

# QUANTIFYING THE CHALLENGE: PROPOSAL FOR EVALUATION OF MUSCULOSKELETAL SYSTEM IN SWIMMERS WITH HEMOPHILIA UNDERGOING INTENSIVE TRAINING.

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## INTRODUCTION

Swimming is the ideal sport to practice in people with hemophilia (PWH) because it allows adequate maintenance of the musculoskeletal system, however, could be practiced at high demand levels without causing injuries that could limit the activities of daily life?.

## OBJECTIVES

To determine the impact of the proposed swimming program levels on the musculoskeletal system of people with hemophilia.

## METHODS

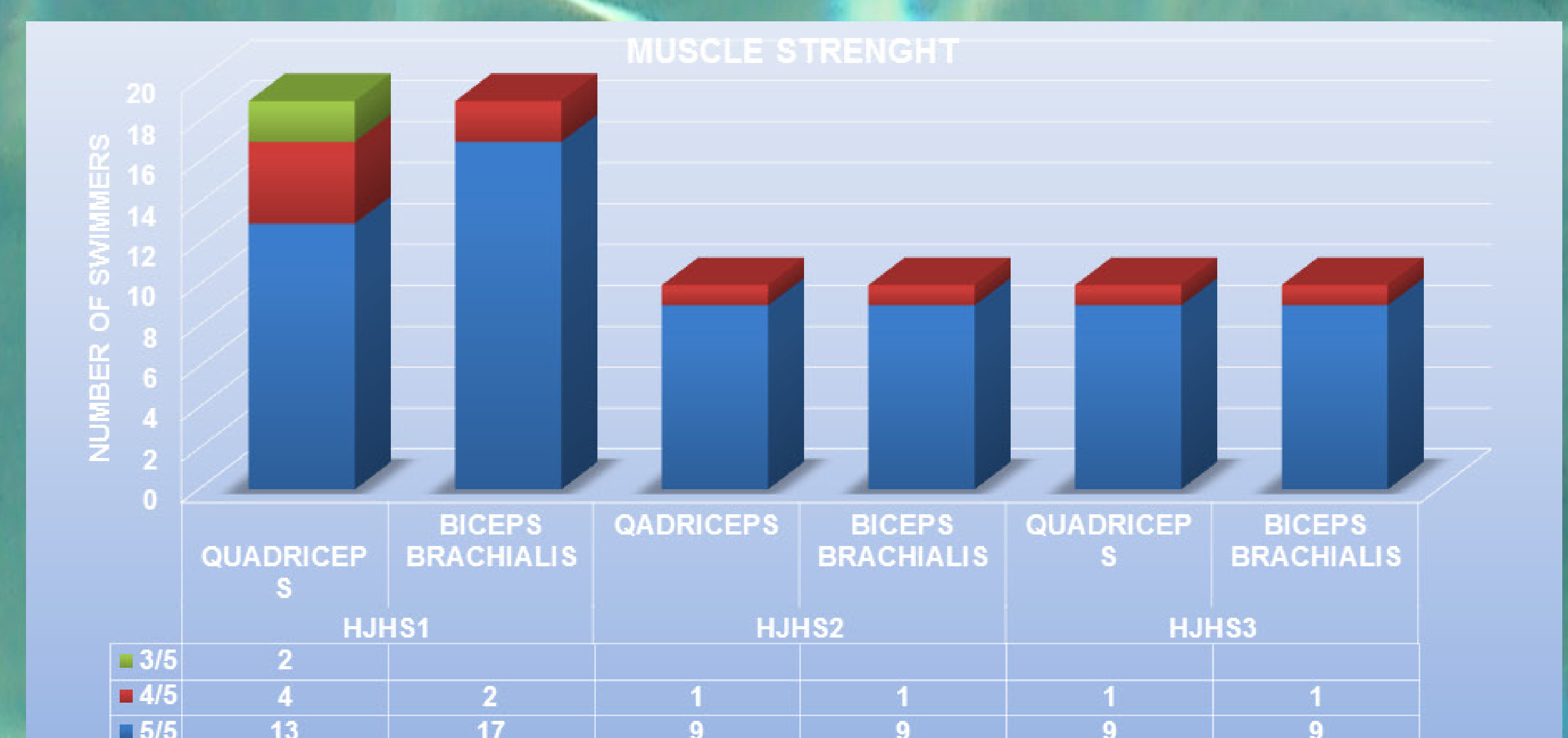
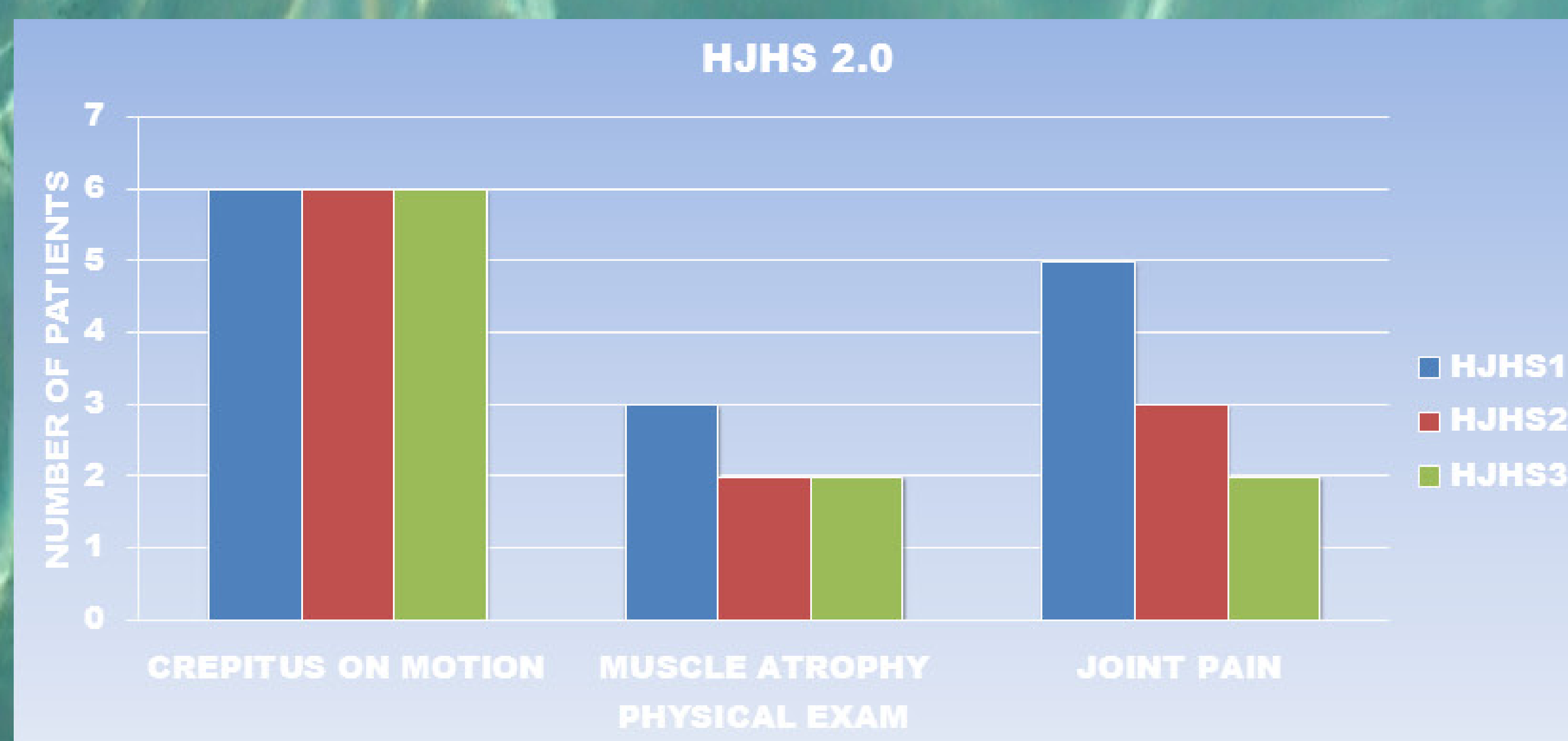
In addition to hematological follow-up we evaluate each PWH, who plan to swim 3000mts in open water of the Gulf of Mexico on June 2012. One year before an initial visit was performed on 19 regular swimmers with hemophilia, with a 2nd and a 3rd evaluation at 5 months and 2 weeks before competition. Intensive training routine consisted on swimming three to five times/week, in a swimming pool, starting with 1500mts dailyng and progressing to 3500-4500/day, additionally some programmed open water practices (7 in total). To determine the base level of each athlete and to establish their capacity for conducting training, we have used the Haemophilia Joint Health Score 2.0 (HJHS)<sup>1</sup>, complemented by an assessment on isokinetic machine for lower limbs.



