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UNIVERSITY
of VERMONT
COLLEGE OF MEDICINE

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OFFICE OF THE DEAN

In the Matter of

ERIC T. POEHLMAN, Ph.D.

INVESTIGATION REPORT

Introduction.

In this Investigation Report, the Review Panel sets forth the findings and conclusions of its Investigation into allegations of scientific misconduct on the part of Eric T. Poehlman, Ph.D. In our Report of Formal Inquiry dated March 9, 2001, and submitted to Joseph B. Warshaw, M.D., Dean of the University of Vermont College of Medicine, on April 4, 2001, we found that the allegations against Dr. Poehlman were substantial and warranted investigation. The evidence examined since then has led us to conclude, with confidence but also with considerable regret, that the original allegations against Dr. Poehlman have been proven, as have several additional allegations that came to light during the Formal Inquiry. As discussed further below, the Panel has determined, by clear and convincing evidence, that Dr. Poehlman has committed scientific misconduct in that (1) he falsified and fabricated data associated with his longitudinal study of aging (Protocol 678), and included those false and fabricated data in NIH and USDA grant applications; (2) he published false and fabricated data in the Annals of Internal Medicine in 1995; and (3) he presented false and fabricated data to public and scientific audiences in October and November 2001.

Background.

As stated in the Report of Formal Inquiry, the Panel's Inquiry and Investigation have proceeded in accordance with Section 265 of the University of Vermont Officers' Handbook and the federal regulations governing inquiries and investigations into allegations of scientific misconduct, 42 C.F.R. Part 50, Subpart A. These rules and guidelines were invoked on [REDACTED] when [REDACTED] submitted a written statement alleging that Dr. Poehlman had committed misconduct in research by falsifying and fabricating research data. On [REDACTED], [REDACTED] delivered that statement to Burton E. Sobel, M.D., Professor and Chair of Medicine, who conducted an Informal Inquiry leading to the appointment of this Panel by Dean Warshaw on January 11, 2001.

The Panel completed its Report of Formal Inquiry on March 9, 2001, and pursuant to Section 265 and the governing federal regulations distributed it to Dr. Poehlman and [REDACTED]

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for comment before delivering it to Dean Warshaw on April 4, 2001. In that Report, the Panel concluded that [REDACTED] allegations of misconduct in research on Dr. Poehlman's part were sufficiently substantiated by the Formal Inquiry to require the matter to proceed to an Investigation pursuant to Section 265.4 of the Officers' Handbook and the applicable federal regulations.

Because of circumstances outside the control of the Panel, its efforts were interrupted in mid-April 2001. Officials and attorneys at the Office of Research Integrity know the circumstances that caused this interruption, but the Panel is unable to comment further on those circumstances. Suffice it to say that on August 13, 2001, Dean Warshaw instructed the Panel to begin an Investigation, a process that continued through the remaining months of 2001. On November 29, 2001, and March 6, 2002, the Panel requested and received, first from Dean Warshaw and then from the Office of Research Integrity, extensions of time within which to complete its work. The Panel conducted a formal hearing on February 18, 2002; the transcript of that hearing is included within the Investigation Record presented here, as is the transcript of Dr. Poehlman's appearance before the Panel on February 9, 2001.

Brief Description of the Allegations and the Panel's Conclusions.

Dr. Poehlman's [REDACTED] formally alleged [REDACTED] that Dr. Poehlman had falsified and fabricated data gathered under University of Vermont General Clinical Research Center (GCRC) Protocol 678, a multi-year research effort under Dr. Poehlman's direction. This protocol and the various datasets that resulted are also known collectively as the Vermont Longitudinal Study of Aging, and the allegations that data therein were falsified and fabricated were the focus of the Informal and Formal Inquiries conducted in late 2000 and early 2001. As discussed further below, this allegation has been substantiated.

During its Formal Inquiry, the Panel learned of several other suggestions of scientific misconduct on the part of Dr. Poehlman. As stated in the Report of Formal Inquiry, those suggestions were, "first, that in a published paper Dr. Poehlman presented, as true, data for which no corresponding patient records existed; second, that during a presentation at a national conference in the fall of 2000, Dr. Poehlman presented data that were not supported by the actual data base; and third, [REDACTED]

(R 6)

As directed by Dean Warshaw, the Panel expanded its Investigation to include these additional allegations. The first and second additional allegations have been substantiated by the evidence and are discussed further below. [REDACTED]

[REDACTED] Those conversations are noted in the Investigation Record at pages R 265-68. The Panel was unable to determine the precise nature of this allegation or to investigate it, and thus no further reference to it will appear in this Report.

Summary of the Panel's Investigation Effort.

Early in the Investigation, the Panel focused its effort on those materials it deemed most relevant to the various allegations. Those were: the various Protocol 678 datasets; two papers published by Dr. Poehlman and his colleagues in 1993 and 1995 and the General Clinical Research Center (GCRC) records of patient data underlying those articles; two PowerPoint slide sets that Dr. Poehlman presented publicly in the fall of 2000; and a videocassette recording of one of those public presentations. As its Investigation progressed, the Panel turned its focus to Dr. Poehlman's responses to various questions posed by the Panel. Later in the Investigation, the Panel considered the results of forensic examinations of the hard drives of Poehlman's two computers, but these results were ultimately of little value. The Panel did find some useful information in certain e-mail messages stored on those computers and in historical records maintained by the University. The Panel and its staff also reviewed the contents of documents sequestered in Dr. Poehlman's locked office, but ultimately found them of little value.

