Turkish Journal of Sport and Exercise /
Türk Spor ve Egzersiz Dergisi
http://dergipark.gov.tr/tsed
Year: 2024 - Volume: 26 – Issue 1 - Pages: 49-61
10.15314/tsed.1445298

Turkish Journal of Sport and Exercise
Türk Spor ve Egzersiz Dergisi
ISSN: 2147-5652
https://dergipark.org.tr/tr/pub/tsed

Evaluating Physical Education Courses in Civil Defense and Firefighting Associate Degree Programs in Turkiye

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Conflicts of Interest: The author(s) has no conflict of interest to declare.

Ethical Statement: It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited.
This article was presented as a summary oral presentation at the 16th International Scientific Research Congress held between 11-12 March 2023.

(Date Of Received): 29.02.2024 (Date of Acceptance): 15.04.2024 (Date of Publication): 30.04.2024
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Abstract

This study aims to evaluate the physical education/sports education courses, content, and practices in the curricula of Civil Defense and Firefighting associate degree programs in Turkiye. Within the scope of the study, the Bologna course packages of 42 associate degree programs between 2022-2023 were examined in detail using document analysis method. According to the findings, it was determined that 14.3% (6 programs) did not include physical education courses, and 40.5% (17 programs) did not have course content for occupational physical fitness. In addition, 52.3% of the lecturers teaching the course did not have a degree in physical education and sports. The findings reveal important problems considering the requirement of high physical fitness in firefighting profession. The research emphasizes that the deficiencies in the physical education course content should be updated to meet the requirements of the firefighting profession and should be made compulsory. The results of the study clearly indicate that Civil Defense and Firefighting programs should focus on physical fitness-based education to train qualified personnel. In this context, it is recommended to adopt a special curriculum under the name of "Occupational Physical Fitness" course and it is emphasized that this course should include the objectives of achieving high physical capacity and fitness by focusing on the basic skills of the firefighting profession. Consideration of these recommendations may contribute to the creation of a strong and appropriate educational infrastructure in the firefighting profession.

Keywords: Firefighting training, Physical education curriculum, Occupational physical fitness, Civil defense and firefighting.

Özet

Türkiye'deki Sivil Savunma ve İtfaiye Önlisans Programlarında Beden Eğitimi Derslerinin Değerlendirilmesi

Bu araştırma, Türkiye'deki Sivil Savunma ve İtfaiyecilik önlisans programı müfredatlarında yer alan beden eğitimi/spor eğitimi derslerini, içeriğini ve uygulamalarını değerlendirmeyi amaçlamaktadır. Çalışma kapsamında 42 önlisans programının 2022-2023 yılları arasındaki Bologna ders paketleri doküman analizi yöntemi kullanılarak

detaylı bir şekilde incelenmiştir. Elde edilen bulgulara göre %14,3'ünde (6 program) beden eğitimi dersinin yer almadığı, %40,5'inde (17 program) ise mesleki fiziksel uygunluğa yönelik ders içeriği bulunmadığı belirlenmiştir. Ayrıca, dersi veren öğretim elemanlarının %52,3'ü beden eğitimi ve spor alanı mezuniyetine sahip değildir. Bulgular, itfaiyecilik mesleğinde yüksek fiziksel uygunluk gerekliliği göz önüne alındığında önemli sorunları ortaya koymaktadır. Araştırma, beden eğitimi dersi içeriğindeki eksikliklerin, itfaiyecilik mesleğinin gereksinimlerini karşılayacak şekilde güncellenerek zorunlu hale getirilmesi gerektiğini vurgulamaktadır. Araştırmanın sonuçları, sivil savunma ve itfaiyecilik programlarının, nitelikli personel yetiştirmek adına fiziksel uygunluk temelli bir eğitime odaklanması gerektiğini açıkça ortaya koymaktadır. Bu bağlamda, "Mesleki Fiziksel Uygunluk" dersi adı altında özel bir müfredatın benimsenmesi önerilmekte ve bu dersin, itfaiyecilik mesleğinin temel becerilerine odaklanarak yüksek fiziksel kapasite ve uygunluğa ulaşma hedeflerini içermesi gerektiği vurgulanmaktadır. Bu önerilerin dikkate alınması, itfaiyecilik mesleğinde güçlü ve uygun bir eğitim altyapısının oluşturulmasına katkı sağlayabilir.

Anahtar Kelimeler: Beden eğitimi müfredatı, İtfaiyecilik eğitimi, Mesleki fiziksel uygunluk, Sivil savunma ve itfaiyecilik

INTRODUCTION

Fires are unexpected events that can result in serious consequences, including damage to property, loss of life, and harm to the environment. To handle these situations effectively, it's important to have a trained firefighting team equipped with the necessary skills and gear. However, being prepared isn't just about having the right personnel—it's also about their ability to respond quickly and efficiently (65). Civil Defense and Firefighting programs are essential for training individuals in fire safety and emergency management, ensuring a coordinated and effective response to fire incidents.

These programs, which aim to enhance emergency management by providing training in fire prevention, response, and rescue, play a crucial role in preparing individuals for firefighting duties. However, physical fitness is an essential requirement for the success of firefighters, who must endure high temperatures, toxic gases, and various hazards (35, 54, 55, 65). Therefore, the physical education course within Civil Defense and Firefighting associate degree programs in Turkiye assumes significant importance, as it contributes to enhancing firefighters' physical abilities and readiness to tackle challenging situations effectively.

The aim of our research is to evaluate the physical education course in Civil Defense and Firefighting associate degree programs in Turkiye with regards to physical fitness. This evaluation will aid in comprehending the nature and requirements of the firefighting profession, enabling us to develop recommendations to enhance the effectiveness and applicability of these programs. The ability of firefighting teams to move rapidly and with resilience is crucial for successful emergency responses. Therefore, by focusing on the role, content, and effectiveness of the physical education course, we can gain a better understanding of the firefighting profession and improve education in this field.

