SATISFACTION WITH SERVICE AND SELF-ESTIMATED PHYSICAL FITNESS OF CONSCRIPTS

Kairi Kasearu, Liina-Mai Tooding

Abstract. Problems with health and, successively, physical fitness are some of the main reasons for discharging a conscript, and health-related issues are the number one reason for attrition. However, questions such as how an athletic physique benefits military service, how a change in physical abilities affects a person's satisfaction with conscription, and to what extent the interrelation between an athletic physique, changes in physical fitness and satisfaction with conscription depends on the immediate social service environment and social group of a person, these have received less attention. Analysing these questions revealed that people who were leading a more athletic lifestyle before conscription tend to be more satisfied with conscription in retrospect, but a more important factor for the formation of satisfaction appears to be perceived changes in one's physical abilities during conscription, i.e. changes in self-estimated physical fitness. It was also revealed that the strength of this connection depended on the cohesion of the service environment: if a person's physical abilities improve during conscription then stronger cohesion amplifies satisfaction, whereas a coherent environment can also impede the loss of satisfaction when a person's physical abilities are reduced. The authors of this article included four different types of cohesion in the analysis according to data collected with complex surveys over three conscription periods: 2017/2018, 2018/2019 and 2019/2020 (N=5,290).

Keywords: conscripts, self-estimated physical fitness, satisfaction with service, unit cohesion

1. Introduction

Taking into consideration an individual and his or her well-being is becoming increasingly important both on a societal level as well as on an organisational level. Well-being is often indicated by a person's subjective satisfaction with different aspects of his or her life. Such a satisfaction varies in different societies and individuals and depends on a number of different factors, e.g. the

socio-political environment[1] and the socioeconomic background of a person[2]. As for individual factors, more and more attention is being turned on the extent to which a person is responsible for his or her well-being and the means that they have to improve personal well-being. Such means include physical activity, taking care of one's health, and exercising. The fact that people who are physically more active are more satisfied with the state of their health, as well as their life in general, has been confirmed in a number of different studies[3].

In addition to obtaining military skills and developing physical fitness, satisfaction with conscription is one of the primary purposes for preparing reserve forces. A conscript that finishes conscription with a feeling of

[1] **Flavin, P.; Pacek, A. C.; Radcliff, B**. 2011. State Intervention and Subjective Well-being in Advanced Industrial Democracies. – Politics & Policy, Vol. 39, No. 2, pp. 251–269. https://doi.org/10.1111/j.1747-1346.2011.00290.x; **Nordheim, O.; Martinussen, P.** 2020. Happiness and the Role of Social Protection: How Types of Social Spending Affected Individuals' Life Satisfaction in OECD Countries, 1980–2012. – Journal of International and Comparative Social Policy, Vol. 36, No. 1, pp. 1–24. https://doi.org/10.1080/21699763.2019.1601586; **Pacek, A. C.; Radcliff, B**. 2008. Welfare Policy and Subjective Well-being Across Nations: An Individual Level Assessment. – Social Indicators Research, Vol. 89, pp. 179–191. https://doi.org/10.1007/s11205-007-9232-1.

[2] **Boyce, C. J.; Brown, G. D. A.; Moore, S. C**. 2010. Money and Happiness: Rank of Income, not Income, Affects Life Satisfaction. – Psychological Science, Vol. 21, No. 4, pp. 471–475. https://doi.org/10.1177/0956797610362671.

[3] **Argyle, M**. 1999. Causes and correlates of happiness. – Kahneman, D.; Diener, E.; Schwarz, N. (eds.). Well-being. The Foundations of Hedonic Psychology. New York: Russel Sage Foundation; pp. 353–373; **Melin, R.; Fugl-Meyer, K. S.; Fugl-Meyer, A. R**. 2003. Life Satisfaction in 18- to 64-year-old Swedes: in Relation to Education, Employment Situation, Health and Physical Activity. – Journal of Rehabilitation Medicine, Vol. 35, No. 2, pp. 84–90. https://doi.org/10.1080/16501970306119; **Have, M.; Graaf, R.; Onshouwer, K**. 2011. Physical Exercise in Adults and Mental Health Status: Findings from the Netherlands Mental Health Survey and Incidence Study (NEMESIS). – Journal of Psychosomatic Research, Vol. 71, pp. 342–348. https://doi.org/10.1016/j.jpsychores.2011.04.001; **Zullig, K. J., White, R. J**. 2011. Physical Activity, Life Satisfaction, and Self-Rated Health of Middle School Students. – Applied Research Quality Life, Vol. 6, pp. 277–289. https://doi.org/10.1007/s11482-010-9129-z; **Rangul, V.; Bauman, A.; Holmen, T. L.; Midthjell, K**. 2012. Is Physical Activity Maintenance from Adolescence to Young Adulthood Associated with Reduced CVD Risk Factors, Improved Mental Health and Satisfaction with Life: the HUNT Study, Norway. – International Journal of Behavioral Nutrition and Physical Activity, Vol. 9**,** No. 1, article 144. https://doi.org/10.1186/1479-5868-9-144; **Maher, J. P.; Doerksen, S. E.; Elavsky, S.; Hyde, A. L.; Pincus, A. L.; Ram, N.; Conroy, D. E**. 2013. A Daily Analysis of Physical Activity and Satisfaction with Life in Emerging Adults. – Health Psychology, Vol. 32, No. 6, pp. 647–656. https://doi.org/10.1037/a0030129; **Maher J.P.; Doerksen S.E.; Elavsky, S.; Conroy, D. E**. 2014. Daily Satisfaction with Life is Regulated by Both Physical Activity and Sedentary Behavior. – Journal of Sport Exercise Psychology, Vol. 36, No. 2, pp. 166–178. https://doi.org/10.1123/jsep.2013-0185.

satisfaction will most likely bring a positive message back to his or her civil life and, therefore, help to maintain a favourable image of the Defence Forces in general society. Satisfaction with conscription is a result of a number of different factors ranging from the lifestyle of a person before service to the actual time of conscription. The most important factors include a person's preceding attitude about conscription—formed, among other things, by national defence education in upper secondary school—and the importance of the will to defend in the entire value system of a young person[4]. Even more important are the leadership style of conscript service, the content of training, and the perceived value of conscription for a person's self-development and national security[5], as well as great relations with peers and superiors[6]. These are some of the recurring factors for satisfaction among many that have been revealed in previous conscript surveys[7].

This analysis is focused on the physical abilities of conscripts; in the context of conscription, this means performing service assignments, which includes the normative values for physical fitness. We will also analyse physical fitness and its development during conscription as "competitive" aspects of forming satisfaction in comparison with other factors, and the way physical fitness affects the feeling of satisfaction in tandem with other factors, especially with devotion to the institutional mission of the Defence Forces.

