

## **Integrating Qi Gong and Tai Chi experiences into traditional western physical activity programs in long-term care retirement communities**

Chae-Hee Park<sup>1</sup>, Leticia Malavasi<sup>1</sup>, Roger Jahnke<sup>2</sup>, Wojtek Chodzko-Zajko<sup>1</sup>, Paula Martin<sup>3</sup>, Joshua Neuman<sup>1</sup>, Eunyoung Park<sup>1</sup>, Huei-Jhen Wen<sup>4</sup>, Carol Zhou<sup>1</sup>. <sup>1</sup>*University of Illinois at Urbana-Champaign, Urbana, IL*, <sup>2</sup>*Institute of Integral Qigong and Tai Chi, Santa Barbara, CA*. <sup>3</sup>*Clark-Lindsey, Urbana, IL*, <sup>4</sup>*National Taiwan University, Taipei, TW*.

### **Abstract**

Qi Gong and Tai Chi are practices involving movement and meditation based on ancient Chinese philosophies, however, they are a significant component of the emergent trends in physical activity and mental fitness – stress management. There is growing evidence that Qi Gong and Tai Chi practices may be especially well suited for the older adult population since they are low impact, low cost, can be relatively easy to learn. Traditionally, Qi Gong and Tai Chi practice includes four major components: (1) Balance and slow movement, (2) Meditation and purposeful relaxation, (3) Breath regulation practice, and (4) Self-administered massage. **PURPOSE:** A retirement community in Urbana, Illinois, currently offers a traditional Qi Gong/Tai Chi program and a chair-based exercise program to its residents. However, prior to the implementation of this study, few of the participants in the chair-based program voluntarily choose to join the existing Qi Gong/Tai Chi program. This project studied the extent to which the existing chair-based exercise program could be modified to include the four health practices associated with Qi Gong/Tai Chi. Our goal was to determine the extent to which the movements and practices associated with Qi Gong/Tai Chi could be merged with more traditional exercise in a manner that was enjoyed and accepted by older adults living in a retirement community. **METHODS:** We compared the retirement community residents' responses and attitudes towards two physical activity programs: (1) a traditional 45-minute Qi Gong and Tai Chi program, and (2) a 35-minute chair-based program that was modified to include Qi Gong/Tai Chi movements and practices. Both interventions lasted 12 weeks and employed a variety of outcome measures including a physical activity survey, senior fitness test, class observation, focus group interviews, and Qi Gong/Tai Chi attitude survey. **RESULTS:** In the chair-based program, survey data revealed that most participants had a positive perception of the program and three of the four new Qi Gong/Tai Chi movements. However, both survey and focus group data revealed more negative perceptions related to the self-administered massage component of Tai Chi practice. Not surprisingly, participants who had prior experience with Tai Chi or Qi Gong activities were the most accepting of the new movement forms. **CONCLUSIONS:** This study suggests that Qi Gong/Tai Chi movements can be successfully integrated into traditional western chair-based exercise programs. We believe that this qualitative study provides new insights into the physical active preferences of older adults. The results have direct applicability to designing and implementing future physical activity promotion programs for older persons.

Physical activity is an essential component of everyday life (WHO, 1997). The World Health Organization (WHO) issued a report (1997) which concludes that physical

activity is the single most effective means by which older adults can influence their own health and functional abilities and, therefore, maintain a high quality of life in old age (Chodzko-Zajko, 2000). Regular physical activity can bring dramatic health benefits to people of all ages and abilities; these benefits extend over the whole life-course. The United States Surgeon General's Report (1996) concludes that regular physical activity has important positive effects on the musculoskeletal, cardiovascular, respiratory, and endocrine systems.

Furthermore, the effect of exercise on these systems is associated with a number of health benefits including a decreased risk of premature mortality and reduced risks of coronary heart disease, hypertension, colon cancer, and diabetes mellitus (The Surgeon General's Report, 1996). Likewise, participation in physical activity appears to reduce stress and anxiety (Nelson, et al., 2007), improve mood state (Brosse, Sheets, Lett, & Blumenthal, 2002), heighten self-efficacy and enhance self-esteem (McAuley & Rudolph, 1995), and maintain independent functioning throughout the life span (Hickey, Wolf, Robins, Wagner, & Harik, 1995). Increasingly, evidence indicates that any kind of physical activity offers one of the greatest opportunities to extend years of active independent life, reduce disability, and improve the quality of life (Spiriduso & Cronin, 2001) for older persons. In recent years, increasing attention in the West has focused on the benefits of both Qi Gong and Tai Chi based intervention programs for promoting health and well-being among older adults.

