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Research Article

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[Head impact exposure comparison between male and female amateur rugby league participants measured with an instrumented patch](#)

Background: Epidemiological studies report that females experience greater rates of concussion when compared with males. Biomechanical factors may result in greater post-impact head velocities and accelerations for a given force for females when compared with males.

Purpose: To quantify the magnitude, frequency, duration and distribution of impacts to the head and body in rugby league match activities for females versus males.

Design: Prospective descriptive epidemiological study.

Methods: 21 female and 35 male amateur rugby league players wore wireless impact measuring devices (X2Biosystems; xPatch) behind their right ear over the mastoid process during match participation across a single season. All impact data were collected and downloaded for further analysis.

Results: Male amateur rugby league players experienced more head impacts than female amateur rugby league players (470 ± 208 vs. 184 ± 18 ; $t(12)=-3.7$; $p=0.0028$; $d=1.94$) per-match over the duration of the study. Male amateur rugby league players recorded a higher median resultant Peak Linear Acceleration (PLA(g)) (15.4 vs. 14.6 g; $F(824,834)=51.6$; $p<0.0001$; $t(1658)=-3.3$; $p=0.0012$; $d=0.10$) but a lower median resultant Peak Rotational Acceleration (PRA(rad/s²)) (2,802.3 vs. 2,886.3 rad/s²; $F(831,827)=3.1$; $p<0.0001$; $t(1658)=5.7$; $p<0.0001$; $d=0.13$) when compared with female amateur rugby league players

Conclusion: Females recorded lower median values for PLA(g) and Head Impact Telemetry severity profile (HITSP) for all positional groups but had a higher PRA(rad/s²) for Hit-up Forwards (HUF) and Outside Backs (OSB's) when compared with male HUF and OSB's. Females also recorded more impacts to the side of the head (48% vs. 42%) and had a higher 95th percentile resultant PRA(rad/s²) (12,015 vs. 9,523 rad/s²) to the top of the head when compared with male rugby league players.

Research Article

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[Chondrogenic re-differentiation potential of chondrocytes after monolayer culture: Comparison between osteoarthritis and young adult patients](#)

Purpose: Monolayer passage of chondrocytes results in dramatic phenotypic changes. This “de-differentiation” is expected to restore the chondrogenic properties such as “re-differentiation” in autologous chondrocyte implantation (ACI). The purpose of this study was to compare the chondrogenic re-differentiation potential of chondrocytes, from osteoarthritis (OA) patients and young adult patients, after monolayer culture.

Methods: Chondrocytes from five old patients with knee OA (OAC) and five young patients with recurrent shoulder dislocation (non-OAC) were used. The chondrocytes from passages 1 to 3 were analyzed for the expression of cell surface markers (CD73, CD90, CD105, and CD44) by flow cytometric analysis. Chondrocytes of passage 4 were cultured as pellets for re-differentiation and evaluated histologically. Real-time PCR were performed to measure the chondrogenic related genes transcriptional levels.

Results: OAC and non-OAC had comparable positive ratios for CD44, CD73, CD90, and CD105. The expression of CD105 was upregulated from passage 1 to passage 3 in OAC, and it increased at the same level as in non-OAC during passage 2 and 3. The expression of COL2 decreased from passage 1 to passage 3 in both the groups. There were no statistical differences in the Bern Scores between OAC and non-OAC.

Conclusion: The chondrocytes from OA patients and young adult patients had chondrogenic re-differentiation potential. The changes in cell surface markers and chondrogenic related genes showed similarity for both the groups. Our findings suggest that OAC can become the cell source for ACI.

Review Article **Published Date:-2019-02-01 00:00:00**

[Renal function during exercise and recovery](#)

This review paper analyzes the response of renal function during two types of exercise: 1) exercise of increasing intensity and 2) exercise of submaximal intensity and prolonged duration. During an effort of increasing intensity there is a decrease in renal blood flow that, theoretically, could compromise renal function. However, several studies seem to show that the kidney has self-regulatory mechanisms that allow maintaining the filtration fraction. On the other hand, ultra resistance exercises, such as ironman, are becoming more frequent. Knowing the renal response to this type of exercise is essential to apply knowledge to emergency situations such as dehydration or hyponatremia.

Research Article **Published Date:-2019-01-29 00:00:00**

[A proposed Habilitation program to improve some functional parameters using Aqua-aerobic Exercises to reduce the intensity and severity of Asthma attacks among children in Algeria](#)

Asthma is one of the most common chronic diseases in the world and affects people of all ages. But having an asthma patient with a good overall fitness level helps reduce the chances of getting a seizure. Aqua-aerobic exercises is appropriate programs for the treatment of asthma. The aim of this study was to propose a rehabilitation program using aqua-aerobic exercises and to determine its effect on some functional parameters (forced Expiratory Volume in first Second Fev1, Peak Expiratory Flow PEF, and the Forced Vital Capacity FVC), and improve the respiratory functions to reduce the intensity and severity of asthma attacks for asthmatic children.