The Panel also sought answers to more specific questions addressed to many of the same witnesses whom it contacted during the Formal Inquiry. Those witness exchanges led the Panel to discover further instances of scientific misconduct by Dr. Poehlman. Those instances were in addition to the original allegations as set forth by [REDACTED] but because they related directly to the 678 dataset or Dr. Poehlman's grant applications in furtherance of his longitudinal research, the Panel's investigation and disposition of those acts of misconduct fell well within the scope of this Investigation.

In his letter of November 20, 2001, to Panel Chair Norman Alpert, Dr. Poehlman expressed his desire for a formal hearing before the Panel. (R 708) After several unsuccessful attempts to learn of Dr. Poehlman's calendar preferences, the Panel scheduled a hearing for January 28, 2002. At Dr. Poehlman's request, the Panel then postponed the hearing until Monday, February 18, 2002.

However, late in the afternoon of Friday, February 15, 2002, the Panel was advised that Dr. Poehlman and his lawyers had decided not to attend the hearing. (R 2322) The hearing nonetheless proceeded as scheduled on February 18, 2002, and the Panel heard and received evidence from [REDACTED] Written statements and other submissions presented by Dr. Poehlman and his lawyers before and after the February 18, 2002, hearing have been included in the Investigation Record.

Description of Evidence Considered.

The complete Record of the Panel's Investigation is attached to this Report in four separate binders. Binder I contains the complete record of the Panel's Formal Inquiry, as presented to Dean Warshaw on April 4, 2001. Binders II-A and II-B contain the complete documentary record of the Panel's work during the Investigation. Binder III contains evidence received in non-documentary form, including zip discs, a compact disc, and a videocassette. Binder III will also contain any comments submitted to the Panel by Dr. Poehlman or [REDACTED] after each has reviewed this Report.

Introduction to the Parties and Witnesses.

The Respondent in these scientific misconduct proceedings is Eric T. Poehlman, Ph.D., formerly a Professor of Medicine, Physiology, and Nutritional Sciences at the University of Vermont. On July 25, 2001, Dr. Poehlman wrote the University advising of his resignation effective September 2, 2001. (R 703). To the best of the Panel's information, Dr. Poehlman is now [REDACTED]. His biographical sketch (R 383), several of his published papers (R 1560-94, 1984-96, 2014-18, 2023-27), and a table of his papers and the grants supporting them (R 1216-37) are all included in the Record. These documents demonstrate that Dr. Poehlman was a prolific researcher and author of journal articles during his years at the University of Vermont (1987-93 and 1996-2001) and while at the University of Maryland at Baltimore (1993-1996). When he left the University of Vermont in September 2001, Dr. Poehlman had been listed as an author on more than 150 papers, almost all of which were supported by PHS grant funding. During his last year at the University of Vermont, the United States Public Health Service funded well over 80% of Poehlman's salary. (R 1920-22, 1932-33) In his own words, Dr. Poehlman "has been continually funded by the National Institutes of Health since completing his PhD in 1987." (R 383)

Dr. Poehlman's accuser, [REDACTED]

[REDACTED] appears later in the Findings of Fact appended to this Report. All witness statements and correspondence are contained within the Investigation Record, in Binder I at Tabs 5, 6, and 7, and in Binder II-B at Tab 8. Curricula vitae or biographical sketches are also included for several witnesses in Binder II-B at Tab 8. The transcribed testimony of the [REDACTED] witnesses who appeared before us on February 18, 2002, is found in Binder II-B at Tab 9.

Findings of Fact.

Attached to this Report as an Appendix are the Panel's specific Findings of Fact. These facts, along with evidence in the Record, correspondence and arguments from Dr. Poehlman and his lawyers, and other information, are referenced in the Discussion section that follows. Unless expressly stated otherwise in the numbered Findings themselves, the Panel has found each of the facts stated there to be proven by clear and convincing evidence.

Discussion.

I. Dr. Poehlman falsified and fabricated data associated with his longitudinal study of aging (Protocol 678).

The original allegation of misconduct against Dr. Poehlman, as set forth by [REDACTED] formal accusation dated [REDACTED], can be summarized as follows: Dr. Poehlman entered false and fabricated data into laboratory spreadsheets and presented that data as true and accurate to [REDACTED] for statistical analysis in preparation for publication. The false and fabricated data were discovered in a number of Microsoft Excel spreadsheet files containing laboratory test results and physiological measurements gathered as part of Protocol 678, which was Dr. Poehlman's longitudinal study of aging. As the Panel's Findings demonstrate, this allegation has been proven by clear and convincing evidence.

