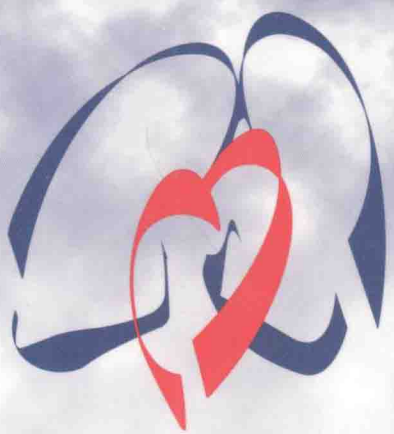
ADVANCING the FRONTIERS of CARDIOPULMONARY REHABILITATION



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Advancing the Frontiers of Cardiopulmonary Rehabilitation

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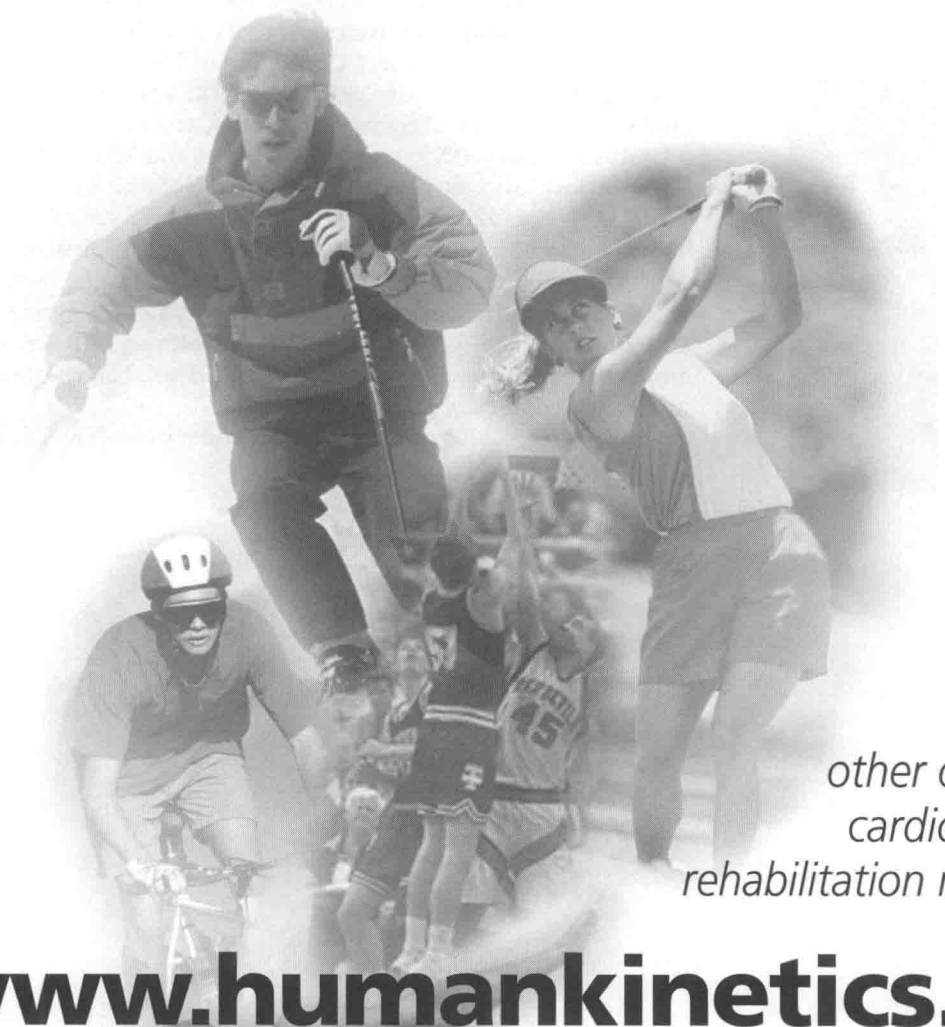

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Contents

PART I

Introduction

Chapter 1

Conceptualization and Evolution of Cardiopulmonary Rehabilitation—Toward a New Paradigm

Jean Jobin, PhD, François Maltais, MD, Paul Poirier, MD, Pierre LeBlanc, MD, Clermont Simard, PhD, Canada

Introduction

Since the explosion of cardiac surgery around the second half of the 20th century, cardiopulmonary Rehabilitation has been defined by many institutions such as the World Health Organization (WHO) (1), and more recently, the American Association of Cardio-Vascular and Pulmonary Rehabilitation (AACVPR) (2,3), in the following words: *Rehabilitation is the sum of activities necessary to restore or maintain an optimal level of physiological, psychological, social, occupational, and emotional functioning* (4).