Qi Gong/Tai Chi is an ancient Chinese martial art that has been used throughout Asia for thousands of years as a means of promoting health and functional well-being. (Yang & Grubisich, 2005) There is a growing appreciation that Qi Gong/Tai Chi may be one of the best forms of physical activity for older adults due to its low impact, low cost, popularity, and ease of performance. Although many individuals in the public-at-large associate Tai Chi primarily with highly choreographed movements or "forms", there is also an integral meditation component of the martial art (Qi Gong). Traditionally, Qi Gong and Tai Chi practice includes four major components: (1) Balance and slow movement, (2) Meditation and purposeful relaxation, (3) Breath regulation practice, and (4) Self-administered massage.

A wide range of health benefits has been attributed to regular Qi Gong/Tai Chi

participation. These include physical benefits such as reducing blood pressure, increasing maximum oxygen consumption (Hartman, et al., 2000), and improving flexibility (Yang, et al., 2007a), as well as psychological benefits including improving overall “well-being” and reducing mental and emotional stress (Yeh, et al., 2004). Participation in Qi Gong/Tai Chi has also been shown to help maintain strength, improve balance and movement confidence, reduce the risk of falls, reduce fear of falling, and delay the decline in aerobic power that is often found in older adults (Yang et al, 2007b). Qi Gong/Tai Chi creatively fills the need for low cost, evidence-based prevention programs that have the potential to increase quality of life and promote independence in the older adult population. Although the research findings to date are both promising and encouraging, there is an evident need to expand the number and scope of studies in both Qi Gong and Tai Chi.

There is growing evidence that Qi Gong and Tai Chi practices may be especially well suited for the older adult population since they are low impact, low cost, and can be relatively easy to learn (Yang & Grubisich, 2005). Most of the Qi Gong and Tai Chi studies have reported positive findings for both psychological and physical function including improved quality-of-life and mood improvement (Hartman, et al., 2000 & Yeh, et al., 2004), reduction in perceived stress and pain (Song, Lee, Lam, & Bae, 2003), increased self-efficacy (Hartman, et al., 2000), reduced fear of falls and increased balance confidence (Yang, et al., 2007a), and an enhanced immune response (Yang, et al., 2007a).

On Nov. 14-16, 2005, internationally known experts in the areas of Qi Gong/Tai Chi practice, Qi Gong/Tai Chi research, and aging and physical activity convened at the University of Illinois at Urbana-Champaign to discuss issues related to programming content and structure, instruction, evaluation, and dissemination. The purpose of the expert meeting was to address issues and challenges related to integrating evidence-based Qi Gong/Tai Chi programming into the aging network.

A consensus report from the meeting suggested that many of the components of Tai Chi and Qi Gong practice can potentially be integrated into other physical activity programs such as walking, aqua exercise, and strength training provided that fundamental principles of Tai Chi and Qi Gong (i.e. movement, postures, breathing, and mind focus) are applied. Selected Qi Gong and Tai Chi movements could be used for warm-up

exercises or comprise a larger portion of an activity program combined with other exercises or mind/body practices. Combining meditation and relaxation practices with aerobic exercise has the potential to provide a complete and well-balanced physical activity program. However, it is unclear to what extent the mainstream American older adult population would be willing to accept the integration of Tai Chi and Qi Gong movements into more traditional western exercise regimens. Furthermore, there have been relatively few concerted efforts to examine how and whether Qi Gong/Tai Chi components can be successfully integrated with other types of exercise.

Accordingly, the purpose of the present study was to explore the extent to which the existing chair-based exercise program could be modified to include the four health practices (balance and slow movement, meditation and purposeful relaxation, breath regulation practice, and self-administered massage) associated with Qi Gong/Tai Chi. A retirement community in Urbana, Illinois that currently offers both a traditional Qi Gong/Tai Chi program and a chair-based exercise program to its residents was selected as the study site. Prior to the implementation of this study, few of the participants in the chair-based program voluntarily choose to join the existing Qi Gong/Tai Chi program. This project studied the extent to which the existing chair-based exercise program could be modified to include the four health practices associated with Qi Gong/Tai Chi. Our goal was to determine the extent to which the movements and practices associated with Qi Gong/Tai Chi could be merged with more traditional exercise in a manner that was enjoyed and accepted by older adults living in a retirement community.

