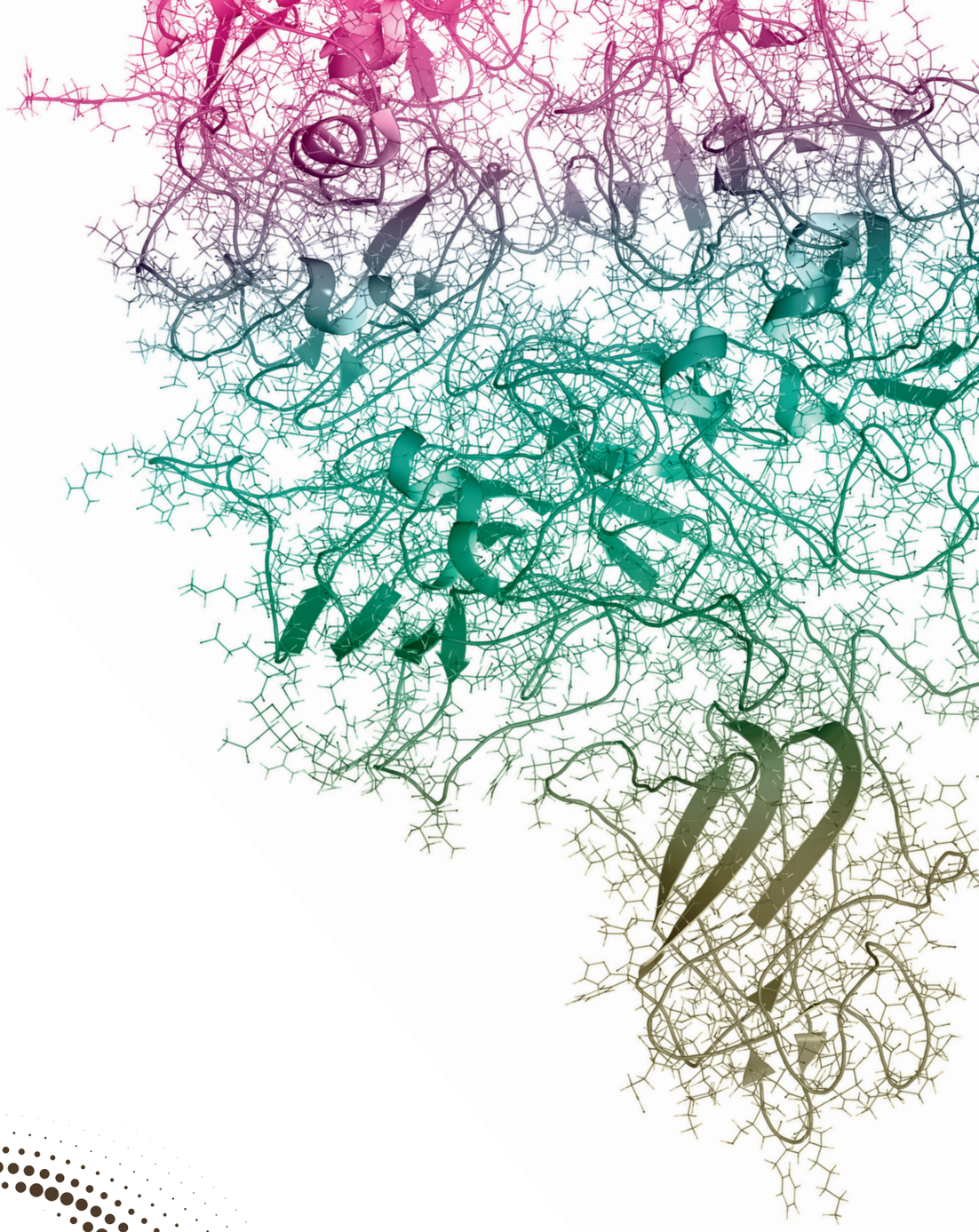


From Perception to Reality

Advancing Hemophilia Care with **Objective Joint Health Assessments**

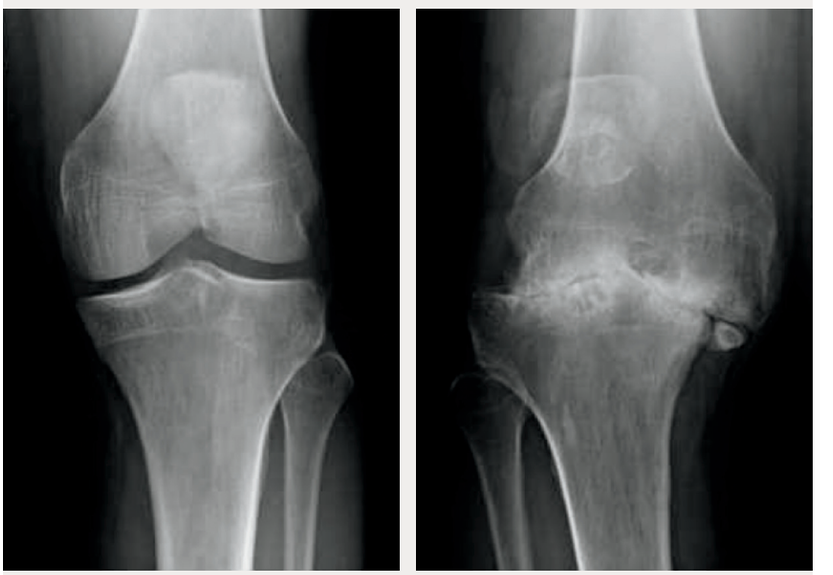
With the possibility of misdiagnosed or undetected bleeds,

How can you ensure your patient's treatment protocol is working?

Repeated bleeding in the joints causes inflammation and damage, leading to hemophilic arthropathy[1-6]

- Approximately 70% to 80% of bleeds in patients with hemophilia occur in the joints[1]
- 70% of the time, the cause of musculoskeletal pain is misdiagnosed, and patients may experience asymptomatic bleeds that occur without clinical signs or symptoms[7-10]
- Therefore, bleeding in the joints may go undetected and unmanaged, potentially increasing the risk for joint damage[7-10]