Contrary to his own protestations that he himself does not "enter data," and contrary to what has been described as the general practice within his laboratory, Dr. Poehlman himself took control of the 678 datasets maintained and updated by [REDACTED] during the summer of 2000. On several different occasions, Dr. Poehlman added to the spreadsheet a large number of non-existent values fabricated by him for the purpose of enhancing his research results. Further, Dr. Poehlman altered many data actually collected from patients during their clinical visits. Those alterations included many reversals of the initial ("T-1") and follow-up ("T-2") values for several variables, including total energy expenditure (TEE), cholesterol, and constituent lipids, among others. Dr. Poehlman shared those tainted datasets with [REDACTED] and [REDACTED], each of whom had previously been asked by Dr. Poehlman to [REDACTED] in every case, Dr. Poehlman presented the tainted data as true [REDACTED] to proceed with [REDACTED] but never revealing to them his misconduct.

The longitudinal study known as "678" began in 1987 when Dr. Poehlman, then a post-doctoral fellow at UVM, decided to examine changes in daily energy needs and body composition in older individuals. After Dr. Poehlman returned to UVM from Maryland in 1996, he resumed the study under the title "Interaction of Genetics and Aging on Energy Metabolism" as General Clinical Research Center (GCRC) Protocol 678. Thus, Protocol 678 was the vehicle by which Dr. Poehlman could utilize the resources of the GCRC to bring back, for repeat metabolic and other measurements, human subjects previously tested under NIH-funded studies.

The original electronic spreadsheet version of the 678 data set [REDACTED] Pursuant to the funding provided by a National Research Service Award (NRSA) grant from the Public Health Service, [REDACTED] the 678 database [REDACTED] Protocol 678 database for a number of months after receiving this responsibility when [REDACTED] in the late spring or early

summer of 2000, as [REDACTED] for Dr. Poehlman since [REDACTED] first as a [REDACTED]

When [REDACTED] 'Spreadsheet From [REDACTED]'
Soon thereafter [REDACTED] '678data.' [REDACTED]

The sheet entitled "678data" next became "678data2," then "678data3," then "678Spreadupdated." [REDACTED] changed the file name to "ExcelLongitudinal," and thereafter, each time he made a substantive revision to the dataset, he gave it a new numerical suffix, from 2 through 7. (R 91, 2098-99, 2113-15, 2125-26, 2128-29)

[REDACTED] kept the various files on Dr. Poehlman's computer, in a file bearing [REDACTED] name. Also on Dr. Poehlman's desktop computer, in a file bearing Poehlman's name, [REDACTED] maintained a single copy of the most recent, updated database. It was [REDACTED] intention that the file on Dr. Poehlman's desktop computer, under Dr. Poehlman's name, would contain only one spreadsheet at a time, which would be the most updated version. (R 2098-99, 2127-29, 2137-38)

When [REDACTED] made changes in a dataset, he would save it in Dr. Poehlman's folder on Poehlman's computer, replacing the prior version. Similarly, when [REDACTED] was preparing to make the next set of changes, he would take from Dr. Poehlman's computer the single most current version via "file transfer protocol" or "FTP." As a new version was created, [REDACTED] would move the file to Dr. Poehlman's computer. At all times, however, all versions of the dataset were available to Dr. Poehlman. (R 2098-99, 2113-15, 2128-29)

The Panel has obtained numerous versions of the Protocol 678 database. [REDACTED] provided nine spreadsheets on two zip discs to the University shortly after submitting his formal accusation of misconduct. (R Binder III) In the course of this Investigation, [REDACTED] provided the Panel with a copy of the Protocol 678 database as it existed [REDACTED] in April 1999. (R 1947) Additionally, [REDACTED] supplied the Panel with a copy of the database that [REDACTED] received directly from Dr. Poehlman on August 22, 2000, so that [REDACTED] (R 2000) [REDACTED]

[REDACTED] provided nine versions of the database and one file received from Dr. Poehlman on July 16, 2000, containing total energy expenditure ("TEE") data for some of the Protocol 678 subjects.

A. Dr. Poehlman fabricated and falsified TEE data as part of Protocol 678.

With respect to the total daily energy expenditure (TEE) data, the Panel's examination of the various spreadsheets and other evidence demonstrates that Dr. Poehlman provided [REDACTED] with falsified and fabricated data in July 2000. On July 14, 2000, in response to a request by Dr. Poehlman, [REDACTED] provided Dr. Poehlman with a file named "678BodyComp&EE," containing

TEE and certain body composition data from the 678 database. This file contained 56 subjects with TEE values at T-1, 108 subjects with TEE values at T-2, and only 51 subjects with TEE values at both T-1 and T-2. Dr. Poehlman then told [REDACTED] that he wanted to "verify" the data. (R 191-92, 205-06, 2093-94)

On July 16, 2000, Dr. Poehlman e-mailed [REDACTED] a file named "RevisedTEE_s," which contained 136 subjects with TEE values at both T-1 and T-2. In his accompanying e-mail message, Dr. Poehlman stated:

[REDACTED]

Finally found the corrected TEE file. We need to do the following"

1) I have entered additional TEE's and corrected misentries. . . .

Don't fool with these numbers...I spent alot of time over the weekend working on them. I want them pasted into the most current longitudinal worksheet. We will then proceed to do statistical analyses. . . .

