



Physical Activity Levels and Independent Sports Participation among North Sumatra Police Investigators

Muhammad Faturrahman Al Alim¹, Dewi Maya Sary², Nadhira Yasmine Ahmad³

^{1,2,3} Sekolah Tinggi Olahraga dan Kesehatan Bina Guna, Indonesia

Corresponding Author: devicaturwinatastokbinaguna@gmail.com

Abstract

Objectives: This study aimed to determine the levels of physical activity and independent sports participation among personnel of the Criminal Investigation Directorate of the North Sumatra Regional Police (Ditreskrim Polda Sumut).

Materials and Methods: This study employed a descriptive quantitative design using a survey approach. The participants consisted of 20 personnel. Data were collected using a questionnaire comprising 20 statements rated on a Likert scale. The data were analyzed descriptively to determine the average scores and percentage-based categories for physical activity and independent sports participation.

Results: The overall average score was 81.15, which was categorized as very high. Physical activity achieved an average score of 3.91 (78.20%), classified as high, while independent sports participation obtained an average score of 4.21 (84.10%), classified as very high. The highest-rated indicator was impact and social interaction, with an average score of 4.70 (94.00%). In contrast, transportation activity received the lowest score, with an average of 2.15 (43.00%), indicating an area requiring improvement.

Conclusion: The findings indicate that personnel of Ditreskrim Polda Sumut demonstrated very high overall levels of physical activity and independent sports participation, although the two variables differed in their category classifications. Independent sports participation was rated very high, whereas physical activity was rated high. Particular attention should be given to increasing physical activity during transportation as part of efforts to support a more active lifestyle among police personnel.

Keywords: Physical Activity, Independent Sports Participation, Police Personnel, Survey

Introduction

Exercise is a crucial activity in human life, as physical activity supports health and facilitates the smooth execution of daily tasks. A lack of physical exercise can lead to various ailments that disrupt metabolism and overall well-being. Regular physical training helps condition muscles, improve blood circulation, and ensure optimal oxygen delivery throughout the body (Rizal & Purnomo, 2020). Therefore, every individual—particularly those with heavy workloads, such as police personnel—must be aware of the importance of physical activity.



Physical activity is defined as any bodily movement produced by skeletal muscles that requires energy expenditure. Engaging in physical activity is a key factor in maintaining peak physical fitness. Regular physical activity can significantly reduce the risk of non-communicable diseases while enhancing quality of life (Saputra et al., 2023). For police personnel, physical fitness is not merely an option but a functional necessity for carrying out state duties that often demand exceptional physical endurance.

Exercise is also recognized as a primary means of maintaining physical and mental health amidst increasingly complex modern demands. However, participation rates in exercise among the general public or specific professional groups vary widely based on factors such as age and gender. Research indicates that younger age groups tend to have higher participation rates compared to older groups (Alamsyah & Akkase, 2025). This phenomenon is particularly relevant to personnel within the General Criminal Investigation Directorate (Ditreskrim), who span a wide age range; a decline in physical activity associated with aging could impact their operational performance in the field.

Within the police institution, exercise activities are often undertaken not only through organized official programs but also through individual initiative. This independent participation refers to sports activities undertaken outside official working hours or beyond established formal training curricula. An individual's level of participation in independent sports is heavily influenced by motivation—whether intrinsic (stemming from within) or extrinsic (derived from the surrounding environment) (Rizal & Purnomo, 2020). For personnel of the North Sumatra Regional Police's General Criminal Investigation Directorate (Ditreskrim Polda Sumut), independent exercise offers a solution amidst unpredictable investigation schedules that often encroach upon time allocated for organized group sports. Current measurements of physical activity levels frequently employ internationally validated instruments, such as the Global Physical Activity Questionnaire (GPAQ). This instrument enables researchers to gauge physical activity intensity by calculating Metabolic Equivalent of Task (MET) values. MET analysis allows for the classification of individuals into high, moderate, or low physical activity categories (Syahrullah et al., 2025). Utilizing such objective measurement standards is crucial for accurately and scientifically assessing the actual physical activity status of the Directorate's personnel.

