




Enhancing machine translation: Neural and hybrid MT engines directing strategies

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Abstract

MT direct engines are used excessively by language learners and in translation classrooms. Such MT engines don't allow human interference while processing the translation task. Thus, applying some translation strategies during the preparation stage is essential in directing MT engines. The researcher of the present study trained a group of EFL learners in Qassim University to apply some strategies to Arabic source texts before submitting them to MT engines. The researcher used an electronic metric "BLEU" to assess the effect of the proposed strategies in directing MT engines toward accuracy. Furthermore, the responses of two neural MT engines (Google Translate and Systran) and four Hybrid MT engines (Yandex, Reverso, Collins, and Microsoft) to the premodified text (modified through the proposed strategies) were compared. Results showed that the translation strategies are effective and direct the MT engines toward accuracy. The pre-translation strategies led to a 37.8 enhancement in MT translation. As for comparing the response of the six MT engines, results indicated that all the six MT engines responded effectively to the modified text and Neural Google Translate had the highest response of all.

Keywords: Machine Translation; direct MT engines; Neural MT engines; Hybrid MT engines; MT strategies; MT electronic metric

1. Introduction

MT is a dare needed for all EFL learners. Since it is fast and gives the main idea of the source text, furthermore it gives the meanings of the new words all at once and in context. EFL learners prefer to use MT engines in their translations and translation assignments. Instead of checking the meanings of separate words in dictionaries, EFL learners use MT engines. Besides their easiness, MT engines provide the contextual meaning of words.

MT engines have become smarter than previously. Most MT engines today can crawl through the internet and match the exact meanings. MT engines have huge storage engines and store varied types of texts, meanings, writings, and even human translations. At present, MT engines can match the exact meanings of words in translation. Thus, MT translations become more reliable than previous and need fewer modifications in certain genres and text types.

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MT engines give less accurate results in certain text types like literary and culturally bound texts. The main reason behind the inaccuracy of MT translations in such texts is the irregular and indirect use of words. While MT results in other genres are more dependable and need fewer post modifications. The types of MT engines that are free and used by EFL learners are the direct ones i.e. the translator doesn't interfere in the process of translation. Such programs proceed forward while translation the source text without stopping and without consulting the human translator until they finish the whole translating process.

Direct MT engine users provide the text directly to such engines and get the result that needs some essential modifications. MT direct engine users miss the essential translation stage which is the "preparation stage". During the preparation stage, MT direct engine users can apply certain strategies to the source text that lead to more accurate translation. These proposed strategies help in directing MT engines and help them to get accurate meanings and exact word matching.

2. Related Work

2.1. Importance of MT

Computer-assisted translation CAT becomes dominant in the localization market at present. CAT which recently includes MT increases the productivity of translation. Federico and Trombetti (2012) declare that MT engines decrease post-editing efforts significantly and increase the post-editing speed significantly. Pérez-Ortiz and Forcada (2001) and Hutchins (2001). mention that MT engines become more advanced and exceed word for word translation and follow translation strategies for gathering the contextual meaning. Koehn and Knowles (2017) add MT in recent years shows superior performance and there is rapid adoption of the deployments by Google, Systran, and WIPO. For Al-Tuwayrish, (2016) MT is helpful in gigantic bulk materials and comes in a handy tool with the needed speed. Macken, Prou, and Tezcan (2020) declare that MT leads to productivity on average among translators moreover statistical and neural MT engines show a weak correlation with post-editing effort.

Doherty and Kenny (2014) assert that today it has become a necessity to include an MT course in translation programs to increase the students' knowledge and confidence in using machine translation. Arenas (2010) mentions that MT is used by language teachers and learners recently to help their language learning as well as translation and post-editing strategies. Also, Alhaisoni and Alhaysony (2017) report that the most three frequent use of Google translate among EFL Saudi majors are vocabulary, writing, and reading. El-Banna and Naeem (2016) proposed a machine translation remedial program to a group of EFL learners to develop their English/Arabic translations semantically and syntactically and the program proved efficacy.

2.2. MT types

Trujillo (2012) classifies MT into direct, transfer, and interlingual. Direct MT engines involve pattern matching between SL (source language) and TL (target language). Transfer engines involve grammatical analysis of source text and abstracting away some details, then matching target text structures. Interlingual engines analyze sentences of SL and then compose TL sentences without matching.

