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# Traumatic Experiences of Unintentional Falls as a Factor Inspiring Methodological Modifications of Intervention Programmes

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## ABSTRACT

'Polish School of Safe Falling' is characterised by a certain paradox. The main creator of the tests, author and co-author of intervention programmes dedicated to various groups at increased risk of falling, but also of prevention programmes, experienced several traumatic events himself. In our opinion, knowledge of these events adds credibility to the recommendations included in the concept of modern preventive medicine. This is, at the same time, the main cognitive and application goal of this work. We begin this study of several cases with an incident where this expert held a judo qualification at first dan level and several years of experience in teaching safe falls to special forces soldiers (according to his own programs taking into account the specifics of military combat in close contact with the enemy and the necessary, intensive exposure of one's own motor skills). The last incident involving this expert occurred 50 years later, equally paradoxically, as during AHFE 2024, Hawaii, where the achievements of the 'Polish School of Safe Falling', among others, were recommended. Fall in the bathroom, in a seemingly safe outdoor environment, confirms the validity of two universal conclusions: 1) the ability of safe fall in certain circumstances of loss of balance and inevitable fall combined with a collision with a vertical obstacle, although it can minimise adverse health effects, the lack of such skills poses a very high risk of even loss of life in similar situations; 2) the relevance of the most general of the rules of agonology, namely 'the principle of a controlled surrounding' is well exemplified by the events described in this case study.

**Keywords:** Polish school of safe falling, Preventive medicine, Principle of a controlled surrounding, Rear fall

## INTRODUCTION

The history of science provides evidence that fortuitous circumstances have fostered discoveries that have been momentous for the understanding of the nature of certain phenomena and links to other phenomena, for the progress of civilisation, but above all in relation to health. Among the well-known is the story of Louis Pasteur's (1822–1895) discovery of a vaccine against rabies. Laboratory dogs were injected with material from animals that had died of rabies. The course was the same as in the case of a bite - death in

 

painful convulsions. Pasteur initially did not realise that he was not dealing with bacteria, but with an unknown phenomenon - a microbe. In 1885, a distraught father brought his son, bitten by a rabid dog (14 wounds), to Pasteur and forced his first vaccination. The boy's name was Joseph Meister, from Ville. The experiment was successful, the boy did not fall ill. Pasteur obtained subsidies from home and abroad to build the institute that still operates under his name today, where Joseph Meister worked until the Second World War (Feinstein, 2008; Biała & Kołaczkowska, 2020).

It is not only the examples of Louis Pasteur's observations (another relates to the discovery of a vaccine for chicken cholera) that demonstrate the potency of the prepared mind's association of links between random events and other phenomena. Ignatius Semmelweis (1818–1865) linked an epidemic of puerperal fever to the dirty hands of doctors. These doctors, immediately after finishing their work in the dissecting room located on the hospital grounds, headed to the rooms of the maternity ward to examine the patients staying there or to deliver babies. Meanwhile, in another ward whose doctors did not have access to the prosectorium, the mortality rate was much lower. No one had previously suspected that various deadly germs could be carried on surgical instruments and on the doctors' clothes and even bodies. It was not until Semmelweis was the first to consciously highlight their existence and call them 'cadaveric venom'. He successfully fought (we emphasise the use of this very key term agonisingly by authors of publications reporting on this event) for the introduction of basic hospital hygiene rules – still respected today (Obenchain, 2016).

The example of Adam Bochenek (1875–1913) shows another facet of the scientist's mind in the final circumstances of his tragic end to life. This young professor of anatomy at Jagiellonian University committed suicide by injecting himself with 'cadaveric venom'. However, he documented his experiences in writing until he lost consciousness (Bilikiewicz, 1968).