This will be an excellent paper."

(R 127, 200, 206-07)

On July 18, 2000, as directed by Dr. Poehlman, [REDACTED] pasted the TEE data into the master spreadsheet, renaming it "678Spreadupdated." (R 207) On July 26, 2000, [REDACTED] renamed the master spreadsheet "ExcelLongitudinal." He added a numerical suffix (before the extension) each time he made significant updates over the next several months. The TEE data falsified and fabricated by Dr. Poehlman remained in all subsequent versions of the dataset that [REDACTED] and Poehlman created and exchanged throughout the summer and fall of 2000. (R 205-08, 2092, 2094)

When [REDACTED] received from Dr. Poehlman the file that contained dramatically increased numbers of TEE measurements, he was puzzled, but he trusted Poehlman and did not dwell on the matter. Later, in December 2000, after [REDACTED] strongly suspected misconduct by Dr. Poehlman, [REDACTED] examined the original patient (paper) files and re-entered the lipids and TEE values from those patient files into the master spreadsheet (R 196-97), renaming it "678DataBaseWithonlyonevisit 1." (According to [REDACTED], this filename refers to the fact that the file contained one value for each subject at each of the two visits (T-1 and T-2). Apparently, some patients had several T-1 or T-2 visits.) In this last and accurate version of the spreadsheet, the number of TEE values reverts back to the smaller number contained in the spreadsheets maintained by [REDACTED] and [REDACTED] and by [REDACTED] before the events of July 14-16, 2000.

The evidence reveals two basic patterns by which Dr. Poehlman manipulated or fabricated TEE data. The first shows that Dr. Poehlman fabricated one or both TEE values for some subjects. For example, "678BodyComp&EE" contains a TEE value at only T-2 for subject [REDACTED]. The file provided two days later by Dr. Poehlman to [REDACTED], "RevisedTEE_s,"

contains TEE values at both T-1 and T-2 for that subject. Both values continued to appear in the database until [REDACTED] verified the values against the patient files and corrected the database late in 2000. At that time [REDACTED] data sheet was corrected by [REDACTED] to show that [REDACTED] was measured for TEE only at the time of [REDACTED] second visit to the GCRC. (R Binder III at Tab 2)

The second pattern demonstrates that Dr. Poehlman fraudulently reversed TEE values so that they would be consistent with his hypothesis, that is, that TEE declines as one ages. For example, "678BodyComp&EE" shows TEE values of 2540 at T-1 and 2945 at T-2 for subject [REDACTED]. The "RevisedTEE_s" file provided by Dr. Poehlman [REDACTED] reverses these values, thereby showing a decline in TEE over time. In "678DataBaseWithonlyonevisit 1," the values revert back to the original positions. (R Binder III at Tab 2) (Slight changes in some TEE measurements may have resulted from recalculated conversions of raw data [REDACTED] to ensure that all TEE values were converted using the same formula.) Simply stated, when Dr. Poehlman was confronted by TEE data that were inconsistent with his hypothesis, he switched the values to obtain his desired result.

B. Dr. Poehlman fabricated and falsified lipids data as part of Protocol 678.

Shortly after [REDACTED] [REDACTED], Dr. Poehlman suggested that [REDACTED] use the 678 dataset to [REDACTED]. Dr. Poehlman and [REDACTED] agreed that Poehlman would send [REDACTED] the dataset for the purpose of evaluating the meaning and impact of the longitudinal changes. Until that time, the papers [REDACTED] had written [REDACTED] were derived from data that he himself had managed. (R 2001)

[REDACTED] received the 678 dataset from Dr. Poehlman as an Excel spreadsheet e-mail attachment on August 22, 2000, but he never used the data or even opened the spreadsheet, having determined that he was too busy to write the paper. (R 2002) Instead, [REDACTED] sent the dataset, unmodified, to [REDACTED] at [REDACTED] request on October 4, 2000. (R 174-75, 2000-02) This dataset is contained within the Investigation Record and identified as "ExcelLongitudinal2[REDACTED]" We have inserted "[REDACTED]" into the file name during the Investigation to distinguish this file from other versions of ExcelLongitudinal2.

In late September 2000, Dr. Poehlman, recognizing that [REDACTED] would not have time to write the paper, asked [REDACTED] to begin work on a paper discussing the effect of aging on lipids. It was for that reason that on October 4, 2000, [REDACTED] e-mailed [REDACTED], requesting the database for the lipids paper (which had previously been assigned to [REDACTED] R 171) Later that day, [REDACTED] e-mailed to [REDACTED] "ExcelLongitudinal2 [REDACTED]" the 678 spreadsheet that Dr. Poehlman had sent to [REDACTED] on August 22, 2001. (R 174-75, 2002)

[REDACTED] became aware of [REDACTED] assignment and told [REDACTED] not to use the file from [REDACTED] because [REDACTED] had a more recent version of the database. Thereafter, on October 9, 2000, [REDACTED] e-mailed "ExcelLongitudinal5[REDACTED] to [REDACTED]" to [REDACTED]. (R 1696-1711, 1770, 2056, 2096-97, 2146-47, 2158) The Panel has inserted "[REDACTED] to [REDACTED]" into the file name to distinguish this file from other versions of ExcelLongitudinal5.