2. Connection of individual physical abilities with cohesion and satisfaction in the military sphere

In the military sphere, individual physical abilities are an important factor for performing service assignments. Because of the changes in the characteristics of military engagements and the development of technology, one might assume that maintaining an athletic physique is becoming less important

[4] **Demus, E**. 2018. Rahulolu ajateenistusega ja seda mõjutavad tegurid Eesti Kaitseväes. – Sõjateadlane (Estonian Journal of Military Studies), Vol. 6, lk 108–137. [**Demus** 2018]; **Kivirähk, J**. 2021. Rahulolu ajateenistusega. – Trumm, A. (toim.). Ajateenijate teenistuses edasijõudmine. Kompleksuuringu 2019–2020 ajateenijate küsitluse aruanne, lk 18–37. [**Kivirähk** 2021]

[5] **Kasearu, K.; Tooding, L-M**. 2019. Eestvedamise, motivatsiooni ja füüsilise heaolu individuaalsed ja rühmatasandi tegurid. – Kompleksuuringu 2017–2018 aasta ajateenijate küsitluse aruanne. [**Kasearu, Tooding** 2019]

[6] **Demus** 2018; **Tooding, L-M.** 2020. Probleemsed suhted ja ajateenistuse tulemuslikkus. – Trumm, A. (toim). Probleemsed suhted ajateenistuses. Kompleksuuringu 2018–2019 ajateenijate küsitluse aruanne, lk 49–68.

[7] **Kivirähk** 2021.

for soldiers performing service assignments, but research does not confirm that. On the contrary, researchers say that an athletic physique is increasingly more important and expectations in that field are constantly being raised[8]. Physical fitness and preparedness, i.e. physiological sustainability, is strongly intertwined with mental endurance[9] and the will to fight—both mental traits that are expected from people in military positions[10]. According to a study by Pensgaard, Barlaug and Dyrstad[11] conducted with Norwegian soldiers who served in Kosovo, there is a connection between physical fitness and mental endurance. Since physical and mental durability are of key importance in a combat, it should be the same in training; in Estonia, this means conscription.

The theoretical framework and theses of this analysis use self-determination theory (SDT) and the concept of unit cohesion. According to SDT, basic psychological needs, i.e. autonomy, competence, and cohesion, form the basis for mental balance and the development of internal motivation that, in turn, support individual well-being[12]. Being physically active and motivated to exercise are more beneficial if a person's basic needs are satisfied and he or she acts on internal motivation[13]. In the context of conscription, achieving,

[8] **Knapik, J. J.; Reynolds, K. L.; Harman, E**. 2004. Soldier load carriage: historical, physiological, biomechanical, and medical aspects. – Military Medicine, January, Vol. 169(1), pp. 45–56. https://doi.org/10.7205/MILMED.169.1.45; **Vaara, J. P.; Groeller, H.; Drain, J.; Kyröläinen, H.; Pihlainen, K.; Ojanen, T.; Connaboy, C.; Santtila, M.; Agostinelli, P.; Nindl, B. C**. 2021. Physical Training Considerations for Optimizing Performance in Essential Military Tasks. – European Journal of Sport Science, Vol. 22(1), pp. 43–57. https://doi.org/10.1080/17461391.2021.1930193.

[9] **Hegberg, N. J.; Tone, E. B**. 2015. Physical activity and stress resilience: Considering those at-risk for developing mental health problems. – Mental Health and Physical Activity, Vol. 8, pp. 1–7. https://doi.org/10.1016/j.mhpa.2014.10.001.

[10] **Nindl, B. C.; Billing, D. C.; Drain, J. R.; Beckner, M. E.; Greeves, J.; Groeller, H.; Friedl, K. E**. 2018. Perspectives on Resilience for Military Readiness and Preparedness: Report of an International Military Physiology Roundtable. – Journal of Science and Medicine in Sport, Vol. 21, No. 11, pp. 1116–1124. https://doi.org/10.1016/j.jsams.2018.05.005.

[11] **Pensgaard, A. M.; Barlaug, D. G.; Dyrstad, S. M**. 2010. Relationship Between Soldiers' Service Performance and Physical Training Volume. – Journal of Military Veterans and Health, Vol. 18, No. 2, pp. 7–11. https://doi.org/10.1249/00005768-200605001-01182.

[12] **Ryan, R. M.; Deci, E. L**. 2002. Overview of Self-determination Theory: An Organismic Dialectical Perspective. – Deci, E. L.; Ryan, R. M. (eds.). Handbook of Self-determination. Rochester, NY: Rochester University Press, pp. 3–33.

[13] **Teixeira, P. J.; Carraça, E.V.; Markland, D.; Silva, M. N.; Ryan, R. M**. 2012. Exercise, Physical Activity, and Self-determination Theory: A Systematic Review. – International Journal of Behavioral Nutrition and Physical Activity, Vol. 9, article 78. https://doi.org/10.1186/1479-5868-9-78.

maintaining and developing an athletic physique depends on the extent to which the aforementioned three basic needs are satisfied during conscription. Coping with the physical challenges of conscription and successfully realising the potential of physical abilities, as well as getting recognition from superiors for a good performance, are all connected with competency. In this context, autonomy means the extent to which a person is able to independently develop his or her physical fitness (e.g. access to a gym) and the extent to which this is controlled or initiated by superiors. In the context of physical activity, cohesion means support from fellow conscripts and time spent on exercising together. Therefore, the question is: how much does conscription as a social environment (i.e. superiors, peers, and infrastructure) serve the need for autonomy, cohesion, and competence? If a conscript perceives that these needs are met, he feels content and satisfied; if not, he feels anxious.

On the other hand, in a military context, great attention is being paid to the cohesion of the service environment and its potential connection with performance[14]. Although there are many different approaches and opinions regarding the definition and interpretation of the cohesion of a service unit, one recurring assumption seems to be that greater cohesion within a unit leads to better performance. Salo[15] says that the different components of cohesion within a unit have to do with both individual and collective performance. In our analysis, the operationalisation of unit cohesion relies on the approach outlined by Meerits[16] that differentiates between strengthening and weakening horizontal cohesion (on the level of communication among conscripts), vertical cohesion (on the level of superiors), and organisational cohesion (on the level of the Defence Forces as a whole).

Researchers of sports sciences have studied the connection between the cohesion of a training group and the frequency and participation rate

[14] **Gully, S. M.; Devine, D. J.; Whitney, D. J**. 1995. A Meta-analysis of Cohesion and Performance: Effects of Level of Analysis and Task Interdependence. – Small Group Research, Vol. 26, No. 4, pp. 497–520. https://doi.org/10.1177/10464964124680; **Beal, D. J.; Cohen, R. R.; Burke, M. J.; McLendon, C, L**. 2003. Cohesion and Performance in Groups: A Meta-Analytic Clarification of Construct Relations. – Journal of Applied Psychology, Vol. 88 No. 6, pp. 989–1004. https://doi.org/10.1037/0021-9010.88.6.989; **Salo, M**. 2006. Beyond Training Alone: The Role of Cohesion Maximizing Group Performance. –Tiede & Ase, Vol. 64, pp. 160–174. https://helda.helsinki.fi/handle/10138/25867. [**Salo** 2006]

[15] **Salo** 2006.