The cases described in this paper have nothing to do with the world of bacteria and microbes. They concern motor responses to an unintentional fall by the same person in four different circumstances, but also health consequences. The uniqueness of these events is demonstrated by three criteria. Firstly, the person was professionally prepared to collide with the ground as a result of an unintentional fall and had deepened this motor competence despite the years. Second, 50 years had elapsed between the first and last of the falls described. Thirdly, each circumstance was different, difficult to predict and only gravity did not change its properties. In our opinion, knowledge of these incidents adds credibility to the recommendations made by the experts of the 'Polish School of Safe Falling'. They are included in the concept of modern preventive medicine. This is, at the same time, the main cognitive and applied purpose of this work.

## MATERIAL AND METHODS

We interviewed the creator (co-developer) of tests, intervention programmes dedicated to various groups at increased risk of falls, but also prevention programmes, based on a single question: has he experienced traumatic events

in his life concerning unintentional falls and, if so, have they influenced subsequent findings and recommendations?

## RESULTS

### Case 1

At the age of 25, during an individual training session (throwing a basketball combined with a jump shot), the floor collapsed under his left leg after landing. He reflexively performed a rear fall. However, it was impossible to perform the fall directly on the upper back in combination with a cushioning impact with the hands and a roll over the shoulder. The execution of this elementary safe fall technique was prevented by a 'trapped' left leg in the broken floor. Under such external circumstances, overcoming the threat of a left leg injury proved only partly possible due to the professional competence of the collision with the ground as a result of the loss of balance and the fall. The dislocation near the ankle joint required immobilisation in a plaster cast for 10 days. The expert ignored medical advice and freed himself from the 'plaster boot' after two days, but did not give up his daily walks and motor play with his two-year-old son. Left ankle joint degeneration is a consequence of these omissions and subsequent multiple injuries to this body part.

### Case 2

Ten years later, during a starry winter night, he and two colleagues entered a dark car repair shop. The words of one of them 'be careful you don't fall into the sewer' coincided with a situation where his right leg had just failed to experience the resistance of the ground. Recalling the incident, he reported: i remember one thought 'are there any tools left at the bottom of this car pit, after all, i was already performing the necessary motor activities to cushion the inevitable collision with the ground due to a fall from a height with my feet down; however, while making a half-turn to the left to avoid falling forward onto the opposite wall of this car pit, I felt the impact of my knee; the walls of the pit helped to slow the fall somewhat, ending with a cushioning impact of my hands on the flat concrete floor before my back hit it, and at that moment the owner of this car repair shop switched on the light. The astonishment of the colleague walking behind him (a peer, a volleyball player of less than two metres) did not end with the statement: 'if I had been the one walking in front of you, I would definitely be broken now'. After a while he asked: 'where did you cut your right trouser leg?'. The impact of his right knee on the metal casing of the edge of the car pit was so strong that the material of his winter trousers did not hold up. Unfortunately, many years later, the pain in his knee often reminds him of this event.

### Case 3

Another decade and a few more years later, the incident took place in circumstances that many people using swimming pools and leisure baths are likely to experience. This fall aroused the interest of many people and took place during General Assembly the International Military Sports Council

(this an organization known as CISM – the abbreviation comes from French Conseil International du Sport Militaire) on the Greek island of Haikidiki, at the turn of the last century. An expert lost his glasses in a hotel-side swimming pool filled with salty sea water. When, after leaving the pool, he tried to jump up and down on one leg to empty the water from his ear, he saw his own feet above him and reflexively cushioned his fall onto the sliding floor backwards with a dynamic impact of his upper limbs. At the bang of the collision between his wet body and the also wet floor, a large number of resting people rose from their deckchairs. Krzysztof Klukowski (at that time a member of the Medical Commission of the CISM), who at the time was searching at the bottom of the pool for his glasses, calmed the curious with a brief statement: 'without worries, professional' Not to be outdone, he was also co-author of the pioneering paper Collision avoidance and safe fall exercises for rehabilitation purposes (Kalina et al., 1998).

