Convexity: Uncovering the Evidentiary Gaps

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Introduction

Convexity has been an integral part of ostomy care for over 50 years. Its origins were born from necessity and ingenuity: the early creative uses of pastes, rings, inserts, and fillers were adapted to compensate for imperfect peristomal planes and stoma construction.[6,14] Some of the first products developed included the reusable faceplates and karaya pouches, and have broadly expanded to include integrated convex barriers (with varying configurations) and accessory products. Despite its widespread use, a consolidated understanding of convexity is lacking.

An international panel of experienced ostomy nurses was convened to review existing literature, reported practices, and anecdotal recommendations related to the use of convexity in ostomy care. The review broadly focused on convexity terminology, assessment parameters, indications for use, contraindications, and available clinician tools to aid product decision making. This poster highlights the panel's findings and identifies future needs to support the use of convexity.

Assessment

A unified tool to aid in patient assessment and product selection is not demonstrated in the literature. Numerous clinicians emphasize a variety of points (Figure 1) that contribute to determining the need for convexity, but most are based on clinical experience rather than on a well-developed and accepted strategy.[3,4,5,7,8,11] General consensus does exist for the need to assess the patient in a variety of positions including lying, sitting, and standing (Figure 2). Merging assessment findings with ideal products appears to be based primarily on clinician skill, with citations consistently stating that the product needs to match abdominal topography and stomal protrusion.

Fig.1 Assessment

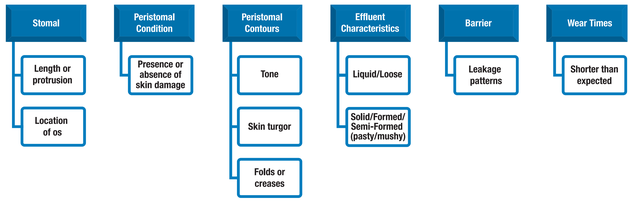
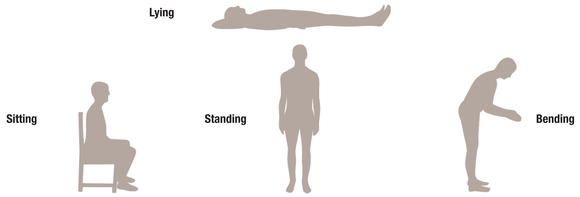


Figure 2 - Positions



Terminology

The proliferation of convex products has resulted in a unique lexicon of associated terms. Most notably, the varying depths of convexity are often described as shallow, moderate, or deep.[5] However, there is a recognized failure to standardize these terms across clinicians and industry. Variations in product design have resulted in new terms such as soft and firm to describe product flexibility or rigidity as the force applied by the product (Fig. 3), but again lack clear codification. Some convex product features (such as its silhouette or profile) are acknowledged by clinicians, but have limited mention or description in the available literature. This failure of consistency leads to poor communication between clinicians: terms are used interchangeably, but do not necessarily correlate with the products' features or dynamics.

Fig. 3 Terminology

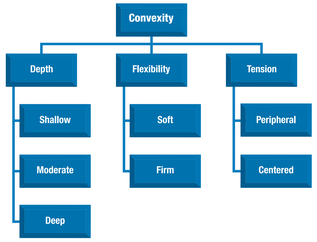


Fig. 4 Convexity Properties

- Smoothes peristomal skin surfaces[11]
- Flattens peristomal skin creases[11]
- Provides mirror image of abdominal contours[4]
- Fills peristomal skin defects[5]
- Pushes in on peristomal skin[12]
- Supports skin irregularities[10]
- Maintains pouch seal for an acceptable time frame[11]
- Increases stoma protrusion[4]
- Increases resistance to effluent[4]

Frequently Cited Applications

Years of clinical experience, coupled with two to three decades of convex product availability, have resulted in multiple attempts to describe common usage. Most discussions describe harmonizing the peristomal topography with the shape of the chosen barrier. Uneven peristomal contours, and the concept of mirroring or matching these contours with skin barriers, are the most commonly referenced indications for convex usage.[1,6,10] Inadequate stomal length is also frequently cited as requisite to convex selection.[4,5] Discriminating between the reported properties of convex products (Fig. 4) and actual indications for use (Fig. 5), however, is challenging as these often become synonymous. Young (1992)[11] broadly indicated that the most common reason for convex use was the "inability to maintain a pouch seal for an acceptable period of time."

