



IMPACT OF TECHNOLOGICALLY ADVANCEMENT AND INNOVATIVE ENERGY SAVING KITCHEN TOOLS ON HOME-MAKERS

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ABSTRACT

In recent times, there is an increase in the workload of women in the urban areas. Constant interruptions and unexpected demands on her time and energy, disturb the pattern of her work and she may end up, tense and tired and if the homemaker is employed or an entrepreneur then it leads to exertion and affecting her health. Technological advancement has brought many tools and are available in the market. The present study was conducted for checking and comparing, which kitchen tools (Traditional and Innovative) save motion of the homemaker's. For this purpose, 15 homemakers from Nagpur city were selected as a sample. Data was collected through survey and experiment method. For survey a questionnaire-cum-interview method was used and for experiment five Traditional tools (Knife, mortar pestle, Traditional Grater, Traditional method of Corn kernelling, Chopping board with attached knife) and five innovative tools (Vegetable cutter, Crusher, Innovative Grater, Corn kerneler, Chopper) were selected. Result showed that Innovative tools are energy saving devices, increases the homemaker's efficiency with less number of motion and also reduce fatigue.

Keywords: Energy saving devices, Work simplification, Innovative tools, Traditional tools, Kitchen tools.

INTRODUCTION

The kitchen is one of the important rooms of a residential building. Today, in the fast moving world, there is an increase in nuclear families in which women often work equal number of hours as men work, at the same time she has to perform a dual role as homemaker and employee or an

entrepreneur. A woman spends most of her time in the kitchen for preparation of food and other related activities. Preparation of food involves the expenditure of Motion and Energy in varying but significant amount. Expenditure of all these parameter leads to feeling of tiredness and fatigue and if the homemaker is employed or an



entrepreneur then it leads to exertion by affecting her health.

A number of innovative kitchen gadgets and tools are available these days to make meal preparation activity. Most of the homemaker purchase these types of gadgets and tools to save their motion, energy and reducing fatigue. The various types of improved technologies possessed and used by the home makers, impact a various types of household activities.

Definitions of Motion

According to the Oxford dictionary meaning (Anita, P.1945), “The act or process of moving or of changing position, a particular manner of moving the body in walking, a change of posture, a gesture etc.” (Nadler 1955)

Each & every household activity requires motion for completion. No activity can be carried out without motion. Motion also plays an important role in the performance of the activity. Motion is count in time and motion study, sometime unnecessary motions are made

while working and additional time and energy are spent in those motion. If method of work is improved by reducing unnecessary motion, while working saving of energy is possible and there is an increase in production also. (Nadler 1955)

Definitions of Fatigue

According to Bartely,(1948) “Fatigue or tiredness is but one of the many reactions of a person as a whole to a situation as he consciously or unconsciously interprets and evaluates it. Fatigue is simply one form of inadequacy to meet the demands the person recognizes.”

Objectives

1. To study the impact of traditional and innovative tools used of selected activities (chopping, crushing, grating, corn kernelling) for selected vegetables with regard to motion (operation chart).
2. To study the fatigue experienced by the homemaker during activity.



Limitations

1. Present study is restricted to Nagpur city only.

2. The present study is limited to 15 samples only.

3. In the present study following tools are selected-

a) Traditional tools: - Knife, Mortar Pestle, Traditional Grater, Traditional Method of corn kernelling, Chopping board with attached Knife.

b) Innovative tools- Vegetable Cutter, Multi-crusher, Foldable Grater, Corn kerneler, Chopper.

METHODOLOGY

The study was conducted in Nagpur city. 15 homemakers were selected as a sample. Convenient sampling method was selected for survey. Data was collected through survey and experiment method. 5 traditional and 5 innovative tools were selected for the experiment.

RESULT AND DISCUSSION

From the table No. 1, it was observed that,

1. Knife required more right arm movement for chopping beans i.e. 123.37 as compared to Vegetable Cutter i.e. 3.9. The Knife required

less left arm movement i.e. 13.59 as compared to Vegetable Cutter i.e. 37.87. The knife required less right finger movement i.e. 23.68 as compared to vegetable cutter i.e. 46.53. The knife required more left finger movement i.e. 110.81 as compared to Vegetable cutter i.e. 21.50. Overall Knife require more motions to complete the chopping activity as compare to Vegetable cutter. Hence, the difference was found in motions required for chopping beans with Knife and Vegetable Cutter. Therefore, it can be said that Vegetable cutter is better for Beans chopping with respect to motion required.

2. Mortar pestle required more right arm movement for crushing chilli i.e. 379.75 as compare to the Multi- crusher i.e. 24.79. The Mortar pestle required more left arm movement i.e. 22.32 as compared to Multi-crusher i.e. 19.17. Mortar pestle required less right finger movement i.e. 39.04 as compared to Multi-crusher i.e. 144.33. Mortar pestle required less left finger movement i.e. 22.81 as compared to Multi-crusher i.e.



128.53. Overall Mortar pestle required more motions to complete the crushing activity as compared to Multi-crusher. Hence, the difference was found in motions required for crushing chilli with Mortar pestle and Multi-crusher. Therefore, it can be said that Multi-crusher is better for crushing chilli with respect to motion required.