Firefighting Profession and Physical Challenges

Firefighting is a highly challenging profession due to the significant danger and risks to life involved (56, 65, 68). The firefighting profession entails considerable peril, including exposure to extreme temperatures surpassing human endurance thresholds, inhalation of toxic gases posing respiratory hazards, and the constant risk of physical and chemical explosions during fire suppression efforts (22, 49). Firefighters must maintain exceptional physical fitness levels to effectively navigate the demanding tasks inherent in the profession, including maneuvering heavy protective gear, carrying air cylinders to safeguard against toxic inhalants, and managing bulky equipment such as hoses filled with pressurized water (16).

Tasks at the fire scene require intense physical exertion, imposing significant stress on the cardiovascular system and muscular endurance (24, 28). The weight of protective equipment and high temperatures exacerbate cardiovascular and thermoregulatory demands, further challenging professional firefighters. For instance, the 22 kg weight of individual protective equipment can induce thermal issues during firefighting, such as hyperthermia and dehydration, ultimately limiting firefighters' working time and

causing fatigue (65). Moreover, prolonged exposure to high heat can lead to fatal heat stroke, cognitive impairment, and an increased risk of injury (65).

Firefighting tasks may require high levels of aerobic fitness, anaerobic capacity, muscular strength, and endurance. The main activities that test the physical strength and endurance of firefighters include hose dragging, load carrying, and arm lifting. Studies have shown a high correlation between muscle strength, muscle endurance, and anaerobic performance in predicting performance time in simulated fire tasks (67). There was a strong correlation between the time taken to complete simulated fire courses and measures of muscle strength, endurance, and anaerobic performance.

Obesity rates among firefighters are high and may cause significant health problems (20). Research has shown that an increase in body mass index is directly linked to an increased risk of injury (66). Physical fitness may be a viable solution to combat the issues caused by obesity. To effectively tackle demanding fire tasks, firefighters require consistent levels of strength, aerobic fitness, and anaerobic capacity. Therefore, it is important to use training methods that target aerobic fitness, anaerobic capacity, and strength endurance (10, 13, 21).

Firefighting Training in Turkiye

In recent years, the diversity and number of institutions providing firefighting training has increased in Turkiye. The personnel need of fire brigade organizations are met by vocational high schools, two-year vocational colleges and universities providing four-year undergraduate education. "Firefighting and Fire Safety" departments in vocational high schools, "Civil Defense and Firefighting Programs" in two-year associate degree programs, and "Emergency Aid and Disaster Management" departments in four-year undergraduate programs train the personnel needed by the fire brigade (73).

In Turkiye, according to the Yükseköğretim Kurulu (YÖK) Atlas database (76), a total of 42 universities offering Civil Defense and Firefighting associate degree programs were identified (Table 1) All 42 universities offering these programs are state universities, and there are no such programs in foundation universities.

Table 1. Universities with civil defense and firefighting program in Turkiye

	University / Vocational School		University / Vocational School
1	Ağrı İ.Ç.Ü. (Patnos VS)(1)	23	Iğdır Ü. (Iğdır VS)(37)
2	Akdeniz Ü. (Elmalı VS)(2)	24	İstanbul. Ü.-C. Paşa (Tek. B. VS)(38)
3	Akdeniz Ü. (Teknik Bilimler VS)(2)	25	Kahramanmaraş İÜ (Türkoğlu VS)(39)
4	Alanya AKÜ (Akseki VS)(3)	26	Karabük Ü. (TOBB Tek. Bil. VS)(40)
5	Amasya Ü. (Suluova VS)(4)	27	Kastamonu Ü. (Bozkurt VS)(42)
6	Ankara Ü. (Beypazarı VS)(5)	28	Kayseri Ü. (Bünyan VS)(43)
7	Ankara. YBÜ (Sos. Bil VS)(6)	29	Kocaeli Ü. (İzmit VS)(45)
8	Ardahan. Ü. (Nihat D. Göle VS)(7)	30	Kütahya DÜ (Küt. Tek. B. VS)(46)
9	Artvin Çor. Ü. (Artvin VS)(8)	31	Malatya TÖÜ. (Doğanşehir VK VS)(48)
10	Atatürk Ü. (Horasan VS)(9)	32	Muğla SKÜ (Kavaklıdere Şma VS)(52)
11	Bingöl. Ü. (Genç VS)(11)	33	Necmettin EÜ (Meram VS)(53)
12	Bitlis E. Ü. (Tek. Bil. VS)(12)	34	Sakarya UBÜ (Denizcilik VS)(57)
13	Bolu A. İ. B. Ü. (Gerede VS)(14)	35	Selçuk Ü (Kadınhanı Faik İçil VS)(60)
14	Burdur MAE Ü. (A. M. T. VS)(17)	36	Sinop Ü (Boyabat VS)(63)
15	Çankırı K. Ü. (Yapraklı VS)(19)	37	Sivas C. Ü (İmranlı VS)(64)
16	Çukurova Ü. (Ceyhan VS)(23)	38	Tekirdağ NKÜ (Çerkezköy VS)(69)
17	Erzincan BYÜ. (Üzümlü VS)(29)	39	Tokat Gop Ü. (Niksar VS)(70)
18	Gaziantep Ü. (Oğuzeli VS)(30)	40	Trabzon Ü (Şalpazarı VS)(71)
19	Giresun Ü. (Espiye VS)(31)	41	Yalova Ü (Yalova VS)(72)
20	Gümüşhane Ü. (Kürtün VS)(32)	42	Yozgat BÜ. (Yozgat VS)(75)
21	Harran Ü. (Şanlıurfa T. Bil. VS)(33)		
22	Hitit Ü. (Alaca Avni Çelik VS)(34)		

Objective and Significance of the Research

In Turkiye, there is no research that analyses the purpose and content of the courses called Physical Education/Sports Education in "Civil Defense and Firefighting" associate degree programs with the dimension of physical fitness. Therefore, the main purpose of this study is to analyze and evaluate the Physical Education/Sports Education course given in Civil Defense and Firefighting associate degree programs in Turkiye by considering the physical fitness dimension of physical fitness and firefighting tasks.

