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## Arthroplasty of the knee six months after surgery, the return to fitness

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### Summary

Degenerative joint disease (osteoarthritis) is a chronic disorder of the musculoskeletal system, which significantly reduces the efficiency of movement and daily functioning difficult. The last twenty years is a huge progress in the diagnosis and treatment of degenerative changes in the knee joint. Currently knee replacement is a fundamental activity in patients with large destructive changes in the joint. Studies carried out in the clinic Trauma Surgery at the University Teaching Hospital in Wrocław, str. Borowski group of 105 patients. In this study, we observed that there was an

improvement of quality of life after surgery, knee replacement, especially in people at a younger age. The pain persisted completely, but reduced in intensity. Women often suffer from arthritis and achieve better results on the knee. It was also shown that younger people better cope with the activities of daily living and have less pain from the knee joints. This suggests that a return to efficiency and improve the functioning of younger people should be achieved in a shorter time than adults, whose efficiency is further limited by the patient's age.

**Key words: Arthroplasty; osteoarthritis.**

### **1. Admission.**

Degenerative joint disease (osteoarthritis) is a chronic disorder of the musculoskeletal system, which significantly reduces the efficiency of movement and daily functioning difficult. Most often affects the elderly, often women. In advanced disease, the pain is very intense and is accompanied by the patients during a night of rest. Barrier limiting movement in the joints is the disappearance of neighboring muscles and changes destruktynno-productive, resulting. Destabilization and restricted mobility of the lower limb of the knee [1]. Each patient should be individually treatment, which includes patient education, weight reduction and the introduction of exercise and physical therapy to improve [1].

In the past it was thought that the most convenient way to treat degenerative changes in the knee is its rigidity [2]. The last twenty years is a huge progress in the diagnosis and treatment of degenerative changes in the knee joint, which contributed to the change in the surgical treatment of diseases and knee injury. Currently knee replacement is a fundamental activity in patients with large joint destructive changes [2].

Frequent illness knee joints leading to joint destruction:

#### **Osteoarthritis of the knee (Gonartroza)**

It is a gradually progressive disease process of destruction of the knee, resulting in the occurrence of many years of persistent pain, limitation of range of motion and progressive joint stiffness. Long-term joint arthrosis leads to irreversible changes in the cartilage and surrounding tissues. Cartilage has a minimal regenerative capacity, however, large and frequent injuries are the cause of loss of physiological reconstruction of [3,4].

Risk factors for the development of degenerative changes in the knee joint:

- the patient's age, approx. 65 years of age,
- large weight,
- female approx. 55 years of age,
- frequent and recurring inflammation of the joint,
- Knee injuries,
- Family predisposition,
- valgus or varus knee,
- occupation,
- sporty dynamism,
- reducing the intensity of hormones,
- The large bone structure.
- metabolic diseases and nervous - muscular [2].

Phases of knee osteoarthritis:

- The first phase is the pain at the start, which resolves spontaneously.
- The second phase is characterized by pain arising in the course of walking, the presence of fluid in the articular cavity, reduced muscle strength and to reduce joint motion.
- The third phase is characterized by relentless, unrelenting pain, deformity of the knee joint, an enlarged outline of the foot by the appearance of effusion in the knee joint, a reduced range of motion, audible trzeszczeniemi in the joint [3].

By conservative therapy can be more or less minimize the pain and slow down the course of the disease. Therefore, it is recommended that the patient:

- reduction of body weight,
- reduce the burden on the pond,
- maintaining the right attitude,
- taking care of the correct muscle tension, that there is no loss to them,
- the use of orthotics to securely maintain the pond,
- the use of crutches, a cane, walker,
- the lead of pharmacotherapies gonartrozy adjuvant treatment and pain relief [3].

Initially, the following applies:

- analgesics and anti-inflammatory with the adjustment of the dose depending on the severity of pain.
- intraarticular administration of steroid drug and hyaluronic acid preferably affecting the properties of the synovial fluid.
- the use of performance-enhancing exercises diseased joint,

- physiotherapy (ultrasound, cryotherapy, magnetic field, electrotherapy, thermotherapy, hydrotherapy, laser, taping).

These treatments analgesic, anti-oedematous, improve circulation, reduce muscle tension, stimulate cell growth, slow the inflammatory processes. By taping patches or obtain proper alignment of the knee symmetrical.

Surgical treatment includes: arthroscopy, synovectomy, corrective osteotomy, partial or complete replacements [3,4].