Kastberg (2012) mentions three types of MT; Fully Automated Machine Translation (FAMT), Human Aided Machine Translation (HAMT), and Machine Aided Human Translation (MAHT). Hutchins (2005) mentions that the center of MAHT is not the MT engine but the human being with computer facilities. Mahardika (2017) mentions that Human Aided Machine Translation is the best

choice in EFL classrooms and EFL learners have to learn how to evaluate and modify machine translations and not depend on Fully Automated Machine Translation.

2.3. *MT errors*

Kumar (2012) investigated the tendency of EFL learners in MT. Kumar mentions that EFL learners depend excessively on MT during learning English, but the sample students mention that they got many grammatical errors and wrong meanings in their MT translations. Marito and Ashari (2017) mention that MT lead language learners to confusing situations since they get different structure other than what they learned also encounter problems related to idiomatic meanings. El-Dakhs, Salem, Emara and Alotaibi (2020) investigated the translations of 96 Arabic-speaking trainees at a Saudi University and declared that their MT English/Arabic translations convey difficulties in retaining the writer's voice adequately.

Whitelock and others (1986) declare that the complexity of knowledge types makes the implementation of MT difficult and makes the interference of human expertise necessary into the machine translation. Koehn and Knowles (2017) studied six challenges for neural machine translation: domain mismatch, long sentences, amount of training data, word alignment, rare words, and beam search decoding which deteriorates when exposed to larger search space. Koponen, (2010) compared human translation to MT and declared that human additions and omissions are related to the source text while MT contains unrelated additions and omissions to the source text.

2.4. *MT strategies*

MT engines follow varied strategies to produce an accurate translation. L'Hostis, Grangier, and Auli (2016) state that recent work for improving neural MT depends on restricting the output vocabulary to the source ones. MT engines apply strategies like word co-occurrence and word alignment for matching the correct vocabulary and getting an accurate result.

Durrani and Koehn (2014) propose triangulation and transliteration as necessary strategies for MT engines to translate from Urdu to Hindi and then from Hindi into English. Triangulation depends on using a pivot language to bridge the gap between Urdu and Hindi like the English language. Transliteration is the conversion of an unmatched text from one script to another.

Babych and Hartley (2004) used a named entity recognition system to identify names and then forward them to the machine translation engine in form of a don't translate list, and they noted about 20% accuracy improvement. Talbot and Osborne (2006) mention that decreasing redundancy in the text leads to more accurate machine translation. Babych, Sharoff, and Hartley (2008) proposed corpora of the new terminology that may encounter MT engines and stated that such corpora helped MT engines to get the right meanings.

The researcher presented a group of pre-translation strategies: segmentation, referent, transliteration, omission. The Arabic paragraph is written as one unit without separate sentences. For directing MT engines it's better to divide the Arabic paragraphs into separate sentences. As for referents, it's a good strategy to use nouns instead of pronouns for modifying the source text. Transliteration strategy stands for vocalizing the culturally bound words which have no equivalents in the English language. Some redundant words and phrases don't participate in formulating meaning, instead, they lost meaning. One effective strategy is omitting the redundant words and phrases that hinder translating the meaning.

2.5. Automatic evaluation of MT

Su, Wu, and Chang, (1992), He, and Way (2009) mention that it is essential to find an electronic objective quantitative measure to evaluate the performance of machine translation systems. They add that this can be conducted by comparing the raw translation of MT engines to the revised version of the customers and computing the extent of editing efforts. As for Babych and Hartley (2004), the automatic evolution of MT is related to some kind of human translation i.e. MT is assessed in contrast to human translation through certain engines. Papineni, Roukos, Ward, and Zhu (2002) mention that the BLEU metric is an automated understudy for skilled human judges when there is a need for quick translation assessment.

3. Experimental Setting

The present study was conducted at Qassim University, KSA. The study lasted for three months during the second semester of the academic year 2020. A group of 4th year EFL students (five students) participated in conducting the present study. The present study tries to validate the following hypotheses.

- a. MT engine directing strategies are effective in Arabic/English machine translation.
- b- Hybrid and Neural MT engines vary in response to the adapted Arabic texts.

4. Methodology

4.1. Participants

A total number of EFL 4th year students at Qassim University, KSA participated in this study. All the students share the following characteristics:

- a. They are Arabic native speakers.
- b. They have a high proficiency level in English.
- c. They have experience using MT engines.

4.2. Data collection tools

In this study, the electronic metric BLEU was used to assess the pre-modified texts against a human translation.

Six MT engines were used in the present study. Two neural MT engines (Google Translate and Systran) were compared to four hybrid MT engines (Yandex, Reverso, Collins, and Microsoft) in translating pre-modified Arabic text into English.

