



MOVING SOLDIERS
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RISK-TAKING ATTITUDES AND BEHAVIORS AMONG MILITARY PERSONNEL IN DANGEROUS CONTEXTS

A Categorized Research Bibliography

Anders McD Sookermany, Trond Svela Sand, Gunnar Breivik

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THE KEY PURPOSE of Moving Soldiers – Soldaten i bevegelse is to present interdisciplinary thinking relevant to the field of interest of the Norwegian School of Sport Sciences, Defence Institute (NSSS/DI).

In the Norwegian Defence University College (NORDUC) business plan for 2014-2017, the overarching focus of the NSSS/DI research and development program (R&D) is described as to develop relevant knowledge of high quality in the field of military training, skill and performance development on the bases of sport sciences. In light of this, the institute's research focus in recent years has been linked to the development of a research program that has aimed to describe, understand and explain the important relationships that affect individuals and group behavior, development, and learning of skills related to military contexts (Strategic Plan for Sport and Physical Training 2006-2010).

The current General Plan for Sports and Training 2012-2016 emphasizes that the ongoing R&D commitments are to be further developed and that the focus is to be mainly centered around the conceptual pillars of training, performance and culture. In addition, there is an expressed goal that research should be practice-centered and interdisciplinary with a view to supporting the establishment and application of the Armed Forces' operational capability. In sum, the NSSS/DI R&D program could be seen as a (sports) scientific contribution to the development of good military training and performance cultures. In this sense, the institute's overarching research question could be defined as: "How are we able to develop good military training and performance cultures?"

A significant and, to some extent, defining feature of military performance is its relation to contextual danger. From a training and skill development perspective this underscores the relevance and need for developing soldiers and units that are both willing and able to take the risk of not only encountering danger, but also of mastering it. The concept of risk and risk-taking then becomes an issue of deepest relevance in military skill-acquisition.

In modern society in general and civilian life in particular we are accustomed to thinking of risk in relation to danger; as in something to be avoided or at least to be minimized. Although this might also be the case for military organizations, there is reasonable argument for adapting a different perception of risk, one that sees risk as something desirable; as for instance a possibility through which to seek and expose oneself to new and different experiences and knowledge, so as to gain new insight which can in turn be used to achieve military advantages.

Thus, from an R&D point of view questioning the perception of risk-taking attitudes and behaviors among military personnel seems to be at the core of developing good military training and performance cultures. However, the impression is that knowledge about the risk dimension in military skill-acquisition has not received enough attention in the military community.

With this understanding as a contextual background, this issue of Moving Soldiers is dedicated to one of our institute's R&D programs, namely the "Learning under Risk" (LuR) program. The overall aim of the program is to describe, understand and

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explain the risk dimension in soldiers' learning before, during and after participation in military operations. Hopefully, increased knowledge in this field may be used to improve military organizations' training and performance culture, and potentially increase their operational capability. The program applies an exploratory design, where the presented research bibliography makes up the first of three studies in the initial phase of the program. The second study, already under way, investigates the conceptual dimension of risk and risk-taking in military skill-acquisition. Whilst the third study of the initial phase is a national population survey, which explores risk-attitude in Norwegian society. Besides describing the perception of risk-attitude in society at large, it is also to serve as a baseline study for other studies to come within the military organization. In sum, the combined aim of these three initial studies is to provide a conceptual framework and research hypothesis's for future studies.

Accordingly, the bibliography at hand gives an interdisciplinary overview of scientific publications on risk-taking attitudes and behavior among military personnel in dangerous contexts. In sum, it covers 226 references of journal articles, books/chapters in books and PhD theses from military and non-military institutions around the world. The identified references have been categorized in themes such as "Risk-taking", "Sensation seeking", "Combat zone experiences", and "Performance under pressure", to name but a few. Hence, the bibliography should represent an essential tool for military leaders and scholars interested in risk-taking attitudes and behaviors in a military context.

We are happy to be able to present the LuR program, including this bibliography, in connection with this year's ERGOMAS Conference held at the Open University of Israel between June 8 and 12, and at the Interuniversity Seminars on Armed Forces and Society in Chicago between October 27 and November 1. Hopefully, the bibliography together with other presentations from the initial phase of the LuR program will spark an interest and curiosity among our fellow scholars towards the phenomenon of risk and risk-taking in relation to military contexts.