[16] **Meerits, A**. 2012. Eesti Kaitseväes kasutatavad juhtimisstiilid ja nende seos sooritusega ning sidususega. Magistritöö. Tartu: KVA. https://ilias.mil.ee/goto.php?target=file_29107_download&client_id=uusilias. [**Meerits** 2012]

of training[17]. Direction is hard to determine in this connection. On the one hand, greater cohesion with a training group presumably increases the frequency of training, but the direction could also be opposite, meaning that more frequent participation in training would increase social cohesion. Similar connections are found between physical activity and general satisfaction: young people who are more physically active tend to be more content with their life, whereas young people who are more content tend to be more committed to maintaining a strong physique[18]. Kleszczewska et al.[19] explain this with general self-confidence: the satisfaction that a young person feels with his or her life is strongly related with his or her self-esteem, and self-esteem tends to improve in accordance with physical activity.

We can conclude that strong cohesion within a group could compensate for a person's lesser individual physical abilities, motivate a person to put more effort into conscription, and be more committed to physical development and improving his or her fitness which, in turn, results in greater satisfaction with conscription. A recent study conducted in Sweden revealed that, due to the restrictions in force during the COVID-19 pandemic, a decrease in physical activity caused a decrease in life satisfaction[20]. Therefore, restrictions on maintaining a certain level of physical activity derived from a physical environment may reduce general satisfaction. Conscription includes a change in the surrounding environment and living arrangements, causing a change in the exercise routine to which a person is accustomed, eventually leading to a lack of satisfaction with one's living arrangements and conscription in general. The question is to what extent unit cohesion can compensate for the change in a person's living arrangements.

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[17] **Spink, K. S.; Ulvick, J. D.; Crozier, A. J.; Wilson, K. S**. 2014. Group Cohesion and Adherence in Unstructured Exercise Groups. – Psychology of Sport and Exercise, Vol. 15, Issue 3, pp. 293–298. https://doi.org/10.1016/j.psychsport.2013.11.008.

[18] **Valois, R. F.; Zullig, K. J.; Huebner, E. S.; Drane, J. W**. 2004. Physical Activity Behaviors and Perceived Life Satisfaction Among Public High School Adolescents. – Journal of School Health, Vol. 74, No. 2, pp. 59–65. https://doi.org/10.1111/j.1746-1561.2004.tb04201.x.

[19] **Kleszczewska, D.; Dzielska, A.; Salonna, F.; Mazur J.** 2018. The Association Between Physical Activity and General Life Satisfaction in Lower Secondary School Students: The Role of Individual and Family Factors. – Community Mental Health, Vol. 54, pp. 1245–1252. https://doi.org/10.1007/s10597-018-0309-x. [**Kleszczewska et al**. 2018]

[20] **Eek, F.; Larsson, C.; Wisén, A.; Ekvall Hansson, E**. 2021. Self-Perceived Changes in Physical Activity and the Relation to Life Satisfaction and Rated Physical Capacity in Swedish Adults during the COVID-19 Pandemic – A Cross Sectional Study. – International Journal of Environmental Research and Public Health, Vol. 18, No. 2, article 671. https://doi.org/10.3390/ijerph18020671.

As a result of this argumentation, we formulated the following theses:

(1) *Thesis of physical preparedness* – higher self-estimation of physical abilities before service increases satisfaction with conscription.

(2) *Thesis of self-esteem* – an estimated improvement in physical fitness during conscription, i.e. improved self-esteem, increases satisfaction with conscription.

(3) *Thesis of mindset* – comprehending conscription as necessary increases satisfaction with conscription but the intensity of this satisfaction depends on physical preparedness.

(4) *Thesis of service environment* – greater cohesion in conscription affects the impact that physical fitness has on satisfaction with conscription, including by increasing the positive changes in one's physique and compensating for negative aspects.

To summarise, theses 1 and 2 are focused on the connection between (the changes of) physical fitness of a conscript and satisfaction with conscription. Thesis 3 explains the interrelation between physical fitness, perceived value of conscription, and satisfaction, and thesis 4 places the change in one's physical fitness and satisfaction with conscription in the context of the unit, e.g. the social environment.

3. Data, variables, and method

This analysis is based on answers provided by conscripts in complex surveys[21] from 2017/18 to 2019/20 (the data of 5,290 conscripts from surveys conducted at the beginning and at the end of conscription). All calculations were made with the SPSS 26.0 statistics software.

Dependent variable. The central dependent variable that is statistically explained through other variables is *satisfaction with overall service at the end of conscription* (measured on a 5-point scale where 1 stands for "not satisfied

[21] **Kasearu, K.; Murakas, R.; Talves, K.; Trumm A.; Truusa, T-T**. 2017. Ajateenijate kompleksuuring: metodoloogiline ülevaade. – Trumm, A. (toim.). Riigikaitse inimvara kaardistamine: uuringute tulemus, lk 9–14; **Allik, S.; Talves, K**. 2016. Inimressursi kompleksuuringu väljatöötamine kaitsevaldkonnas. – Trumm, A. (toim.) Inimressurss ja riigikaitse: Tervis. Artiklikogumik. Tartu: SJKK, lk 13–23. The methodologies used in the complex survey of 2016/17 for satisfaction and the complex survey of 2020/21 for coherence were different which is why these are not used in the current analysis.

at all" and 5 stands for "extremely satisfied"). Estimated satisfaction of conscripts has improved over time: according to the 2017/18 survey, the average satisfaction rate[22] was 2.76±0.05; in 2018/19, the average satisfaction rate was 2.97±0.06; and in 2019/20, the average satisfaction rate was 3.24±0.05 (confidence interval 95%).

Variables to explain satisfaction. The first explanatory variables used in this analysis were indicators of *socio-demographic background*. Figure 1 illustrates average satisfaction according to age and education, whereas we can see an increase in satisfaction over time. Statistically, conscripts with secondary education are the most satisfied and conscripts who continued their studies after acquiring secondary education are the least satisfied. If calculated according to the age group, satisfaction tends to decrease as age increases. The proportion of conscripts of the youngest age group keeps increasing every year[23], which could explain the overall increase in satisfaction. Conscription fits best in a young person's life at the time after graduating from secondary school, which is equivalent to the youngest age group. According to home language, the satisfaction of conscripts from Estonian-speaking families was a little higher compared to that of the rest (accordingly, 3.04±0.03 and 2.86±0.08) over the three years analysed herein.