Rehabilitation: A Systemic and Wholesome approach

This definition is usually interpreted in the light of the mechanistic paradigms of conventional medicine. In the mind of the authors of this paper, however, rehabilitation ought to be systemic and wholesome in its approach, implying that these activities must be integrated and coordinated together in a holistic way. Furthermore, and contrary to what is most often conceptualized, the object of rehabilitation should not be the patient's disease but rather the person, and the person as a whole. The main goal of rehabilitation is not only to reintegrate the individual into society and life in the most efficient possible way, but also to make him move forward because most human beings are always trying to reach higher levels of achievement. To reach these goals, the rehabilitation process must start with an integrated and coordinated plan of action around a "person", the "rehabilitatee" (main actor), and the plan must be coordinated by the "rehabilitator", which acts as a guide and companion to the main actor.

This implies that rehabilitation must integrate education, adaptive interventions, and medical care as they are needed by the patient. With this approach, rehabilitation envisions the person as a complex web made of a multitude of characteristics integrated in a unique fashion. Some of these numerous characteristics include age, sociocultural identity, physical, biological, psychological, and spiritual environments, health and morbidity statuses, gender, etc., emphazising the concept of complexity. The person (not the disease) to rehabilitate is not simply complicated, it is incredibly complex. It is not merely a juxtaposition of structures and functions as frequently envisioned by conventional mechanistic medical paradigms. In fact, cardiopulmonary rehabilitation would be a perfect fit for the approach promoted by the new integrative medicine paradigm now being developed all around the world (For more details, see chapter 9 by Sullivan).

It is in that perspective that we envision the new paradigm of cardiopulmonary rehabilitation. Unfortunately, rehabilitation is often reduced to one or few of its components or to a non-integrated mixture of multiple interventions, most often oriented toward the disease status of the patient. For example, we often reduce rehabilitation to interventions that we, as health care professionals, most often use and these often carry with them our specific and biased ways of seeing the world. These interventions, be it education, exercise, physical therapy, psychological counseling, pharmacological treatments, etc., are not rehabilitation if they are not integrated with other interventions. The person as a whole must remain its primary object in a context of an optimal reintegration in society with as much autonomy as possible.

Rehabilitation is not Secondary Prevention Alone

Thus reducing the rehabilitation process to secondary prevention alone, (as often done in cardiac rehabilitation) disables the whole process. In this instance, the object of prevention is not the person but rather the disease as assessed through risk factors which are often taken as separate entities, or one or a few at the time. This does not mean that these actions are useless but that they are rather not done under the new rehabilitation paradigm. For us, these new concepts must be developed rapidly in order to widen the frontiers limiting the development and expansion of cardiopulmonary rehabilitation. Cardiopulmonary rehabilitation must be integrated under a new rehabilitation paradigm instead of under the traditional cardiovascular and pulmonary care paradigms.

This is even more important because the consequences of cardiovascular diseases, for instance, are not as easily observable as they used to. Indeed, medical and surgical treatments have improved in such a way over the past two decades that the physical consequences of the disease or of surgical interventions such as open heart surgery or PTCA have been reduced to almost none. Similarly, the psychosocial "side effects" of these interventions are often underestimated when not simply discarded. The evidence (5) and the day to day practice of cardiac rehabilitation teaches us however that these patients are clearly in great need of rehabilitation through physical, psychological, sociological and spiritual interventions. As secondary prevention programs tend to advocate, it can also be done through actions aiming at preventing relapses or evolution of the disease.

Rehabilitation Should not be Limited to the Medical Community

Another problem limiting further developments of cardiopulmonary rehabilitation is that the medical community often uses some misunderstanding of the mechanisms of action to justify its limited involvement and inaction (4,6). It is often an excuse to cover up lack of knowledge, unconscious, more self serving motivations, and easiness. Contrary to conventional medical treatments where health professionals control the game, the patient is the main actor in a true rehabilitation process, as it should also be the case in true prevention processes. The concept of the patient as a whole (physical, psychological, sociological and spiritual) is currently being developed in contemporary integrative medicine and in some non-conventional traditional medicines. Are the medical and allied health professions ready to let go of their control on diseases and let the patient take control of the healing process and of his health? In rehabilitation the "rehabilitator" is a guide to a human being who becomes complementary to the actor. Unfortunately, very few cardiopulmonary rehabilitation professionals currently share this wisdom. If the patient is to become the actor, he must be aware of his role and more information must be made available to him and to the public in general. This information must stress the possible impacts of rehabilitation on health status and healing process.