This study investigates the status of physical education courses within Turkiye's Civil Defense and Firefighting programs, aiming to identify curriculum issues and advocate for its inclusion as a compulsory component with an academic and practical curriculum, ultimately enhancing physical fitness. Moreover, it calls for specialized instructors and proposes recommendations to standardize nomenclature and improve curriculum development, addressing key questions such as the course's presence, mandatory status, instructor qualifications, curriculum listing, and inclusion of fitness and firefighting objectives.

METHOD

Research Design

This study utilizes a descriptive qualitative research model to evaluate the curriculum and content of the "Physical Education" course in Turkiye's Civil Defense and Firefighting Associate Degree Programs, employing document analysis to examine existing materials from universities offering these programs (74). Document analysis is a systematic approach aimed at extracting information and data from written materials, entailing the thorough examination of documents relevant to the research topic (15).

Population-Sample

The population of this research comprises 42 universities offering civil defense and firefighting associate degree programs in Turkiye. These universities are exclusively state universities, and foundation universities are not encompassed within this population.

In this study, the entire population was considered, and no sampling was conducted. Full access to the population was ensured, aligning with the aim of conducting a comprehensive and universal evaluation of the "Physical Education" course within the Civil Defense and Firefighting Associate Degree Programs in Turkiye.

By including the entire population, this research aimed to obtain detailed and accurate information about program content, curricula, and practices from each university. This approach increases the possibility of capturing the full spectrum of variations and nuances across institutions, thereby enhancing the richness and depth of the study findings.

The advantage of not employing a sampling method lies in the fact that each unit in the population is included, with a probability of 100%. Consequently, the research results provide a reliable representation of the population as a whole, enhancing the credibility and generalizability of the study outcomes.

Data Collection Instruments

In this study, data pertaining to physical education curricula was gathered utilizing the document analysis method. Within the study, fundamental details such as the content, objectives, elective or compulsory nature of physical education courses, and the educational qualifications of the instructors responsible for teaching these courses were scrutinized utilizing Bologna course packages. This analysis furnishes a comprehensive insight into the structure and implementation of physical education programs.

The data collection process consisted of downloading the Bologna course packages from the websites of the relevant schools, and then analyzing and recording the information obtained using a specific data collection form. Through these sources, basic information such as the name, content, objectives, elective or compulsory status of the Physical Education courses and the educational status of the teachers teaching the course were collected. The data collection process took into account recurring themes and ensured that this information was recorded in an organized way.

Research and Publication Ethics

In this process of document analysis, we considered the principles of objectivity and reliability to ensure accurate and reliable interpretation of the data. We established an ethical framework for the research to guarantee impartial and objective analysis. During the analysis process, we carefully considered the conformity of the determined themes and findings with the principle of impartiality. We ensured that the inferences were in accordance with the principle of objectivity (50). The reliability of the data used in the document analysis process is based on the Bologna course packages obtained from official sources and the data obtained from the websites of the universities. These sources usually provide current and reliable information.

The analysis process was conducted with transparency and assessed for adherence to predetermined criteria. This transparency facilitates comprehension and evaluation of the research methodology by others. Nevertheless, it is essential to acknowledge the limitations of this analysis, which solely relies on the Bologna course packages accessible through official websites. The research plan did not incorporate direct feedback from participants, thereby potentially omitting the perspectives of lecturers or students. It is crucial to recognize these limitations and interpret the findings accordingly.

Data Analysis

Throughout the document analysis process, the gathered data underwent detailed examination employing the content analysis methodology. This approach was employed to elucidate the contents of the Bologna course packages. Content analysis constitutes a research methodology geared towards identifying distinct words, concepts, or themes within textual or verbal discourse, followed by their systematic categorization (74).

This study employed content analysis to examine the course contents within Bologna course packages, with a specific focus on fundamental information including course names, objectives, and content.

The stages of content analysis are outlined as follows:

Data collection: Data were collected from university websites and Bologna course information packs.

Data Classification: The data were categorized into course name, course objective, course content, educational status of the lecturer, elective or compulsory status of the course.

Data coding: Data were coded according to the identified categories.

Analysis of data: The coded data were analyzed to identify themes and findings.

In the process of evaluating the physical education course content of 42 universities in civil defense and firefighting programs, the content was divided into two main categories to better understand the content. This categorization was used to better understand the focus and general structure of the physical education course. This approach makes comparisons clearer and more understandable.

Categorization Criteria:

If the course content prioritizes physical fitness, skills, and knowledge relevant to firefighting, it falls under the 'firefighting-oriented' classification. Conversely, if the course incorporates physical education-based activities such as games, it is categorized as 'physical education-oriented'. This categorization aids in the interpretation of study outcomes. The classification of courses into 'physical education-oriented' and 'firefighting-oriented' categories is based on whether the curriculum primarily focuses on physical education-based activities or includes content relevant to fitness for firefighting tasks, as outlined in the curricula.

To classify instructors teaching physical education courses, two primary categories were established: 'in-field' and 'out-of-field', determined by their educational backgrounds. This categorization aims to address the issue of delineating the expertise areas of instructors and understanding how physical education course contents are influenced by instructors from various disciplines. The analysis process entailed a thorough examination of instructors' educational histories and fields of study. Information regarding instructors' alma maters and graduation details was sourced from the YÖK Academic portal and incorporated into the analysis. Data analysis was conducted using MS Excel and SPSS 23 for percentage and frequency analyses.

FINDINGS

The YÖK Atlas database indicates that 42 state universities in Turkiye provide associate degree programs in Civil Defense and Firefighting (76). Table 2 illustrates the course title, mandatory/elective statuses, course contents, and details regarding the academic disciplines of instructors teaching the courses, sourced from data retrieved from university websites and course content packages.