ANDERS MCD SOOKERMANY



"Learning under Risk" (LuR) is one of the institute's R&D programs. The overall aim is to describe, understand and explain the risk dimension in soldiers' learning before, during and after participation in military operations. Photo: Ole-Sverre Haugli / Hæren / Forsvaret

AUTHORS' SUMMARY

– MOVING SOLDIERS 0115

THE PURPOSE OF this edition of Moving Soldiers is to present a categorized overview of research related to risk-taking attitudes and behaviors in military contexts. The bibliography is grounded in a larger project – “Learning under Risk” – which has been launched to increase the knowledge about risk and its meaning for military performance. In order to gain an overview of previous research in this field, it is necessary to uncover the current knowledge status. Thus, what is required is a collection of references to journal articles, books and chapters in books, and Ph.D dissertations that deal with soldiers’ experiences and attitudes towards risk and risk-taking contexts. The gathering of references has been carried out by searching academic databases by keywords in different combinations (270 search terms altogether), followed by a review of reference lists and searches in Google Scholar. The procedure uncovered 226 references found to be relevant for this bibliography, and which have been categorized into the following 12 categories: Combat motivation; Combat zone experience; Fear and courage; On killing; Leadership; Life threat; Performance under pressure; Post traumatic growth; Risk-taking; Sensation seeking; Warrior ethos; Well-being. The findings are discussed with a view to relevance for the project “Learning under Risk”.



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researchgate.net/profile/Gunnar_Breivik



Photo: Tanja Renate Aakerøy / Hæren

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Introduction to the Bibliography

WE SHOULD CONFRONT DANGER AND TAKE CALCULATED RISKS, BUT ONLY WHEN WE HAVE DEVELOPED THE NECESSARY SKILLS AND TOOLS (Breivik, 2007, p. 12).

When we think of military conduct in its purest sense, as an instrument of organized political violence (Weber, 1965), it is no cliché to say that it is related to danger in an existential way – soldiers ultimately put their own or others’ lives at stake executing military skills in pursuit of political goals. By its very nature military conduct takes place in an environment of instability, chaos, uncertainty and destruction. Still, to meet political and military objectives soldiers and their units need to seek and hold the initiative in order to get on top of the situation. From a military skill-acquisitional perspective this accentuates the necessity of developing soldiers and units that are both willing and able to confront danger in the face of uncertainty by taking calculated risks on the bases of sound knowledge and well-developed skills and tools. Moreover, the bewildering nature of military conduct suggests that the excellence of the soldier must be closely related to the ability to learn and adapt on the run/as it happens (Sookermany, 2011). Thus, we propose that the concept of risk and risk-taking attitudes and behaviors should be investigated in correspondence with the issue of military skill-acquisition.

In accordance, the Norwegian School of Sports Sciences Defence Institute (NSSS/ DI) has launched a research program entitled “Learning under Risk” (LuR), which has the object of describing, understanding and explaining the risk dimension in



From a military skill-acquisitional perspective it is necessary to develop soldiers and units that are both willing and able to confront danger in the face of uncertainty by taking calculated risks on the bases of sound knowledge and well-developed skills and tools. Photo: Didrik Linnerud/Hæren/ Forsvarets mediesenter

soldiers’ learning before, during and after participation in military operations. This research bibliography represents the scientific starting point of this effort: the process of establishing an overview of the research field of risk and risk-taking in relation to the military in general and military skill-acquisition in particular. As we will see there are substantial contributions on the relationship between risk or risk-taking and the military on several topics; such as combat zone experiences, performance under pressure, leadership, motivation and personality. However, although several identified contributions point out more or less implicitly the consequences for learning, there are few studies that address the issue of risk in relation to learning as such.

Consequently, our ambition with this bibliography is threefold. Firstly, we intend to identify and display the accumulated body of risk-related research in connection with a military context. Secondly, by systematizing what we have discovered our object has been to categorize the common trails of research and identify their forefront and contributors. Finally, we intend to uncover the voids and gaps in the knowledge base, particularly in relation to learning, which can challenge us and other researchers to push further on the understanding of risk as a dimension in military skill-acquisition in the years ahead.