4.3. Design and Procedure

Participants of the present study were trained for three months during the term of the academic year 2020 on using the proposed MT strategies. The researcher explained the proposed strategies to the participants with Arabic/English varied examples. The participants applied the proposed strategies on fifteen varied Arabic extracts during the experimental period. By the end of the semester, an Arabic text was presented to the participants and they were required to apply the needed MT strategies. Finally, the pre-modified texts were collected and translated by Google Translation.

4.4. Data Analysis

The researcher used the BLEU metric to assess the effect of applying pre-MT strategies. To get BLEU results the researcher provided an accurate human translation to let BLEU compare the pre-modified text against human translation.

Also, the BLEU MT metric was used to assess the response of neural versus hybrid MT engines to the pre-modified texts.

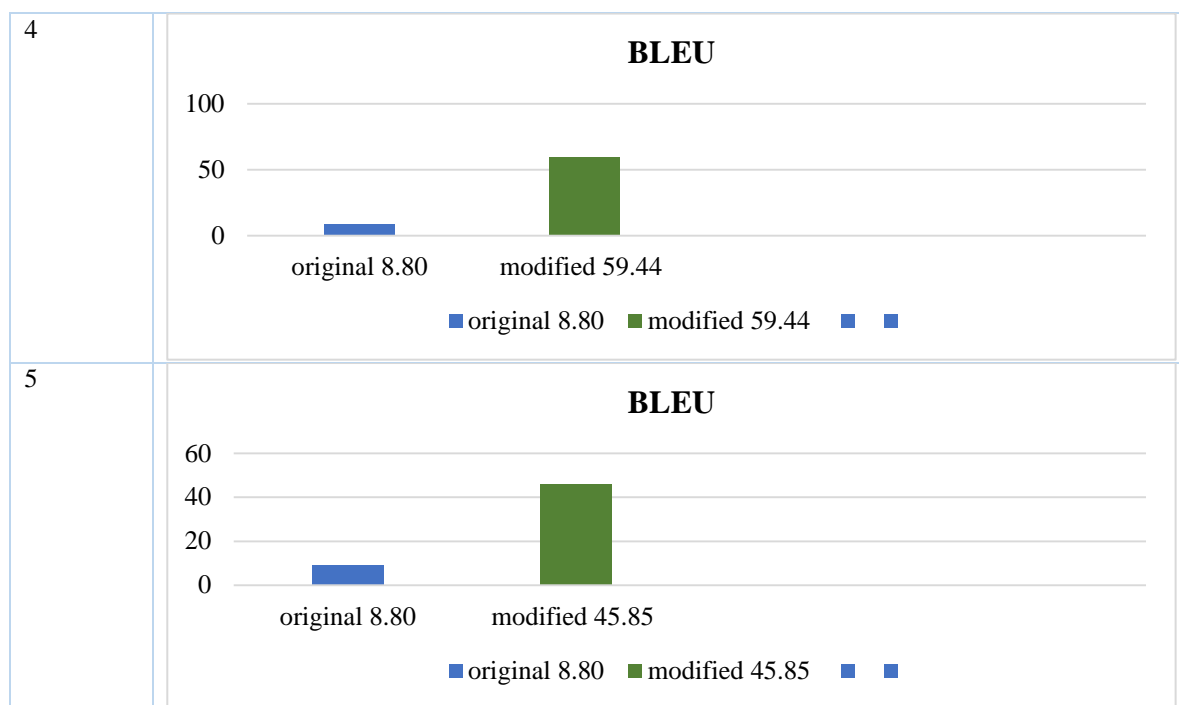
5. Results

5.1. Hypothesis one

5.1.1. MT engine directing strategies are effective in Arabic/English machine translation

The sample students were required to apply the directing translation strategies on an Arabic text (Appendix I) and to use google translation. The researcher used an electronic translation metric “BLEU” to evaluate the sample students’ application of the proposed directing strategies. The sample students’ translations were evaluated in contrast with the original text through Google translation. The following part shows the “BLEU” results for the sample students. The lefthand grade is “BLEU” evaluation for Google’s translation of the original text, while the righthand ones are google’s translation for the sample students after the application of the directing strategies.

