

THE FIBER SOCIETY



*Advancing Scientific Knowledge
Pertaining to Fibers and Fibrous Materials*



The Fiber Society 2018 Spring Conference

**Co-organized with The Society of Fiber
Science and Technology, Japan**

*Fibers and Textiles for Value Creation
in Connected Industries*

June 12–14, 2018

Conference Chair

Dr. Takeshi Kikutani

Tokyo Institute of Technology, Tokyo, Japan

Venue

*Tower Hall Funabori
Tokyo, Japan*

Program

Monday, June 11

1:00 PM–5:00 PM The Fiber Society Governing Council Meeting, Bunka-Gakuen University
3:00 PM–7:30 PM Pre-registration and Welcome Reception, Bunka-Gakuen University

Welcome Message

The fiber community of Japan is privileged and honored to hold The Fiber Society's Spring 2018 Conference at Tower Hall Funabori in Tokyo, Japan, from June 12 to 14. Customarily, The Fiber Society holds spring conferences outside of the United States and fall conferences inside the United States. This is the first Fiber Society conference in Japan. The conference is co-organized with The Society of Fiber Science and Technology, Japan. Two other organizations related to fibers and textiles, The Textile Machinery Society of Japan and The Japan Research Association for Textile End-Uses, are co-sponsoring this conference.

The Fiber Society and The Society of Fiber Science and Technology, Japan, have a certain similarity from the view point of their origins. The Fiber Society was founded in 1941 with its original name, "Industrial Fiber Society." The Society of Fiber Science and Technology, Japan, was established in 1943 when The Society of Cellulosics and The Society of Fiber Industry merged. Growth of the Societies in the early years was boosted through the development of synthetic fibers. Today, both Societies represent and support a wide range of research fields related to fibers and textiles.

We set the theme of this conference as "Fibers and Textiles for Value Creation in Connected Industries." Cooperation by people from different fields of research, from different disciplines, and from different regions of the world is essential for a world-wide, prosperous future. Continued far-reaching and wide-ranging collaboration and exchange of ideas among the people in the field of fibers and textiles, especially between The Fiber Society and The Society of Fiber Science and Technology, Japan, are essential for the creation of innovation in our field.

On behalf of the conference Organizing Committee, I welcome all delegates and wish everyone the best for an academically and professionally fruitful meeting. And I hope all delegates from abroad enjoy their stay in Japan.



A handwritten signature in black ink, appearing to read "T. Kikutani". The signature is stylized and fluid, written on a light-colored background.

Prof. Takeshi Kikutani
Conference Chair
President of the Society of Fiber Science and Technology, Japan

The Fiber Society

The Fiber Society is incorporated as a not-for-profit professional and scientific association, dedicated to the advancement of knowledge pertaining to fibers, fiber-based products, and fibrous materials. The Society comprises individuals who are chemists, physicists, engineers, and designers with interests in the field of fiber science engineering and technology.

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Thomas Gries, RWTH Aachen University

David Hinks, North Carolina State University

Yordan Kyosev, Niederrhein University

Sergiy Minko, University of Georgia

The Society of Fiber Science and Technology, Japan (SFSTJ)

The Society of Fiber Science and Technology, Japan (SFSTJ) was founded in 1943. The SFSTJ is a great contributor to the development of textile science and industry in Japan. The activities of SFSTJ focus on the fields of fiber science and technology and broadly extend to many interdisciplinary areas. The textile industry is widely distributed across areas from basic fiber material development and application, to apparel and fashion design. The fiber industry also plays a major role in manufacturing business. Nearly 10 percent of all employees in the manufacturing industry, (over 2 million people) are engaged in this field. SFSTJ offers valuable information exchanges through gatherings with scientists and engineers, to give you new ideas and directions for your work. Furthermore, joining SFSTJ can provide you with a unique overview of the field, and this knowledge can help to drive your education, research and business activities.

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Sensory Evaluation of Female Jeans Using the CALM Scale to Assess Total Comfort

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The present paper consists on the experimental stage of a PhD research, on the study of the popular female jeans comfort, referring to the process of subjective evaluation of comfort to wear. The popular jeans in study, refers to the jeans created, produced and consumed by the poor classes of Fortaleza, in the state of Ceará, Brazil (Braga and Abreu, 2017). The purpose is to investigate the female jeans, with the objective of collecting information about the comfort / discomfort perceptions of the consumers of the Fortaleza popular markets.

MATERIALS AND METHODS

The sensorial evaluation to use of the jeans was made according to the following phases:

1) The inquiry was the instrument used for data collection (Braga, Abreu and Oliveira, 2017). The inquiry was constructed from the combination of three different steps: with the combination of scales (Figure 1) (numerical, attributes and faces).

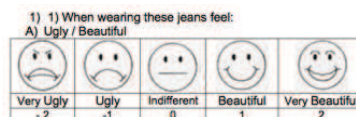


Figure 1 – Combination of scales

With two leaves consisting of a front and back body map, with each side (front and back) (Figure 2) being divided in 15 parts, referring to the body zone dressed in jeans, adaptation of the Discomfort Opinion Scales developed by Corlett; Bishop (1976).

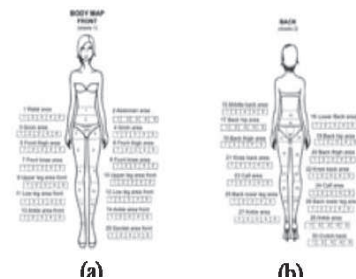


Figure 2 – Body map (a) front, (b) back

The final question, concerning the assessment of the total comfort of the jeans through the CALM scale (Comfort Affective Labeled Magnitude) (Figure 3).