References

References quoted in support of this poster are available as a poster handout/poster reprints

1. Bourke, R, et al (2006). "Making Sense of Convexity." (White paper) Published by: Hollister Incorporated.
2. Turnbull, G. (2003). "The Convexity Controversy." Ostomy Wound Management, Vol. 49: 1, pp.15-17.
3. Doughty, D. (2005). "Principles of Ostomy Management in the Oncology Patient." Supportive Oncology. Vol. 3: 1, pp. 59-69.
4. Barr, E. (2008). "Part 2: Assessment and Management of Stomal Complications: A Framework for Clinical Decision Making." Ostomy Wound Management, retrieved July 17, 2012 from http://www.o-wm.com/content/part-2-assessment-and-management-stomal-complications-a-framework-clinical-decision-making?page=0,4
5. Rolstad, B. & Boarini, J. (1996). "Principles and Techniques in the use of Convexity." Ostomy Wound Management. Vol. 42: 1, pp. 24-32.
6. Mckenzie, F. & Ingram, V. (2001). "Dansac Invent Convex in the management of flush ileostomy." British Journal of Nursing. Vol. 10: 5, pp. 1005-1009.
7. Boyd, K., Thompson, M.J., Boyd-Carson, W. & Trainor, B. (2004). "Use of convex appliances." Nursing Standard. Vol. 18: 20, pp. 37-38.
8. Rattiff, C. et al (2005). "Descriptive Study of Peristomal Complications. Journal of Wound, Ostomy Continence Nursing. Vol. 32:1, pp. 33-37.
9. Turnbull, G. (2008). "Minding the Gap: The Art of Managing Peristomal Topography." Ostomy Wound Management. Retrieved July 17, 2012 from http://www.o-wm.com/article/5633
10. Turnbull, G. (1998). "The Ostomy Assessment Inventory: A Data-Gathering Process to Enhance Appropriate Pouching System Selection." Ostomy Wound Management. Vol. 44:2, pp. 28-37.

Fig. 5 Frequently Cited Applications

Sub-optimal peristomal planes	Wrinkles, creases, channels, folds, scars [1,10]
	Skin retraction/traction resulting in gullies [5]
	Flaccid abdomen
Sub-optimal stomal protrusion	Flush or retracted stomas [4,5]
	Particularly when associated with liquid effluent[5]
Sub-optimal location of stomal os	Os tips [2]
	Os exits at skin level [2]
Optimal stomal protrusion with sub-optimal peristomal planes	Protruding stoma within wrinkles, creases, channels, folds, scars, or with skin retraction/traction resulting in gullies, or flaccid abdomen [9]
Stomal construction	Loop ostomies [2,1,5]
Stomal movement	Telescoping stomas [1]
Not achieving wear times desired	Unable to appreciate sub-optimal stomal protrusion and/or sub-optimal peristomal planes Local expectations of desirable wear times dictate longer wear time expectations of barriers
Or a combination of any of the above	

Frequently Cited Precautions

Convexity use is not without concern. There are broad cautionary statements related to rigid/firm convexity, indicating that inappropriate use can cause complications,[6] yet, there is a paucity of literature that clearly correlates convex use with these adverse events. The bulk of these concerns either lack supporting data or fall within the realm of clinical observations. Mechanical injury to the stoma or peristomal skin is the most commonly described complication.[5,13,15] While being described somewhat in the literature, restricting the use of convexity in the immediate postoperative period to protect the mucocutaneous junction also lacks supporting evidence.[6] New theories that suggest soft convexity products can either prevent or eliminate these potential risks is also anecdotal. These suppositions can lead to the belief that some products are more effective in some instances than others, but again lack any evidentiary support.

Conclusion

Complex ostomies warranted the development of convex products and undoubtedly fueled its perfusion into routine care. The subsequent accumulation of clinician and patient experiences has built a diverse, yet fragmented portfolio of indications, concerns, and terminology. At present, there is no reference that consolidates a comprehensive patient assessment with in-depth convex product knowledge, nor is there sufficient evidence to support the decisions for use. The panel strongly recommends the development of a formalized process that will support clinician decision making for convex products.

11. Young, M. (1992). "Convexity in the Management of Problem Stomas." Ostomy Wound Management. Vol. 38: 4, pp. 53-60.
12. Seaman, S. (1996). "Basic Ostomy Management: Assessment and Pouching." Home Healthcare Nurse. Vol. 14: 5, pp. 335-343.
13. Rattiff, C. & Donovan, A. (2001). "Frequency of Peristomal Complications." Ostomy Wound Management. Vol. 47: 8, pp. 26-29.
14. Breeze, J. (1994) "Hollister Impression." British Journal of Nursing. Vol. 3:17, pp. 905-908.
15. Wells, J. & Doughty, D. (1994). "Pouching Principles and products." Ostomy Wound Management. Vol. 40:6,pp. 50-63.

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