The importance of physical activity is particularly evident during crisis periods—such as the post-pandemic era—when maintaining immune health becomes a top priority. Individuals who understand the value of fitness tend to maintain their exercise routines despite constraints regarding time or facilities. Many people are opting for simple forms of exercise, such as jogging or home-based weight training, as a means of independent physical activity (Azzami et al., 2021). Police personnel, who often face time constraints due to heavy operational workloads, likely adopt similar independent exercise patterns.

Participation in physical activity is also significantly influenced by personal interest and access to available sports facilities. Public interest in engaging in physical activity in public spaces demonstrates that the motivation to achieve good health is a primary driver for physical movement. The availability of adequate sports facilities often serves as a stimulus for individuals to increase the frequency of their regular physical exercise (Maulana et al., 2025). For personnel at the North Sumatra Regional Police (Polda Sumut), the presence of sports facilities—whether in the workplace or near their residences—significantly influences their level of independent sports participation.



However, in reality, many individuals still struggle to maintain consistency in exercising outside of their mandatory activities. For instance, in educational settings, student participation in sports outside of physical education classes often requires improvement through ongoing supervision and motivation (Wikanjaya et al., 2022). A similar situation can arise among police personnel; after completing exhausting official duties, the desire to engage in independent exercise may drop sharply. This phenomenon warrants an in-depth survey to understand the actual physical activity patterns of personnel within the General Criminal Investigation Directorate (Ditreskrimum).

Personnel of the North Sumatra Regional Police (Polda Sumut) Ditreskrimum face a unique workload characterized primarily by investigative and field operational tasks. They frequently work long hours, endure high psychological pressure, and experience irregular sleep patterns when handling major cases. These professional demands directly impact the time available for regular, structured physical activity (Azzami et al., 2021). If physical activity levels remain low, the risk of declining law enforcement performance poses a genuine threat to the National Police (Polri) institution.

Theoretically, higher levels of intrinsic and extrinsic motivation correlate with increased participation in sports. Intrinsic motivation stems from an awareness of health needs, whereas extrinsic motivation may arise from orders given by superiors or support from colleagues (Rizal & Purnomo, 2020). This study aims to examine the extent to which these factors influence the daily routines of police personnel. With valid data, the leadership of Polda Sumut can formulate appropriate policies regarding the health maintenance of their personnel.

Furthermore, gender differences also reveal distinct patterns of physical activity across various institutions and social groups. Research findings from various settings indicate that men generally engage in more strenuous and competitive physical activities than women (Alamsyah & Akkase, 2025). Given that the personnel of the General Criminal Investigation Directorate (Ditreskrimum) comprise both male and female officers, this survey must also examine whether there are disparities in physical activity levels between the two groups. This is crucial to ensure that any subsequently recommended independent fitness programs are inclusive of all personnel.

Analysis of MET (Metabolic Equivalent of Task) values serves as a key indicator for assessing an individual's cardiovascular and metabolic health status. Physical activity is classified as "high" if total weekly energy expenditure meets specific thresholds based on WHO standards adopted within the GPAQ instrument (Syahrullah et al., 2025). This survey will evaluate whether the average personnel of the North Sumatra Regional Police (Polda Sumut) Directorate of General Criminal Investigation meet the minimum physical activity standards recommended for working adults. Without a systematic survey, assessments of personnel fitness levels rely merely on assumptions rather than robust empirical evidence.

Awareness of the importance of independent exercise often arises when individuals understand the long-term consequences of a sedentary lifestyle. Exercise sessions need not be lengthy; consistency in moderate-intensity activity is sufficient to maintain cardiorespiratory fitness. Understanding the flexibility of exercise timing—such as in the morning before duty or in the evening after work—offers strategic options for police personnel. This time-management strategy will be a key focus when examining the subjects' participation in independent exercise. Furthermore, active participation in sports serves as a stress-relief mechanism for those working in high-pressure



environments. Criminal investigators, who deal daily with conflict and legal cases, are particularly susceptible to work-related stress that can compromise immune function. Exercise has been proven to boost endorphins, which help improve mood and alleviate nervous tension (Saputra et al., 2023). Consequently, for North Sumatra Regional Police personnel, engaging in independent exercise is not merely a matter of physical fitness but also essential for maintaining mental and psychological stability in the workplace.

A review of previous research reveals a gap between the physical demands of the job and the reality of voluntary participation in exercise. Many workers in the formal sector exhibit moderate to low levels of physical activity due to time constraints and work-related fatigue.

