

October 17, 2016

VIA EDGAR

Securities and Exchange Commission
Division of Corporation Finance
100 F Street, NE
Washington, D.C. 20549
Attention: Suzanne Hayes, Assistant Director

**Re: Xtant Medical Holdings, Inc.
Registration Statement on Form S-1
Amended September 28, 2016 and October 6, 2016
File No. 333-213350**

Dear Ms. Hayes:

On behalf of Xtant Medical Holdings, Inc. (the “**Company**”), we respond as follows to the comment letter from the staff (the “**Staff**”) of the Securities and Exchange Commission (the “**Commission**”), dated October 6, 2016, regarding the Company’s Registration Statement on Form S-1, as amended (File No. 333-213350) (the “**Registration Statement**”).

Captions and page references herein correspond to those set forth in Amendment No. 3 to the Registration Statement (“**Amendment No. 3**”), as filed with the Commission on the date hereof. Capitalized terms used but not defined herein have the meanings ascribed to them in the Registration Statement.

Please note that for the Staff’s convenience, we have recited each of the Staff’s comments and provided the Company’s response to each comment immediately thereafter.

Prospectus Cover

1. *We note your revised disclosures in response to prior comment 1; however, it does not appear that the revised cover page includes space where the volume of each security offered will be disclosed in a pre-effective amendment. Please refer to the second sentence of the prior comment and Regulation S-K, Item 501(b)(2).*

Response: The cover page of the prospectus in Amendment No. 3 has been revised to include a space where the volume of each security offered will be disclosed in a pre-effective amendment.

What effect will the Rights Offering have on our outstanding Common Stock?, page 3

2. *We note that the revised offering includes the issuance of subscription rights to outstanding convertible noteholders. Please revise the Summary to disclose the dollar value of the debt outstanding and the total number of common shares that could be issued to these noteholders pursuant to the subscription. Also, discuss the dilutive impact on existing common shareholders. Also, tell us whether common shareholders must approve the issuance of the subscription rights to the noteholders.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on pages 3 and 36 of Amendment No. 3 to disclose the dollar value of the debt outstanding, the total number of common shares that could be issued to these noteholders pursuant to the subscription and the dilutive impact on existing common shareholders. The common shareholders do not have to approve the issuance of the subscription rights to the noteholders.

Use of Proceeds, page 34

3. *We note your revised disclosures in this section in response to prior comment 2. Please also revise to explain briefly how you intend to allocate the proceeds among the two uses if you receive substantially less than the maximum amount of proceeds. For example, please consider disclosing the intended allocation assuming you only raise 50% of the total subscription.*

Response: In response to the Staff's comment, the Company advises the Staff that it has revised the disclosure on page 34 of Amendment No. 3 to disclose the following: Below is our estimate of how we expect the proceeds to be used if we sell 25%, 50%, 75% and the entire Rights Offering:

Use of Proceeds	Sale of 25% of the Offering	Sale of 50% of the Offering	Sale of 75% of the Offering	Sale of 100% of the Offering
Gross Proceeds	\$3,750,000.00	\$7,500,000.00	\$11,250,000.00	\$15,000,000.00
Offering expenses	\$375,000.00	\$637,500.00	\$911,250.00	\$1,250,000.00
Net proceeds	\$3,375,000.00	\$6,862,500.00	\$10,338,750.00	\$13,750,000.00
Equity Capital Support	\$2,050,000.00	\$4,000,000.00	\$5,500,000.00	\$7,000,000.00
General Corporate	\$1,325,000.00	\$2,862,500.00	\$4,838,750.00	\$6,750,000.00

* * * * *

October 17, 2016

The Company hereby acknowledges 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.

If you have any questions, please do not hesitate to contact me at (406) 388-0480, or our counsel, Travis J. Leach of Ballard Spahr LLP, at (602) 798-5444.

Very truly yours,

XTANT MEDICAL HOLDINGS, INC.

/s/ John Gandolfo

John Gandolfo

Chief Financial Officer

cc: Travis J. Leach, Ballard Spahr LLP