., Sun, J., Xia, H., & Dong, M. (2021). Rehabilitation therapy outside of the hospital via the Internet combined with suggestive psychological intervention in patients with trigeminal neuralgia. *American Journal of Translational Research, 13*(6), 6837–6845. https://pubmed.ncbi.nlm.nih.gov/34306434

Wang, H., Pan, T., Si, H., Li, Y., & Jiang, N. (2020). Research on influencing factor selection of pilot's intention. *International Journal of Aerospace Engineering, 2020*, 4294538. https://doi.org/10.1155/2020/4294538

Wirth, A. (2019). Obesity and physical activity in adults. *Physikalische Medizin, Rehabilitationsmedizin, Kurortmedizin, 29*(04), 233-242. https://doi.org/10.1055/a-0896-6057

Wu, Y., Dang, M., Li, H., Jin, X., & Yang, W. (2020). Research on the abnormal psychological evaluation of college students in China based on the knowledge network. *Psychology, Health & Medicine, 25*(6), 767-773. https://doi.org/10.1080/13548506.2019.1653479

Yu, J., & Liu, X. (2021). Effect of psychological intervention care on the negative mood and hope level of elderly patients undergoing knee arthroplasty. *American Journal of Translational Research, 13*(6), 6584–6591. https://pubmed.ncbi.nlm.nih.gov/34306400

Zhang, S., & Mao, H. (2021). Optimization analysis of tennis players' physical fitness index based on data mining and mobile computing. *Wireless Communications and Mobile Computing, 2021*, 9838477. https://doi.org/10.1155/2021/9838477

Zhao, S. (2021). Research on scientific sports training of students majoring in physical education. *Revista Brasileira de Medicina do Esporte, 27*, 460-463. https://doi.org/10.1590/1517-8692202127042021_0163

Zwingmann, L., Hoppstock, M., Goldmann, J.-P., & Wahl, P. (2021). The effect of physical training modality on exercise performance with police-related personal protective equipment. *Applied Ergonomics, 93*, 103371. https://doi.org/10.1016/j.apergo.2021.103371