Personnel from the North Sumatra Regional Police's General Criminal Investigation Directorate (Ditreskrim Polda Sumut) face similar challenges, where a heavy caseload can serve as a major obstacle to engaging in exercise. This survey aims to identify the patterns and actual barriers personnel encounter in maintaining their physical activity levels. As a major police agency in Indonesia, the North Sumatra Regional Police requires personnel who are physically prepared at all times to maintain public safety and order. Such physical readiness cannot be achieved overnight; rather, it is cultivated through programmed physical activity habits and sustained participation in sports (Wikanjaya et al., 2022). Therefore, conducting research titled "A Survey on Physical Activity Levels and Independent Sports Participation among Ditreskrim Polda Sumut Personnel" is crucial. The findings of this study are expected to make a tangible contribution to human resource development within the North Sumatra Regional Police.

Materials and Methods

Study Design

This study employs a quantitative descriptive design utilizing a survey method. This approach was selected because the study aims to objectively identify, describe, and systematically present facts and characteristics regarding a specific population. In this context, the researcher seeks to capture the actual state of physical activity levels and independent sports participation among personnel of the North Sumatra Regional Police's General Criminal Investigation Directorate (Ditreskrim Polda Sumut) without administering any interventions or treatments to the subjects. The use of a survey method enables the collection of data from a significant number of respondents via questionnaires, thereby providing a representative overview of the active lifestyles of police officers within the unit. All collected data will be converted into statistical figures and subsequently interpreted to draw conclusions regarding the personnel's physical activity status and independent exercise habits.

Study Participants

The population for this study comprises all active personnel serving within the General Criminal Investigation Directorate of the North Sumatra Regional Police (Ditreskrim Polda Sumut)—including both National Police officers and Civil Servant (ASN) staff—



distributed across various sub-directorates and work units. Given the specific nature of the population and their demanding duty schedules, purposive sampling was employed as the sampling technique. This method was selected to ensure the sample strictly met the criteria required by the researcher: (1) active personnel not currently on extended leave; (2) personnel serving in either operational or administrative functions; and (3) personnel willing to participate voluntarily as respondents. The sample size consists of 20 individuals.

Statistical Analysis

Research Instrument

The instrument used in this study is a closed-ended questionnaire that has undergone adaptation and modification to ensure relevance to the profile of police personnel respondents.

1. Physical Activity Instrument: This instrument employs a questionnaire that categorizes activities into light, moderate, and vigorous levels based on accumulated time (in minutes). Respondents are asked to report their physical activity over the past week; the assessment focuses on the total duration per category rather than utilizing MET formulas.
2. Sports Participation Instrument: This instrument utilizes a Likert scale with five response options (Always, Often, Sometimes, Rarely, Never). The questionnaire includes items regarding the regularity of exercise schedules, average duration per session (e.g., >30 minutes), and the availability of personal time for exercise. Prior to use, the instrument undergoes validity testing via expert judgment and reliability testing to ensure the consistency of the questionnaire items.

The data collection process was conducted systematically in three main stages. First, the authorization stage, where the researcher submitted an official letter of permission from STOK Bina Guna to the North Sumatra Regional Police (Polda Sumut). Second, the distribution stage, where questionnaires were distributed to respondents in physical (paper) format during roll calls or break times. The researcher provided instructions on how to complete the questionnaire to prevent data errors (bias). Third, the retrieval stage, where the researcher screened the returned questionnaires to ensure all questions had been answered completely and correctly prior to tabulation.

3.7 Data Analysis Techniques

The collected and verified data were processed using descriptive statistical techniques with the aid of data processing software (such as MS Excel or SPSS). Analysis was performed by calculating the total scores or responses from 20 statement items, with a



maximum possible score of 100 and a minimum of 20. The calculation results were then compared against a classification table for physical activity and participation levels (ranging from Low to Very High). The final analysis results are presented in frequency distribution tables and charts to provide a clear visual overview of the physical activity levels of personnel from the General Criminal Investigation Directorate (Ditreskrimum) of the North Sumatra Regional Police; these findings are discussed further in the results and discussion chapter.