Figure 3 – CALM scale (Comfort Affective Labeled Magnitude) (Kamalha et al., 2013)

2) The five jeans models were bought at popular malls and fairs in the city center.



Models	Jeans 1	Jeans 2	Jeans 3	Jeans 4	Jeans 5
Composition	98% cotton 2% spandex	77% cotton 21% polyester 2% spandex	98% cotton 2% spandex	96,5% cotton 3,5% spandex	77% cotton 21% polyester 2% spandex
Structure	Twill (2/1 1)	Twill (2/1 1)	Twill (3/1 1)	Twill (3/1 1)	Twill (3/1 1)
Mass (g/m ²)	281	332	322	289	323
Thickness (mm)	0,70	0,83	0,75	0,72	0,75
Count threads (yarns/cm)	29 x 21	37 x 23	39 x 22	40 x 26	38 x 23
Air Permeability (l/m ² /s)	38	48	50	47	39
Water vapour resistance (Pa·m ² /W)	60	56	64	69	62

Figure 4 – Characterization of the five popular jeans models

3) The group of evaluators consists of 101 female volunteers, aged between 18 and 40 years, consumers of the Fortaleza popular markets.

4) The locations for the tests applications were in real environments. The means of temperature and humidity were between 28°C with variation of ± 2°C and 65%, with variation of ± 2%.

5) The time of the experiment: 30 minutes for each jeans model.

RESULTS

Through the analysis of the data collected, the evaluators pointed out: the jeans 1 and jeans 2 showed very close data in all parameters analyzed, and the jeans 1 and jeans 4 showed the same data, as the most uncomfortable jeans.

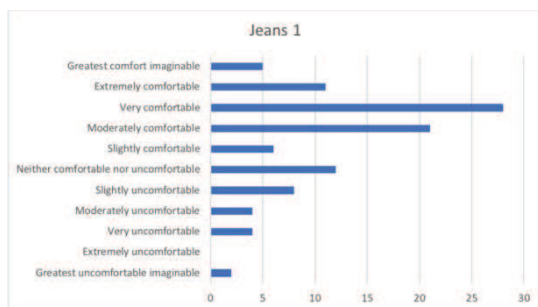


Figure 5 – Evaluation of jeans 1 data

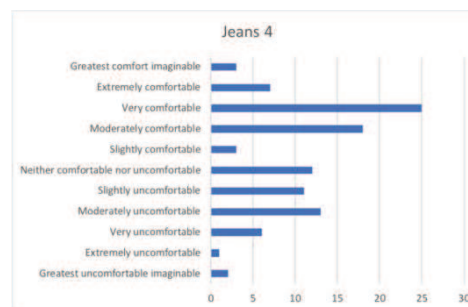


Figure 6 – Evaluation of jeans 4 data

The jeans 3 and jeans 5 showed the very close data, as the most comfortable imaginable jeans.

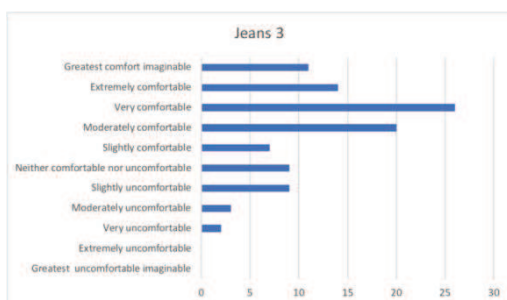


Figure 7 – Evaluation of jeans 3 data

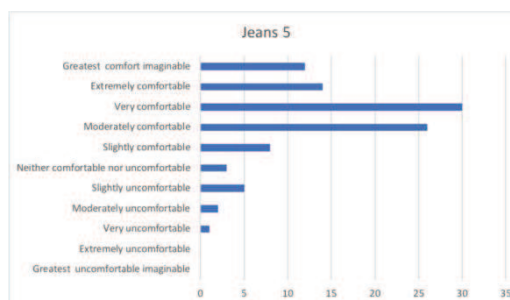


Figure 8 – Evaluation of jeans 5 data

When comparing the data of all models of the jeans tested it was observed that, in general, the models were evaluated as comfortable as showed in the Figure 9. Being that the jeans 5 stood out by having the greater number of positive evaluations of comfort and therefore it was considered most comfortable jeans. While the data of jeans 4 demonstrated to be regarded as most uncomfortable.

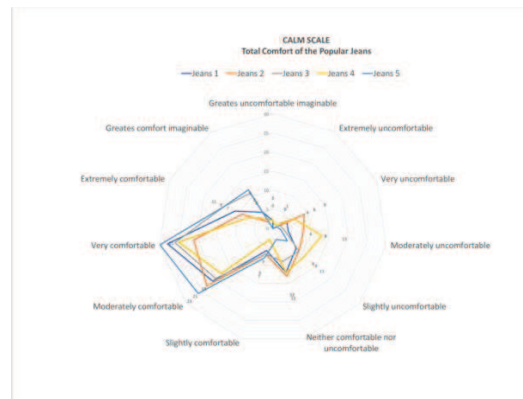


Figure 9 – Comparison of jeans evaluation data

CONCLUSIONS

During the application of the tests, it was possible to observe the level of satisfaction/dissatisfaction to wear, relating not only to the jeans aesthetics attributes, but also to the sensorial aspects brought when the skin is in contact with the jeans. When the collected responses were correlated, it was found that the perception of comfort/discomfort of the jeans is directly related to the touch sensation.

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