Table 2. Physical education course title, course content, mandatory/elective status, and field of lecturer in civil defense and firefighting programs

	University / Vocational School	Course Title	M/E	Course Content	Lecturer
1	Ağrı İ.Ç.Ü. (Patnos VS)	Physical Education	M	PES Focused	out-of-field
2	Akdeniz Ü. (Elmalı VS)	Rescue Techniques and Sports Training	M	FF Focused	out-of-field
3	Akdeniz Ü. (Tek. Bil. VS)	Rescue Techniques and Sports Training	M	FF Focused	out-of-field
		FF Sports Training	E	FF Focused	out-of-field
4	Alanya AKÜ (Akseki VS)	FF Sports Training	M	PES Focused	in-field
5	Amasya Ü. (Suluova VS)	Occupational Physical Fitness	M	FF Focused	in-field
6	Ankara Ü. (Beypazarı VS)	Physical Education FF Sports Training	E	FF Focused	out-of-field
7	Ankara YBÜ (Sosyal Bilimler VS)	Physical Health and Sports Education	M	FF Focused	in-field
8	Ardahan Ü. (N. Delibalta Göle VS)	Sport Education Information FF Sports Training	M	FF Focused	in-field
9	Artvin Çor. Ü. (Artvin VS)	FF Sports Training	M	FF Focused	out-of-field
10	Atatürk Ü. (Horasan VS)	Sport Education Information	M	PES Focused	in-field
11	Bingöl Ü. (Genç VS)	FF Sports Training	M	FF Focused	out-of-field
12	Bit. E. Ü. (Tek. Bilimler VS)	No Class	-	-	-
13	Bolu AİBÜ. (Gerede VS)	Physical Education	M	PES Focused	in-field
14	Burdur. MAEÜ (Altınyayla M.T. VS)	Physical Education Physical Education and Physical Development	M	PES Focused	out-of-field
15	Çankırı KT. Ü. (Yapraklı VS)	Leadership and Group Dynamics in Sports Physical Education and General Gymnastics FF Sports Training	M E M	PES Focused	in-field
16	Çukurova Ü. (Ceyhan VS)	Physical Education	E	PES Focused	out-of-field
17	Erzincan BYÜ (Üzümlü VS)	FF Sports Training	M	PES Focused	in-field
18	Gaziantep Ü. (Oğuzeli VS)	Sport Education	M	PES Focused	in-field
19	Giresun Ü. (Espiye VS)	Physical Education	E	PES Focused	in-field
20	Gümüşhane Ü. (Kürtün VS)	FF Sports Training	M	FF Focused	out-of-field
21	Harran Ü. (Şanlıurfa Tek. Bil. VS)	FF Sports Training	M	FF Focused	out-of-field
22	Hitit Ü. (Alaca Avni Çelik VS)	FF Sports Training	M	PES Focused	out-of-field
23	Iğdır Ü. (Iğdır VS)	Physical Health and Sports Education	M	PES Focused	in-field
24	İstanbul. Ü. C. Paşa (Tek. Bil. VS)	No Class	-	-	-
25	Kahramanmaraş İÜ. (Türkoğlu VS)	Physical education and physical development FF Sports Training	M	PES Focused	in-field
26	Karabük Ü. (TOBB Tek. Bil. VS)	FF Sports Training	M	FF Focused	out-of-field

27	Kastamonu Ü. (Bozkurt VS)	Physical Health and Sports Education	M	PES Focused	out-of-field
28	Kayseri Ü. (Bünyan VS)	FF Sports Training Physical Education and Physical Development	M E	FF Focused	in-field
29	Kocaeli Ü. (İzmit VS)	FF Sports	M	FF Focused	out-of-field
30	Kütahya DÜ. (Küt. Teknik Bilimler VS)	No Class	-	-	-
31	Malatya. TOÜ. (Doğanşehir Vk VS)	No Class	-	-	-
32	Muğla SKÜ. (Kavaklıdere ŞMA VS)	FF Sports	M	PES Focused	out-of-field
33	Necmettin EÜ. (Meram VS)	FF Sports Training	M	FF Focused	in-field
34	Sakarya UBÜ. (Denizcilik VS)	No Class	-	-	-
35	Selçuk Ü. (Kadınhanı Faik İçil VS)	FF Sports Training	M	FF Focused	out-of-field
36	Sinop Ü (Boyabat VS)	Physical Education	E	PES Focused	out-of-field
37	Sivas Cum. Ü. (İmranlı VS)	No Class	-	-	-
38	Tekirdağ NKÜ (Çerkezköy VS)	FF Sports Training	M	FF Focused	out-of-field
39	Tokat GOP Ü. (Niksar VS)	FF Sports Training	M	FF Focused	out-of-field
40	Trabzon Ü. (Şalpazarı VS)	FF Sports Training	M	FF Focused	out-of-field
41	Yalova Ü. (Yalova VS)	Physical Education	M	PES Focused	out-of-field
42	Yozgat BÜ. (Yozgat VS)	Firefighting Sports	M	FF Focused	out-of-field

M: Mandatory, E: Elective, PES: Physical Education and Sports FF: Fire Fighting VS: Vocational School

Table 3. Course status, mandatory/selective, content, frequencies of course lectures

n=42	**f**	**%**
Course Available	36	85.7%
No Class	6	14.3%
Mandatory	33	78.5%
Elective	3	7.2%
No Class	6	14.3%
Physical Education and Sports focused.	17	40.5%
Firefighting focused.	19	45.2%
No Class	6	14.3%
In-field Lecturer	14	33.4%
Out-of-field Lecturer	22	52.3%
No Class	6	14.3%

Tables 2 and 3 present the names of the physical education courses in the Civil Defense and Firefighting Programs in Turkiye, along with their mandatory or elective status, content, and details regarding the instructors' educational backgrounds. After analyzing the findings, it was determined that 36 out of 42 programs incorporate a physical education course. This suggests that 85.7% of the programs either require or provide physical education.

Physical education is a mandatory course in 33 programs, which accounts for 78.5% of the programs. Additionally, physical education is offered as an elective in 3 programs, making up 7.2% of the total programs.

Physical Education and Sports-Focused Education courses are offered in 17 out of 40.5% of the programs, while Firefighting-Focused Education courses are offered in 19 out of 45.2% of the programs.

Upon examination of the data, it was discovered that 14 programs (33.4%) employed lecturers who graduated in physical education and sports, while 22 programs (52.3%) employed lecturers who did not have

a degree in the field. In Turkiye's Civil Defense and Firefighting Programs, 33.4% of the lecturers teaching physical education courses have a degree in physical education and sports.