The Concept of Risk

The meaning of the word ‘risk’ has changed over the centuries and is today used in different contexts with a variety of content. Though the Latin term *risicum* had long been in use, a common understanding of the concept of risk seems to have emerged with maritime ventures in the pre-modern period and was related to maritime insurance as a label for the perils that could compromise a voyage (Lupton, 1999, p. 5). The essence of this notion is still found in contemporary use of ‘risk’, as in general it is understood to involve the possibility of a loss of some kind (Yates & Stone, 1992). Accordingly, the potential loss could be related to a diverse set of factors, for example economic or material, social and personal, or physical and mental (Breivik, 1999). More so, the possibility, or even the prospect, of losing something in these areas constitutes the perception of something as being risky in the sense of being perilous, dangerous, threatening, hazardous, uncertain or unsafe. Giddens for one argues that “Danger exists in circumstances of risk and is actually relevant to defining what risk is” (Giddens, 1990, p. 32). He follows up by saying that “A person who risks something courts danger, where danger is understood as a threat to desired outcomes” (Giddens, 1990, pp. 34-35). Thus, situations and environments marked by such adjectives together with the likes of chaotic, ambiguous, unfriendly, unfamiliar and so on makeup that which we in a broad sense of the term think of as risk-contexts (Giddens, 1991). In turn, they evoke emotional behaviors described in lineage of anxiety, fear, stress, concern etc. (Marks, 1987; Rachman, 1990).

Consequently, in modern society at large risk is predominantly interpreted as something negative that should be avoided (Yates & Stone, 1992). Nevertheless, there are those like Keynes and Adams who argue that risk could also be seen to have a positive potential (Adams, 1995; Bernstein, 1996). For as Keynes states humans are not security processing machines. Uncertainty gives us the option of alternative actions (Bernstein, 1996). Hence, the perception or perspective of *opportunity* signals the possibility of gaining something – if accepting/taking the risk. Accordingly, such a perception of risk suggests a different set of emotional qualities or behaviors connected to the concept of risk, for example courage, robustness, boldness, innovativeness etc. (Rachman, 1990; Shaffer, 1947; Walton, 1986). Thus, on a conceptual level we need to acknowledge risk as a dimension that involves both the possibility of losing something and gaining something (depending on our perception of how able we believe ourselves to be at mastering the risk-situation).

However, the way in which we see and address risk is by no means objective or neutral; as Mary Douglas pointed out these concepts and constructs have strong social and cultural underpinnings (Douglas, 1992; Douglas & Wildavsky, 1982). Thus,

embedded in the concept of risk are, as Breivik argues, several basic assumptions about what constitutes ‘normal’ or ‘acceptable behavior’ (Breivik, 2007, p. 11). With strong roots in the age of Enlightenment the principle idea of modern society is that through science, technology and rationality man is to become master over nature: “L’homme est maître et possesseur de la nature”, as René Descartes described it (Descartes, 2006). Consequently, in relation to risk the ‘normal’ behavior towards risk then becomes seeking to control it; in the sense of minimizing it through structural and objective measures. As Yates and Stone point out, several authors argue that “in isolation there is no such thing as acceptable risk; because by its very nature, risk should always be rejected” (Yates & Stone, 1992, p. 3). Thus, the norm of modern man could be understood to be ‘risk-avoiding’ and ‘safety-seeking’. In contrast ‘risk-taking’ is accepted as a rationale only under certain conditions, for instance in times of crises and emergency. However, there are substantial voices arguing that the consequences of modern society, as in modernity, takes its toll on human nature in general and risk in particular (Giddens, 1990). Hence, there are authors like Adams who do not believe that people in general are risk-averse: “Zero-risk man is a figment of the imagination of the safety profession. Homo prudens is but one aspect of the human character. Homo aleatorius – dice man, gambling man, risk-taking man – also lurks within every one of us” (Adams, 1995, p. 16).

That said, even though culture, tradition and habit are important factors guiding our understanding of the concept of risk, there still seem to be indications that on a deeper (human) level individual attitudes and behaviors towards risk are naturally inherent in human beings. As Breivik argues, “evolutionary anthropology shows how humans were adapted to, and formed by, shifting environments through the last millions of years from *homo habilis*, or earlier, to the present human being” (Breivik, 2007, p. 14; Buss, 1988; Staski & Marks, 1992). In the last 200-300 years the prevailing views of enlightenment and modernity have cultivated the human being by developing its brain, thus enabling the use of symbolic powers like language, communication and abstract thinking over bodily strength and robustness (Breivik, 2007). In the process, man is portrayed as being a weak and frail creature. From an evolutionary standpoint, however, humans have combined exploration with the willingness to take chances. “They took the chance to leave the life in the trees, stepped down on the ground, and then spread out to all climate zones and geographical areas. Humankind is adapted to a life that involves challenges and risks” (Breivik, 2007, p. 15). In fact, the first personality-related gene that was identified in relation to the big human genome project was a risk-taking gene (Cloninger, Adolfsson, & Svrakic, 1996).

