

# New York City Marathon: a challenge for hemophilic patient

L. Solimeno<sup>o</sup>, D. Bestetti<sup>o</sup>, M. Messina<sup>\*\*</sup>, E. Boccalandro<sup>\*</sup>, I. Danesi<sup>\*</sup>, A. Dragani<sup>\*\*\*</sup>, E. Forneris<sup>\*\*</sup>, M.E. Mancuso<sup>\*</sup>

<sup>o</sup> Emergency Trauma Department, IRCCS Cà Granda Foundation Maggiore Hospital, Milan – Italy

<sup>\*</sup> A. Bianchi Bonomi Hemophilia and Thrombosis Center, IRCCS Cà Granda Foundation Maggiore Hospital, Milan - Italy

<sup>\*\*</sup> Hemorrhagic and Thrombotic disease Center – Regina Margherita Children’s Hospital, Turin – Italy

<sup>\*\*\*</sup> Hemophilia and Congenital Thrombotic disease Center, Pescara - Italy



## Introduction and Objective

Hemophilia is an inherited clotting disorder showing the main clinical manifestations as spontaneous joint bleeds. Repeated bleedings lead to chronic arthropathy with possibility of joint replacement surgery. In the past, PWH always avoided physical activity and sport to reduce injuries and related complications. Today prophylaxis with deficient clotting factor (FVIII or FIX) and orthopedic management are improving their quality of life (QoL) with higher functional requests, enabling PWH to practice also extreme sports with life style expectancy closer to general population.

## 4) FINISH MARATHON: conclusions

This first project has shown that high impact exercise is possible for PWH followed and monitored by a professional multidisciplinary team. The physical activity can produce very important benefits in QoL of PWH in all conditions of arthropathy.

## 3) Results

All runners completed the training program and arrived to the finish line. During training period one severe complication of femur stress fracture happened in a patient with osteopenia. No complications as hemarthrosis or others related to hemophilia were observed.

## 2) Materials and Methods

8 PWHs were enrolled, with the following characteristics: mean age 38 years, type of hemophilia A: 4 severe, 2 moderate, 2 mild; hemathological treatment: 5 in prophylaxis, 3 on demand. 5 of them underwent major ortho-surgeries (2 TKR, 1 bilateral TKR, 1 TAR, 1 osteotomy) and they were followed by multidisciplinary team: ortho-surgeon, hematologist, psychologist, physiotherapist, athletic trainer. All PWHs were evaluated every 3 months to monitor and assess the outcome, including orthopedic evaluations (HJHS, ROM) and diagnostic exams (X-Rays, 3D MRI), hematological evaluation and tests lab, gait and postural analysis, Conconi athletic test, QoL investigations. Physiotherapy completed training program to prevent stress derived by running. The training program was customized and constantly adapted according to musculoskeletal and athletic feedback. It mainly included running session, as well as hydrokinesi, swimming, snowshoeing, trekking, cycling, stretching, strength muscle circuits, proprioceptive gym.



## 1) START: purpose of the project

Patients with different characteristics in hemophilia, orthopaedic and surgical histories performed a training program lasting 10 months to run the New York City Marathon, on November 1<sup>st</sup> 2015. This project aimed to prove the impact of endurance training on different outcomes: orthopaedic, hematological and psychological aspects.