DISCUSSION AND CONCLUSION

The objective of this study was to conduct a thorough analysis of the physical education curriculum in associate degree programs for Civil Defense and Firefighting in Turkiye. The study aimed to evaluate the course's contribution to occupational physical fitness. The study findings indicate that there is a lack of standardization in course names across programs, with some universities even excluding certain courses. Additionally, the contribution of the course content to physical fitness appears to be limited, and there are optional practices available (refer to Tables 2 and 3).

Programs That Do Not Include Physical Education

The research findings reveal that 21% (6 programs) of the surveyed Civil Defense and Firefighting programs do not provide a physical education course or equivalent training. Considering the physical requirements of firefighting, it is essential for firefighting personnel to maintain optimal physical fitness. This entails the capacity to carry heavy equipment, air cylinders, and protective gear during firefighting missions. Proficient firefighters with a high degree of physical fitness can effectively engage and lift these loads to combat fires.

Incorporating and promoting physical fitness and physical activity into practical courses can be a cost-effective strategy to mitigate the adverse effects of physical unfitness (20). Research indicates that firefighters with low levels of physical fitness are more likely to underperform in firefighting tasks compared to those with high levels (18, 25, 44, 58, 59, 62).

Mandatory / Elective

In 7.2% of civil defense and firefighting associate degree programs in Turkiye, physical education is an optional course. However, in most programs, this course is mandatory. When examining similar examples from around the world, in Canada, pre-service training for firefighters is typically organized by universities in three or four semesters. The Seneca College Firefighter Pre-Service Education and Training program mandates the 'Physical fitness for firefighters' course in the first semester. Successful completion of the Physical and Endurance Test (61) is also required for all students taking this course.

The Humber College in Canada includes the “Health and Physical Fitness Management for Firefighters” course as a compulsory component of the pre-service training program for firefighters in two semesters (36). The course aims to provide training prescriptions for leading a healthy life and achieving physical fitness during duty. Similarly, Durham College in Canada offers a compulsory course called “Fire Physical Fitness Management” (27). The course 'Physical Fitness and Endurance for Firefighters' is mandatory for three semesters at Loyalist College (47).

Firefighting is a demanding task that necessitates prompt and efficient intervention. Physically fit firefighters are essential for successful operations. However, excessive physical exertion and strain are primary contributors to firefighter injuries (41). Consequently, response efficiency may diminish with physical exertion, leading to an increase in injuries. To mitigate this issue, it is crucial to integrate a mandatory physical fitness course into civil defense and firefighting programs, as observed in Canada. In programs that impart professional competencies, a compulsory physical fitness course could aid prospective firefighters in executing their duties more effectively.

Course Titles

When Table 2 is examined, it can be observed that the course names vary across different programs. The course names in civil defense and firefighting programs are provided below (Table 4).

Table 4. Course Titles Included in Programs

Course Titles	Course Titles
Physical education	Sports Training
Fire Fighting and Sports Training	Firefighter Sports
Physical Health and Sports Education	Firefighter Sports
Sports Education Information	Fire Department Sports Training
Rescue Techniques and Sports Training	Occupational Physical Fitness
Physical Education and Bodybuilding	Physical Education and General Gymnastics
Physical Education and Physical Development	

The primary objective of vocational education is to train skilled personnel for sectors where their expertise is required. Although most courses are named after specific professions, using the same name for physical education courses in primary and high schools, as well as in associate degree programs where vocational education is emphasized, may diminish motivation for education. Physical fitness is a fundamental requirement for firefighters, and it is attained through physical education. However, the course names may blur the distinction between sports and physical education. While sports entail physical and mental activities governed by specific rules, physical education encompasses all activities aimed at enhancing physical strength and preserving health (51). Based on these definitions, it is considered inappropriate to use the term 'sport' as a course title. In Canada, these courses are commonly referred to as 'Physical Fitness for Firefighters' or simply 'Physical Fitness' (61).

Course Contents

Upon examination of the course contents in civil defense and firefighting programs, it is evident that 19 programs include education content focused on firefighting, while 17 programs include education content focused on physical education and sports.

Physical Education and Sports-Focused

Burdur Mehmet Akif Ersoy University's Altınyayla M.T.G.H. (17) Vocational School has made the physical education course mandatory. However, it has been observed that the curriculum does not include any subjects that would enhance physical fitness for the firefighting profession (17). Upon examination of the course content, it is evident that the course aims to equip students with knowledge on the historical, philosophical, and scientific foundations of sports sciences. Additionally, it covers developments in sports sciences, factors influencing these developments, analysis, and interpretation of basic disciplines in sports sciences, professional preparation, career choices, and employment opportunities related to sports sciences. This course content evaluates that learning about the historical, philosophical, and scientific foundations of sports sciences may exceed the educational objectives of vocational schools that train firefighters.

Firefighting-Focused

The course content of Amasya University's Suluova Vocational School (4) has a focus on firefighting-oriented education. The course, named 'Occupational Physical Fitness', extensively examines the physical expectations, requirements, and standards of professions such as firefighting and civil defense. In this context, participants learn about the physical abilities and fitness that are crucial in these professions and how to enhance them. They also acquire knowledge about appropriate training and exercise methods to improve their physical performance in their respective occupations.

The course provides information on the administration, measurement, and evaluation of professional physical fitness tests. It imparts practical knowledge on the purpose of these tests and how to interpret their results. This enables participants to assess and improve their physical condition more effectively. Throughout the course, participants learn about nutrition and rest practices to maintain healthy physical performance. The course emphasizes the importance of a regular lifestyle and healthy habits in professional life. Lastly, it aims to equip participants with skills to cope with professional challenges, including stress management, injury prevention, and strategies for dealing with physical and psychological challenges. This description is part of the course information package. Similar content and objectives have been observed in other universities that contribute to vocational physical fitness.

Training and Issues of Academic Staff

Based on the data obtained regarding the educational backgrounds of faculty members instructing physical education courses in Civil Defense and Firefighting associate degree programs, it was discovered that only 33.4% of these courses are taught by graduates of the physical education and sports department. The remaining 52.3% of faculty members lack training in the field of physical education.

The low percentage of physical education courses being taught by qualified graduates from physical education and sports departments, standing at only 33.4%, represents a significant issue. This scenario could potentially have adverse effects on the quality of education and student outcomes. Moreover, there exists a shortage of faculty members in civil defense and fire department programs (26).