At the onset of the Third Millennium, the history and tradition of cardiopulmonary rehabilitation must be moved forward by highly dedicated individuals who will help to keep it in harmony with the novel orientations of health services and with the integrity of the human being in constant development. In cardiopulmonary rehabilitation, these two entities, history and tradition, have been both strongly dependant on the actions of the medical establishment which has served it very well so far. Consequently, they are primarily and largely structured around a more mechanistic (conventional) medical paradigm, oriented toward patient care and most often not taking into account the bio-psycho-socio-spiritual needs of individuals suffering from cardiopulmonary diseases or having received a surgical or other invasive procedure (5,7).

Rehabilitation: A Way Toward Autonomy

Under the new rehabilitation paradigm, and complementary to the standard medical paradigm, cardiopulmonary rehabilitation would give better wholesome consideration to ill organs/systems. It would take into account the impact of the disease on other bodily components and personal characteristics, and its interaction with the psychosocial environment of the individual affected by this morbid state. One has to bear in mind that the rehabilitation candidate is in search not only of a new living balance so that he or she can compensate for the lost one, but also of a better functional secure autonomy. As the population of patients with

cardiovascular and pulmonary diseases is getting older, autonomy has become a new societal goal that cardiopulmonary rehabilitation must embrace.

As cardiopulmonary rehabilitation specialists, we must refocus our professional ethics by revisiting some of our interventions. Even now, available services are seldom designed by people who have a wholesome vision of a person, and who could, through specific actions, respond to the well identified needs of that person. Evidently, cardiopulmonary rehabilitation is dependent on many different corpuses of knowledge, as well as on specialists from different disciplines, and it must try to reach multidimensional goals. One must try to develop pedagogical actions that will allow true interactions with patients through a medico-educative approach oriented primarily toward an individual in need of rehabilitation. All of this must be done in a given psychosocial, cultural and spiritual make up.

In both directions, whether it is a change from normal to morbid status, or back to a more healthy status, the individual is always searching for his own evolving self balance. Because this self balance is constantly changing, the rehabilitation team must work in reciprocity with the individual, acknowledging that factors determining morbidity and healing status are the prime responsibility of the patient and of the care giving and rehabilitative teams. The person in a rehabilitative process, as well as the acting team of health care professionals, must be sensibilized to this aspect. Through this sensibilization process, everyone's roles will be better defined, understood and organized and consequently, the eventual outcomes will be more valuable. Thus every one will feel more dynamically and totally involved in the normalization/developmental process. All of this should lead to changes in attitude, behavior, life style and moral values.

Even though we agree with the following principles often adopted by public health services (8), we are convinced that to restrain cardiopulmonary rehabilitation to secondary prevention is a mistake because it keeps the latter away from the new rehabilitation paradigm:

Preventive services must:

> "1—Develop or improve mobilization of the community around intense and diversified actions on promotion of healthy life styles such as physical activity, nutrition, and non-smoking;
>
> 2—Put the emphasis on personal initiatives, self help, creation of environments leading to improved health, integration of prevention into clinical practices, reinforcing of inter-sector actions as well as the implications of partners". (ad lib translation)

Of course these goals must be part of any prevention program as well as of any rehabilitative interventions. Although, in an ideal world, health must embrace all components of the person and his environment, it must be underlined that prevention, as applied and usually thought of in contemporary medicine, concerns only the disease hosted by the body of the person involved or a disease affecting a cohort of people as in public health services. Ultimately, prevention does everything so that death is delayed as long as possible. More specifically, its main objective is that a given patient does not die from his current disease (cardiovascular, pulmonary, cancer etc.); it often considers only one disease at a time. Although these goals represent almost the whole spectrum of prevention, they are only a minor part of the rehabilitation paradigm.

Indeed, one must rehabilitate without doing any harm. One must also prevent progression of the disease as well as decrease the number of relapses. Even after having accomplish that much, one will have done very little to reintegrate the patient in his psycho-sociological-biological-spiritual-cultural-physical environment, which is one of the specific goals of rehabilitation.

In fact, these preventive objectives do not really address the issue of the person as a whole. They are too often based on the conventional mechanistic medical paradigm. It is therefore clear that the goals of prevention and more specifically of secondary prevention do not include the main objectives of rehabilitation. On the other hand, rehabilitation must include some level of prevention (primary or secondary) because it would make no sense to rehabilitate someone if we let the disease progress, or let the patient die prematurely while he is working so hard to reach some degree of optimization of a new self balance. This is why we do not believe that prevention, let alone secondary prevention, is a panacea and could replace rehabilitation altogether. Some even have the perception that, organizationally and financially, cardiopulmonary rehabilitation may lose significantly by being identified exclusively to prevention, be it secondary (9). We are further convinced that putting rehabilitation as a sub-unit of a prevention program would be dangerously reducing its own perspective and efficacy. Secondary prevention must however be an

integrated part of any good rehabilitative intervention as recently described by Ades (10).