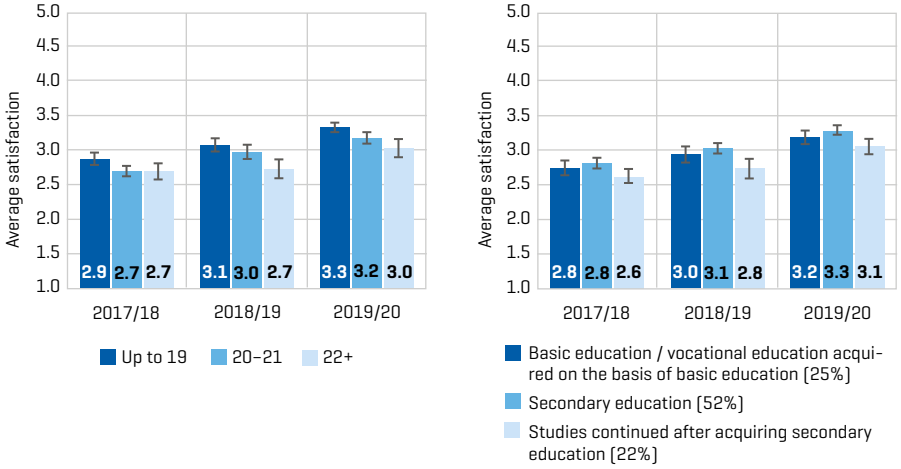

Figure 1. Satisfaction with service according to different age groups and educational levels (confidence interval 95%).

[22] Satisfaction was estimated on a sequenced scale whose numeric values are the basis for the numerical summaries calculated herein to get initial approximate understanding, e.g. the average rate, presuming that conscripts could have chosen the proper indicator from whole numbers.

[23] **Kivirähk** 2021.

Components of cohesion of conscripts are viewed herein as central explanatory variables for satisfaction; these are based on the block of indicators for cohesion, which is a permanent part of complex surveys[24]. Relevant gauges (individual scores converted into principal components[25]) are calculated by year[26]: vertical, horizontal reducer, horizontal amplifier, and organisational. Organisational cohesion measures the conscripts' commitment to the objectives of conscription and, thereby, the overall environment of conscription, a positive perception of conscription, and the extent to which a conscript can identify himself as a conscript or a member of the Defence Forces. Horizontal amplifying cohesion measures integration into the immediate social service environment—a unit—and "marching to the same beat" with other group members, i.e. social integration. Horizontal reducing cohesion measures conflicts within a unit, and vertical cohesion measures the level of trust and satisfaction with an immediate superior.

Correlation between satisfaction with service and the different types of cohesion is statistically significant ($p < 0.001$) but with different levels of intensity: the strongest was organisational cohesion with coefficient 0.60 (yearly variation 0.59–0.64); the coefficient for horizontal amplifier was 0.25 (yearly variation 0.22–0.30); the coefficient for vertical cohesion was 0.16 (yearly variation 0.14–0.21); and the coefficient for horizontal reducer was extremely weak at –0.09 (yearly variation –0.13–(–0.07)). These results illustrate a bilateral connection whose direction—from cohesion to satisfaction—in the context of this analysis is a subjective choice. During conscription, there can certainly be periods when higher satisfaction could significantly increase the positive attitude of a conscript about the Defence Forces and conscription.

The relatively strong correlation between organisational cohesion and satisfaction is completely logical because organisational cohesion as a principal component included statements whose approval was equivalent to satisfaction with the surrounding environment of conscription (feeling proud to be part of the Defence Forces, acknowledging the values of the Defence Forces; see additional table 1 in the Annex). Our purpose was not to verify this relatively predictable result but to determine the extent to which physical

[24] **Meerits** 2012; **Kasearu, Tooding** 2019.

[25] Principal component analysis is a statistical analysis method to present a large dataset of features in a summarised manner in order to illustrate the variability (dispersion) of different indicators as well as possible.

[26] See the model of principal components of 2019 in the Annex; patterns that appeared in other years were very similar.

fitness and changes in physical fitness, including relative to cohesion, are factors that affect satisfaction in addition to these entirely natural factors.

For the purpose of including the preceding attitude of conscripts regarding conscription as an element of retrospective satisfaction, we included into this analysis the estimation given by conscripts at the beginning of conscription about *the importance of conscription for my personal development* (1 – totally unnecessary, …, 4 – definitely necessary; correlation coefficient with satisfaction 0.40; average estimation of necessity did not decrease over the years: 2.61±0.04, 2.57±0.04 and 2.70±0.04, respectively).

For measuring *physical fitness before service*, we used a three-point self-estimation scale: 1 – excellent, good or relatively good (37% on average over the three years, hereinafter "good"); 2 – average or satisfactory (46%, hereinafter "average"); and 3 – dreadful, bad or relatively bad (17%, hereinafter "bad"). Over the years, we see an improvement in physical fitness before conscription (Figure 2, diagram on the left). Note that self-estimation of physical fitness is an overall indicator of physical well-being that is directly (and permanently) detectable in an athletic lifestyle before conscription (diagram on the right).

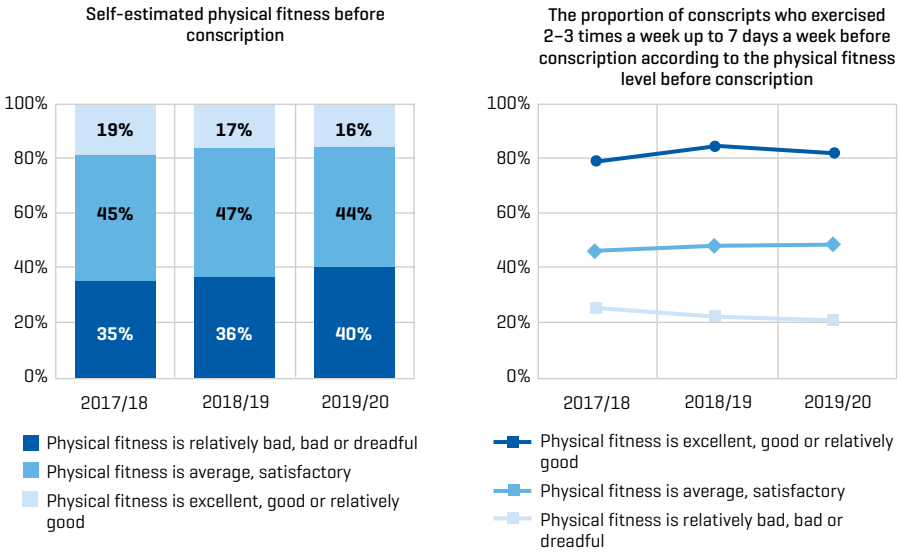

Figure 2. Self-estimated physical fitness before conscription and the habit of exercising before conscription

Is subjectively estimated physical fitness an adequate indicator of actual physical abilities? Yes, it is. Just look at the rate of successful performances at the standard physical fitness test[27] according to groups of good, average and bad shape at the beginning of service: in 2019/20, the relevant indicators at the beginning of conscription were 64%, 26%, and 9%, and by the end of conscription these had become more even, amounting to 74%, 58%, and 39% (compiled data from 2018/19 and 2019/20). As a second example to confirm that a subjective estimation of one's personal physical fitness is an adequate indicator, we will present to you the opinions of conscripts about the physical effort expected from them (an estimation given at the end of conscription) according to the three groups of physical fitness: conscription required slight or moderate physical effort according to 58%, 38% and 33% of conscripts. More than half of conscripts who considered their physical fitness to be good felt that they only had to put in a little effort, whereas only a third of conscripts who started out with bad physical abilities felt like they passed conscription with little physical effort.