In sum, nature, culture and context seem to offer relevant/substantial explanatory substance for describing, understanding and explaining human attitudes and behaviors towards risk. More so, the combination of nature and culture appears to form the basis of a personality trait related to levels of risk tolerance, such as risk-avoidance, risk-acceptance, risk-taking, or risk-seeking.

With these introductory reflections as a background we were interested in finding out the kind of risks and risk-taking that have been identified in relevant military research. We were interested in publication patterns, the most important research milieus and the dominant research strategies and methods.

Methodology

The gathering and examination of references to academic publications relevant for “Learning under Risk” was carried out in four stages. The first stage was conducted by searching four EBSCO academic databases¹ by 27 keywords in different combinations. Six context terms², four risk terms³, five personality terms⁴, three emotional terms⁵ and nine learning terms⁶ were searched in the following combinations:

- Context terms + Risk terms → 24 searches.
- Context terms + Personality terms → 30 searches.
- Context terms + Emotional terms + Learning terms → 162 searches.

The 216 search combinations produced a considerable amount of references. Although the searches were narrowed to title and abstracts only, the majority of the references revealed were outside the scope of the present bibliography. Inclusion or rejection of references was thus based on the reading of abstracts. In the second stage all titles of references included in the first stage were searched in Google Scholar. By reviewing publications indexed in Google Scholar, which cites the searched title, we were able to uncover additional references of relevance. In the third stage literature lists of the references collected in the first two stages were

¹ Military & Government Collection; PsychINFO; Academic Search Premier; E-journals.

² Armed Forces, Battle, Combat, Military, Soldier, War.

³ Danger, Hazard, Risk, Threat.

⁴ Big Five, Eysenck, Hardiness, Sensation, Thrill.

⁵ Anxiety, Courage, Fear.

⁶ Adaption, Behavior, Education, Exercise, Learning, Maneuver, Preparation, Skill, Training.

reviewed to disclose further references of relevance. In the fourth, and final, stage all gathered references were analyzed and categorized with respect to application to the project “Learning under Risk”. The categorization was conducted in an inductive manner, i.e. the gathered references were grouped using shared themes identified by reading abstracts and text segments. Accordingly, the naming of the categories was not predetermined by the scope of the project, but, rather, was grounded in the identified themes.

Results and Discussion

The four stages uncovered 226 references found to be relevant for this bibliography. As illustrated in Figure 1 the majority of the uncovered references have been published in the last 15 years, with a distinct increase apparent during this same period. This growth follows a general trend observed in the academic world over the last two decades where increasing emphasis has been placed on the importance of publishing research in peer-reviewed journals. Correspondingly, this is reflected in that almost two-thirds of the references included in this bibliography are articles published in peer-reviewed journals (n=139, 61%). This was followed by: books/reports (n=57, 25%); Ph.D theses (n=15, 7%); and book chapters (n=15, 7%).

Analysis of the peer-reviewed articles (n=139) shows that the vast majority are based upon empirical research (n=114, 82%). Those articles are first and foremost developed from quantitative material, whereas qualitative work seems relatively