Impact of bleeds on joints[11]



No history of hemarthrosis

Severe arthropathy from hemarthroses

Adapted from Lobet et al. *J Blood Med.* 2014.

Early detection and treatment of all bleeds is critical because every bleed plays a role in joint damage[5,7]

Preservation of joint health is a key goal of hemophilia management

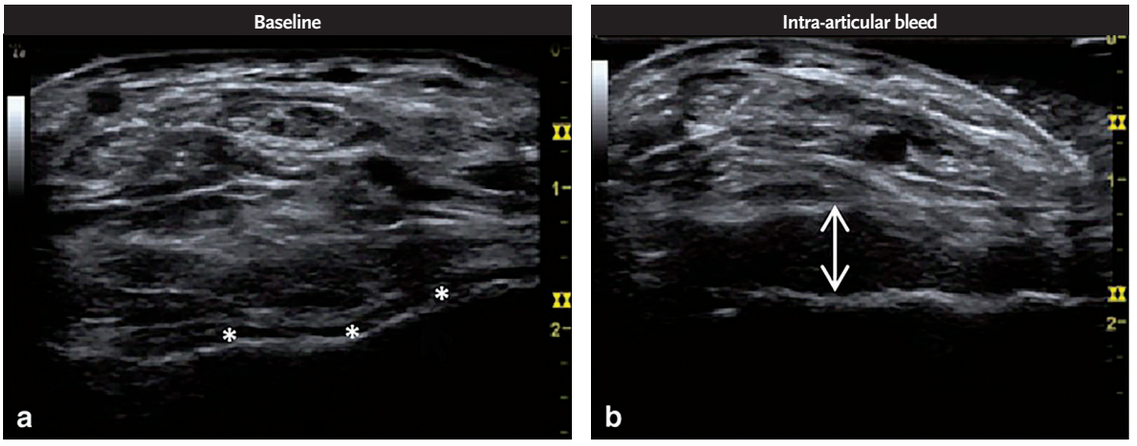
Research has shown that factor replacement therapies can improve joint health, and prevent and treat all types of bleeds[1,12]

Early treatment of joint bleeds with factor prophylaxis can preserve joints and improve outcomes[13]

- Factor prophylaxis has shown benefits for patients' joint outcomes, including target joint resolution, bone strength, and long-term joint health improvements[12,14]