### **Rheumatoid arthritis of the knee (RA)**

The development of the disease takes many years and affects connective tissue, is autoimmune. Most often develops in people aged 30-50 years, four times more common in women. Symptoms start phase ignite in the synovium, the disease leads to large deformation symmetrical arthritis, disability, and serious injury, and significant deterioration in quality of life [4].

Factors predisposing to the disease:

- Genetic predisposition
- dysfunction of the immune system.
- plęć- condition hormone levels,
- a history of viral diseases,
- psychosocial factors,
- smoking [4].

Typical symptoms:

- pain and morning stiffness of the joints,
- visible swelling of the knee,
- limited mobility of the knee,
- joint deformity,
- lack of complete extension - contracture [4].

Pharmacological treatment is to minimize periods of exacerbations and remissions extension periods. Apply: corticosteroids, NSAIDs, analgesics, immunosuppressive agents, and biological therapy.

Non-pharmacological treatment includes: support a psychologist, improve the patient's condition by performing the corresponding exercise, the use of physical (cryotherapy, ultrasound, massage and balneotherapy), the use of supporting equipment move type: orthosis, walkers, crutches, canes, maintaining normal body weight, smoking cessation [3].

Surgical treatment includes synovectomy, reconstruction of the knee, knee correction, arthrodesis, arthroplasty [3,5].

### **Traumatic osteoarthritis**

Traumatic osteoarthritis occurs as a result of a past trauma pond. Not the renewal healing process articular causes pathological changes leading to loss of surface smoothness joint [3].

symptoms:

- swelling and joint pain,
- difficulty with knee extension and contractures
- difficulties with the stabilization pond [3].

The effects of injuries:

- damage to the meniscus,
- tearing ligaments of the knee,
- subluxation [3].

### **Necrosis due to lack of vasculature (avascular necrosis)**

Necrosis occurs when the bone is poorly supplied with blood. Poor nutrition is the cause of distortion and damage to the articular surface.

symptoms:

- joint pain and swelling,
- joint deformity,
- reduced mobility [3].

The aim of the study was to assess the level of pain and the efficiency of patients after knee replacement, taking into account demographic data of patients.

## **2. Materials and methods**

The study included 105 patients who were diagnosed with degenerative changes in the knee joints. Studies carried out in the clinic Trauma Surgery at the University Teaching Hospital in Wrocław, str. Borowska. The study was conducted in the years 2017-2018. Detailed description of the test group in Table 1.

Table 1. Characteristics of the research group, taking into account demographic data.

Characteristics of the research group		
Sex, no. (%)	M	41 (61%)
	K	41 (39%)
Age, no. (%)	45 - 60 years	22 (21%)
	61 - 77 years	61 (58%)
	> 77 years	22 (21%)
Performed feint, no. (%)	Worker	64 (61%)
	White collar worker	23 (22%)
	The farmer or work in the countryside	18 (17%)
Body weight, no. (%)	50 - 60 kg	11 (10%)
	61 - 71 kg	45 (43%)
	> 71 kg	49 (47%)
Growth, no. (%)	160 - 164 cm	54 (51%)
	165 - 170 cm	38 (36%)
	> 170 cm	13 (12%)