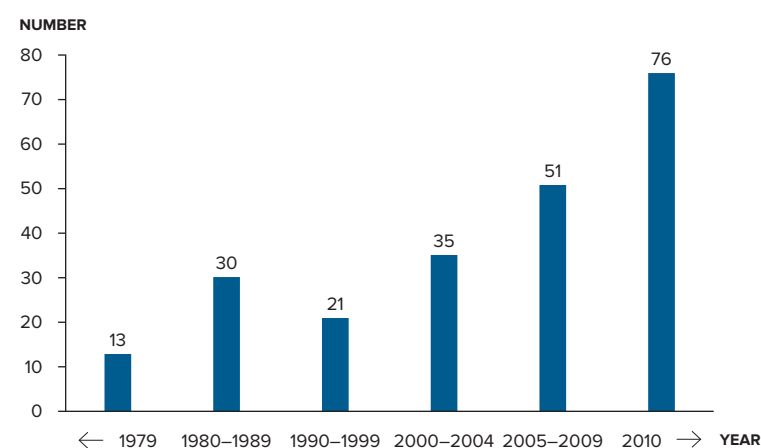


FIGURE 1: CHRONOLOGICAL DISTRIBUTION OF REFERENCES

rare. The dominance of quantitative work is reflected in that half (n=69, 50%) of the articles are published in journals aiming for research related to psychology, followed by journals connected to medicine (n=18, 13%). The remaining journals can be grouped as: sociology (n=17); international studies (n=10); leadership (n=6); and risk research (n=6); whereas the last 12 references to peer-reviewed articles cover among others philosophy (n=2) and history (n=2).

It is surprising that only one-third (n=46, 33%) of the peer-reviewed articles are published in journals with a specific aim of military research (across academic disciplines). Among those references, articles published in *Military Psychology* (n=17) make up the largest pool, followed by articles in *Armed Forces & Society* (n=8) and *Military Medicine* (n=5). The peer-reviewed articles (n=92) published in non-military journals are distributed across a wide range of journals. With the exception of the *Journal of Risk Research* (n=6), no journals are represented with more than three articles.

It is a fact that research in most academic fields is dominated by scholars originating from American research institutions (see Table 1). This is particularly the case for military research and is also reflected in the references gathered in this bibliography. According to the table below, 45% (n=62) of the peer-reviewed articles have a first-author affiliated to an American research institution. Israel (n=18, 13%) and the UK (n=18, 13%) are the second and third leading countries with respect to first-authorship, while the Netherlands, Norway and Sweden have more than five first-authorships. The distribution among countries is more or less the same when co-authorships are included. Altogether, 17 countries are represented with first-authorships; whereas 19 countries are represented when co-authorships are included. Correspondingly, the dominance of American references is even more pronounced among the three other publication categories: 89% of the books and reports (n=51); 73% of the Ph.D theses (n=11); and 60% of the book chapters (n=9).

The 226 references have been grouped into 12 thematic categories, as shown in table 2. The two largest categories are “Combat zone experiences” and “Performance under pressure” with 34 and 33 references respectively. This is followed by: “Risk-taking” (n=26); “Leadership” (n=26); and “Combat motivation” (n=22).

Among personality variables “Sensation seeking” (n=18) has attracted most interest and seems to be most relevant. Emotional variables like “Fear and courage” (n=16), “Life threat (n=13) and “Post traumatic growth” (n=15) have also received considerable attention. Less attention has been given to moral problems like “On killing” (n=10)

TABLE 1: GEOGRAPHIC DISTRIBUTION OF AUTHORSHIPS (PEER-REVIEWED ARTICLES)

	FIRST-AUTHORSHIPS	CO-AUTHORSHIPS	TOTAL
USA	62	87	149
Israel	18	19	37
UK	18	9	27
Netherlands	9	11	20
Sweden	7	13	20
Norway	7	10	17
France	3	6	9
China	2	6	8
Belgium	0	7	7
South Africa	3	1	4
Australia	1	3	4
Estonia	3	0	3
Canada	1	1	2
Turkey	1	1	2
Denmark	1	0	1
Ireland	1	0	1
India	1	0	1
Switzerland	1	0	1
Germany	0	1	1
TOTAL	139	175	314

and “Warrior ethos” (n=10). At the bottom of the list we find some studies on “Well-being” (n=3). Problems related to existential and moral aspects of being a soldier have received less attention.

It should be noticed that none of the 12 categories are called “learning”. This may seem surprising when considering the overall perspective of this research program. However, the absence of a learning category does not mean that learning or related concepts have not been addressed in the gathered references; instead this absence can be explained by the inductive approach to the construction of categories. That said, it is a fact that how learning takes place in military situations with risk is a subordinate theme in most of the references in this bibliography, which indicates why no learning category was identified. Furthermore, the inductive approach implied that the references were placed in one category only. This was based on an evaluation of the main theme of the publication, however we would like to stress that the majority of references may well include relevant information connected to other categories also.