Objective clinical assessments can help improve treatment with factor replacement therapy[7]

- Ultrasound is becoming more established as a point-of-care diagnostic tool that can be used to improve treatment outcomes[15-17]
  - In the **acute setting**, it can quickly distinguish whether acute joint or musculoskeletal pain is associated with bleeds[7,16,17]
  - In **asymptomatic patients**, it can identify joint damage to provide diagnostic certainty of joint health status[7,16,17]
  - In a **longitudinal setting,** it can be used to monitor changes in joint health **over time** to assist in evaluating treatment protocol success[18]
  - It can detect **inflammation** and **vascular remodeling** that are associated with joint bleeds[18]



Ultrasound images of the ankle of a 23-year-old with severe hemophilia. Baseline axial view of the ankle showed normal, thin anechoic synovial space in the tibiotalar joint (*). Examination during painful episode showed increase in volume of the tibiotalar synovial space (arrows), which is consistent with complex effusion and bleeding.[7]

Adapted from Ceponis et al. *Haemophilia*. 2013.

Using behavioral insights to discuss joint health with your patients

Strategies based on behavioral insights can help you make the most of every joint health conversation[19-22]

Since joint damage can be caused by any bleed, it is important to talk about joint health at every clinic visit.

Loss Aversion[19]

People are more motivated to change by the prospect of a loss than by the potential for a gain

Your approach: Align joint health with what's important to your patients outside of their hemophilia management. Remind patients of activities or personal goals that will be affected by joint damage.

Listen for: "I have occasional swelling and discomfort, but it's manageable and doesn't affect my golf game."

Respond with: "Whether or not it's manageable, those are signs that you may be having bleeds. We may need to make changes to your treatment regimen to make sure your joints are protected."

Implementation Intentions[20]

People are more likely to achieve goals when they associate them with a specific time and a set activity or behavior

Your approach: Make joint health a part of your patient's hemophilia management routine by integrating it into every clinic visit. Encourage patients to think about how they're benefitting their joint health whenever they infuse.

Listen for: "I'm already tracking my bleed rates and infusion schedule. I don't have time to worry about something else."

Respond with: "Everything you already do to control your hemophilia can also benefit your joint health. Next time you infuse, think about the joint damage you're helping to prevent, not just the bleeds. Whenever you're here, we can do a quick ultrasound of your target joint to see if there's any improvement."

Hyperbolic Discounting[21,22]

People find it difficult to prioritize future goals that seem far off and are not as motivated by long-term outcomes

Your approach: Bring future joint health into the present with a joint restrictor device. By feeling the limited range of motion (ROM) that comes with severe arthropathy, patients may be more motivated to take action now to preserve their joints.

Listen for: "I'm still young and I'm adherent to my prophylactic schedule, so my joints should be fine."

Respond with: "Joint damage is possible at any age. While prophylaxis does protect you from bleeds, you can experience a bleed and not even realize it. I know patients not much older than you who have joint damage. The consequences of joint damage are not as far off as you think. Why don't I show you the potential consequences of not monitoring your joint health?"

To learn how to use the joint restrictor, please refer to the following page.

Demonstrating the importance of treatment adherence for joint health to your patients

When it comes to joint health, patients may struggle to think far into their future[21]

The joint restrictor device can demonstrate ROM loss to help patients understand how severe joint arthropathy can be.[23]

To use the joint restrictor device with your patients:

- Place on their right arm
- Initially set the dials to **0°** and have them perform a daily task or activity such as:
  - Cutting food
  - Refilling a water glass
  - Passing an item to a person across from them
  - Dropping a pen or an item on the ground behind them and picking it up
  - Putting on a jacket
- Adjust the flexion dial to **90°** and the extension dial to **60°**

Once your patients are wearing the joint restrictor device, ask them to perform the same daily task or activity.

A joint restrictor device can allow patients to truly feel the impact of joint damage.

Flexion[23,24]

Healthy ROM: 150°
Severe Arthropathy ROM: 119°

Extension[23,24]

Healthy ROM: 0°
Severe Arthropathy ROM: 40°

Visit www.HemJointHealth.com to request tools for your practice or schedule an interactive program to learn more.

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