Letter from the Editor

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DOI 10.18019/1028-4427-2019-25-4-449-451

Ilizarov's philosophy as a base of a new subspeciality in traumatology and orthopaedics A.V. Gubin

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Contemporary medicine has become increasingly diverse and its areas more specialized due to new medical technologies and market economy.

Undoubtedly, any patient would choose the physician who is more proficient in the narrow field of medicine the patient is referred to. Businesses involved in the manufacturing of medical devices are interested in a more active application of their medical implants and equipment. The main mechanism to level the negative sides of a narrow specialty is to unite a multidisciplinary team, to found university

hospitals and professional societies (associations). It is associations that institute subspecialties. Specialized associations or groups find their place within the main specialties in national and international societies. The number of associations as well as conferences, training courses and publications they organize has been growing impressively.

Orthopaedic associations unite specialists of all the subspecialties of the organization or may be established on national, age-related, technological and pathology location principles.

Principles	Associations
International	Société Internationale de Chirurgie Orthopédique et de Traumatologie/ International Society of Orthopaedic Surgery and Traumatology (SICOT)
	European Society of Trauma & Emergency Surgery (ESTES)
National/ Language-related	Association of traumatologists and orthopaedists of Russia (ATOR)
	Société Française de Chirurgie Orthopédique et Traumatologique (SOFCOT)
	L'Association des Orthopédistes de Langue Française (AOLF)
	American Academy of Orthopaedic Surgeons (AAOS)
Research and development	AOSPINE
	AOTRAUMA
Patients' age-related	European Pediatric Orthopedic Society (EPOS)
	Associations of pediatric orthopaedists and traumatologists of St. Petersburg
Pathology location	International Federation of Societies for Surgery of the Hand (IFSSH)
	Federation of European Societies for Surgery of the Hand (FESSH)
	Association of spine surgeons of Russia
	Russian Foot&Ankle Society (RusFAS)
	Society of hand surgeons "Hand group"
Location of pathology and its technologies	International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine (ISAKOS)
	European Society for Sports Traumatology, Knee Surgery and Arthroscopy (ESSKA)
	Association of sports traumatologists, surgeons in arthroscopy and orthopaedics, rehabilitation specialists (ASTAOR)
Technological principle	Association on Study and Application of Methods of Ilizarov (ASAMI)
	Limb Lengthening and Reconstruction Society (LLRS)
National and technological principle	German Association for Arthroplasty (AE)

Gubin A.V. Ilizarov's philosophy as a foundation for a new subspeciality in traumatology and orthopaedics *Genij Ortopedii*, 2019, vol. 25, no 4, pp. 449-451. DOI 10.18019/1028-4427-2019-25-4-449-451. (In Russian)

Orthopaedic subspecialties can also be constituted on the basis of methods/techniques applied (arthroscopy, arthroplasty), pathology location (vertebrology, hand surgery, foot surgery), nosology (traumatology, sports traumatology). Children's orthopedics, which itself is a subspecialty of orthopedics, unites even narrower specialists, for example, specialists in the treatment of patients with cerebral palsy, pediatric traumatologists, etc.

We have set a task of defining a new subspecialty which specialization in the area of orthopaedics and traumatology is surgical correction of bone deformities, shortening, nonunion and defects applying guided tissue regeneration in order to restore the anatomy and function of the affected body segment.

The academician Ilizarov's discovery of the fundamental laws of tissue growth and regeneration stimulation as well as an active clinical use of the Ilizarov method has had a significant impact on the development of not only traumatology and orthopedics but also on maxillofacial surgery [1-4]. And if the practical use of a circular wire-based or hybrid external apparatus associated in the world with the name of its author was and remains the most frequently used tool, distraction osteogenesis of the skull bones has never been tied to a specific instrumentation, and namely, external systems.

Since the 80s of the XX century, the Ilizarov method has been strongly supported by regional ASAMIs (Associations on Study and Application of the Methods of Ilizarov) founded in many countries of the world. They were initiated by enthusiastic specialists who had worked, passed training or fellowship programs at the Kurgan Center, who personally communicated with Ilizarov and listened to his lectures. Many of them accepted the external fixation system as their main or even the only working tool and achieved very high skills. These orthopedists call themselves "apparatchiks." We proposed the term "Ilizarov-minded doctors".