Student	Original vs modified MT Text Translation				
1	<p style="text-align: center;">BLEU</p> <p>A bar chart titled 'BLEU' comparing the scores for 'original' and 'modified' text. The y-axis ranges from 0 to 60. The 'original' bar (blue) has a value of 8.80, and the 'modified' bar (green) has a value of 43.64. A legend at the bottom shows a blue square for 'original 8.80' and a green square for 'modified 43.64'.</p> <table border="1"> <tr> <td>original</td> <td>8.80</td> </tr> <tr> <td>modified</td> <td>43.64</td> </tr> </table>	original	8.80	modified	43.64
original	8.80				
modified	43.64				
2	<p style="text-align: center;">BLEU</p> <p>A bar chart titled 'BLEU' comparing the scores for 'original' and 'modified' text. The y-axis ranges from 0 to 100. The 'original' bar (blue) has a value of 8.80, and the 'modified' bar (green) has a value of 67.56. A legend at the bottom shows a blue square for 'original 8.80' and a green square for 'modified 67.56'.</p> <table border="1"> <tr> <td>original</td> <td>8.80</td> </tr> <tr> <td>modified</td> <td>67.56</td> </tr> </table>	original	8.80	modified	67.56
original	8.80				
modified	67.56				
3	<p style="text-align: center;">BLEU</p> <p>A bar chart titled 'BLEU' comparing the scores for 'original' and 'modified' text. The y-axis ranges from 0 to 20. The 'original' bar (blue) has a value of 8.80, and the 'modified' bar (green) has a value of 16.79. A legend at the bottom shows a blue square for 'original 8.80' and a green square for 'modified 16.79'.</p> <table border="1"> <tr> <td>original</td> <td>8.80</td> </tr> <tr> <td>modified</td> <td>16.79</td> </tr> </table>	original	8.80	modified	16.79
original	8.80				
modified	16.79				



Note: This figure is created by the present researcher El-Esery to evaluate the application of translation directing strategies. The left-hand column gives the “BLEU” evaluation for Google translation, while the right-hand column gives the “BLEU” evaluation for Google translation modified by the sample students.

Figure 1. Quality of MT Translations (BLEU)

5.2. Hypothesis two

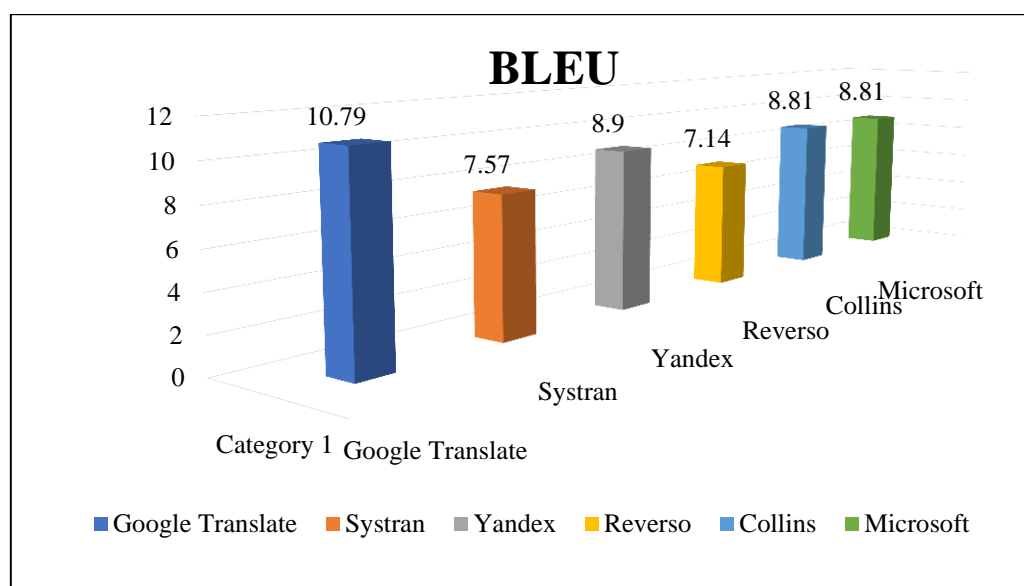
5.2.1. Hybrid and Neural MT engines vary in response to the adapted Arabic texts.

To evaluate the response of MT engines to the modified texts (source texts that are prepared according to the proposed directing strategies). The researcher applied the directing strategies on an Arabic text (Appendix II) and got the results from six MT engines (Appendix III). Four hybrid MT engines (Yandex, Reverso, Collins, and Microsoft) were compared to Google Translate and Systran as neural MT engines, then the results were compared by the “BLEU” metric.