## **Methods**

A nonprofit continuing care retirement community in Urbana, Illinois, that currently offers a traditional Qi Gong/Tai Chi Program and a typical Western Chair-based Exercise Program to its residents was selected as the study location. We compared the retirement community residents' responses and attitudes towards two physical activity programs: (1) a traditional 45-minute Qi Gong/Tai Chi Program, and (2) a 35-minute Chair-based Exercise Program that includes Qi Gong/Tai Chi movements and practices. Participants attended classes three times per week for a period of 12 weeks.

## **Participants**

Participants in the study were residents in the retirement community. The participants included those who have been attending the traditional Tai Chi class and the chair-based exercise class and new participants who were recruited for the study. Although we do not intend to analyze data separately for males and females, we attempted to recruit participants from both sexes in approximately the same proportion as they are represented in the facility. The racial and/or ethnic background of the sample was reflective of middle-to-upper middle class, predominantly white residents of the facility.

The participants signed informed consent forms and they completed a Physical Activity and Health History Questionnaire before they participate in the study. The questionnaire was used to screen for contraindications to the test items. If subjects respond affirmatively to any of the cardiovascular disease symptom and/or recent health disturbances questions (items 1-19), researchers and/or the facility activity coordinator followed up with the respondent to determine whether the concern warrant referral to a health professional.

All participants involved in the program were invited to participate in the pre-test and post-test surveys. A subset was asked to participate in the focus groups. Only individuals who consent to have their responses audiotaped were included in this part of the study. Of the 42 persons, 13 were the Qi Gong/Tai Chi Program group and 29 to Chair-based Exercise Program. The appropriate institutional review board approved the study.

### **Qi Gong/Tai Chi Program :**

In the retirement community program, the four essential components were integrated into a 45-minute long combination of movements and meditations ranging from very mild and slow to more dynamic and vigorous movements. The program was led by an expert activity coordinator.

### **Chair- based Exercise Program:**

Chair-based physical activity programs are commonly employed in senior centers

and retirement communities around the world. Programs typically consist of a combination of cardiovascular, strength, flexibility and balance exercises that are conducted while sitting or standing next to a standard household or office chair. The centering of activities around a chair is especially valuable for older adults because it enables the intensity of exercise to be easily adjusted to meet the needs of a wide range of older adults of different physical abilities.

The program includes warm-up, upper body activities, lower-body activities, and stretching and cool down. In this study, additional exercises based on the four essential movement practices of Qi Gong/Tai Chi were added to the basic chair-based program. Specifically, a variety of body posture adjustments, meditative stances, breath regulation practices, and self-administered massage were supplemented. The program was led by an expert activity coordinator and was adapted to meet the individual needs and abilities of the Clark-Lindsey residents.

### **Testing Protocols and Procedures:**

The study employed outcome measures including physical activity survey, class observation, focus group interviews, and Qi Gong/Tai Chi attitude survey. The data were collected on 42 participants. The following data was collected prior to, during, and upon completion of the study:

1) Physical Activity Survey (pre-test only)

All participants took a survey that obtained demographic information (i.e., age, length of residency, participation in physical activity programs) and information about participants' previous experiences with traditional Tai Chi programs, attitudes about the cultural acceptability of such programs, and perceived benefits of this form of physical activity. Questions were recorded in a five point scale (1 = 'very much dislike', 2 = 'somewhat dislike', 3 = 'neutral', 4 = 'somewhat enjoy' and 5 = 'very much enjoy').

2) Class Observation

Three researchers observed each of the two physical activity classes 8 to 12 times during the 12-week study to document observations regarding class participation and participant interaction, enthusiasm, and enjoyment.