Table 3.1 Data Analysis Result Classification

Kategori	Rentang Skor
Sangat Tinggi	81-100
Tinggi	61-80
Sedang	41-60
Rendah	20-40

Results

This study aims to assess the levels of physical activity and independent sports participation among personnel of the General Criminal Investigation Directorate of the North Sumatra Regional Police (Ditreskrimum Polda Sumut). The study employs a survey method with a descriptive approach. Data were collected via a questionnaire comprising 20 statements. The research instrument covers two variables: Physical Activity and Independent Sports Participation.

Each variable consists of 10 statements rated on a five-point Likert scale. Consequently, the maximum possible score for each respondent is 100, while the minimum is 20. The collected data were analyzed using descriptive statistics, involving calculations of total scores, means, percentages, and frequency distributions, as well as comparisons of results based on variables, indicators, and individual statements. The results were classified into the following categories: Very High (score range 81–100), High (61–80), Moderate (41–60), and Low (20–40).

To obtain a more detailed overview, the research results were further analyzed based on indicators and the mean score for each statement item. The Physical Activity variable comprises four indicators: Work/Occupational Activity, Transportation Activity,



Domestic/Household Activity, and Leisure/Duty Activity. Meanwhile, the Independent Sports Participation variable consists of the following indicators: Frequency and Duration; Intensity and Type; Motivation and Personal Goals; and Impact and Social Interaction.

Table 2. Comparison of Results Based on Indicators

Peringkat	Indikator	Variabel	Rata-rata	Persentase	Kategori
1	Dampak dan Interaksi Sosial	Partisipasi Olahraga Mandiri	4,70	94,00%	Sangat Tinggi
2	Aktivitas Waktu Luang/Piket	Aktivitas Fisik	4,50	90,00%	Sangat Tinggi
2	Motivasi dan Target Pribadi	Partisipasi Olahraga Mandiri	4,50	90,00%	Sangat Tinggi
4	Frekuensi dan Durasi	Partisipasi Olahraga Mandiri	4,33	86,67%	Sangat Tinggi
5	Aktivitas Domestik/Rumah	Aktivitas Fisik	4,05	81,00%	Sangat Tinggi
6	Aktivitas Kerja/Dinas	Aktivitas Fisik	3,98	79,67%	Tinggi
7	Intensitas dan Jenis	Partisipasi Olahraga Mandiri	3,55	71,00%	Tinggi
8	Aktivitas Transportasi	Aktivitas Fisik	2,15	43,00%	Sedang

Based on the analysis of indicators and statement items, it is evident that although the overall research results fall into the "Very High" category, there are variations in the mean scores across the measured aspects. The highest-scoring indicator is "Social Impact and Interaction," while the lowest is "Transportation Activities." At the level of individual statement items, the highest scores were recorded for items 3 and 13, whereas the lowest score was recorded for item 4.

Discussion

Based on the study conducted on 20 personnel from the North Sumatra Regional Police's General Criminal Investigation Directorate (Ditreskrim Polda Sumut), the overall level of physical activity and independent sports participation falls into the "Very High" category, with an average score of 81.15. The highest score obtained by a respondent was 91, while the lowest was 60, resulting in a total aggregate score of 1,623. The 31-point spread between the highest and lowest scores indicates some variation in conditions among respondents; however, this variation does not alter the study's general trend, as the overall average remains within the "Very High" category.



Regarding the distribution of categories, 13 respondents (65%) fall into the "Very High" category, 5 (25%) into the "High" category, and 2 (10%) into the "Moderate" category. No respondents fell into the "Low" category. Consequently, 18 respondents (90%) are classified as being in at least the "High" category. These findings indicate that physical activity and independent sports participation are not limited to a small minority of respondents but represent a relatively dominant trend within the group studied.

It is important to interpret these results in the context of how physical activity is defined in this study. Physical activity encompasses not only dedicated sports exercises but also various forms of bodily movement involved in daily routines. The research instrument assessed personnel's physical activity across several domains: work or official duties, transportation, domestic or household tasks, and leisure or duty-shift activities. Meanwhile, independent sports participation was evaluated based on frequency and duration, intensity and type, personal motivation and goals, as well as impact and social interaction. This categorization demonstrates that the overall results reflect a wide range of activities performed by the respondents—spanning both those required by job demands and those undertaken through personal initiative. Conceptually, the study's findings can be understood by defining physical activity as any bodily movement produced by skeletal muscles that requires energy expenditure. In the study's theoretical framework, physical activity is not limited to structured exercise but encompasses occupational tasks, transportation-related movement, household chores, and recreational activities. Thus, the "Very High" category in the overall results indicates not only that respondents engage in exercise but also that the various physical activities performed in the context of work and daily life contribute to the high scores observed.