PRACTICE	PLACE	NUMBERS/METERS
1	CLUB PUERTO AZUL, ESTADO VARGAS	EVALUATIONS AND DIAGNOSTICS
2	CLUB BAHIA DE LOS PIRATAS, ESTADO MIRANDA	2 X 2000 MTS 1 X 1400 MTS
3	PLAYA LA ROSA, ESTADO CARABOBO	1 X 2500 MTS 1 X 5000 MTS
4	PLAYA PEDRO GONZALEZ, ESTADO NUEVA ESPARTA	1 X 2000 MTS 1 X 600 MTS 1 X 3000 MTS
5	CLUB PUERTO AZUL, ESTADO VARGAS	2 X 3000 MTS
6	PARQUE NACIONAL MORROCOY, ESTADO FALCON	3 X 3000 MTS 1 X 2000 MTS
7	PARQUE NACIONAL MORROCOY, ESTADO FALCON	2 X 1500 MTS 1 X 3000 MTS 1 X 2000 MTS

## RESULTS

After the initial visit and 1000mts open water training 9 patients were retired for medical reasons: diminution in range of motion (ROM) to one or more joints resulting in decreased performance on the realization of open-water crossings in 8 competitors, and inhibitors in 1 patient. Later, after two crossings 2 more patients were retired by adherence failure. In total, 8 PWH, (5 with A severe in profilaxis treatment; 1 with A moderate and 2 with B moderate with treatment on demand) continue their training being observed ranges of motion in functional values, muscle strength 4 + / 5 of Daniel's & Worthingham Scale, a proper relationship quadriceps / hamstring using isokinetic machine and the absence of training injuries that could be associated with temporary disabilities on musculoskeletal system.



## CONCLUSIONS

The regular practice of swimming in people with hemophilia, associated with an appropriate medical treatment regimen maintaining or improving the conditions of muscle and joints, however, more studies should be performed before to establishing the safety of the practice of this discipline in high levels of competition.

## REFERENCES:

1.FELDMAN, B. M., FUNK, S., LUNDIN, B., DORIA, A. S., LJUNG, R. and BLANCHETTE, V. (2008), Musculoskeletal measurement tools from the International Prophylaxis Study Group (IPSG). Haemophilia, 14: 162-169. doi: 10.1111/j.1365-2516.2008.01750.x