Although [REDACTED] cannot recall the precise details of this activity (which pre-dated his suspicions of misconduct), the Panel believes that between October 9 and 16, 2000, [REDACTED] used the "StatMate" program on the computer of Dr. Poehlman's [REDACTED] to run a statistical analysis of the lipids data in "ExcelLongitudinal5 [REDACTED]". [REDACTED] did not analyze "ExcelLongitudinal2 [REDACTED]." The analysis showed a statistically significant increase as one ages only in total cholesterol; the analysis did not reveal a statistically significant relationship between individual lipids components and aging. (R 94, 575, 2057)

[REDACTED] and Dr. Poehlman met and discussed these results and reviewed some of the statistical data generated by [REDACTED] (R 94, 575) After learning of [REDACTED] results, Dr. Poehlman asked for the dataset, telling [REDACTED] that he wished to verify data entries and check for what he described as "reversed" data points from patient files that he had at his (Poehlman's) home. He did not allow [REDACTED] to verify those data. (R 94)

On October 16, 2000, Dr. Poehlman e-mailed [REDACTED] a file named "ExcelLongitudinal4," stating:

Looked over and corrected some lipid data. Here is worksheet with corrected values. I would re-calculate means and SD's for the lipid data. I would include in your tables insulin and glucose as well.

(R 177)

When [REDACTED] analyzed the spreadsheet provided by Dr. Poehlman, he now found a statistically significant relationship between aging and each and every lipid variable (total cholesterol and individual cholesterol components). This dramatic change in results caused [REDACTED] to suspect manipulation of the data by Dr. Poehlman and ultimately led [REDACTED] to file the accusation that resulted in the current Investigation. (R 94)

As of July 18, 2000, the date on which [REDACTED] updated the database with the "revised" TEE values from Dr. Poehlman and renamed the database "678Spreadupdated," the lipids data were intact. That is, the data remained the same as when [REDACTED]. The file "ExcelLongitudinal2 [REDACTED]," which had been provided to [REDACTED] for use in connection with the lipids paper, contains both total cholesterol and individual component variables reversed in many subjects to conform to the hypothesis so that all variables would tend to increase with age on average except HDL, which, as expected by Dr. Poehlman, would decrease.

The data revert back to their original state in "LONGmen," "LONGfem," and "678DataBaseWithonlyonevisit1." The first two of these spreadsheets were created by [REDACTED] after [REDACTED] verified the lipids values against the patient files (R 146); the third was created by [REDACTED] after he independently verified the lipids (and TEE) values against the patient files late in 2000, after [REDACTED] suspicions came to light (R 196-97).

[REDACTED] has provided the Panel with copies of the "ExcelLongitudinal" series of the database from his computer. A review of those files shows that the first file in that series, "ExcelLongitudinal," contains accurate lipids data. The version of the second file in the series

provided by ██████████. "ExcelLongitudinal2," contains total cholesterol values altered to conform to Dr. Poehlman's hypothesis. Interestingly, the file with the same name that ██████████ received from Dr. Poehlman on August 22, 2000, and eventually forwarded to ██████████ in October 2000 for use in connection with the lipids paper, contains altered values for both total cholesterol and the individual cholesterol values. Subsequent versions of the database in the possession of ██████████ contain altered values only for total cholesterol. However, the "corrected" file provided by Dr. Poehlman to ██████████ in October 2000 for the second round of analysis, "ExcelLongitudinal4" (as contained on ██████████ zip disc "B"), contains altered data for all lipids categories.

Consequently, Dr. Poehlman either altered the lipids data in two steps, that is, first total cholesterol then individual components, or he did so at one time but never bothered to paste the individual components into the spreadsheet in his folder on his desktop computer. Assuming the former occurred, it appears that Dr. Poehlman altered the total cholesterol values contained in "ExcelLongitudinal" in his folder on his desktop. ██████████ then updated the file in some other way, added the "2" suffix, and copied (using FTP) the new version to his computer. Later, Dr. Poehlman likely copied "ExcelLongitudinal2" onto his laptop, altered the individual components values, and eventually sent a copy to ██████████ in ██████████ for analysis in the lipids paper. Undoubtedly, Dr. Poehlman expected ██████████ analysis of the lipids to show statistical significance across all variables because he believed that ██████████ was using the "ExcelLongitudinal2" version forwarded by ██████████ (in the Record as "ExcelLongitudinal2[██████████]") when, instead, ██████████ had analyzed a version provided by ██████████ because ██████████ had informed ██████████ that that version was the most recent and should be used rather than the one provided by ██████████.

The Panel has been unable to definitively determine why Dr. Poehlman failed to paste the altered individual component values into the working copy of the database. Nor do we know exactly how Dr. Poehlman provided ██████████ with a version of "ExcelLongitudinal4" with altered values across all lipid variables while the "4" version on Poehlman's and ██████████ desktop computers contained only altered total cholesterol variables. Either Dr. Poehlman renamed his laptop version as ██████████ renamed the master database, or Poehlman engaged in constant copying and pasting using his laptop version and the master database as it was updated by ██████████. In any event, there is no doubt that Dr. Poehlman, and only Dr. Poehlman, had the opportunity, the motive, and the practical ability to fabricate these data. In fact, as is discussed later in this Report, Dr. Poehlman has admitted doing so.