The findings can also be understood through the nature of the work performed by personnel in the Directorate of General Criminal Investigation (Ditreskrim). Investigative work involves a blend of administrative and field-based activities. Under certain conditions, personnel may perform tasks requiring prolonged sitting—such as conducting interrogations, compiling case files, or analyzing cases—while at other times, they must be mobile and respond rapidly to assignments. The study's theoretical analysis characterizes investigative work as dualistic, combining relatively static office-based routines with dynamic field operations.



Therefore, the high overall score should be understood as the result of a combination of these various activities. Personnel are not necessarily physically active at all times; however, activities undertaken while on duty, at home, during guard shifts, or through independent exercise contribute to the overall activity pattern.

These results align with the study by Saputra et al. (2023), which showed that the majority of research subjects fell into the high physical activity category (65.17%). That study also emphasized that physical activity levels are linked to routines performed consistently in both formal and independent settings. A similar pattern is evident in the present study, as the personnel's physical activity stems not from a single type of activity but from a variety of actions performed during their daily routines.

These findings can also be viewed alongside the research by Syarifudin et al. (2026), which utilized a descriptive survey method to assess physical activity levels. That study also found that the majority of subjects fell into the high physical activity category. This similarity in patterns demonstrates that survey methods can effectively illustrate the physical activity tendencies of a group based on their daily activities.

However, the results of this study possess unique characteristics because the subjects are personnel from the General Criminal Investigation Directorate (Ditreskrim), whose job demands differ from those of the general public or students. Physical activity within this group is inextricably linked to work requirements and operational readiness. Theoretically, physical fitness among police personnel is regarded as a component of operational readiness, given that police duties in certain situations require rapid physical responses.

Thus, the "Very High" category observed in this study indicates a positive state. Nevertheless, a high overall score does not imply that all aspects of physical activity and independent exercise are at the same level. Indeed, the variations in values across different indicators are crucial for gaining a deeper understanding of the respondents' activity patterns.

Based on these results, it is evident that personnel from the North Sumatra Regional Police's General Criminal Investigation Directorate (Ditreskrim Polda Sumut) tend to maintain a healthy, active lifestyle. Physical activity is shaped by various pursuits—specifically leisure or duty-shift activities, domestic tasks, and work-related duties.



Independent exercise plays a particularly significant role, driven by strong motivation, consistent frequency and duration, and a positive perception of its benefits and social aspects. These findings suggest that independent exercise can be a crucial factor in sustaining personnel's physical activity levels amidst the dynamic nature of their work. Theoretically, this study defines independent exercise as a conscious, planned, and voluntary engagement undertaken outside of official duty requirements. The high scores obtained indicate that these characteristics are strongly evident among the respondents.

Ultimately, the study reveals that while the physical activity levels and independent exercise participation of the personnel are generally good, these strengths are not uniform across all aspects. Physical activity associated with transportation-related mobility remains relatively low, and exercise participation during busy duty schedules scores lower than during off-duty hours or holidays. Conversely, factors such as motivation, frequency, duration, perceived impact, and social interaction show exceptionally high levels.

These findings provide a basis for a more comprehensive view of physical activity and independent exercise. Physical activity should be sustained not merely through work demands but also through consciously adopted exercise habits. Similarly, participation in independent exercise should be evaluated not only by frequency but also by the type and intensity of the workout and the ability to maintain the routine when work demands intensify. Thus, the analysis of these results demonstrates that the physical activity patterns of the North Sumatra Regional Police's General Criminal Investigation Directorate personnel are, overall, in excellent condition. High scores across most indicators reflect active habits and strong sports participation, while lower scores in certain areas highlight aspects that still require attention. These results also demonstrate that physical readiness stems not only from work-related activities but also from an individual's ability to consciously maintain exercise habits outside of official duties.