### 3. Results:

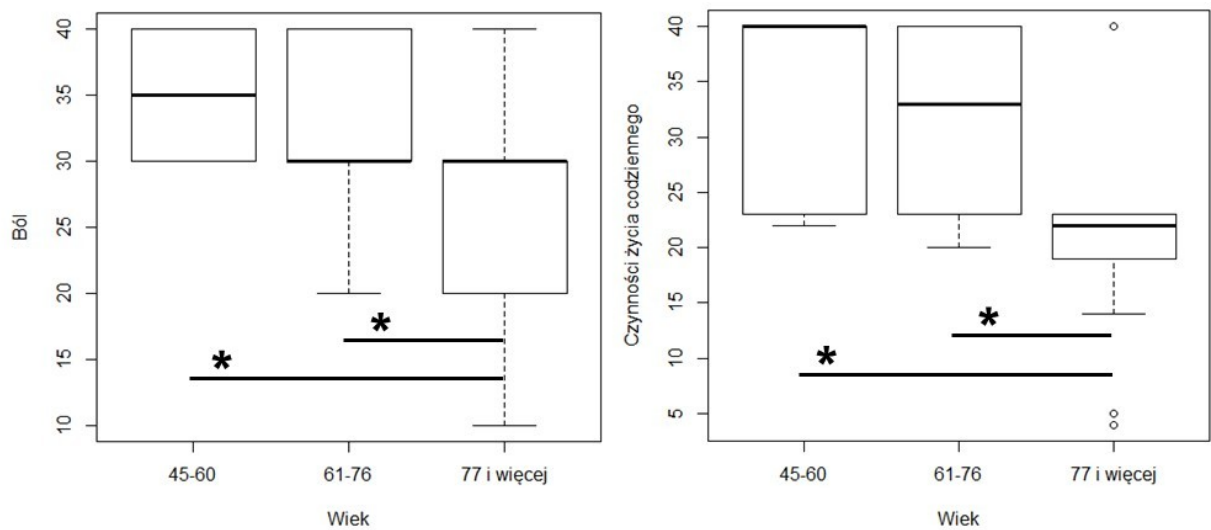


Fig. 1. Graph showing the intensity of pain on a scale Staffelstein-Score and activities of daily living, depending on the age of the patients. ANOVA with post-hoc test: Kruskal-Wallis test, \*  $p < 0.05$ .

It has been shown that persons in the younger age group (45-60 years and 61-76 years) had less pain or greater efficiency in the aspects of daily life compared with the oldest age group ( $> 76$  years) ( $p < 0.05$ , ANOVA with post hoc test Kruskal-Wallis test) [Fig. 3].

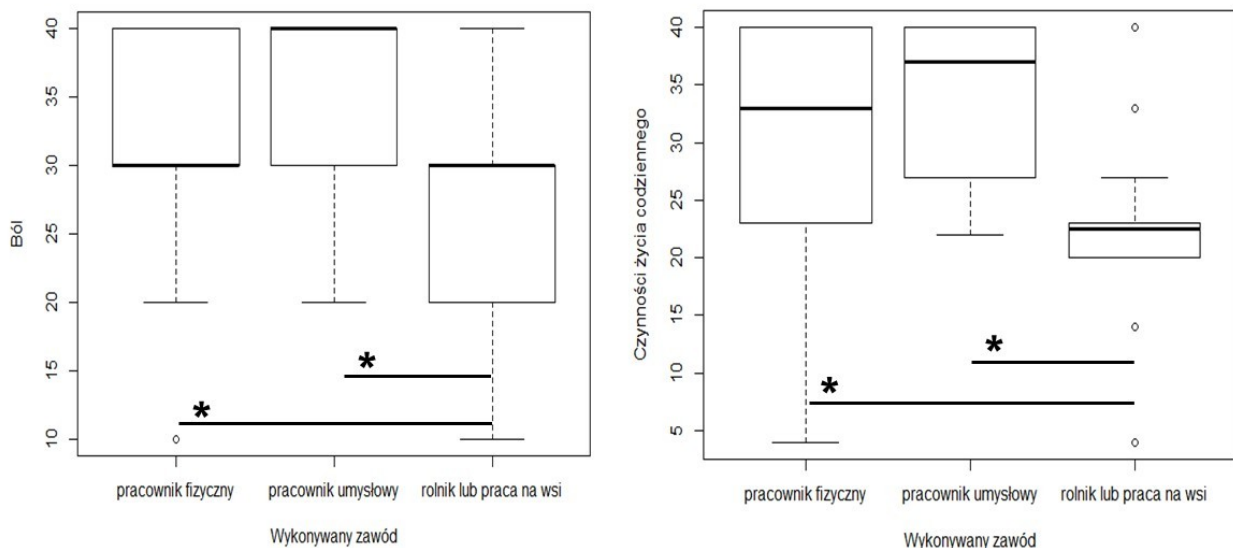


Fig. 2. Graph showing the intensity of pain on a scale Staffelstein-Score and activities of daily living, depending on the profession performed by patients. ANOVA with post-hoc test: Kruskal-Wallis test, \*  $p < 0.05$ .

It has been shown that persons working in the fields or in rural areas compared with physical and mental workers characterized by pain or less greater efficiency aspects of daily life ( $p < 0.05$ , ANOVA with post hoc test Kruskal-Wallis test) [Fig. 3].