How is physical fitness before service connected to satisfaction with service? According to the three groups of physical fitness, the group in self-estimated bad physical shape are those with an average satisfaction rate of 2.76±0.08, which is lower compared to the other two groups whose satisfaction rate is 3.03±0.05 (confidence interval 95%, comparable pattern of differences during the three years under observation). Good physical fitness before service is reflected positively in satisfaction with service and, in addition to presumably greater physical endurance in performing service assignments, better physical fitness settles some fears about coping with conscription and, therefore, helps to guarantee a more successful service. Therefore, leading a more athletic lifestyle before service is an indirect way to prepare for a satisfying conscription.

Subjective estimations about physical fitness at the beginning and the end of conscription are statistically in correlation, but with a moderate correlation coefficient of 0.3–0.4, meaning that physical fitness is quite intensively re-evaluated during conscription. For the purpose of characterising a person's physical fitness at the end of service, we used another measure in this analysis, i.e. conscripts' answers on *how would they assess their physical fitness compared to the time before conscription*: significantly better, better, the same, or worse.

[27] Stating from the 2018/19 survey conducted at the end of conscription, the results of the standard physical fitness test are collected from the EDF data base instead of the information from surveys.

In an analysis about satisfaction, this estimation about perceived changes in physical fitness at the end of conscription was the one that we preferred because a personally important change could still remain within the same category (e.g. physical fitness is still good but estimated as worse compared to the beginning of conscription, or still bad but better compared to the beginning of conscription). Furthermore, a subjective worsening of physical fitness might not mean that a conscript is performing his or her service assignments to a lesser extent; it could simply reflect lower self-confidence. For example, according to compiled data from 2018/19 and 2019/20, a total of 64% of conscripts who said that their physical abilities had significantly improved, and 68% of those who said that their physical fitness had worsened, actually passed the standard physical fitness test (on average, it is 64%).

The categorisation of conscripts according to self-estimated changes, as illustrated in Figure 3 (diagram on the left), shows gradual small improvements in self-estimation over the three years. The diagram on the right shows that exercising during leisure time during conscription has somewhat increased over the years, although changes in physical fitness have not varied much. We can conclude that changes in physical fitness during conscription are rather the result of performing service assignments, personal motivation for performing service assignments, and being committed to self-development in the light of the objectives of conscription.

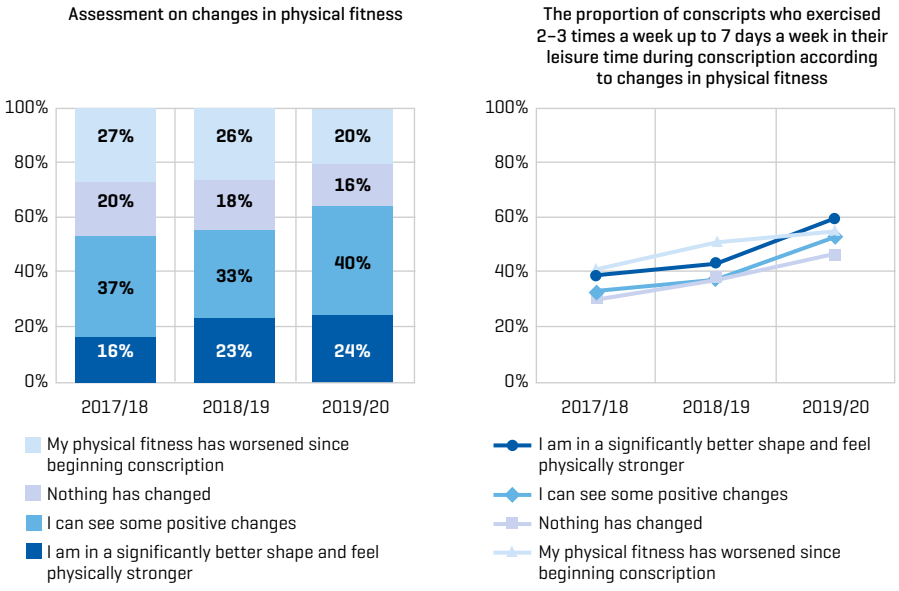

Figure 3. Changes in physical fitness and the habit of exercising during conscription

One reason for such a consolidation is that conscripts with little experience of but great interest in exercising have access to a gym, and conscripts who have led a very athletic lifestyle can maintain it throughout most of conscription[28].

Estimated improvement in physical fitness tends to result in greater satisfaction with the entire conscription: the group with significantly improved fitness had an average satisfaction rate of 3.53±0.06, and the group with mild positive improvements had an average satisfaction rate of 3.12±0.05 (confidence interval 95%). If no changes were perceived, the average satisfaction rate was 2.77±0.07, and if changes were perceived rather negatively then the satisfaction rate was 2.61±0.07. Figure 4 illustrates the average indicators along with confidence intervals (95%) and years, revealing that the pattern of satisfaction depends on changes.

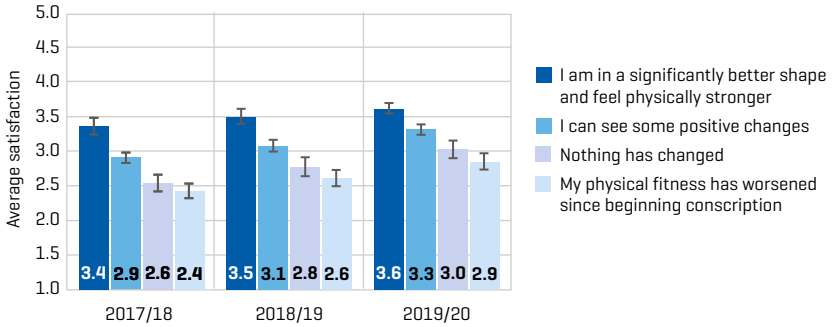

Figure 4. Estimated changes in physical fitness and average satisfaction (confidence interval 95%)

4. Statistical overview of factors of satisfaction using regression models

In order to study the coinciding effect of the previously-described factors of satisfaction, we will perform a multivariate correlation analysis based on an ordinal logistic regression model. We chose the ordinal regression model primarily because our dependent variable is not numeric but includes arranged answers. Therefore, a prognostic model for medial tendencies would not be appropriate; instead, we will give a relative assessment of the extent to which

[28] **Kasearu, K.; Sarik, M.; Tooding, L-M**. 2021. Ajateenijate füüsiline vorm ehk sportimisest kaitseväes. – Sõdur, Nr. 2(120), lk 46–51.

influence factors cause the answers to incline toward greater satisfaction as opposed to lesser satisfaction.