In the same vein, it does not make much sense to reduce cardiopulmonary rehabilitation to a single health discipline. When taken individually, for instance, physical therapy or psychology counseling do not consider the person as a whole. In cardiovascular rehabilitation, where physical and even musculo-skeletal interventions are now considered important components (11,12), it is difficult to envision that typical therapy will embrace the whole of the needs of the patient if we admit that many side effects other than physical may be experienced (5) following these interventions. The same reasoning can be applied to pulmonary patients. Because of what we currently know about the impact of cardiovascular and pulmonary diseases on skeletal muscle (11,12), psychological interventions alone would have a limited beneficial rehabilitative impact.

Thus, physical therapy, as well as prevention programs mostly aims at reducing disease specific symptoms or casualties, cannot be considered substitutes for rehabilitation. A cardiac rehabilitation program may be considered a secondary prevention program, but not the opposite, unless the former adopts all of the objectives of true rehabilitative interventions as we have tried to conceptualize them.

Rehabilitation: Toward a New Integrated Approach

Because of these concepts, many experts now think that cardiopulmonary rehabilitation must be reoriented and re-developed around the new rehabilitation paradigm. Accordingly, our group has expressed interesting leads and thoughts on this matter (13). It appears essential that all institutions, supported by judiciously selected experts representing the broadest possible set of views, develop concerted efforts for the benefit of the largest number of individuals. This recommendation implies that we have no restriction on knowledge and practice and that knowledge flows freely between all types of health care professionals as well as to and from patients. This would help avoiding the pyramid like effect (knowledge flowing from the physician down to all others including the patient) (figure 1.1) that we most often see in the context of the conventional mechanistic medical paradigm. We should have a star like model, the patient

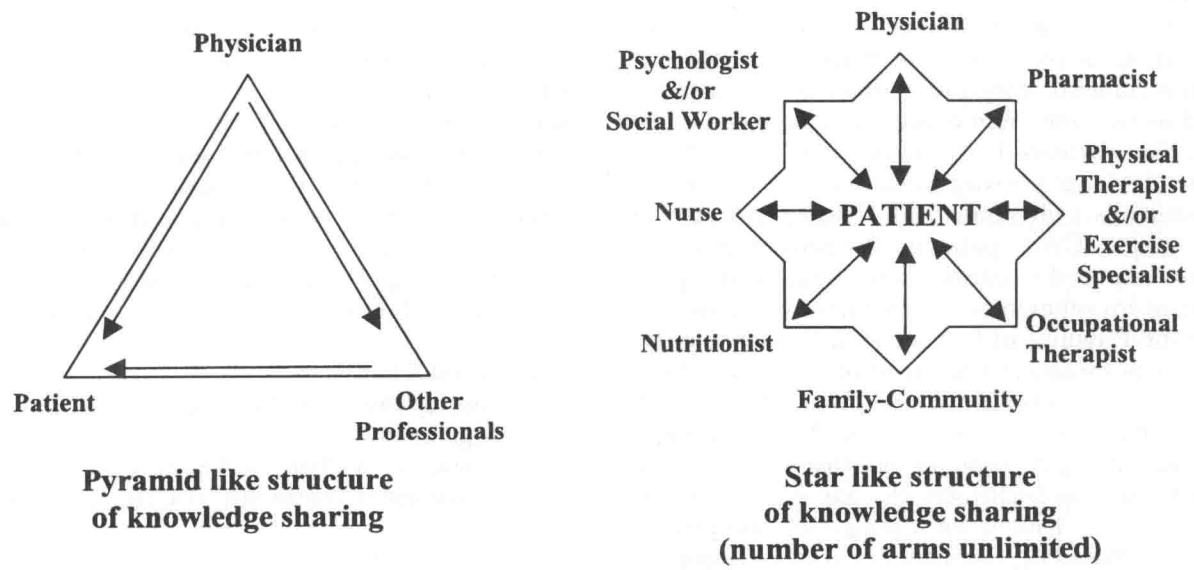

Figure 1.1 Schematic representation of the flow of knowledge-interactions in rehabilitation.