Table 1. BLEU Metric Results for neural and hybrid MT Engines

BLEU Metric Results					
Neural MT Engines		Hybrid MT Engines			
Google Translate	Systran	Yandex	Reverso	Collins	Microsoft
10.79	7.57	8.9	7.14	8.81	8.81

Note: This table is created by the present researcher El-Esery to provide BLEU metric results for evaluating the translation of a modified text by two neural and four hybrid MT engines.



Note: This figure is created by the present researcher El-Esery to show graphically the BLEU metric results for evaluating the translation of a modified text by neural (Google and Systran) and hybrid (Yandex, Reverso, Collins and Microsoft) MT engines.

Figure 2. BLEU results for neural and hybrid MT engines

The neural Google Translate is the best MT engine to work with the modified text. thus, Google Translate response to the directing strategies is higher than the other neural MT engine “Systran” and all other hybrid MT engines. Google translate produces more accurate translations.

6. Discussion and Conclusions

6.1. MT translation strategies

EFL learners tend to use social media excessively and need electronic translation (Mohammed and Al Khalifah, 2021). Advanced EFL learners tend to use MT engines regularly in all translation courses. They use MT engines in conducting their translation assignments. Jaganathan, Hamzah, and Subramaniam, (2014) declare that EFL learners use Google translate excessively in their assignment, while they are unable to identify the accurate and appropriate contextual semanticity, thus they need special training on MT engines.

The researcher of the present study realized that EFL learners concentrate on post-editing since the engines they use are free direct ones. Furthermore, the main concentration of MT courses is post-editing strategies. Thus, Sabtan, and Salalah, (2020) proposed an MT course to EFL Omani third-year students. The course is theoretical and MT post-editing practical one and results showed that the sample managed some linguistic errors.

The researcher inspired this study while teaching an MT course at Qassim University and reaching the probability of pre-translating some difficult words and transliterating them. Also, Durrani and Koehn (2014) mention that transliteration showed improvements over the translated text by MT. Consequently, the researcher trained a sample of MT course enrolments upon managing a group of pre-strategies like segmentation, transliteration, referents. Krüger (2012) highlights using corpora in translation for managing translation texts and analyzing them. Ilynska (2017) reflects the effect and the importance of applying LSP (language for special purposes) texts in translation classrooms.

After the participants managed the pre-strategies, they were required to apply them to the Arabic text to be translated into English. Following the electronic MT metric BLEU for assessing the source

Arabic text versus the participants' modified texts. Results showed enhancement variation that reached 37.8 when the participants applied the proposed pre-strategies.

6.2. MT engines response

Neural MT engines like Google translate, Systran, and Hybrid MT engines like Yandex, Reverso, Collins, and Microsoft are more advanced and widely used by EFL learners. Such engines produce more accurate results than rule-based MT engines. Arenas (2010) compared the results of Google Translate and Microsoft Bing to the rule-based engines Babelfish and Apertium. Results showed that Google Translate and Microsoft Bing produce more accurate and understandable translations than the two rule-based engines. Huang, Lee, and Kim (2020) certify that hybrid translation engines are more stable and accurate especially in out-of-domain translations.

The six MT engines responded variably to the modified Arabic text with the pre-translation strategies. The MT engine that produces the most accurate translation was the neural Google Translate. Systran which is also neural got 7.57. Other MT engines which are hybrid ones preceded Systran like Collins and Microsoft (8.81) and got the same result. Thus, Google Translate produced the highest result and responded accurately to the pre-translation strategies.

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Appendices

Appendix I

Source Text

الحجامة أحد أساليب الطب النبوي في التداوي

ما هي الحجامة
يمكن القول إن الحجامة هي إزالة الدم الفاسد من الجسم خاصة من الظهر فعندما يزال هذا الدم الفاسد الناتج عن شوائب دموية وكريات دم حمراء هرمة فإن ذلك سيفسح المجال أمام كريات الدم الحمراء الشابة لحمل الدم النقي المشبع بالأوكسجين إلى بقية أعضاء الجسم والحجامة قديمة العصر وسنة إلهية طبقها الأنبياء الكرام، وأوصوا الناس بها.
كيف يمكن للحجامة أن تخفف ضغط الدم المرتفع؟ جملة ضغط الدم المرتفع تعني تدفق كمية من الدم عبر القلب إلى الشرايين وعندما لا تستوعب هذه الشرايين كمية الدم المتدفقة إليها عن طريق القلب فإن ذلك يؤدي إلى زيادة الدم مما يؤدي إلى زيادة الضغط على جدران الشرايين التي تبدأ بدورها في المقاومة فكلما انقبضت عضلة القلب ضخت كمية جديدة من الدم.
وهذا يؤدي إلى وصول ضغط الدم إلى mm hg 90/140 أما إذا كان ضغط الدم عادياً فيكون في العادة m hg80/120، ولقد ثبت طبيياً أن الحجامة تساعد بشكل كبير على تخفيف ضغط الدم حتى يصل إلى معدلاته الطبيعية.
الطريقة
تعمل الحجامة على أحداث نوع من الاحتقان في منطقة الكتف من الجسم باستعمال كؤوس خاصة تسمى كؤوس الهواء حيث يتم ادخال المخروط المشتعل «ورق» داخل الكأس ثم نلصق الكأس مباشرة على أسفل الكتف فيقوم المخروط الورقي المشتعل بحرق جزء كبير من الهواء داخل الكأس.