Acknowledgments

Based on the research findings regarding physical activity and independent sports participation among personnel of the North Sumatra Regional Police's General Criminal Investigation Directorate (Ditreskrim Polda Sumut), it can be concluded that the overall level of physical activity and independent sports participation falls into the "Very



High" category, with an average score of 81.15. The Physical Activity variable recorded an average of 3.91 (78.20%), placing it in the "High" category, while Independent Sports Participation recorded an average of 4.21 (84.10%), placing it in the "Very High" category. Regarding specific indicators, the highest score was observed in "Impact and Social Interaction" at 4.70 (94.00%), whereas the lowest score was found in "Transportation Activity" at 2.15 (43.00%). Despite some aspects scoring lower, the research results generally indicate that the personnel of Ditreskrim Polda Sumut demonstrate a good level of physical activity and independent sports participation.

Conflict of Interest

Thank you to the teachers, students, and principal of Ditreskrim Polda Sumut

References

- Alamsyah, N. F., & Akkase, A. (2025). Tinjauan Aktivitas Olahraga Berdasarkan Usia Dan Jenis Kelamin. *Jurnal Ilmiah STOK Bina Guna Medan*, 13(2), 336–343. <https://doi.org/10.55081/jsbg.V13i2.4219>
- Azzami, R. N., Kusumawardhana, B., & Pradipta, G. D. (2021). Survei Aktivitas Fisik Mahasiswa Prodi Pjkr Universitas PGRI Semarang Angkatan 2017 Pada Masa Pandemi Covid-19. *Journal Of Physical Activity And Sports*, 2(2), 217–229.
- Karo Karo, A. A. P., Sinaga, E. M., Sinurat, F. R., Sembiring, E., & Harefa, E. (2024). Persepsi masyarakat terhadap partisipasi dalam aktivitas fisik dan olahraga. *Jumper: Jurnal Mahasiswa Pendidikan Olahraga*, 5(1), 229–239.
- Maulana, M. F., Septiadi, F., & Nugraheni, W. (2025). Minat Masyarakat Dalam Partisipasi Aktivitas Fisik Di Lapang Merdeka Sukabumi. *Indonesian Journal Of Physical Activity*, 5, 9–16. <https://ijophya.org/index.php/Ijophya>
- Prasetyo, M. T., & Fadhiil, F. (2025). Implementasi program latihan fisik terstruktur untuk meningkatkan kesehatan dan produktivitas masyarakat di Kabupaten Jayawijaya. *SWARNA: Jurnal Pengabdian Kepada Masyarakat*, 4(6), 891–897. <https://doi.org/10.55681/swarna.v4i6.1733>
- Rizal, A. R., & Purnomo, M. (2020). *Tingkat Partisipasi Warga Desa Blawi Karangbinangun Lamongan Dalam Melakukan Aktivitas Olahraga Berdasarkan Motivasi Intrinsik Dan Ekstrinsik Selama Pandemi (Covid-19)*.
- Saputra, A. H., Bayu, W. I., Destriani, D., & Yusfi, H. (2023). Survei Aktivitas Fisik Dan Kebugaran Jasmani Pada Peserta Didik Usia 14-16 Tahun. *Srinwijaya Journal Of Sport*, 3(1), 28–38. <https://doi.org/10.55379/Sjs.V3i1.975>
- Syahrullah, A., Mikdar, U. Z., Wahyudi, A. N., Gressia, & Nur'aeni. (2025). Analisis Tingkat Aktivitas Fisik Siswa SMA Muhammadiyah 1 Palangka Raya. *SPRINTER: Jurnal Ilmu Olahraga*, 6. <http://jurnal.icjambi.id/index.php/Sprinter/index>



- Syarifudin, S., Saitya, I., & Rostati, R. (2026). Analisis aktivitas fisik siswa sekolah menengah pertama. *JPK: Jurnal Pendidikan dan Kebudayaan*, 3(2), 86–91. <https://doi.org/10.56842>
- Wikanjaya, I. K., Yoda, I. K., & Tisna, G. D. (2022). Tingkat Partisipasi Siswa SMA Melakukan Aktivitas Olahraga Di Luar Jam Mata Pelajaran Penjaskes (Pendidikan Jasmani Dan Kesehatan). *Indonesian Journal Of Sport & Tourism*, 4(1), 1–9. <https://doi.org/10.23887/Ijst.V4i1.45026>