

Essay on Scholarship Period

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1. Research work

I conducted my research from September 1, 2021 to June 30, 2022 at the Research Centre for Molecular Exercise Science at the Hungarian University of Sport Sciences (previous name: University of Physical Education.). My research topic was “Systemic effects of exercise training on biological aging”. We used high running capacity rats (HCR, $n = 26$) and low running capacity rats (LCR, $n = 26$) selectively bred based on endurance capacity, and these were divided into sedentary groups (18 rats per group) and exercise-training groups (8 rats per group). The exercise training group was subjected to a total of 5 months of voluntary exercise with a running wheel. Both groups underwent VO_2 max measurement using an animal treadmill and brain function measurement by Morris Water Maze Test. After all physiological tests were completed, organs were removed under anesthesia (**Picture 1**). The organs removed were brain, hippocampus, cerebellum, heart, lung, liver, kidney, gastrocnemius, soleus, plantaris, quadriceps, tibialis anterior muscles, and large intestine. In addition to these organs, whole blood, plasma, and fecal samples were collected. The research will continue after the scholarship period. After the DNA extraction from the removed organs, DNA methylation levels will be measured using the Illumina Bead Chip Array, which will be used to calculate the biological age (DNAm age).



Picture 1: Organ removal

2. Outside of laboratory

I experienced a lot during my free time and enjoyed my life in Budapest. I visited many fascinating places in Budapest, such as Buda Castle, Hero's Square, City Park, Gellért Hill, Szent István-bazilika (**Picture 2**). I also visited Szentendre, Győr, and Vienna. These experiences are invaluable memories for me. But the best experience for me was living in Budapest for 10 months surrounded by local people. Of course, I experienced some culture shock, but the whole experience made me grow more. Finally, I would like to thank your Foundation for your financial support for the 10-month period.



Picture 2: Two shots with my son