The changes in total cholesterol and constituent lipid values, along with similar falsification and fabrication of values for the insulin, glucose, and triglyceride variables, are ably portrayed by Dr. Poehlman's attorneys in charts provided to the Panel. (R 947-58)

In sum, by July 16, 2000, Dr. Poehlman had manipulated and fabricated TEE data. With respect to lipids, Dr. Poehlman had altered the total cholesterol data by August 17, 2000, and had altered the individual components by August 22, 2000, when he provided "ExcelLongitudinal2; ██████████" to ██████████ for analysis in a paper on lipids. ██████████ receipt in October of two discrepant spreadsheets began the series of events that led ██████████ to formally accuse Dr. Poehlman of scientific misconduct.

C. Dr. Poehlman's explanations for the data irregularities.

There ceased to be any dispute, early in this Panel's tenure, as to the existence of tainted datasets. Nor has there been any genuine dispute that Dr. Poehlman himself was the person who entered the nonexistent laboratory measurements into the electronic spreadsheets. The Panel's Investigation has thus focused principally upon why Dr. Poehlman entered those fictitious data. This task has been made immeasurably easier by the statements and submissions of Dr. Poehlman himself, both personally and through his lawyers. Those statements and submissions, standing alone, would very likely support a finding that Dr. Poehlman falsified and fabricated data as alleged. When combined with all the other accumulated evidence, those items lead inescapably to our conclusion that Dr. Poehlman engaged in scientific misconduct.

While Dr. Poehlman has on several occasions frankly admitted to this Panel, and to others, that he was responsible for the fictitious data, he has steadfastly denied any improper motive. Instead, Dr. Poehlman has offered a series of shifting, dodging, and impossibly contradictory explanations for his actions. Those explanations have ranged from the fanciful, to the fraudulent, to the preposterous.

The Panel has nonetheless carefully considered each of Dr. Poehlman's proffered explanations for the data irregularities, in the genuine hope that we could discern a legitimate explanation for the very troubling allegations brought before us. We have also made a genuine effort to review and examine the datasets themselves, although their size and complexity, along with the number of sets and the long number of years over which they were gathered, have made this task formidable. Ultimately, the body of evidence before us, including both the datasets themselves and various witnesses' descriptions of them, has yielded no genuine or reasonable doubt about several very important facts about these data.

First, as Dr. Poehlman's own statements to this Panel best illustrate, the changes in data, including both the creation of new fictitious data and the reversal of existing T-1 and T-2 values, were made by Poehlman himself and were deliberate and purposeful.

Second, the dates on which Dr. Poehlman entered the manipulated data into the various Microsoft Excel spreadsheets can be pinpointed with some precision, beginning in mid-July 2000 and ending within three months thereafter.

Third, the changes in data all follow a definite and clearly discernible pattern, such that, with every altered variable, an exaggerated trend of age-related deterioration is revealed that is not supported by actual patient measurements.

Each of Dr. Poehlman's explanations for this situation is problematic in some very intractable fashion. The overarching problem with Dr. Poehlman's explanations, of course, is their own inconsistency; Dr. Poehlman has repeatedly told this Panel whatever story was within his grasp at the moment, with no regard whatever for his preceding self-justifications. We nonetheless examine each of those explanations below.

Toward the end of 2000, Dr. Poehlman provided several different and inconsistent explanations for the data changes. In correspondence with [REDACTED] in December (discussed in detail below), Dr. Poehlman offered several explanations for the data discrepancies. He attributed the problems first to [REDACTED] data entry error, then to a crashed hard drive, then to the work of [REDACTED] outside the lab, and finally to Dr. Poehlman's own erroneous superimposition of a "hypothetical" database that he claimed to have created in October 2000. Each of these explanations by Dr. Poehlman has been carefully considered by the Panel and has been found unworthy of belief.

[REDACTED] wrote Dr. Poehlman a letter setting forth the events of October and November 2000, expressing his opinion that Poehlman had acted dishonestly, and asking for an explanation. (R 115-18) Dr. Poehlman replied in an undated letter in which he wrote:

A second layer of problems . . . occurred when I asked [REDACTED] to model our data set. In other words, I provided one of the data sets (probably not the most current one) to [REDACTED] to model the longitudinal A hypothetical longitudinal data set that was generated or modeled that gave approximations of longitudinal changes in our outcome variables. Missing data (ie, a TEE measure) was imputed (or derived) from the cross-sectional data set. This is probably why there is a TEE measure when the sample has not been analyzed. . . . I believe that I saved this modeled data set (by accident) on top of in place of the original data set, which I sent to you, thus creating discrepant numbers in the lipid spread sheet relative to those files.