وهذا يحدث انخفاضاً في الضغط الواقع على الجلد مما يقوم بجذب الجلد من فوهة الكأس قليلاً إلى الداخل «إلى داخل الكأس» ونتيجة لذلك يظهر احتقان دموي موضعي، حيث يؤدي هذا الجلب للجلد ودرجة الحرارة المرتفعة قليلاً داخل الكأس إلى توسع سطحي في الأوعية الدموية في منطقة الكتف. حيث يؤدي ذلك أيضاً إلى تدفق الدم إلى ذلك الجزء من الجلد وتصبح أوعية الجلد مملوءة بالدم الأحمر حيث يقوم الكأس بتحديد الدم في داخل الجلد الذي سحبه الكأس إلى داخله بعد ذلك يقوم الحجام «الذي يقوم بالحجامة بنشطيب الجلد» بعد إزالة الكأس طبعاً» بالشفرة تشطيباً سطحياً مع مراعاة الحالة الصحية للشخص وعمره وغير ذلك والأهم من هذا كله أن تكون الأدوات المستخدمة معقمة طبيياً. (Source: Adapted from: <https://www.albayan.ae/sports/2006-10-17-1.954512>)

Appendix II

Adapted Arabic text with the proposed MT directing strategies

الحجامة هي Prophetic method في التداوي

ما هي الحجامة؟

الحجامة هي إزالة old blood cells من الجسم خاصة من الظهر. عند إزالة old blood الناتج عن شوائب دموية وكرات دم حمراء Old فإن ذلك سيفسح المجال أمام كرات الدم الحمراء new لحمل الدم النقي المشبع بالأوكسجين إلى بقية أعضاء الجسم. الحجامة قديمة العصر و طبقتها الأنبياء وأوصوا الناس بالحجامة. كيف يمكن للحجامة أن تخفف ضغط الدم المرتفع؟ ضغط الدم المرتفع يعني تدفق كمية من الدم عبر القلب إلى الشرايين. عندما لا تستوعب هذه الشرايين كمية الدم المتدفقة إليها عن طريق القلب فإن ذلك يؤدي إلى زيادة الدم مما يؤدي إلى زيادة الضغط على جدران الشرايين التي تبدأ بدورها في المقاومة وكلما انقبضت عضلة القلب ضخقت كمية جديدة من الدم. هذه العملية تؤدي إلى وصول ضغط الدم إلى mm hg 90/140. أما إذا كان ضغط الدم عادياً فيكون في العادة mm hg 80 /120. لقد ثبت طبيياً أن الحجامة تساعد بشكل كبير على تخفيف ضغط الدم حتى يصل إلى معدلاته الطبيعية.

Cupping method

تعمل الحجامة على أحداث نوع من الاحتقان في منطقة الكتف من الجسم باستعمال كؤوس خاصة تسمى كؤوس الهواء. يتم ادخال A burning piece of Paper داخل الكأس ثم نلصق الكأس مباشرة على أسفل الكتف. يقوم A burning piece of Paper بحرق جزء كبير من الهواء داخل الكأس. هذه العملية تحدث انخفاضاً في الضغط الواقع على الجلد مما يقوم بجذب الجلد من فوهة الكأس قليلاً إلى داخل الكأس. ونتيجة لذلك يظهر احتقان دموي موضعي، حيث يؤدي هذا الجلب للجلد ودرجة الحرارة المرتفعة قليلاً داخل الكأس إلى توسع سطحي في الأوعية الدموية في منطقة الكتف. يؤدي ذلك إلى تدفق الدم إلى ذلك الجزء من الجلد وتصبح أوعية الجلد مملوءة بالدم. بعد ذلك the cupping specialist scratches الجلد بالشفرة. The scratching is سطحياً مع مراعاة الحالة الصحية للشخص وعمره وغير ذلك واهم شيء أن تكون الأدوات المستخدمة معقمة طبيياً.