It has not been shown that people with higher body weight or having a taller suffer from more severe pain or their daily functioning was impaired significantly greater ( $p > 0.05$ )

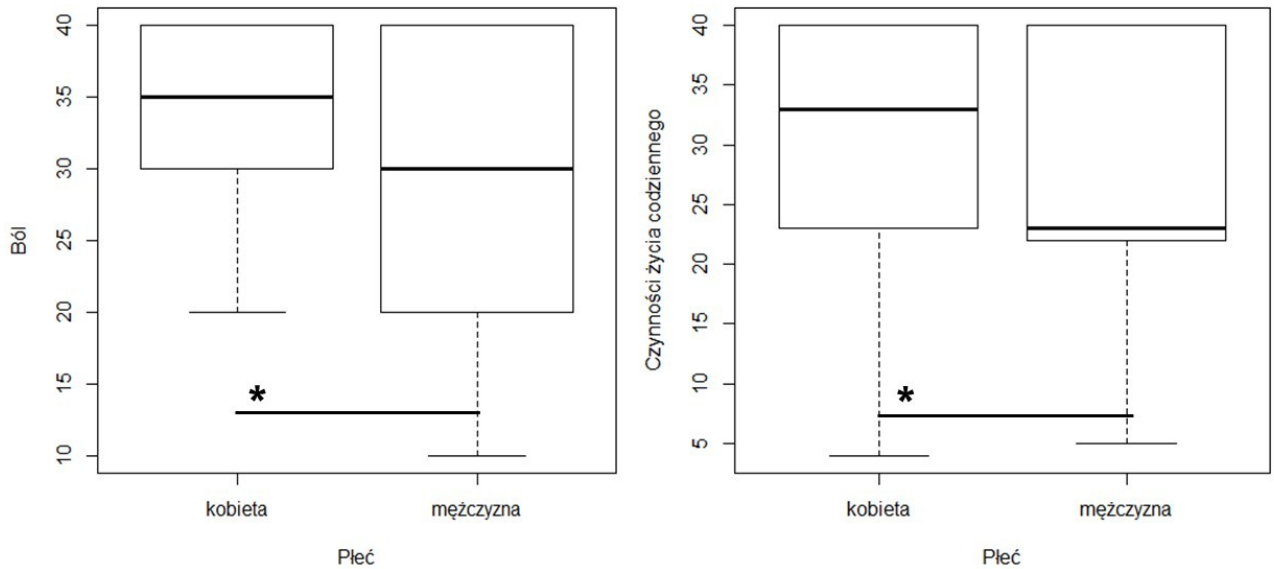


Fig. 3. A graph showing the severity of pain on a scale Staffelstein-Score and activities of daily living in patients depending on gender. ANOVA with post-hoc test: Kruskal-Wallis test, \*  $p < 0.05$ .

It has been shown that persons women characterized by less pain or greater efficiency in the aspects of daily life as compared to males ( $p < 0.05$ , ANOVA with post hoc test Kruskal-Wallis test) [Fig. 3].

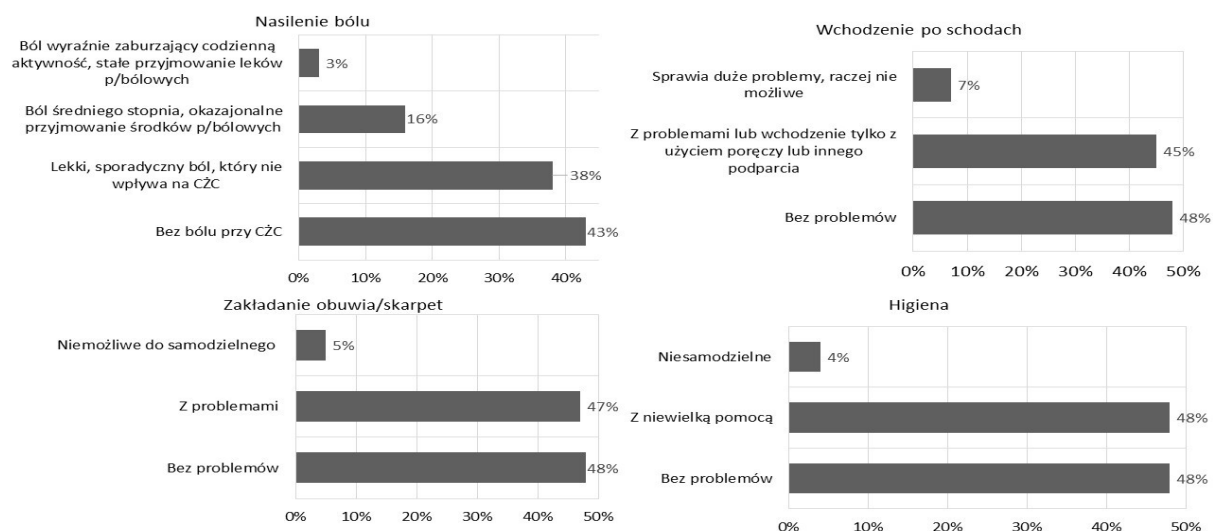


Fig. 4. Graph showing the severity of the pain, the ability to climb stairs, the efficiency in performing activities of daily living, such as the establishment of shoes / socks, and personal hygiene.