What *limitations* must be taken into consideration when using this model? First, the possibility for multicollinearity, aroused by the mutual correlation between the explanatory variables listed herein (relatively weak: coefficient exceeds 0.2 in four pairs of variables, the strongest of which is 15%, describing a mutual variation between the value of conscription for personal development and assessment on organisational cohesion, and almost 8%, describing mutual variation between self-estimated physical fitness before conscription and self-estimated changes in physical fitness). The second limitation for this model could derive from failure to comply with the so-called condition of concordance, which is detectable in some of the variables in our model (a relevant test available in the SPSS package is considered to be very sharp). In other words, inclination toward greater satisfaction is viewed successively in comparison with all other possible options (alternatives) for the dependent variable: extremely satisfied versus a lower satisfaction rate; extremely or rather satisfied versus a lower satisfaction rate, etc., whereas we presume that the same regression coefficient is suitable for describing the impact of the influence factor on an inclination toward greater alternative satisfaction for each available option. If the condition of concordance is not complied with, the regression coefficient may not always be suitable.

We compiled four models by adding factors, whereas we will only present two final models in detail for the purpose of saving space. The *source model* will be a prognosis of satisfaction pursuant to age group, education, home language, and year of study, whereas this model is of statistical significance ($p < 0.05$) according to all predictors: information criterions[29] AIC = 11,858, and BIC = 11,928, likelihood ratio $\chi^2 = 167$ ($p < 0.001$) with degrees of freedom 7 (this model is not presented in detail; N = 4,141; includes all predictors). In the youngest age group (up to 19 years of age), the relative likelihood of inclination toward greater satisfaction is 1.4 times higher compared to inclination toward lesser satisfaction, and in the medial age group (20–21 years of age) the same relative likelihood is 1.2 times higher than in the oldest age group

[29] The numeric value for AIC (Akaike information criterion) and BIC (Bayesian information criterion) becomes significant in comparison with other coefficients in models compiled pursuant to the same data, based on the principle "Less is more." The Pearson $\chi 2$ statistic likelihood ratio illustrates the extent to which a model is statistically different from another model without explanatory variables (all individuals are given the same prognosis for a dependent variable).

(22 years and older); according to home language, the relative likelihood is 1.2 times higher in Estonian-speaking conscripts compared to conscripts with a different home language (here and below, presuming all other variables in the model are of equivalent value). For the group that continued their studies after obtaining secondary education, the relative likelihood of inclination toward greater satisfaction is 83% compared to the corresponding relative likelihood of the two other education groups (basic education or vocational education acquired on the basis of basic education, and secondary education). This is in accordance with the introductory description given above. According to year of study, the inclination toward greater satisfaction has increased over the years (relative likelihood of inclination toward greater satisfaction is 50% and 63%, accordingly, given that the 2019/20 study was at 100%).

The suitability of fit of this model slightly increased when we added *self-estimated physical fitness before conscription* and *self-estimated changes in physical fitness during conscription*: AIC improved by 3.7% and BIC improved by 3.4%, whereas the likelihood function 612 with degrees of freedom 12 revealed that indicators of physical fitness play a statistically significant role in the prognosis of satisfaction (variety 445 with degrees of freedom 5, $p < 0.001$). Good or average physical shape before conscription indicates a statistically significant inclination toward greater satisfaction compared to a bad physical shape (relevant chances doubled or increased by one and a half, $p < 0.01$). If the physical fitness of conscripts significantly or mildly improved during conscription, they inclined toward greater satisfaction ($p < 0.001$) compared to conscripts whose physical fitness had rather worsened. The same applies for conscripts who did not detect any changes in their physical fitness in comparison with conscripts who estimated that their physical fitness worsened ($p < 0.05$). All these results are to be expected and confirm that physical well-being plays a statistically significant role in satisfaction with the entire service.

Further analysis revealed that the effect of physical fitness is permanent in developing satisfaction even if we include the indicators of attitude: the estimated value of conscription for personal development, institutional commitment, and the level of social integration during conscription are displayed in the gauges of cohesion (Table 1, Model A). However, we can no longer say that social-demographic traits have a direct statistical impact on satisfaction since these are now mediated by indicators of attitude with a weak correlation. For example, conscripts with Russian as the home language have a weaker organisational cohesion and horizontal amplifying cohesion compared to those

with Estonian as the home language, and they also consider the value of conscription to be slightly lesser for personal development.

Model A illustrates that conscripts in a good or relatively good physical shape before service (column exp (b)) have a 1.4 times higher chance, and conscripts with an average physical fitness level have a 1.2 times higher chance to incline toward greater satisfaction compared to those in a relatively bad or bad shape, other variables remaining equal. Conscripts who estimate that the change in their physical fitness during conscription was a significant improvement have a more than double chance for greater satisfaction compared to those who estimated that their physical fitness had worsened. For conscripts who perceived a moderate positive change, chances for satisfaction were 1.6 times higher, and for conscripts who did not perceive any changes, these were 1.2 times higher compared to conscripts who perceived their physical fitness as having worsened.

The higher the organisational cohesion for a conscript (i.e. personal values in concordance with those of conscription and the Defence Forces), the stronger his inclination toward greater satisfaction: a unitary increase in cohesion (expressed in units of standard deviation) leads to a 4.7-time increase in chances of satisfaction compared to lower cohesion. A unitary increase in horizontal amplifying cohesion almost doubles the chances of inclining toward greater satisfaction (this aspect of cohesion reflects a supportive and solidary synergy within a unit), and a unitary increase in vertical cohesion increases the same indicator by 1.5 (level of trust and satisfaction with an immediate superior). When horizontal reducing cohesion increases (reflecting the presence of unpleasant and unfair relationships within a unit), conscripts tend to incline towards lack of satisfaction, as expected.

Conscripts who estimated the value of conscription to be a point higher compared to their peers at the beginning of conscription have a 1.4 times higher chance of being satisfied. According to years of studies, the inclination toward greater satisfaction keeps increasing.

In conclusion, a perceived change in physical fitness is a factor that affects satisfaction with conscription by the end of it. Satisfaction is also, to some extent, predictable from the physical abilities of a conscript before conscription and their opinion about the importance of conscription for personal development at the beginning of conscription. All four components of cohesion used in this analysis are of statistical significance for explaining the formation of satisfaction with conscription.

When we included the indicators of attitude into the model, we saw a rapid increase in its goodness of fit compared to that of the previously-described models (compare coefficients AIC and BIC with the previously-given values; "Less is more"). Notably, indicators of physical fitness maintained a statistical descriptive power in addition to the strong predictors for satisfaction with service.

In addition to the principal influence of predictors viewed herein, Model B in Table 1 also includes a number of interactions[30]. We chose them pursuant to the thesis of service environment to illustrate the reflection of the attitude of conscripts and social service environment in connection with physical abilities and satisfaction.

Model B reveals that, in comparison with model A, the significance of principal influences (the direction of influence) for satisfaction has remained, but the numeric values that describe the impact have changed in accordance with the strength of interaction. With a medial level of organisational cohesion (level zero, since this is the principal component), the inclination toward increased satisfaction doubles when changes in physical fitness are positive and increases by one and a half if changes in physical fitness are mild but positive, compared to conscripts who estimated that their physical fitness had worsened. When self-estimated physical fitness remained the same, the level of satisfaction was quite similar to that of conscripts who estimated that their physical fitness had worsened.