Appendix III

Responses of 6 MT Engines to the adapted Arabic text

(1) Google Translation

Cupping is a Prophetic method for medication

What is cupping?

Cupping is the removal of old blood cells from the body, especially from the back. When removing old blood resulting from blood impurities and old red blood cells, this will give way to new red blood cells to carry pure blood saturated with oxygen to the rest of the body. Cupping is ancient and applied by the prophets and recommended people to cupping.

How can cupping relieve high blood pressure? High blood pressure means an amount of blood flowing through the heart to the arteries. When these arteries do not absorb the amount of blood flowing to them through the heart, this leads to an increase in blood, which leads to an increase in pressure on the walls of the arteries, which in turn begin to resist.

This process leads to blood pressure reaching 140/90 .mm hg. If the blood pressure is normal, it is usually 120/80 .mm hg. It has been clinically proven that cupping helps greatly to reduce blood pressure until it reaches its normal levels.

Cupping method

Cupping works to create a kind of congestion in the shoulder area of the body using special cups called air cups. A burning piece of Paper is inserted inside the cup and then pasted the cup directly to the bottom of the shoulder. A burning piece of Paper burns a large portion of air inside the cup. This process causes a decrease in pressure on the skin, which attracts the skin from the cup mouth to the inside of the cup. As a result, localized hyperemia appears, as this fetching of the skin and the slightly raised temperature inside the cup leads to a superficial expansion of the blood vessels in the shoulder area. This causes blood to flow to that part of the skin and the skin vessels become filled with blood. Then the cupping specialist scratches the skin with the blade. The scratching is superficial, taking into account the person's health condition, age, etc. And the most important thing is that the tools used are medically sterile.

(2) Systran Translation

Size is Professional method in medication

What's the scale?

The hjama is the removal of old blue cells from the body, especially from the back. Removing old blue due to blood impurities and red blood balls old will open the way for new red blood cells to carry pure oxygen to the rest of the body. The Hjama is old and the prophets implemented it and they advised people to go to hell.

How can the cuff reduce high blood pressure? High blood pressure means a mass of blood flowing through the heart to the arteries. When these arteries don't absorb the amount of blood flowing through the heart, they increase the blood, which increases the pressure on the walls of the arteries, which in turn starts to resist. The more the heart is squeezed, the more blood is pumped out.

This process leads to 140/90.mm hg. If blood pressure is normal, then normally 120/80.mm hg. It's been medically proven that the size greatly helps to relieve blood pressure to normal levels.

Computing method

The hjama creates a kind of tension in the shoulder area of the body with special glasses called air cups. A burning pipe of Paper is inserted into the glass and then we paste the glass directly on the bottom of the shoulder. A burning pipe of Paper burns a large part of the air inside the glass. This process causes a drop in the pressure on the skin, which pulls the skin from the glass's nozzle slightly into the glass. As a result, there's a local blood tension, where this skin fetching and a slightly higher temperature inside the glass leads to a superficial expansion of the blood vessels in the shoulder area. This leads to blood flow into that part of the skin and the skin vessels become full of blood. And then the cupping specific suchases the skin with code. The scrolling is superficial, taking into account the person's health, age, etc., and the most important thing is that the tools used are medically sterilized.

(3) Yandex Translation

Size is a Prophetic method in medication.

What's the size?

The size is the removal of old blood cells from the body's own back. When removing the old blood resulting from the impurities blood balls, and Blood Red old the that would allow the red blood cells new to protect the pure blood saturated with oxygen to the rest of the members of the body. Cupping is old age, and applied to the prophets and they recommended people cupping.

How can size reduce high blood pressure? High blood pressure means blood flow through the heart to the arteries. When you don't respond to these arteries, the amount of blood flowing through the

heart, it leads to an increase the blood, which leads to increased pressure on the walls of the arteries that start the turn in the resistance, the more extinct the heart muscle has injected new amount of blood.

This process leads to the arrival of blood pressure to 140/90 .mm hg if the blood pressure is normal, then in general 120/ 80 .mm hg it has been medically proven that cupping helps greatly to relieve the blood pressure until it reaches its normal rates.