TABLE 2: OVERVIEW THEMATIC CATEGORIES

Combat zone experiences	34
Performance under pressure	33
Risk-taking	26
Leadership	26
Combat motivation	22
Sensation seeking	18
Fear and courage	16
Post traumatic growth	15
Life threat	13
On killing	10
Warrior ethos	10
Well-being	3
TOTAL	226

Conclusion

We found that the majority of references to risk-related concepts were from the last 15 years, which reflects the increasing importance, also in the military, of knowledge based on research. Empirical studies published in academic peer-reviewed journals, in particular, dominate the references. This corresponds with a general trend in academic institutions and gives respectability to military research. However, relevance is important and future military risk-related research needs to keep close contact with the military practice field. It is of some concern that only one third of the peer-reviewed articles were published in journals that are military specific in their aims.

Another finding is the dominance of quantitative research. To be relevant and close to the practice field qualitative studies are needed and we would welcome more of this type of research in the future. Specific military situations and highly specialized military operations demand context-sensitive research. Qualitative studies here may be important.

Risk-related military research is unevenly distributed among nations, with a clear dominance by the United States followed by Israel and the United Kingdom. Norway and Sweden also perform relatively well compared to big nations such as France. It seems that nations that are involved in military operations and have academic resources and traditions also play the central role in risk-related military research. It is therefore no surprise that the United States and Israel are at the top of the totals table. We expect growth in risk-related research from big countries like China and India in the future, especially since they are showing a huge general increase in academic performance. As various types of military or semi-military conflicts spread around the world we will probably see a more even distribution of risk-related research among countries, as more countries will be directly or indirectly affected by conflicts – including terrorist attacks. The threat of terrorism may play a role as facilitator and enhancer of relevant research.

The overall perspective of the research program, as sketched in the introduction, is to understand how learning takes place in military situations with risk, both before, under and after deployment. The overview of the research shows that some thematic categories are well represented whereas others have attracted little attention. Research related to experience, performance and risk-taking tops the list, whereas moral and existential problems are less well represented. Little attention is given to learning and how people develop relevant forms of behavior in relation to different types of risk. We, therefore, welcome a relevant developmental and

process-oriented perspective which could produce results that are relevant to how soldiers train before deployment, how they handle risk of various types in combat zones and how they adjust their risk-taking behaviors after deployment.

We stressed in the introduction the importance of cultural factors. It would be especially interesting to develop studies that address similarities and differences in the “risk culture” of different countries, including differences inside the military systems. Furthermore, as more women, in more countries enter the military a focus on gender perspectives in relation to risk and risk-taking would be of interest and importance.

As discussed in the introduction, the concept of risk has traditionally been understood in negative terms, as the possibility of loss of some kind. This is also the dominant conception in the studies we identified in this bibliography. However, as argued in the introduction risk also contains positive possibilities. It would be interesting to see learning in military situations addressed by research projects with a more open understanding of the positive and negative aspects of the risk construct. Furthermore, as part of the learning project we also want to widen the risk concept towards more than just the common dimensions. Categories such as “courage and fear”, “warrior ethos” and “well-being” point to forms of risk that can be called “social”, “existential” or “moral”. In military situations one may not only lose one’s life but also put one’s integrity, friendship, life project, status and so on, in jeopardy. The concept of risk, thus, contain more than just the common forms of physical risk or economic risk, but may be broadened to a more finely nuanced and extended concept of risk and risk-taking. Such a study is already under way in relation to the general Norwegian population, and specific military groups will be targets for in-depth studies of a broader and more nuanced notion of risk and learning under risk. This wider risk concept may, thus, be better suited to cover the different dimensions of military risk and risk-taking

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Future military risk-related research needs to keep close contact with the military practice field. These soldiers from the Norwegian Army Special Operatin Comand are practicing in Rena military camp. Photo: Torbjørn Kjosvold / Forsvarets mediesenter



Photo: Anette Ask / Forsvaret

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This edition of “Moving Soldiers” presents a categorized overview of research related to risk-taking attitudes and behaviors in military contexts, and is grounded in a larger project – “Learning under Risk” – which has been launched to increase knowledge about risk and its meaning for military performance. The bibliography contains 226 references categorized into the following 12 categories: Combat motivation; Combat zone experience; Fear and courage; On killing; Leadership; Life threat; Performance under pressure; Post traumatic growth; Risk-taking; Sensation seeking; Warrior ethos; and Well-being. The findings are discussed with a view to relevance for the project “Learning under Risk”.

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