



UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

DIVISION OF
CORPORATION FINANCE

Mail Stop 4720

May 25, 2016

John Gandolfo
Chief Financial Officer
Xtant Medical Holdings, Inc.
664 Cruiser Lane
Belgrade, Montana 59714

**Re: Xtant Medical Holdings, Inc.
Post-Effective Amendment No. 2 to
Registration Statement on Form S-1
Filed April 29, 2016
File No. 333-203492**

Dear Mr. Gandolfo:

We have reviewed your post-effective amendment and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by amending your registration statement and providing the requested information. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

General

1. We note the disclosure in the body of the prospectus has not been updated since August 25, 2015. In this regard, please update your disclosures to reflect your operations and conditions as of the most recent practicable date. Please include or update, as applicable, your current business operations, revised financial disclosures and management's discussion and analysis of financial condition and results of operations, any share issuances to date under the Aspire Capital Fund, LLC purchase agreement, executive compensation disclosures, common stock outstanding, and the ticker symbol and marketplace upon which your shares are traded.

Incorporation of Certain Information by Reference, page 69

2. We note that it appears that you are relying on General Instruction VII of Form S-1 to incorporate by reference information into your registration statement; however, it appears that you have not incorporated by reference all reports filed pursuant to Section 13(a), Section 14 or Section 15(d) of the Exchange Act since the end of your most recent fiscal year. For instance, please revise to incorporate specifically the Forms 8-K filed on January 22, 2016 and April 19, 2016, as well as your periodic report on Form 10-Q filed on May 11, 2016.

Signatures

3. Please update your signature page to the most recent practicable date.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Act of 1933 and all applicable Securities Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, before we can declare the amended registration statement effective, the company should provide us with a letter, acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

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Please contact Tara Keating Brooks at (202) 551-8336 or Mary Beth Breslin at (202) 551-3625 with any questions.

Sincerely,

/s/ Mary Beth Breslin for

Suzanne Hayes
Assistant Director
Office of Healthcare and Insurance

cc: Travis Leach
Ballard Spahr LLP