Cupping method

Cupping events type of occupation in the shoulder area of the body using special glasses allow the glasses to air. A burning piece of Paper is inserted into the cup and then we attach the cup directly to the bottom of the shoulder. A burning piece of Paper burns a large portion of the air inside the cup. This process causes a reduction in the pressure on the skin, which attracts the skin from the glass a little bit to the inside of the glass. As a result, localized blood congestion appears, with this skin fetching and slightly elevated temperature inside the glass leading to a superficial expansion of the blood vessels in the shoulder area. This leads to the blood flow to that part of the skin and the skin vessels become filled with blood. Then the cupping specialist scratches the skin with the blade. The scratching is superficial, taking into account a person's health, age, etc.and most importantly, the tools used are medically sterilized.

(4) Reverso Translation

A volume is prophatic method in the medication

What is a size?

A volume is the removal of the Old Blood cells from the body, especially from the back.when removing the Old Blood from bloody impurities and red blood balls, this will allow new red blood cells to carry pure oxygen-saturated blood to the rest of the body. The pilgrims are old-fashioned and the prophets applied them and recommended people to be a lionth.

How can a mass reduce high blood pressure? High blood pressure means a quantity of blood flows through the heart to the arteries. When these arteries do not absorb the amount of blood flowing through the heart, this increases blood pressure on the arteries that start in turn in resistance and as the heart muscle collapses, a new amount of blood is pumped.

This process results in blood pressure reaching 140/90 .mm HG or if blood pressure is normal, typically 120/80.mm Hg it has been medically proven that the volume greatly helps relieve blood pressure to its normal rates.

Shopping

(5) Collins Translation

Cupping is a Prophetic method in medication

What is cupping?

Cupping is the removal of old blood cells from the body especially from the back.When removing old blood from blood impurities and old red blood balls will allow the new red blood cells to carry pure oxygen-saturated blood to the rest of the body. Cupping is ancient in times of times and was applied by the prophets and recommended to people with cupping.

How can a cupoflet lower blood pressure? High blood pressure means a blood flow through the heart to the arteries. When these arteries do not absorb the amount of blood flowing through the heart,

it increases blood, which increases pressure on the walls of the arteries, which in turn begin to resist and as the heart muscle spills, a new amount of blood is pumped.

This process results in blood pressure reaching 140/90.mm hg, but if the blood pressure is normal, it is usually 120/80.mm hg.

Cupping method

Cupping creates a kind of congestion in the shoulder area of the body using special cups called air cups. A burning piece of paper is inserted into the cup and then the cup is attached directly to the bottom of the shoulder. A burning piece of Paper burns a large part of the air inside the cup. This process causes a reduction in the pressure on the skin, which pulls the skin from the nozzle slightly into the cup. As a result, local blood congestion appears, as this gel and slightly elevated temperature inside the cup lead to a superficial expansion of blood vessels in the shoulder area. This causes blood to flow to that part of the skin and the skin vessels become filled with blood. Then the cupping specialist scratches the skin with the blade. The scratching is superficial, taking into account a person's health condition, age, etc. and the most important thing is that the tools used are medically sterile.

(6) Microsoft Translation

Cupping is a Prophetic method in medication

What is cupping?

Cupping is the removal of old blood cells from the body especially from the back. When removing old blood from blood impurities and old red blood balls will allow the new red blood cells to carry pure oxygen-saturated blood to the rest of the body. Cupping is ancient in times of times and was applied by the prophets and recommended to people with cupping.

How can a cupoflet lower blood pressure? High blood pressure means a blood flow through the heart to the arteries. When these arteries do not absorb the amount of blood flowing through the heart, it increases blood, which increases pressure on the walls of the arteries, which in turn begin to resist and as the heart muscle spills, a new amount of blood is pumped.

This process results in blood pressure reaching 140/90.mm hg, but if the blood pressure is normal, it is usually 120/80.mm hg.

Cupping method

Cupping creates a kind of congestion in the shoulder area of the body using special cups called air cups. A burning piece of paper is inserted into the cup and then the cup is attached directly to the bottom of the shoulder. A burning piece of Paper burns a large part of the air inside the cup. This process causes a reduction in the pressure on the skin, which pulls the skin from the nozzle slightly into the cup. As a result, local blood congestion appears, as this gel and slightly elevated temperature inside the cup lead to a superficial expansion of blood vessels in the shoulder area. This causes blood to flow to that part of the skin and the skin vessels become filled with blood. Then the cupping specialist scratches the skin with the blade. The scratching is superficial, taking into account a person's health condition, age, etc. and the most important thing is that the tools used are medically sterile.