When conscription is perceived as having a medial value for personal development, the chances of achieving greater satisfaction are twice as high for conscripts with good and average physical fitness compared to conscripts in a bad shape. If we study the interaction effect between self-estimated physical fitness before conscription and the importance of conscription for physical abilities, we see that the impact of perceiving conscription as something valuable for personal development may vary according to physical fitness at the beginning of conscription: with bad and good physical fitness, the interaction factor is greater (equal to zero, see column 'b') compared to average physical fitness (interaction factor negative).

[30] Interaction factor helps to describe whether the impact of factors in interaction are in a bilateral relationship regarding the prognosed indicator: a specific value of one factor has a pattern of impact of another factor in the formation of satisfaction, and a different value has a different pattern of impact. Note that when explaining the entire impact of single factors in interaction, we must consider both principal effect and interaction effect.

Table 1. Prognosis of satisfaction with conscription using an ordinal logistic regression model

	Model A[1]					Model B[1]				
				Confidence interval 95%					Confidence interval 95%	
	B	p	Exp (b)	Lower	Upper	b	p	Exp (b)	Lower	Upper
Physical fitness[2] (Pf) = 1	0.30	0.002	1.35	1.12	1.63	0.54	0.047	1.72	1.01	2.92
Physical fitness[2] (Pf) = 2	0.20	0.021	1.23	1.03	1.46	0.75	0.030	2.11	1.27	3.50
Physical fitness[2] (Pf) = 3	0		1			0		1		
Change[3] = 1	0.77	<0.001	2.17	1.77	2.65	0.68	0	2.00	1.63	2.46
Change[3] = 2	0.47	<0.001	1.59	1.35	1.88	0.41	0	1.51	1.27	1.79
Change[3] = 3	0.21	0.037	1.23	1.01	1.49	0.11	0.27	1.12	0.92	1.37
Change[3] = 4	0		1			0	.	1	.	.
Importance of conscription for personal development	0.32	<0.001	1.38	1.28	1.48	0.44	0	1.56	1.33	1.83
Organisational coherence (Oc)	1.55	<0.001	4.70	4.33	5.10	1.68	0	5.35	4.62	6.19
Horizontal amplifying coherence (Hac)	0.66	<0.001	1.93	1.81	2.07	0.76	0	2.15	1.89	2.44
Vertical coherence (Vc)	0.41	<0.001	1.51	1.42	1.60	0.41	0	1.51	1.42	1.60
Horizontal reducing coherence (Hrc)	−0.19	<0.001	0.82	0.77	0.88	−0.16	0.045	0.85	0.73	1.00
Survey year = 2017/18	−1.00	<0.001	0.37	0.32	0.42	−0.62	0.001	0.54	0.38	0.77
Survey year = 2018/19	−0.57	<0.001	0.57	0.49	0.66	−0.36	0.07	0.70	0.48	1.03
Survey year = 2019/20	0		1			1				
(Pf = 1) * Importance of conscription for personal development						−0.09	0.34	0.91	0.75	1.10
(Pf = 2) * Importance of conscription for personal development						−0.21	0.028	0.81	0.68	0.98
(Pf = 3) * Importance of conscription for personal development						0		1		

	Model A[1]					Model B[1]				
				Confidence interval 95%					Confidence interval 95%	
	B	p	Exp (b)	Lower	Upper	b	p	Exp (b)	Lower	Upper
(Change = 1) * Oc						−0.04	0.67	0.96	0.79	1.16
(Change = 2) * Oc						−0.15	0.08	0.86	0.72	1.02
(Change = 3) * Oc						−0.30	0.004	0.74	0.60	0.91
(Change = 4) * Oc						0		1		
(Change = 1) * Hac						−0.11	0.26	0.90	0.74	1.08
(Change = 2) * Hac						−0.14	0.10	0.87	0.74	1.03
(Change = 3) * Hac						−0.18	0.07	0.83	0.68	1.02
(Change = 4) * Hac						0	.	1	.	.
(Pf = 1) * Hrc						−0.17	0.074	0.84	0.70	1.02
(Pf = 2) * Hrc						0.06	0.55	1.06	0.88	1.26
(Pf = 3) * Hrc						0	.	1	.	.
AIC	9,072					9,063				
BIC	9,205					9,272				
Likelihood ratio χ^2	2,973	Number of degrees of freedom 17			p< 0.001	3,006	Number of degrees of freedom 29			p< 0.001

[1] This model includes indicators of age group, educational level, and main home language. Model B includes home language also in interaction with year of survey, revealing that the differentiating impact of language on satisfaction decreased over time, and in 2019/20 no statistically significant impact of language could be determined. As usual, the constants of an ordinal regression model are not displayed due to their insignificance in interpreting the model. Number of respondents: 4,141.

[2] Estimated physical fitness (Pf) before conscription: 1 – good, 2 – average, 3 – bad.

[3] Estimated changes in physical fitness (Change): 1 – my fitness level is significantly better, I feel like my physical abilities have improved, 2 – I can see some positive changes, 3 – nothing has changed, 4 – my physical fitness has worsened since I started conscription.

When other factors were of equal value, assigning conscription a single unit's worth of higher importance for personal development meant that conscripts in an average shape before conscription experienced a lesser increase in satisfaction compared to other levels of physical fitness. The same level of satisfaction can be achieved in different combinations of physical fitness and attitude: both when in a good shape in the beginning (maintained during conscription) and a bad shape in the beginning (improved during conscription), as opposed to an average fitness level, assigning conscription higher importance is a factor that amplifies satisfaction.

The statistical significance of the interaction effect between physical fitness before conscription and horizontal reducing cohesion is weak, but it can be interpreted in a number of ways. If a unit is more socially selfish (escaping obligations, ignoring orders, delegating assignments, etc., see additional table 1 in Annex), then the satisfaction of conscripts in good shape is lower (negative interaction factor) compared to that of conscripts who estimated their physical fitness as average or bad (if other factors coincide). Unbalanced relationships within a unit bother conscripts in a good shape more than conscripts in a bad shape.

Interaction between changes in physical fitness and organisational cohesion also turned out to be a factor of statistical significance in this model. When conscripts said that their physical fitness worsened or, conversely, significantly improved, their satisfaction increased more quickly when the level of organisational cohesion was higher, as opposed to mild positive changes or no changes (see, again, column 'b' where the coefficients for no changes and mild changes are negative, but for positive changes and worsening they are close to zero). If a person estimates conscription as "interfering" with his or her physical fitness (significant improvements or mild worsening) then stronger organisational cohesion (the institutional identity of the Defence Forces) is a more important factor for increasing satisfaction compared to cases where physical changes were mild or non-existent. We can conclude that with a personal positive change, a positive institutional assessment increases satisfaction and with a negative change—i.e. estimated worsening of physical fitness—a positive institutional perception can compensate for a potential decrease in satisfaction.