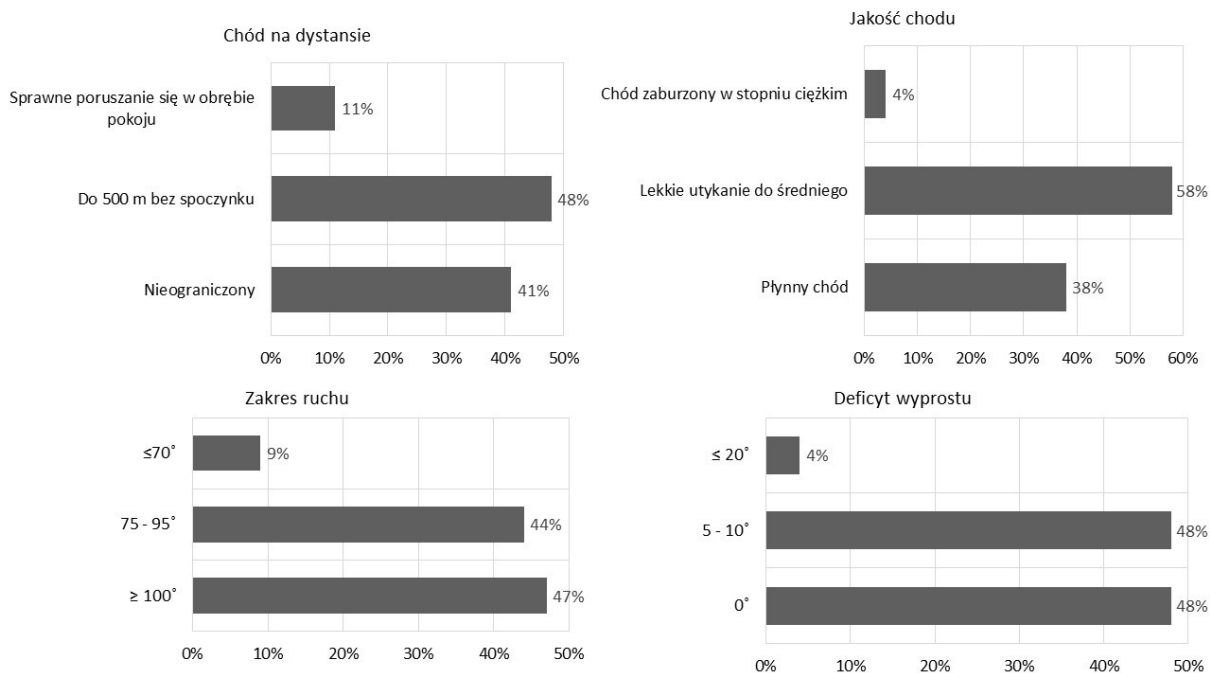


Fig. 5. A graph showing the ability to move (walking distance, and its quality) and the range of motion and extension deficit.