There is also another group of specialists in this field. Initially, they used the Ilizarov apparatus for management of bone diseases, usually associated with defects, deformities, and shortening of limbs, but then began to actively apply other, often combined, methods and tools for managing the same pathological conditions [5]. So, they founded the associations named "Limb Lengthening and Reconstruction Societies" (LLRS) and "Bone Reconstruction Societies" (BR). Some of them included the abbreviation ASAMI into the society's name.

None of the specialists disputed the importance and role of G.A. Ilizarov in the development of this direction in orthopedics and traumatology. Controversies lay in the interpretation of his historical contribution, adherence to the classical Ilizarov method and subjective understanding of the leadership. In any case, there is a clear comprehension that the subspecialty "limb lengthening and reconstruction" exists. It has been supported by a great number of specialists in the field, specialized publications, online resources and conferences. Since 2015, the chairmen of the ASAMI, LLRS and BR associations have agreed to hold joint global congresses every two years. The first such event took place in Miami and gathered more than 800 participants. The next congresses were held in Lisbon (2017) and Liverpool (2019) and also attracted a lot of orthopaedic and related field specialists. The 2021 Congress is scheduled to be held in Mexico.

Large education associations also are interested in training in this subspecialty. AOTRAUMA has organized special courses on transosseous osteosynthesis.

However, the questions of further institutionalization of this subspecialty, like it was established for vertebrology, arthroscopy or arthroplasty, remain open. Thus, the term "limb lengthening and reconstruction" cannot be called quite appropriate. First, reconstruction and lengthening techniques have been used not only on the limbs but also on the bones of the pelvis, clavicle, skull and spine, although much less frequently. Second, it does not reflect the essence of the biological approach which we define as Ilizarov's philosophy [6, 7]. Third, there is a mixture of classification approaches in the name (location and methodology) which is not typical for the names of subspecialties.

"reconstructive The name and reparative orthopedic surgery" (RROS) seems to be most suitable. It combines the concepts of reconstructive surgery aimed at correcting deformities, eliminating length discrepancies, nonunion, bone defects, and the reparative process involving cell and tissue regeneration resulting in restoration of body parts and their functions lost due to birth defects, diseases, injuries or aging. It is the regeneration of human tissues or their repair, but not the replacement of structures with implants, that most precisely determines the essence of the subspecialty. Given the widespread use of reconstructive methods based on different technical approaches and in order to avoid terminological confusion or conflicts, the term can be simplified to reparative orthopedic surgery (ROS).

The Ilizarov method and ROS should continue to be significant topics in the development of the orthopedics science. In the 1980-1990s, the majority of scientific works and patents in the field of orthopedics and traumatology in the USSR and the in the post-Soviet

states were associated with controlled transosseous osteosynthesis. The ROS training programs should be restructured and become an obligatory part in the education of residents in traumatology and orthopedics. In addition to standard practical skills in the application of external fixation, knowledge of biomechanics and the development of spatial thinking are equally important. The "apparatchiks" have always been distinguished by these competencies.

Basic knowledge and skills of the subspecialty is a need in the following fields:

- Battlefield surgery
- Polytrauma
- Emergency medicine
- Foot and ankle surgery
- Hand and upper extremity
- Lower limb lengthening and deformity correction
- Bone infection surgery
- Systemic diseases of the skeleton

Bone and soft tissue defects

• Congenital malformation in the limbs and spine

The surgeons engaged into the ROS subspecialty work with patients of all ages and any location of the locomotor system pathology. They are not bound by the classical Ilizarov method and apparatus but have a variety of technologies and instruments at their disposal. However, the treatment procedure would be inevitably guided by the Ilizarov's philosophy.

The primary goal of ROS development is its deep integration into various areas of orthopedics and traumatology but not an advancement of an alternative doctrine. In any case, the understanding the Ilizarov's philosophy and mastering the method of controlled transosseous osteosynthesis will provide an orthopedic surgeon with more freedom and flexibility in actions and safety. Throughout the world, the Ilizarov method has been and remains a "lifeboat" in the most complex and as seems hopeless cases to treat.

Only such an integrative approach would allow orthopaedic surgeons to deeply perceive the biological essence of the philosophy and comprehensively use the heritage of the Genius in orthopedics. The establishment and advancement of the reparative orthopedic surgery as a subspecialty will be the best contribution to the 100th anniversary of G.A. Ilizarov, which we will celebrate in 2021.

The editorial board of the journal "Genij Orthopedii" invites orthopedists and traumatologists to discuss the topic of the new subspecialty proposed. Your opinion is very important and we would like to publish comments on this article in the next issues of our journal.

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Received: 01.11.2019

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