The discipline of physical education aims to impart fundamental principles of movement, physical fitness, and sports to individuals, fostering their physical, mental, and social development. In the context of firefighting training, where physical fitness holds paramount importance, this becomes an even more nuanced concern. Consequently, instructors tasked with teaching these courses must possess adequate knowledge and experience in the field. Faculty members lacking training in sports science may encounter challenges in comprehending the fundamental concepts and practical applications of the subject matter. We believe this situation arises from factors such as educational quality and outcomes.

For instance, an instructor without a background in physical education may struggle to delineate the precise scope, objectives, and instructional methods of the course, leading to a misalignment between the course content and its intended goals. Moreover, faculty members lacking expertise in physical education and sports may inadequately address the physical activity and sports-related needs of students, thereby potentially impeding their overall development.

SUGGESTIONS

This study analyzed the content of physical education courses in civil defense and firefighting associate degree programs in Turkiye, examining their contribution and current status in fostering professional physical fitness. Drawing from the research findings, the following suggestions are proposed:

Course Title: It is advisable to utilize the term "Occupational Physical Fitness" rather than generic terms like "physical education" or "sports." This title effectively emphasizes the course's relevance to the firefighter profession and aptly represents its content.

Course Content: Should prioritize physical fitness and address the specific duties inherent to the firefighter profession. This encompasses the physical skills essential for tasks like firefighting, search and rescue operations, and fire prevention measures.

Mandatory Course: Physical education should be a mandatory course in civil defense and firefighting associate degree programs. This will provide firefighter candidates with the foundation necessary to develop their physical fitness skills and enhance their professional performance.

Qualifications and Development of Lecturers in Vocational Schools: Lecturers tasked with teaching physical education courses should hold a bachelor's degree in physical education and possess familiarity with the firefighter profession. To guarantee this, faculty members ought to undergo supplementary in-service training focusing on physical fitness and firefighting.

Implementation of these recommendations can enhance civil defense and firefighting training, providing better preparation for qualified personnel in the sector. In the future, it will be important to conduct research examining the contribution of occupational physical fitness courses to physical fitness profiles for continuous program improvement.

REFERENCES

1. Ağrı İbrahim Çeçen Üniversitesi. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://obs.agri.edu.tr/oibs/bologna/index.aspx?lang=tr&curOp=showPac&curUnit=01&curSunit=6730#
2. Akdeniz Üniversitesi. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://obs.akdeniz.edu.tr/oibs/ogrsis/mufredat_dersleri.aspx
3. Alanya Alaaddin Keykubat Üniversitesi/Akseki MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://obs.alanya.edu.tr/oibs/ogrsis/mufredat_dersleri.aspx
4. Amasya Üniversitesi/Suluova MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://obs.amasya.edu.tr/oibs/bologna/index.aspx?lang=tr&curOp=showPac&curUnit=62&curSunit=728#
5. Ankara Üniversitesi/Beypazarı MYO. Bologna Bilgi Sistemi, Ders Listesi ve Kredilendirme [Internet]. 2023 [cited 2023 Jan 29]. Available from: http://bbs.ankara.edu.tr/Ders_Plani.aspx?bno=4413&bot=2050
6. Ankara Yıldırım Beyazıd Üniversitesi/Sosyal Bilimler MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://obs.aybu.edu.tr/oibs/bologna/index.aspx?lang=tr&curOp=showPac&curUnit=75&curSunit=7947#
7. Ardahan Üniversitesi/Nihat Delibalta Göle MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://ubys.ardahan.edu.tr/AIS/OutcomeBasedLearning/Home/Index?id=PPVHJEocN15pOKj4C2571g!xGGx!!xGGx!&culture=tr-TR
8. Artvin Çoruh Üniversitesi/Artvin MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://obs.artvin.edu.tr/oibs/bologna/index.aspx?lang=tr&curOp=showPac&curUnit=20&curSunit=5767#
9. Atatürk Üniversitesi/Horasan MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://obs.atauni.edu.tr/moduller/dbp/eobs/birimDetay/1515/Sivil%20Savunma%20ve%20%C4%B0tfaiyecilik%20Program%C4%B1%20(1515)
10. Baur DM, Leiba A, Christophi CA, Kales SN. Low fitness is associated with exercise abnormalities among asymptomatic firefighters. Occup Med (Chic Ill). 2012;62(7):566–9.
11. Bingöl Üniversitesi/Genç MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://obs.bingol.edu.tr/oibs/bologna/index.aspx?lang=tr&curOp=showPac&curUnit=06&curSunit=1362#
12. Bitlis Eren Üniversitesi. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://obs.beu.edu.tr/oibs/bologna/index.aspx?lang=tr&curOp=showPac&curUnit=9&curSunit=5656#
13. Blair S, Kampert J, Kohl W, Barlow C, Macera C, Paffenbarger R, et al. Influences of cardiorespiratory fitness and other precursors on cardiovascular disease and all-cause mortality in men and women. JAMA. 1996;276:205–210.
14. Bolu Abant İzzet Baysal Üniversitesi/Gerede MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://ubys.ibu.edu.tr/AIS/OutcomeBasedLearning/Home/Index?id=pQNsSwZNKMY8QM8UC2dkGA!xGGx!!xGGx!&culture=tr-TR#
15. Bowen GA. Document analysis as a qualitative research method. Qual Res J. 2009;9(2):27–40.
16. Brent A. Alvar, Sell K, Deuster PA. NSCA's essentials of tactical strength and conditioning. Human Kinetics. 2017. 1–8 p.
17. Burdur Mehmet Akif Ersoy Üniversitesi/Altınyayla MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://obs.mehmetakif.edu.tr/oibs/bologna/index.aspx?lang=tr&curOp=showPac&curUnit=39&curSunit=40646#
18. Butler RJ, Contreras M, Burton LC, Plisky PJ, Goode A, Kiesel K. Modifiable risk factors predict injuries in fireifghters during training academies. Work. 2013;46:11–17.
19. Çankırı Karatekin Üniversitesi/Yapraklı MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://bbs.karatekin.edu.tr/derskatalog.aspx?bkod=04&fkod=11#
20. Chizewski A, Box A, Kesler R, Petruzzello SJ. Fitness fights fires: Exploring the relationship between physical fitness and firefighter ability. Int J Environ Res Public Health. 2021;18(22).
21. Church T, Kampert J, Gibbons L, Barlow C, Blair S. Usefulness of cardiorespiratory fitness as a predictor of all-cause and cardiovascular disease mortality in men with systemic hypertension. Med Sci Sport Exerc. 2001;88:652–656.
22. Cuenca-Lozano MF, Ramírez-García CO. Occupational Hazards in Firefighting: Systematic Literature Review. Saf Health Work [Internet]. 2023;14(1):1–9. Available from: https://doi.org/10.1016/j.shaw.2023.01.005
23. Çukurova Üniversitesi/Ceyhan MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://eobs.cu.edu.tr/Program/DersPlan/165
24. Davis P, Dotson C. Heart rate response of fire fighters. J Amb Electro. 1978;1:15–8.
25. Dennison KJ, Mullineaux DR, Yates JW, Abel MG. The Effect of Fatigue and Training Status on Firefighter Performance. J Strength Cond Res. 2012;26(4):1101–9.
26. Doğan M. Türkiye'de Sivil Savunma ve İtfaiyecilik Programının Profil Analizi. Acil yardım ve afet Bilim Derg. 2022;2(1):3–9.
27. Durham College. Firefighter Pre-Service Education and Training [Internet]. 2022 [cited 2022 Apr 29]. Available from: https://durhamcollege.ca/programs/firefighter-pre-service-education-and-training
28. Elsner K, Kolkhorst F. Metabolic demands of simulated firefighting tasks. Ergonomics. 2008;(51):1418–1425.
29. Erzincan Binali Yıldırım Üniversitesi/Üzümlü MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://obs.ebyu.edu.tr/oibs/bologna/index.aspx?lang=tr&curOp=showPac&curUnit=48&curSunit=399#
30. Gaziantep Üniversitesi/Oğuzeli MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://obs.gantep.edu.tr/oibs/bologna/index.aspx?lang=tr&curOp=showPac&curUnit=247&curSunit=2260#