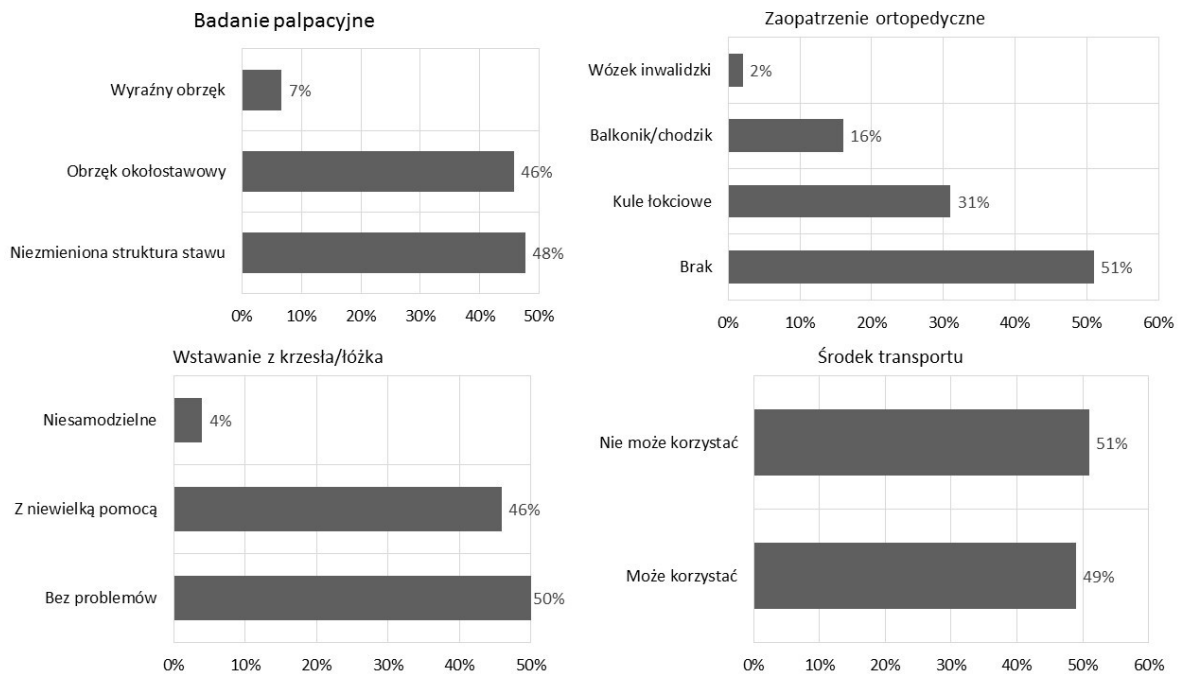


Fig. 6. Graph showing the results of palpation, the type of orthopedic equipment, the ability to benefit from transport and rising from a chair / bed.

#### 4. Discussion.

Osteoarthritis of the knee, is a progressive disease of multiple and intersectional etiology. Chronic, disruptive, intense pain and joint structure degradation and the use of techniques of conservative treatment is essential to qualify the patient for surgery.

Adequately managed rehabilitation (according to Griffin) in patients after the introduction of the knee implant, the 50% rule on satisfactory treatment outcomes final[6]. Therapy after surgery provides positive results when it is overall. An important element of rehabilitation is a priority quickly reconstruct the full function of the knee and efficient return to the more comfortable and independent functioning. The most important details of rehabilitation after knee implant component is to achieve full extension and flexion (90°), as well as the prospect of reaching the vital foreground which is getting up or sitting on the bed / chair. Significant is also the mobilization of the patient to achieve greater flexibility and total joint supervision muscle, hence the renewal of the total operations operations stable and active knee joint and the entire musculoskeletal system. You have to have to the early implementation of rehabilitation,

Statistics and analysis indicate the diametrical Filmaster condition of patients, as confirmed in their studies and Tanavalee ShiMG [9]. Having traced the condition of the respondents noted a significant decrease in knee pain, and improve the overall health (physical) of the patient. They glimpsed the relationship between the joint movement spread before surgery and after treatment. The subjects whose knee did not reach full extension and flexion before surgery did not obtain an acceptable results after implantation of the prosthesis, in contrast to patients with a full range of joint movement (prior to surgery). Although it is known that the final success of the efficiency of the knee affects above all the professionalism of the surgeon, his creativity, creativity and orientation of the implant design.

In this study, we observed that there was an improvement of quality of life after surgery, knee replacement, especially in people at a younger age. The pain persisted completely, but reduced in intensity. Women often suffer from arthritis and achieve better results on the knee. It was also shown that younger people better cope with the activities of daily living and have less pain from the knee joints. This suggests that a return to efficiency and improve the functioning of younger people should be achieved in a shorter time than adults, whose efficiency is further limited by the patient's age.

People working in the country have more problems with the performance of activities of daily living, and felt more pain from the knee joints. This may be related to the nature of the job - the people working on the role of doing the work usually aggravating physically, moreover, often in adverse weather conditions - damp, cold, which also influences the level of pain felt. In addition, be aware of the still existing disparities in access to health services, including rehabilitation, which are particularly strong mark precisely in the country. This can all lead to the improvement of the overall functioning

and less pain are not as strongly expressed as a group of people working or mentally living in a big city.

### **5. Conclusions.**

- There are differences in the severity of pain and the ability to perform activities of daily living, depending on gender, age, profession and patients.
- The level of pain intensity does not depend on factors such as height or weight.

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