

The Influence Of Various Factors On The Formation Of The Knee Reflex

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Abstract: The development of the knee-jerk reflex is a reliable indicator of neurological health. This reflex is tested by palpating the patellar tendon under the kneecap, which results in an involuntary jerk of the leg. The knee-jerk reflex is a key indicator of the integrity of the spinal cord and peripheral nerves, particularly between the L2 and L4 vertebrae. The Development Strategy for 7 priority areas of development of the Republic of Uzbekistan for 2022-2026, adopted at the initiative of the President of the Republic of Uzbekistan, identifies important areas related to the intellectual, aesthetic and physical development of students based on continuous education in our country, which ensures that all conditions are created for students to conduct experiments and study the topics in more depth at the Tashkent Medical Academy.

Keywords: neuropathological hammer, room temperature and reflex time, neurological testing methods, spinal reflex arcs, muscle fatigue

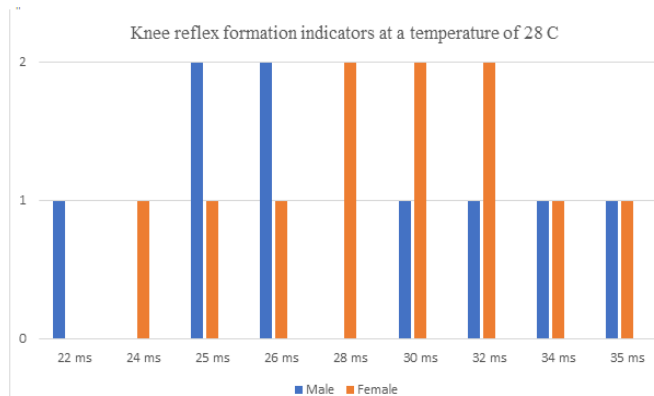
To study the formation of the knee reflex in students, a neuropathological hammer was used. In this case, the students sat with their legs hanging freely over the edge of the table. After the stopwatch was turned on, the hammer was struck under the kneecap under various environmental factors and the response was checked. The level of fatigue of the students and the temperature of the room were taken into account.



A total of 41 second-year students (18 boys, 23 girls) aged 18-21 participated in the experiment. To study factors affecting the knee reflex among second-year students. During the experiment, the room temperature was adjusted to 28°C and a knee-jerk reflex was elicited among 20 students.

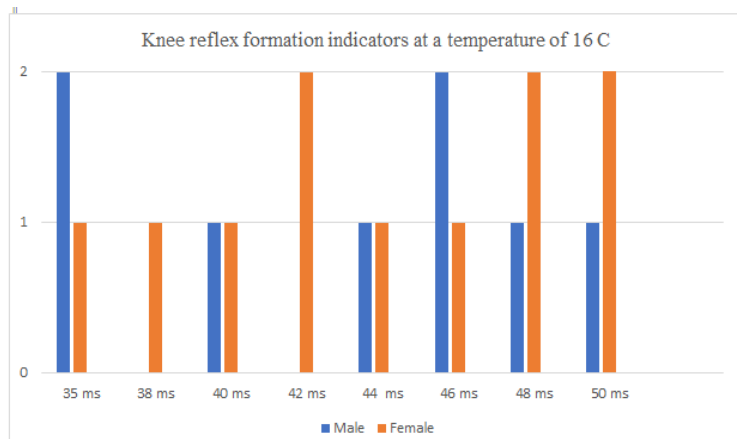
According to the results of the study, the knee reflex among students was formed in 22-35 milliseconds:

N ^o	Female	N ^o	Male
1	26 ms	1	26 ms
2	28 ms	2	34 ms
3	30 ms	3	32 ms
4	32 ms	4	26 ms
5	24 ms	5	22 ms
6	25 ms	6	24 ms
7	30 ms	7	24 ms
8	34 ms	8	30 ms
9	32 ms	9	35 ms
10	28 ms		
11	35 ms		



21 students participated at a room temperature of 16 C and the reflex time was 35-50 milliseconds.

N ^o	Female	N ^o	Male
1	35 ms	1	46 ms
2	46 ms	2	35 ms
3	50 ms	3	39 ms
4	48 ms	4	46 ms
5	44 ms	5	40 ms
6	40 ms	6	35 ms
7	42 ms	7	44 ms
8	50 ms	8	48 ms
9	50 ms	9	50 ms
10	38 ms		
11	42 ms		
12	48 ms		



Next clear numbers for , known at temperatures reflex their time measurement for control under experimental research need It will be . However colder temperature nerve conductivity speed decrease because of reflexes slows down , concept good confirmed . Warm temperature if nerve conductivity speed increase it is possible , this and faster reflexive to the answers take comes

The next stage of the research was carried out as follows:

1. **Before the lesson** - when the students' muscles were relaxed.
2. **Post-lesson status** – Reflex time was re-tested after the students' muscles were fatigued.

Reflex time was measured 10 times in each participant and the average was calculated.

Results According to the study results, knee reflex time varied significantly depending on the degree of muscle fatigue.

- **Before the lesson:** Reflex time ranged from 24.5 to 45.7 milliseconds. When the muscles were relaxed, reflex responses were faster and more consistent.

- **After the lesson:** Reflex time was recorded in the range of 29.8-55 milliseconds. Reflex responses are significantly attenuated as a result of muscle fatigue.

It was found that the level of fatigue is related to reflex time:

- **In mild fatigue:** Reflex time increased to an average of 45 milliseconds.

• **In moderate fatigue:** Reflex time increased to an average of 50 milliseconds. The results show that muscle fatigue affects neuromuscular transmission, weakening reflex reactions. With increasing fatigue, the time of reflex reactions is prolonged. This is due to the slowing of nerve impulse conduction and a decrease in muscle contractility.

Conclusion. The results of the study showed that the knee reflex changes significantly under the influence of muscle fatigue and environmental conditions. While temperature changes led to an increase or decrease in reflex time, muscle fatigue weakened reflex responses and prolonged reflex time. Experiments conducted before and after the lesson confirmed that muscle fatigue directly affects the quality and speed of the reflex response.

The results suggest that muscle fatigue and temperature changes should be considered when assessing neuromuscular function. These factors could help improve the accuracy of diagnostic tests and provide more detailed information about muscle and nervous system health. In the future, it is desirable to conduct larger, controlled experiments on this topic, as well as comparative studies with other age groups.

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