31. Giresun Üniversitesi/Espiye MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://ubs.giresun.edu.tr/ogrenci/ebp/organizasyon.aspx?kultur=tr-TR&Mod=0&ustbirim=16&birim=4&altbirim=-1&program=1430&organizasyonId=322&mufredatTurId=932001#Anchor3
32. Gümüşhane Üniversitesi/Kürtün MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://obs.gumushane.edu.tr/oibs/bologna/index.aspx?lang=tr&curOp=showPac&curUnit=14&curSunit=25417
33. Harran Üniversitesi/Şanlıurfa Teknik Bilimler MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://obs.harran.edu.tr/oibs/bologna/index.aspx?lang=tr&curOp=showPac&curUnit=23&curSunit=5890#
34. Hitit Üniversitesi/Alaca MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://ubys.hitit.edu.tr/AIS/OutcomeBasedLearning/Home/Index?id=IYI7Vq!xDDx!S60h63piooKTwlA!xGGx!!xGGx!&culture=tr-TR#
35. Horn GP, Blevins S, Fernhall B, Smith DL. Core temperature and heart rate response to repeated bouts of firefighting activities. Ergonomics. 2013;56(9):1465–73.
36. Humber College. Pre-Service Firefighter Education and Training [Internet]. 2022 [cited 2022 Apr 29]. Available from: https://healthsciences.humber.ca/programs/pre-service-firefighter-education-training.html
37. Iğdır Üniversitesi/Iğdır MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://ogrenci.igdir.edu.tr/ogrenci/ebp/organizasyon.aspx?kultur=tr-TR&Mod=0&ustbirim=33&birim=220&altbirim=-1&program=281&organizasyonId=1175&mufredatTurId=932001
38. İstanbul Üniversitesi-Cerrahpaşa. Eğitim Bilgi Sistemi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://ebs.iuc.edu.tr/home/dersprogram/?id=BDQ%2FashPKXI%3D&yil=2023
39. Kahramanmaraş İstiklal Üniversitesi/Türkoğlu MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://obs.istiklal.edu.tr/oibs/bologna/index.aspx?lang=tr&curOp=showPac&curUnit=07&curSunit=10123#
40. Karabük Üniversitesi/TOBB Teknik Bilimler MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://obs.karabuk.edu.tr/oibs/bologna/index.aspx?lang=tr&curOp=showPac&curUnit=5100&curSunit=52#
41. Karter MJ, Molis JL. U. S. Firefighter Injuries—2009. Quincy; MA; 2010.
42. Kastamonu Üniversitesi/Bozkurt MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://ubys.kastamonu.edu.tr/AIS/OutcomeBasedLearning/Home/Index?id=8LdyFG5GHTJ91STHp4jbrw!xGGx!!xGGx!&culture=tr-TRps#
43. Kayseri Üniversitesi/Bünyan MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: http://dbp.kayseri.edu.tr/Program/Learn.aspx?Learn=37uGVnrQyYc=
44. Kesler RM, Ensari I, Bollaert RE, Motl RW, Hsiao-Wecksler ET, Rosengren KS, et al. Physiological response to firefighting activities of various work cycles using extended duration and prototype SCBA. Ergonomics. 2017;139:1–14.
45. Kocaeli Üniversitesi/İzmit MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://ogr.kocaeli.edu.tr/koubs/bologna/
46. Kütahya Dumlupınar Üniversitesi/Kütahya Teknik Bilimler MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://obs.dpu.edu.tr/oibs/bologna/index.aspx?lang=tr&curOp=showPac&curUnit=51&curSunit=90904933#
47. Loyalist College. Pre-Service Firefighter Education & Training [Internet]. 2022 [cited 2022 Apr 29]. Available from: https://www.loyalistcollege.com/programs-and-courses/full-time-programs/pre-service-firefighter-education-training/
48. Malatya Turgut Özal Üniversitesi/Doğanşehir Vahap Küçük MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://obs.ozal.edu.tr/oibs/bologna/index.aspx?lang=tr&curOp=showPac&curUnit=32&curSunit=1567#
49. Matticks CA, Westwater JJ, Himel HN, Morgan RF, Edlich RF. Health risks to fire fighters. J Burn Care Rehabil. 1992;13(2):223–35.
50. Miles, M. B., Huberman, A. M., & Saldaña J. Qualitative data analysis: A methods sourcebook (3rd ed.). 3rd. Thousand Oaks, CA: Sage; 2014.
51. Müftüler M, koca Arıtan C. Yenilenen Beden Eğitimi ve Spor Öğretimi Programlarının Uluslararası Politikalar Kapsamında Analizi. Spor Bilim Araştırmaları Derg. 2020;5(2):159–76.
52. Muğla Sıtkı Koçman Üniversitesi/Kavaklıdere Şehit Mustafa Alper MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://akts.mu.edu.tr/tr/program/3814
53. . Necmettin Erbakan Üniversitesi/Meram MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://bilgipaketi.erbakan.edu.tr/akademik-birimler/322523/sivil-savunma-ve-itfaiyecilik-pr
54. Petruzzello SJ, Gapin JI, Snook E, Smith DL. Perceptual and physiological heat strain: Examination in firefighters in laboratory- and field-based studies. Ergonomics. 2009;52(6):747–54.
55. Richmond VL, Rayson MP, Wilkinson DM, Carter JM, Blacker SD. Physical demands of firefighter search and rescue in ambient environmental conditions. Ergonomics. 2008;51(7):1023–31.
56. Rossi R. Fire fighting and its influence on the body. Ergonomics. 2003;46(10):1017–33.
57. Sakarya Uygulamalı Bilimler Üniversitesi/Denizcilik MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://ebs.bys.subu.edu.tr/BolumDetay/?bi=139&pi=140&ay=32
58. Del Sal M, Barbier I, Garbati P, Sisti D, Rocchi MBL, Stocchi V. Physiologic responses of firefighter recruits during a supervised live-fire work performance test. J Strength Cond Res. 2009;23:2396–2404.