(R 119) Dr. Poehlman's explanation prompted a responsive e-mail from [REDACTED] on [REDACTED], in which he asked, among other things, for the name [REDACTED] who had purportedly modeled the data. (R 121-22) Disregarding this question, Dr. Poehlman wrote:

My exploratory goal was to examine the variance in longitudinal changes between the two data sets. This probably explains the reversed lipid columns in the hypothetical data set as it was structured to represent a deteriorating profile in most if not all individuals. It is likely that I saved the hypothetical data . . . on top of the data th[at] we collected and had not realized it.

(R 123)

Meanwhile, on Saturday, December 16, 2000, Dr. Poehlman called [REDACTED] at home to assure [REDACTED] that Poehlman had not deliberately falsified any data, although, according to Poehlman, [REDACTED] thought that he had. As his explanation for the data problems, Dr. Poehlman told [REDACTED] that Poehlman and [REDACTED] had been "modeling" the data and that [REDACTED] had created hypothetical numbers that Poehlman had accidentally saved on top of the longitudinal Excel file. (R197-98) This explanation was false, in that [REDACTED] was not working at all with this dataset at that time, and the "hypothetical" numbers were generated and entered by Dr. Poehlman, not [REDACTED]

In fact, [REDACTED] was never asked to "model" the 678 dataset, as Dr. Poehlman originally claimed when confronted by [REDACTED]. The Panel heard directly from [REDACTED]. It is apparent from that testimony and from [REDACTED] written submissions that Dr. Poehlman did not send the 678 dataset to [REDACTED] for "modeling" or for any other purpose. According to [REDACTED] himself, if he did receive a dataset, he took no action with respect to it, nor did he at any time "model" data or create or assist with the creation of hypothetical or simulated datasets. To the contrary, it was not until after [REDACTED] formal accusation that Dr. Poehlman sent a copy of the 678 dataset to [REDACTED] could help Poehlman justify, after the fact, his manipulation of data. (R 256-62, 624-25, 631-33)

Any possible doubt about this point disappeared when the Panel obtained Dr. Poehlman's January 7, 2001, e-mail message to [REDACTED], which reads in its entirety:

Hey [REDACTED]

I sent you an xls spreadsheet. Could you hold on to this? Question...

I am trying to remember how I predicted total daily energy expenditure (TEE) values in individuals who have no value. That is, I have about 51 individuals who have paired values for total daily energy expenditure from doubly labeled water (i.e. TEE 1 and TEE 2). These are longitudinal observations.

I was trying to take these limited measures and predict TEE measures in those individuals who do NOT have values. Is it possible to develop a predictive equation to predict T1 and T2 from missing TEE values? Predictor variables would be RMR and perhaps VO2 max?

I hope I am clear..let me know...Thanks for your help and hope this is not a burden...

Eric..

(R 1759)

This e-mail message demonstrates that before he was formally accused of misconduct at the end of December 2000, Dr. Poehlman had not sent the 678 data set to [REDACTED] nor had he engaged [REDACTED] assistance with the "imputation" of data. The message also makes clear that when Dr. Poehlman inserted fictitious TEE values into the spreadsheet he sent to [REDACTED] in mid-July, he did so without use of a "predictive equation" and without reference to any "predictor variables." Finally, this message, and the accumulation of evidence in the Investigation Record, lead this Panel to find that, despite Dr. Poehlman's prior statements, presentations, and grant applications going back to May 1999 in which he falsely represented that he had repeat measures for TEE by doubly-labeled water for 70, and then 137, subjects, at all times Poehlman knew that there were never more than "about 51" subjects with such paired values. (We will return to this topic later in this Report.)

opportunity to his young subordinates. In particular, Dr. Poehlman asserted that the reversal and alteration of values were merely part of "an exploratory analysis" he conducted with the data.

In particular, in his February 8, 2001, letter to the Review Panel, Dr. Poehlman explained the 678 data irregularities in the following way:

In one or more of the spreadsheets I received [in June and July 2000], I conducted an exploratory exercise with the data. I simulated values with respect to changes in energy expenditure, body composition and plasma lipids. The purpose of this exercise was to generate hypothetical values with age-related trends and to perform some power analyses.

This exploratory exercise served two purposes: First, because our subject population was highly self-selected and truncated, I was exploring whether our cohort reflect age-related trends commonly observed in the literature (i.e., a deterioration in lipids, decline in energy expenditure, etc). In our highly selected population, one may anticipate that age-related changes may be blunted or significantly less than those observed in an unselected, larger population sample. This type of healthy cohort phenomenon could limit the external validity of our findings.

Second, I used simulated data sets to perform exploratory power analyses. . . .

(R 377)

In his February 9, 2001, appearance before the Panel, Dr. Poehlman described the reversal and alteration of the 678 data as resulting in this way:

In June and July of 2000 after determining that there was somewhat of enough information to – to look at some exploratory analysis in our longitudinal study I began, as well as other members in the lab, to examine copies of this longitudinal study.

At this point – I am not an Excel guru at all, and in fact it is probably my biggest weakness in handling these spreadsheets. I had numerous Excel spreadsheets sent to me on my desktop and laptop. These were updated copies or updated versions of these spreadsheets that were being sent to me as patients were being added to the study or doubly labelled water analysis were being measured. I found these multiple files with almost identical names very, very confusing to me.