3. Traditional Grater required more right arm movement for grating cucumber i.e. 96.41 as compared to Foldable Grater i.e. 54.28. Traditional Grater require more left arm movement i.e. 2.79 as compared to Foldable Grater i.e. 2.23. Traditional Grater required more right finger movement i.e. 7.17 as compared to right finger movement of Foldable Grater i.e.4.13. Traditional Grater required more left finger movement i.e.3.05 as compared to left finger movement of Foldable Grater i.e. 2.33. Overall Traditional Grater require more motion to complete the grating activity as compared to Foldable grater. Hence, the difference was found in motions

required for grating cucumber with Traditional Grater and Foldable Grater. Therefore, it can be said that Foldable Grater is better for grating cucumber with respect to motion required.

4. Traditional method of corn kernelling (by hand) required more right arm movements i.e. 58.33 as compared to right arm movements of Corn kerneler i.e. 49.06. Traditional method required more left arm movement's i.e.7.13 as compared to left arm movements of Corn kerneler i.e.6.64. Traditional method required more right finger movements i.e. 137.1 as compared to right finger movements of Corn kerneler i.e.35.88. The traditional method required more left finger movement i.e. 17.88 as compared to left finger movement of Corn kerneler i.e. 7.81. Overall Traditional method require more motion to complete the corn kernelling activity as compared to Corn Kerneler. Hence, the difference was found in motions required for corn kerneling with Traditional Method of corn kernelling and Corn



kerneler. Therefore, it can be said that Corn kerneler are better for corn kernelling with respect to motion required.

5. Chopping board with attached Knife required more right arm movement i.e. 123.37 as compared Chopper i.e. 71.76. Chopping board with attached Knife required more left arm movement i.e. 27.75 as compared to Chopper i.e. 13.86. Chopping board with attached Knife required more right finger movement i.e. 16.75 as compared to chopper i.e. 12.97. Chopping board with attached Knife required more left finger movement i.e. 48.33 as compared to Chopper i.e. 19.52. Overall Chopping board with attached Knife required more motions required to complete the activity as compared to Chopper. Hence, the difference was found in motions required for chopping onion with Chopping board with attached Knife and Chopper. Therefore, it can be said that Chopper is better for chopping onion with respect to motion required.

From the table No. 2, it was observed that, the traditional tools i.e. knife, Mortar pestle, Traditional Grater, Traditional method of corn kernelling and are more fatiguing as compared to the Innovative Tools I.e. Vegetable Cutter, Multi-crusher, Foldable Grater, Corn kerneler.

CONCLUSION

From the present study it can be concluded that, technology plays an important role in the mechanization of home which has brought tools, equipment's and tools that increases their work efficiency, require less motion as compared to Traditional tools, save energy and reduces fatigue. This saved energy, homemaker can utilised in their business work for enhancing their business or in the other activity. Therefore, it can be concluded that innovative tools, increases the homemaker efficiency with less number of motion and reduces fatigue.

Suggestions

1. Use innovative labour saving tools for saving energy and motion.



2. There are many fruits and vegetable cutter, chopper and peeler are available in the market at reasonable cost but select tools according to your need, preference, and durability etc.
3. Purchas efficient working tools, first you try it, if you can do it comfortably then purchase the tools.
4. Use right tool for doing the work
5. Use multi-utility tools for managing space.

Table1: - Movements required to complete the activity

Sr.No.	Particular	Tools	Movements Required For Chopping Activity (Mean)					
			Right Arm	Left arm	Right Finger	Left Finger	Delay Right	Delay Left
1.	Chopping (Knife and Vegetable Cutter)	K	123.37	13.59	23.68	110.81	0.50	0
		V.C.	3.9	37.87	46.53	21.50	0.76	0.44
2.	Crushing (Mortar pestle and Multi-crusher)	M.P.	379.75	22.32	39.04	22.81	0.38	0.08
		C.	24.79	19.17	144.33	128.53	0.34	0.31
3.	Grater (Traditional Grater and Foldable Grater)	T.G	96.41	2.79	7.17	3.05	-	-
		FG.	54.8	2.23	4.13	2.33	-	-
4.	Corn Kernelling (Traditional method (by hand) and Corn kerneler)	T.M.	58.33	7.13	137.1	17.88	-	-
		C.K.	49.06	6.64	35.88	7.81	-	-
5.	Chopping (Chopping board with attached knife and chopper)	K	123.37	27.75	16.75	48.33	0.53	0
		C.	71.76	13.86	12.97	19.52	0.60	0.5

(K- indicates Knife, V.C.- indicates Vegetable Cutter, M.P.-indicates Mortar pestle, C- indicates Multi-crusher, T.G. -indicates Traditional Grater, F.G. - indicates Foldable Grater, T.M. - indicates Traditional method (by hand), C.K. – indicates Corn kerneler, K: - indicates Chopping Board with attached Knife, C: - indicates Chopper)

**Table2: -Fatigue (physiological fatigue) felt by homemaker during activity**

Sr. No.	Activity	Tool	Particular (Mean)#			
			Neck	Hand	Wrist	Finger
1.	Chopping (Beans)	Knife	-	10.6	6	-
		Vegetable cutter	-	9.3	7.3	5
2.	Crushing (Green Chilli)	Mortar Pestle	3.3	9.3	15	11
		Multi-crusher	2	8	9	7.3
3.	Grating (Cucumber)	Traditional Grater	-	4.3	-	-
		Foldable Grater	-	-	-	-
4.	kernelling (Corn)	Traditional Method (by hand)	-	10.6	6	14
		Corn kerneler	-	4	8	-
5.	Chopping (Onion)	Chopping Board with attached Knife	-	5	4	-
		Chopper	-	5	7	-

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