

Mail Stop 6010

October 31, 2007

VIA U.S. MAIL AND FAX (408) 548 -6501

Ms. Maureen L. Lamb  
Chief Financial Officer  
Kyphon Inc.  
1221 Crossman Avenue  
Sunnyvale, California 94089

**Re: Kyphon Inc.  
Form 10-K for the year ended December 31, 2006  
Filed February 28, 2007  
Form 10-Q for the quarter ended June 30, 2007  
Filed August 9, 2007  
File No. 000-49804**

Dear Ms. Lamb:

We have reviewed your filings and have the following comments. We have limited our review to only your financial statements and related disclosures and will make no further review of your documents. Where indicated, we think you should revise your documents in response to these comments. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure. After reviewing this information, we may or may not raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filings. We look forward to working with you in these respects. We welcome any questions you may have about our comments or on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Form 10-K for the year ended December 31, 2006

Item. 7 Management's Discussion and Analysis of Financial Condition and Results of Operations, page 57

Results of Operations, page 65

Changes to Previously Announced 2006 Fourth Quarter and Annual Results, page 68

1. We note that you eliminated deferred payments of approximately \$149.3 million from your balance sheet related to your proposed acquisition agreements with Disc-O-Tech. We also note from disclosures elsewhere in the filing that the purchase price under both agreements with Disc-O-Tech is payable even if regulatory approvals are delayed or not obtained or the transactions never close. Please explain to us in greater detail how you determined that the elimination of deferred payments from the December 31 2006 balance sheet was appropriate, citing the accounting literature you relied upon to support your conclusions.

Revenue Recognition, page 88

2. Please expand your disclosures in any future filings to describe your revenue recognition policy in greater detail. Details should be provided to the extent that policy differs among the various marketing venues you use, i.e. distributors and reseller. Also, if the policies vary in different parts of the world those differences should be discussed. Provide details of discounts, return policies, post shipment obligations, warranties, credits, rebates, and price protection or similar privileges and how these impact revenue recognition.

Note 5. Acquisitions, page 93

InnoSpine, Inc., page 93

3. We note that independent valuation experts assisted you during the valuation of the intangible assets acquired from InnoSpine, Inc. While management may elect to take full responsibility for valuing the intangible assets, if you choose to continue to refer to the expert in any capacity, please revise any future filings, beginning with your next 10-Q, to name the independent valuation experts. In addition, please note that if you intend to incorporate your Form 10-K by reference into any registration statement, you will be required to include the consent of the independent valuation experts as an exhibit to the registration statement.

Form 10-Q for the quarter ended June 30, 2007

Note 2. Acquisitions, page 7

4. We see that in connection with your January 18, 2007 acquisition of St. Francis Medical Technologies you recorded a significant amount of goodwill. Please revise your future filings, if any, to provide the disclosures required by paragraph 51 (b) of Statement 141.

Note 8. Debt, page 16

Convertible Senior Notes, page 17

5. We note that you issued convertible senior notes in February 2007. Please respond to the following:
  - We note that the notes will be convertible into cash up to the principal amount, and if applicable, shares of common stock in respect of any conversion value above the principal amount. Please explain to us in detail and revise any future filings to disclose how you valued and accounted for this conversion feature. We also note, here and elsewhere in the filing, that you will have certain obligations to repurchase the notes at the option of the holders following the merger with Medtronic, Inc. It also appears that the holders will have the ability to convert their notes prior to completion of the merger. Please include the details of this conversion feature and the obligations and how you accounted for them in your explanation. Please cite the accounting literature which you relied upon to support your conclusions.
  - We also note that you entered into convertible note hedge transactions and warrant transactions with affiliates of the initial purchasers in connection with the offering. Please explain to us and disclose in your future filings in greater detail about the nature and the terms of these transactions and how you accounted for them. Also, provide all accounting entries made in connection with the transactions. Finally, please cite the accounting literature which you relied upon to support your conclusions.

Form 8-K/A filed on January 30, 2007

Exhibit 99.4 Unaudited Pro Forma Combined Condensed Financial Information

Unaudited Pro Forma Combined Condensed Statement of Operations, page 3

6. We note that you used the effective income tax rate to reflect the income tax effects of the pro forma adjustments. Please note when preparing any future filings that tax effects of pro forma adjustments normally should be calculated at the statutory rate in effect

during the periods for which pro forma condensed income statements are presented.  
Please see Instruction 7 to Rule 11-02 of Regulation S-X.

Form 8-K dated July 27, 2007

Exhibit 99.1 Press Release, dated July 27, 2007

Reconciliation of GAAP and Non-GAAP Operating Results, page 4

7. We note that you present your non-GAAP measures and reconciliation in the form of adjusted statement of income. This format may be confusing to investors as it also reflects several non-GAAP measures, including non-GAAP operating income, non-GAAP income before income taxes, non-GAAP income taxes, non-GAAP basic net income per share, and non-GAAP diluted net income per share. We further note that your non-GAAP results exclude certain expenses related to the acquisition of SFMT and this non-GAAP presentation is given in part to enhance the understanding of the company's historical financial performance and comparability between periods. Please note that Instruction 2 to Item 2.02 of Form 8-K requires that when furnishing information under this item you must provide all the disclosures required by paragraph (e)(1)(i) of Item 10 of Regulation S-K, including a reconciliation to the directly comparable GAAP measure for **each** non-GAAP measure presented and explain why you believe the measures provide useful information to investors.
- To eliminate investor confusion, please remove the non-GAAP statements of income from any future filings and instead disclose only those non-GAAP measures used by management that you wish to highlight for investors, with the appropriate reconciliations.
  - Please note that in the event that your Form 8-K is incorporated by reference into a 33 Act registration statement, we may have additional questions relating to the appropriateness of this information being included in a document filed with, and not just furnished to, the Commission. At that time, we may request an amendment to the Form 8-K.

As appropriate, please respond to these comments within 10 business days or tell us when you will provide us with a response. Please furnish a cover letter that keys your responses to our comments and provides any requested supplemental information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your responses to our comments.

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 all information required under the Securities Exchange Act of 1934 and that they have provided all information investors require for an

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informed investment decision. 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.

In connection with responding to our comments, please provide, in writing, a statement from the company acknowledging that

- the company is responsible for the adequacy and accuracy of the disclosure in the filings;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in our review of your filing or in response to our comments on your filing.

You may contact Andri Boerman, Staff Accountant, at (202) 551-3645 or me at (202) 551-3603 if you have any questions regarding these comments. In this regard, do not hesitate to contact Angela Crane, Branch Chief, at (202) 551-3554.

Sincerely,

Jay Webb  
Reviewing Accountant