3) Qi Gong/Tai Chi Attitude Survey (post-test only)

This test for participants ascertained if attitudes about Tai Chi have changed during the duration of the study and explored perceived benefits of the program. Each item was rated on a 5-point scale that was scored from 1 to 5, with numbers on the scale anchored by the following phrases: very much dislike (=1), somewhat dislike (=2), neutral (=3), somewhat enjoy (=4), very much enjoy (=5),

An example item is as follows: "please rate how much you enjoy balance and slow movement of the Gi Gong/Tai Chi program?"

#### 4) Focus Groups (post-test only)

Two focus group interviews with approximately 7-8 individuals per group were conducted at the site. The goals of these focus groups were to examine issues related to the efficiency and effectiveness of the programs as well as issues related to program sustainability. Questions were developed to focus on perceptions of program quality, including items related to content, format, design, and delivery of programs and services. Researchers familiar with qualitative inquiry were trained to conduct the interviews. Focus groups were recorded on high fidelity audiotape.

In order to provide a visual record of the activity programs, participants were asked to consent to videotaping and/or still photography while they were participating in the program. Individuals who do not wish to be photographed could still participate in the study.

### **Data Collection and Analysis**

In order to provide an accurate record of the focus group sessions participants were asked to consent to the audio taping of these sessions. In addition, participants were also asked to consent to videotaping and/or still photography while they were participating in the exercise programs. Descriptive analyses were conducted using SPSS 15 to describe the participants' demographic information including age, gender, marital status, race, and length of stay in the facility.

Qualitative data analysis was conducted regularly throughout data collection. Data from focus groups and interviews with the activity director were transcribed and class observation recordings examined. After transcriptions were completed, all materials were read and coded by a researcher experienced in qualitative research to identify emerging

categories. Data were sorted into themes that describe participants' perceptions and addressed both majority and minority opinions. An inductive approach to analysis was initially employed in order to allow themes to emerge naturally and without imposing assumptions on the data (Patton, 2002).

### **Findings**

Ten (10) of the 52 subjects in the study were unable to complete the full study due to numerous reasons, including poor health, time constraints, and loss of interest. Forty-two (42) subjects were included in the efficacy data analysis. Table 1 summarizes baseline demographics by group.

Table 1. Baseline characteristics of the two groups.

Characteristic	Qi Gong/Tai Chi Program (N)	Chair-based Exercise Program (N)
<b>Age (years)</b>		
65-74	0	1
75-84	8	11
85-94	5	17
Minimum age	75	73
Maximum age	93	90
Median age	83	84
<b>Gender</b>		
Male	1	8
Female	12	21
<b>Marital status</b>		
Married	4	17
Single	1	2
Widow/widower	8	10
<b>Race</b>		
Caucasian	12	29
Asian/Pacific Islander	1	0
<b>Length of stay</b>		
≤ 1 year	0	3
1-3 years	10	13
3-5 years	0	1
5-10 years	2	6
10+ years	1	6

Both quantitative and qualitative analyses are presented in relation to three major issues: (1) enjoyment associated with participating in the class, (2) attitudes toward physical activity elements including aerobic activities, muscle strengthening, meditation and relaxation, balance, flexibility and stretching, and (3) attitudes towards the four Qi Gong/ Tai Chi elements.

*Finding 1: Enjoyment associated with participating in physical activity programs*

Table 2. Overall enjoyment of participating in each class during 12 weeks

Response	Qi Gong/Tai Chi Program	Chair-based Exercise Program
Very much enjoy	100%	57.1%
Somewhat enjoy		39.3%
Neutral		
Somewhat dislike		
Very much dislike		

Table 2 shows that both groups enjoy their exercise classes. From qualitative data, both group participants reported that they enjoyed the class because they can get physical, psychological, and social benefits from attending a regular physical activity program. In addition, the exercise leader made the programs enjoyable. The following quotations from focus groups support the subjects' enjoyment of each physical activity program in the Qi Gong/Tai Chi Program (QTP) and Chair-based Exercise Program (CEP) groups:

- "I've always gone to exercise classes because they increase my motivation" (CEP-P).
- "(What is It?)It is good because it's nice to be with other people that have the same goals and are doing the same things. I think a community effort is a good feeling" (CEP-EL).
- "I come (to the class) because it is so much fun as well as that fact that I'm benefiting from the exercise" (CEP-B).
- "I feel better the rest of the day because I go to exercise" (CEP-K).
- "We like our leader, we like the sociability, we like the companionship, and we like to get to know each other" (CEP-J).
- "I feel that is has a sociability factor. We're all in it together and we're communicating while we're here" (QTP-F).
- "It forces me to try to focus my attention and to introduce some calm effect into the beginning of the day" (QTP-R).
- "It has improved my confidence. Psychologically, I think it's given me a different mental attitude about walking" (QTP-H).
- "...add our leader's personality and her leadership to that, and we've got a wonderful, plus environment here" (CEP-A).
- "I think we've got a very good teacher" (QTP-H).
- "I certainly agree that our leader is the most enthusiastic leader" (QTP-E).