being the center of interest of all others (including health care professionals, and community-family members alike), and the information flowing in all directions. This concept does not mean that there should not be a leader, but only that the leadership may come from numerous potential sources. As an example, the scientific sessions of the Québec International Symposium on Cardiopulmonary Rehabilitation are presented side by side with public type informative sessions for the lay person (Le Salon de la Santé de Québec", "The Québec City Health Show"). Similarly, we can focus on some scientific subjects being presented in more popular events such as the VIIIth World Congress of Sports for All held in Québec city in 2000 (14). This also implies that cardiopulmonary rehabilitation must be accessible to any person in need of it or willing to benefit from it. Any kind of patient selection or restriction as it is sometimes (15) suggested is unwarranted when one looks at the proven benefits of rehabilitation (4,6,10).

Researchers, scholars, and clinicians must unanimously support the obligation to improve the quality of life of the greatest possible number of people suffering from cardiopulmonary insufficiency. We hope that cardiopulmonary rehabilitation will become an essential service beginning as soon as the disease or multiple risk factors have been identified and that it will accompany patients along with other medical-health services in an integrated fashion.

The impacts of cardiopulmonary rehabilitation on the stabilization of quality of life as well as on its improvement are numerous (4,6,10). How to offer it without delay to as many patients as possible is still a contemporary preoccupation and answers will likely come from concertation between many different partners. In this matter, the United Kingdom (16) leads the way and although the numbers are still relatively small (from 10% in post-infarct to 56% in post CABG patients), the percentage of patients engaged in cardiac rehabilitation is higher than in any other location around the world including the Province of Québec (17). Because similar numbers are also characteristic of pulmonary rehabilitation, cardiopulmonary rehabilitation as a whole remains largely underused (4,6) world wide.

This enlarged vision implies that all specialists, like those from health services, education, communication, and leaders form the public and private sectors, including non profit charitable organizations to name a few, must work together under a new unified paradigm aiming at making cardiopulmonary rehabilitation services available to all segments of the population. Further, and as illustrated by the Framingham study (18) where cultural factors have been recently considered, one must look forward to new research activities, as well as to increase the place of preventive approaches in rehabilitation.

Unfortunately, and this is our challenge, cardiopulmonary rehabilitation is and remains for many health care professionals and decision making people a reality that is still far away (4,6,17). The 30 chapters included in this volume present this ever evolving area of knowledge and practice as conceptualized by some of the most outstanding leaders in their fields.

About This Book

In 2001, Québec City was for the second time, (the first being held in 1999) (13), the theatre of an international symposium involving a group of outstanding international experts in cardiopulmonary rehabilitation sciences. The main theme of this event, which regrouped over 500 participants from 23 different countries, was: *"Integrating Cardiopulmonary Rehabilitation to the Treatment of the Disease"*. Thirty experts presented their thoughts in 9 different colloquia. This book includes selected papers prepared by the speakers and for most of them, the contents are more extensive than what was actually presented at the Symposium. All these 30 papers are original. The great majority are review articles, and a few are the presentation of original research work. Chapters have been regrouped in 11 sections representing the 9 colloquia of the Symposium, plus the opening statement presented in section 1 (Introduction). In the spirit of the symposium, the editors have prepared two challenging papers to introduce and conclude the book. The 11 sections are presented in a logical order as they would normally occur in a cardiopulmonary rehabilitation program:

1. Introduction
2. Cardiopulmonary Rehabilitation: Services and Organization
3. Update in the Pharmacological and Non-Pharmacological Treatment of CHF and COPD Patients
4. Integrating New Technologies in Cardiopulmonary Rehabilitation
5. Home Rehabilitation Programs

6. Cardiopulmonary Rehabilitation and Cardiac and Thoracic Surgery
7. Selecting and Screening Patients for Rehabilitation
8. Integrating Non-Conventional Approaches in Cardiopulmonary Rehabilitation
9. Integrating Psychosocial Factors Into Rehabilitation
10. Exercise Prescription: Special Considerations
11. Conclusion

In this book, no restrictions were put on authors as to which school of thoughts they are part of or are representing. The authors were free to use the format they felt best conveyed their message. Different ideas are presented and the reader must be ready and able to confront contradictory or opposing points of view on how to interpret the body of knowledge at our disposal at the onset of this Millennium. This book is not comprehensive and several topics have been unfortunately left out, without prejudice, mostly because of the limited duration of the Second Symposium during which they were presented.

The reader might be interested to know that abstracts of these papers as well as of the 60 posters presented at the Second Québec International Symposium on Cardiopulmonary Rehabilitation have been published in a supplement of Clinical & Investigative Medicine (19).

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