### Case 4

The last incident involving this expert occurred 50 years later after 'case 1'. Somewhat paradoxically, because during AHFE 2024, Hawaii, where the achievements of the 'Polish School of Safe Falling' were recommended, among others. He attempted to enter the bathtub frontally rather than sideways and, to top it off, barefoot (rather than, as he himself has repeatedly recommended, to do so in shower slippers) deceived by the rough surface lining the bottom of the bathtub – which turned out to be extremely slippery. As on the Greek island of Haikidiki, but for a different reason, his feet followed the wall towards the ceiling. Admittedly, his hands stopped his falling body backwards and there was no collision between his back and the floor. His head, habitually with his chin firmly attached to his torso, was not in danger, but a piercing pain in the region of his left kidney immediately made him realise that there had been a collision with the toilet installed next to it. Had the attempt to enter the bathtub been a few centimetres further to the left, the likelihood of a lumbar spine injury was very high. He ended up with a five-day problem of moving his lying body from side to side.

## DISCUSSION

The events described should not be classified as historical curiosities. They are important considerations from the perspective of further optimising the prevention of the consequences of unintentional falls regardless of age and established motor competence concerning precisely the safe fall. Mastering safe fall techniques is undoubtedly the highest form of collision injury prevention and the corresponding methodology is described not only in works associated with INNOAGON (Kalina et al., 2003, Harasymowicz & Kalina, 2026), but also in judo, jujitsu, aikido, hapkido etc. textbooks. However, it is impossible to develop a set of circumstances in which each safe fall should be applied and, consequently, each repeated many times during special training sessions. On the other hand, it is possible to train motor adaptability to such an extent that an individual is able to make optimal use of these still unique (rather than common) skills to protect life and/or prevent

serious injury from unintentional (but also sometimes intentional) falls. The incidents described in this thesis are such an example.

Exercising the body to achieve this level of adaptation is only part of mindful prevention. A parallel task is to improve the cognitive sphere and the examples described here are justification for such an assumption. With the exception of 'case 1', the others are testimony to ignoring the principle of a controlled surrounding.

The name of this rule partly coincides with the title of the extensive fourth chapter of the praxeological theory of combat and compromise at the interface with ethics – 'The Controlled Surrounding Rule in Unarmed Combat' (Rudniański, 1989, pp. 63–95). However, we do not wander into semantic traps. Rudniański's theory stresses at the outset that elements of struggle are present in almost every human activity, but at the same time draws attention to the difficulty of formulating a general rule of struggle. That is, the kind of rule that would cover any struggle involving humans. This emphasis 'involving humans' is all the more important as recent findings provide evidence that the key agonology term 'self-defence' has been used since the beginning of the previous century by authors in the titles of indexed papers belonging even to radically different scientific disciplines – over 1560 publications (Kruszewski & Gąsienica-Walczak, 2023).

This issue is only signalled. A broader analysis is necessary, as falling (unintentional and intentional), although a key phenomenon of modern preventive medicine, is only one possible application of the principle of a controlled surrounding. It takes both methodological competence and skill with words to ensure that, on the terrain of scientific justification, the phrase 'a fall is an example of fighting gravity' is not turned into a symbol for crossing the boundary of ridiculousness. The incidents described in this work probably prove emphatically that reducing the preparation for this fight (and it does not matter whether it is put in inverted commas or not) to mere repetition of safe fall techniques would be a waste of an opportunity to create a system of effective prevention for a global knowledge-based civilisation. The recommended INNOAGON methods balance the impact on the motor and cognitive spheres and are also based on empirical justifications (Kalina, 2017, 2018, 2023; Kalina & Kalina, 2020; Waszkiewicz, 2023).

## CONCLUSION

A fall in the bathroom, in an apparently safe outdoor environment, confirms the validity of two universal conclusions: (1) the ability of safe fall in certain circumstances of loss of balance and inevitable fall in combination with a collision with a vertical obstacle, although it can minimise adverse health effects, the lack of such skills poses a very high risk of even loss of life in similar situations; (2) the relevance of the most general of agonistic rules, namely 'the principle of a controlled surrounding', is well exemplified by the events described in this case study.

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