59. Salters-Pedneault K, Ruef AM, Orr SP. Personality and psychophysiological profiles of police officer and fireifghter recruits. Pers Individ Differ. 2010;49:210–5.
60. Selçuk Üniversitesi/Kadınhanı Faik İçil MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://bologna.selcuk.edu.tr/tr/Dersler/kadinhani_faik_icil_myo-mulkiyet_koruma_ve_guvenlik-sivil_savunma_ve_itfaiyecilik-onlisans
61. Seneca College. School of Fire Protection Engineering Technology [Internet]. 2023 [cited 2023 Dec 12]. Available from: https://www.senecapolytechnic.ca/programs/fulltime/FFP/courses.html
62. Seyedmehdi SM, Attarchi M, Cherati AS, Hajsadeghi S, Tofighi HR. Relationship of aerobic fitness with cardiovascular risk factors in fireifghters. Work. 2016;55:155–61.
63. Sinop Üniversitesi/Boyabat MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://obs.sinop.edu.tr/oibs/bologna/index.aspx?lang=tr&curOp=showPac&curUnit=55&curSunit=8047#
64. Sivas Cumhuriyet Üniversitesi/İmranlı MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://obs.cumhuriyet.edu.tr/oibs/bologna/index.aspx?lang=tr&curOp=showPac&curUnit=77&curSunit=10170#
65. Smith DL. Firefighter fitness: improving performance and preventing injuries and fatalities. Curr Sports Med Rep. 2011;10(3):167–72.
66. Soteriades ES, Smith DL, Tsismenakis AJ, Baur DM, Kales SN. Cardiovascular disease in US firefighters: A systematic review. Cardiol Rev. 2011;19(4):202–15.
67. Sothmann M, Gebhardt D, Baker T, Kastello M, Sheppard V. Performance requirements of physically strenuous occupations: validating minimum standards for muscular strength and endurance. Ergonomics. 2004;47:864–75.
68. Storer TW., Dolezal BA., Abrazado ML., Smith DL., Batalin MA., Tseng CH, et al. Firefighter Health and Fitness Assessment A Call to Action. J Strength Cond Res. 2014;28(3):661–71.
69. Tekirdağ Namık Kemal Üniversitesi/Çerkezköy MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://bilgipaketi.nku.edu.tr/gecmiskataloglar.php?bid=118&aid=89
70. Tokat Gaziosman Paşa Üniversitesi/Niksar MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://obs.gop.edu.tr/oibs/bologna/index.aspx?lang=tr&curOp=showPac&curUnit=43&curSunit=2001584#
71. Trabzon Üniversitesi/Şalpazarı MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://ubys.trabzon.edu.tr/AIS/OutcomeBasedLearning/Home/Index?id=d6HKh98bCac0MKBp7Ab5Mw!xGGx!!xGGx!&culture=tr-TR#
72. Yalova Üniversitesi/Yalova MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: https://ubs.yalova.edu.tr/AIS/OutcomeBasedLearning/Home/Index?id=Od!xDDx!bjiYT5kvP!xDDx!tOEzwHB!xDDx!Q!xGGx!!xGGx!&culture=tr-TR#
73. Yavuz Ö, Bozatay ŞA. Türkiye'de itfaiye hizmetlerinin örgütlenmesi ve etkinliği sorunu. Çankırı Karatekin Üniversitesi İktisadi ve İdari Bilim Fakültesi Derg. 2015;5(2):785–804.
74. Yıldırım A, Şimşek H. Sosyal Bilimlerde Nitel Araştırma Yöntemleri (6. Baskı). Ankara: Seçkin Yayıncılık; 2008.
75. Yozgat Bozok Üniversitesi/Yozgat MYO. AKTS Ders Bilgi Paketi [Internet]. 2023 [cited 2023 Jan 29]. Available from: http://ebp.bozok.edu.tr/DereceProgramlari/Detay/0/482/441/932001
76. YÖK ATLAS Sivil Savunma ve İtfaiyecilik Programı [Internet]. 2023 [cited 2023 Dec 1]. Available from: https://yokatlas.yok.gov.tr/onlisans-program.php?b=30077