The impact of horizontal amplifying cohesion (level of sociality within a group) is also positive. There appears to be a similar but weaker pattern in the interaction factor compared to the impact of organisational cohesion.

5. Discussion and conclusion

Health and physical fitness are important factors for recruiting people in the military sphere. Conscripts suitable for service are selected according to the state of their health, with the standard physical fitness test being an important factor in assessing the abilities of conscripts. Therefore, physical fitness is a precondition for conscription; improving and maintaining an athletic physique as a conscript, and as a reservist, is advisable from the viewpoint of individuals as well as the Defence Forces. This analysis was focused on the importance of physical fitness and changes in physical fitness for achieving satisfaction with conscription and the role that different levels of cohesion play within a unit in forming the connection between satisfaction with service and individual physical fitness. The presumption is that better physical preparedness before conscription (thesis of physical preparedness) guarantees that a conscript integrates with the service environment more seamlessly and can cope with physical challenges more effectively which, in turn, results in greater satisfaction with conscription. Other presumptions included the theses of self-esteem and service environment, saying that conscription interferes with the everyday routine to which a person is accustomed, including exercising and athletic activities, which could lead to an estimated worsening of physical fitness and result in lower satisfaction with conscription, whereas people who were not very athletic at the beginning of conscription can detect improvements in their physical abilities and, therefore, be more satisfied with conscription. The analysis revealed that having an athletic physique before conscription is connected to satisfaction with conscription by the end of it, but estimated changes in physical fitness contribute even more to satisfaction with conscription. Therefore, both theses seem to be confirmed but the connection between perceived changes in physical fitness and satisfaction with conscription is more complicated. Conscripts with excellent self-estimated physical fitness probably perceive negative changes in their physical abilities due to changes in their exercise routine, but this is not directly transferrable to more objectively-measured physical abilities (i.e. results of the standard physical fitness test[31]). The connection between an athletic lifestyle and general life satisfaction in young people is explained with the thesis of self-esteem[32],

[31] **Tooding, L-M**. 2021. Ajateenijate kehaline võimekus ja selle muutus ajateenistuses. – Trumm, A. (toim.). Ajateenijate teenistuses edasijõudmine. Kompleksuuringu 2019–2020 ajateenijate küsitluse aruanne, lk 38–70.

[32] **Kleszczewska, Dzielska, Salonna et al**. 2018.

which can also explain the somewhat higher level of satisfaction in conscripts who improve their physical fitness during conscription. Estimated improvement in physical abilities and a presumable rise in self-confidence are intertwined phenomena that both contribute to the formation of satisfaction with service. The aspect of self-esteem is also supported by the conclusion that when conscripts consider conscription to be important for personal development at the beginning of conscription (thesis of mindset), satisfaction with conscription increases more for conscripts in both a good and a bad shape before conscription, as opposed to those in an average shape before conscription. Therefore, conscripts with an athletic physique who start service believing that conscription is beneficial for their personal development are more motivated to commit to conscription and can better preserve their physical fitness level, which is in accordance with their self-estimation. Conscripts in a weaker physical shape see conscription as a chance to develop physically and improve their fitness level, which directly improves a person's self-confidence. In both cases, a higher value given to the importance of conscription is an amplifying factor.

A connection between the different types of cohesion and satisfaction with service was to be expected: the higher the organisational, vertical and horizontal amplifying cohesion, the more conscripts are satisfied with service. One important conclusion, however, is that self-estimated physical fitness becomes an important factor in forming satisfaction with service even when we include the components of cohesion within a unit. Furthermore, it is evident that the connection between self-estimated physical fitness and satisfaction can vary in accordance with the cohesion of a unit. The satisfaction of conscripts in a good physical shape was more dependent on the horizontal reducing cohesion of a unit. Conflicts within a unit and indifference to following rules are factors that prevent conscripts with a good physical fitness level from realising their full physical potential and that, in turn, results in lesser satisfaction with the entire service. On the other hand, our analysis revealed that organisational cohesion and horizontal amplifying cohesion play an important part in forming satisfaction for conscripts who have perceived changes in their physical fitness. If a conscript feels that his or her physical fitness improves during conscription and, at the same time, highly values the Defence Forces as an organisation and his or her own unit, then satisfaction tends to be higher. Even though conscripts whose general physical abilities drop tend to be less satisfied with conscription, organisational and horizontal amplifying cohesion work as a "shield" against that. The negative impact of self-estimated worsening of physical abilities is weaker if conscripts

feel coherent with the Defence Forces and their unit. Therefore, individual physical abilities are an important factor for a more seamless conscription but they do not guarantee satisfaction with the entire process. More determinative is the preservation or improvement of physical abilities, cohesion within a unit, and the institutional values of the conscript.

In conclusion, physical fitness and abilities as a part of the entire performance of conscripts has two sides to it: objectively measured physical abilities, and self-estimated changes in physical fitness. From a personal perspective, a successful service and satisfaction with service depend more on the perceived improvement in physical abilities which, in turn, is supported by greater cohesion within a unit, with superiors, and with the Defence Forces as an organisation.

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Annex

Additional table 1. Components of cohesion according to data from 2019

	Cohesion[1,2]				
	Vertical	Organisational	Horizontal amplifying	Horizontal reducing	Communality
Some unit members try to avoid following orders	–0.07	–0.08	0.02	**0.78**	0.62
I believe the Defence Forces will play a part in my future	0.04	**0.81**	0.02	0.02	0.66
Some unit members pick on others (e.g. make condescending jokes)	–0.04	0.00	–0.24	**0.75**	0.63
The aspirant is great at his/her job	**0.93**	0.06	0.10	–0.05	0.89
I can count on most of my unit members	0.23	0.19	**0.73**	–0.21	0.66
I communicate with many of my unit members outside of service	0.06	0.09	**0.78**	–0.01	0.62
I trust my aspirant	**0.93**	0.13	0.17	–0.03	0.91
I feel proud to be part of the Defence Forces	0.17	**0.80**	0.27	–0.04	0.74
I feel a strong connection with my unit members	0.11	0.29	**0.82**	–0.12	0.78
Unit members can cooperate to act as a team	0.19	0.22	**0.75**	–0.13	0.66
I am satisfied with my aspirant	**0.94**	0.10	0.14	–0.03	0.92
Some unit members are violent	–0.01	0.09	–0.27	**0.53**	0.36
In a crisis I would be happy to follow the commands of my aspirant	**0.88**	0.22	0.14	–0.05	0.84
My basic values are similar to those of the Defence Forces	0.12	**0.78**	0.19	–0.01	0.65
The Defence Forces mostly associates with positive emotions	0.16	**0.80**	0.28	–0.09	0.75
Some unit members delegate their assignments to others	0.00	–0.09	0.04	**0.76**	0.59
Descriptive power, %	22.3	17.7	17.2	13.3	70.4

[1] Number of respondents 1,992. [2] Scale of indicators: 1 – do not agree at all, up to 7 – completely agree.