PHYSICAL EXAMINATION OF THE FUNCTIONAL STATUS OF THE HIP AND SPINE IN JUNIOR SWIMMERS AND SYNCHRONISED **SWIMMERS**

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OBJECTIVES

The aim of our research was to assess and examine the active range of motion (aROM), functional status of the hips and spine in junior swimmers and synchronised swimmers and to compare the results between the groups. METHODS

The research was conducted by non-random convenience sampling of athletes aged 14 to 18. 30 athletes completed the Oswestry Disability Index (ODI) questionnaire for functional impairment and were then assessed for active range of movement (aROM) of the spine and hip joint, lumbar motor control (LMK), truck muscle strength (Plank test, Side planktest), hip flexor muscle shortening (Thomas test), static balance ability (Flamingo Balance test) and lower extremity muscle strength test (1-minute squat tests). For the statistical analysis Microsoft Office 365 software Excel was used and significance was set at p<0.05.

RESULTS

There was a significant difference in flexion, extension, abduction, adduction movements of the hip joint between the two sports, but no difference in external- and internal rotation values neither on the right (p=0.495; p=1) and on the left side (p=0.568; p=0.4). Among the spine aROMs, there was only a significant difference for exension (p≤0.001).

The ODI results categorize the athletes into the mild category, with the results 0.94% for synchronised swimmers and 0.92% for swimmers. The 1-minute squat test (p=0.596) and Flamingo Balance test scores (p=0.700; p=0.811) showed no significant difference between the groups. There was a negative correlation with lumbar motor control and plank test scores with a medium strength (r = -0.395) and a weak negative correlation (r= -0.296) with side plank scores. CONCLUSIONS

Based on our results significant differences were found between the hip joint aROMs. No functional decrescent in the spine was found in the participants, nor significant differences between the functional status, strength, and balancing ability between the swimmers and synchronised swimmers.

	SYNCHRONI ZED SWIMMERS (n = 9)	SWIMMERS (n = 21)	FREESTYLER (n = 6)	$\begin{array}{c} \textbf{BACKSTROKE}\\ \textbf{RS}\\ \textbf{(n = 5)} \end{array}$	$\frac{\mathbf{BREASTSTRO}}{\mathbf{KERS}}$ $(\mathbf{n} = 5)$	BUTTERFLYE R (n = 5)
WOMEN	9	9	2	3	3	1
MEN	0	12	4	2	2	4
AGE (yr)	15.33	15.71	15.83	15.80	14.80	16.40
HEIGHT (cm)	169.11	170.48	174.17	169.40	165	172.60
WEIGHT (kg)	55.22	63.45	60.33	61.90	59.80	72.40

Table 1. The characteristics of the subjects (2023)



Figure 1. Values of spinal range of motion in swimmers and synchronized swimmers (2023)





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Figure 2. Values of hip range of motion in swimmers and synchronized swimmers (2023)