*Finding 2: Positive attitudes toward physical activity elements*

In Qi Gong/Tai Chi Program group, survey data demonstrated that most

participants reported positive attitudes towards Qi Gong/Tai Chi movements. The post-program survey data suggested that the majority of the participants took pleasure in performing Qi Gong and Tai Chi movements, especially the balance/slow movement and meditation/relaxation components.

Table 3. Summary Table for Survey Questions for the Qi Gong/Tai Chi Program (QTP) group regarding enjoyment of Qi Gong/Tai Chi movements

QTP (percent)	Very much enjoy (=5)		Somewhat enjoy(=4)		Neutral (=3)		Somewhat dislike(=2)		Very much dislike (=1)	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
B	83.3	85.7	16.7	14.3						
MR	66.7	71.4	33.3	28.6						
SM	83.3	42.9	-	42.9	16.7	-				
BR	100	42.9	-	28.6	-	14.3				

B, Balances and slow movement; MR, Meditation and relaxation; SM, Self-administered massage; BR, Breath regulation

Participants in Qi Gong/Tai Chi Program group also consistently reported positive attitudes towards each of the Qi Gong/Tai Chi movements in the qualitative data analysis:

- “It forces me to try to focus my attention and to introduce some calm effect into the beginning of the day” (QTP-R).
- “I look at it much different than I did before because doing slow movement can strengthen muscles that I didn’t think it would be possible too. But, I learned something. It’s different than I thought I would be” (QTP-B).
- “I think what I like best is it’s improving my balance. I think that is probably one of the purposes of it and it’s working” (QTP-L).
- “I’ve had a stroke and the stroke affected my balance. When I came here, there were a lot of things I couldn’t do. After 3 months with the Qi Gong/Tai Chi class, I definitely saw an improvement, a big improvement in my balance” (QTP-H).
- “I have high blood pressure that is hard to control, and my doctor has told me not to do exercise that can raise my blood pressure. This exercise doesn’t and it is a very relaxing” (QTP-F).
- “I am always yawning after I get done with the sitting. By the time I get up, I’m just yawning” (QTP-C). (don’t know what this quote is trying to explain)
- “Sometimes when I feel a need to relax, I do a few of the movements like sinking energy and it relaxes me. I have been working on trying to focus the mind when we’re sitting. I have been trying to focus and not let my mind run around undisciplined” (QTP-E).
- “This is a milder form of exercise, which includes the discipline of meditation, and I find it very appealing. I like doing it” (QTP-L).

In Chair-based Exercise Program group, survey data revealed that most participants had a positive perception of the program and three of the four new Qi Gong/Tai Chi movements. Most participants enjoyed them after 4 months of new experiences particularly balances/slow movement and Meditation/relaxation elements.

Table 4. Summary Table for Survey Questions for the Chair-based Exercise Program group regarding Enjoyment of Qi Gong/Tai Chi movements

CEP (percent)	Very much enjoy (=5)		Somewhat enjoy (=4)		Neutral (=3)		Somewhat dislike (=2)		Very much dislike (=1)	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
B	16.2	39.3	29.7	35.7	10.8	17.9	5.4	-	10.8	-
MR	18.9	64.3	21.6	28.6	16.2	3.6	10.8	-	5.4	-
SM	13.5	7.1	18.9	35.7	27	25	8.1	25	5.4	-
BR	88.9	46.4	11.1	32.1	-	7.1	-	7.1	-	3.6

B, Balances and slow movement; MR, Meditation and relaxation; SM, Self-administered massage; BR, Breath regulation

Participants in the Chair-based Exercise Program focus group reported that they especially enjoyed the flexibility and stretching components of the program:

- “The exercise program is definitely stretching muscles that I don’t normally stretch. I think the exercise program is really good for people who are not as active as we once were. So, the use of the extra muscles and the different types of stretching we do, I think is really excellent” (CEP-G).
- “I didn’t feel I had anywhere near the kind of all-around flexibility exercise as I got here” (CEP-C).
- “It helps you maintain your strength and your flexibility and I have more flexibility in my legs” (CEP-K).
- “I love the sessions. In general, I think the exercise is wonderful because it seems that each part of our body gets some sort of exercise and the whole system is wonderful” (CEP-E).
- “The exercise was good for me. You’ve got to move if you’re gonna stay healthy and live a long life” (CEP-J).

*Finding 3: Negative perspectives on self-administered massage in the Chair-based Exercise Program group*

Interestingly, both the survey and focus group data revealed more negative

perceptions related to the self-administered massage component of Qi Gong/Tai Chi:

- “I am not enthusiastic about rubbing the shoulders because there isn’t enough time to feel it’s benefits” (CEP-E).
- “This rubbing business leaves me absolutely cold. First of all, I feel silly doing it. It’s not a massage. Quite honestly, I just never understood the point of it and as a consequence, I sit back in the corner and ignore it. In that regard, I’ve observed I’m not the only one who does that” (CEP-J).
- “The first time I did it, I felt like a monkey in the sense that I was just scratching myself” (CEP-B).
- “I believe massage and exercise are two different domains” (CEP-A).
- “The time we are literally wasting rubbing ourselves could be spent in extending the exercise time.” (CEP-F).

These testimonials were supported through researcher observations:

- In the self-massage portion of the class, the male participants didn’t perform what was required. Also, some female participants didn’t perform the self-massage segment but the number was considerably less than the male participants (R-2).
- The man in the wheel chair did not do many movements such as squeezing both hands and fingers and self massage (R-3).

### **Discussion**

This study was designed to examine the extent to which Qi Gong and Tai Chi movements could be merged with more traditional exercise in a manner that is enjoyed and accepted by seniors living in a retirement community. This study showed that most Qi Gong and Tai Chi elements were perceived favorably by participants in the Qi Gong/Tai Chi Program and the Chair-based Exercise Program. Perhaps not surprisingly, the participants who had prior experience with Tai Chi or Qi Gong activities were more accepting of the new movement forms.

Initially, most participants expressed the belief that Qi Gong/Tai Chi movements could offer them neither enjoyment nor dramatic changes. Nonetheless, by the end of the program many were more positive and enthusiastic and reported improvements in their balance, decreased fear of falling and feelings of enjoyment. They valued their exercise program as an opportunity to do something for themselves, to add something to their weekly routine, to meet other people, and to be more active.

All participants in both programs appreciated the effort of their instructor and

expressed their complete satisfaction with delivery of the programs. The physical activity leader, who knows her clients' capabilities as well as who is supportive and enthusiastic, appears to be a critical factor for the success of these programs in the retirement community. At the beginning of the study, most participants were reluctant to participate in the new Qi Gong and Tai Chi movements that were added to the Chair-based Exercise Program. However, since the participants trusted their exercise leader, they followed her instructions as she demonstrated them. Trust in the exercise instructor helped build confidence in the program (Stathi & Simey, 2007).

This study had limitations. Conducting research with older adults is a challenging task and carries with it methodological limitations (Kane, 2003). Communication with some participants was difficult because of poor vision and hearing, cognitive problems such as loss of memory, inability to concentrate, and depression, which might have influenced the quality of the selected data. Additionally, the general older adult population is heterogeneous. On the contrary, the study participants were homogeneous and therefore our study findings are hard to apply to various ethnic groups.

### **Conclusions**

This study suggests that many components of Qi Gong and Tai Chi practice can be integrated into traditional physical activity programs. Selected Qi Gong and Tai Chi movements can be used for warm-up and/or cool-down exercise or comprise a larger portion of an activity program as well as mind/body practices. Combining meditation and relaxation practices with aerobic exercise has the potential to provide a complete and well-balanced physical activity program. This study also resulted in better understanding of the factors related to the physical active preferences of older adults. Furthermore, the results have direct applicability to designing and implementing future physical activity promotion programs for older persons.

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