I want to talk about in one of the spreadsheets that I received I conducted an exploratory analysis with the data. I simulated values with respect to predicted changes in energy expenditure, body composition, and plasma lipids. . . .

So what I did is I created several scenarios. I created, you know, a best case scenario, I created a worst case scenario. With the goal of trying to understand whether I needed to increase the number of patients that we were adding to this longitudinal data set, were we fine with the number of patients that we had. . . .

It appears that one of these spreadsheets or several spreadsheets containing –

containing these hypothesized or simulated values were sent to [REDACTED] I don't have a specific recollection of how one spreadsheet was transmitted because there were multiple spreadsheets in my possession.

(R 596-98, 601) Also at the February 9, 2001, Panel meeting, the following colloquy occurred:

Dr. Haugh: . . . Did you create a spreadsheet with a certain name and then what happened to it?

[Dr. Poehlman:] Well, I did -- I am not quite positive on this so I can't say with absolute certainty, but I was working in a spreadsheet trying to simulate various values for total energy expenditure, skeletal muscle mass, saved it among the list of spreadsheets that I had, and that's my recollection when I was working with this type of data.

...

[Dr. Haugh:] So as part of your simulation you actually did go back and reverse in one of your spreadsheets some of the data in order --

[Dr. Poehlman:] Yes.

[Dr. Haugh:] In order to see what happened?

[Dr. Poehlman:] Yes, yes, yes. I wanted to have an age pattern, an age-related pattern, in our energy expenditure and lipid data.

(R 622, 626)

Both Dr. Poehlman and [REDACTED] asserted that many wholly legitimate purposes are served by the simulation or imputation of data. As [REDACTED] emphasized, however, the threshold and most critical criterion of legitimacy is disclosure -- that is, that the investigator manipulating data clearly and honestly reveal to his colleagues and funding sources precisely what he is doing. (R 414, 664-65, 673) But there is no credible evidence that any person other than Dr. Poehlman was aware of his "exercises" in "simulating values" before he first asserted that claim in response to [REDACTED] questions in December 2000.

Later in 2001, the Panel asked Dr. Poehlman for more information about his "exploratory exercise." In his response, Dr. Poehlman again changed his story, now assigning responsibility for the data alterations to [REDACTED]. In letters dated December 28, 2001, and January 15, 2002, Dr. Poehlman, through his lawyer, accused [REDACTED] of deliberately falsifying data, purportedly for malevolent purposes that neither Dr. Poehlman nor his lawyers have ever identified. Under this scenario, because [REDACTED] had ready and continuing access both to the datasets and to Dr. Poehlman's e-mail account, it was [REDACTED], not Poehlman, who e-mailed false lipids data to [REDACTED] on August 22, 2000. According to Dr. Poehlman's lawyer, [REDACTED] later "manufactured evidence" by delivering to the Panel a version of the "Revised_TEE.s" data set that differed from the one he received on July 16, 2000. (R 2260-64, 2271-72)

██████████ provided the Panel with two versions of the dataset that he received on July 16, 2000, from Dr. Poehlman. The original version provided by Dr. Poehlman to ██████████ on July 16, 2000, is named "RevisedTEE_s." The second version, named "RevisedTEE's," is identical to the original, except that the underscore in the file name was replaced by an apostrophe and some of the data, including TEE data, were re-formatted so that they appear with a decimal point followed by two zeroes. (R 2147-51) As received by ██████████ on ██████████ personal ██████████ mail account, the file appeared to have a size of 60kb, instead of the 45kb specified in the transmission from Dr. Poehlman to ██████████. Although Dr. Poehlman's lawyer has tried to make much of these differences, the two datasets are in fact the same.

These minor differences in apparent file size, and the change of an underscore to an apostrophe, are miscellaneous events in translation between different information transmission systems of the types that each member of the Panel has routinely experienced. Dr. Poehlman has himself noted a similar occurrence: "Of course when we brought [the data] over [from CLINFO] it changed the dates because it read the periods differently than the Excel spreadsheet." (R 616) Without belaboring the point, the Panel simply notes its unanimous opinion that this explanation -- that ██████████ "manufactured evidence," or impersonated Dr. Poehlman for the purpose of transmitting falsified datasets -- is fully unworthy of belief.

Next, Dr. Poehlman and his lawyer submitted to the Panel on February 14, 2002, a document authored and signed by Poehlman (erroneously dated February 18, 2001). There, Dr. Poehlman chastised this Panel for "mistakenly reading his letter of a year earlier, and his concurrent testimony before us, as stating that he had 'simulated' or 'hypothesized' data" (which is exactly what the printed record clearly reveals he told us). In the February 14, 2002, submission, Dr. Poehlman explained that the TEE data were not simulated or hypothesized at all, but rather were "calculated" values, not measured in the GCRC with doubly labeled water, but rather derived from other variables via any of a number of elegant mathematical formulas. (R 932) Neither Dr. Poehlman nor his lawyers have specified which formula was used or where any record of the computations might be.

Were this last explanation true, it would not only render incomprehensible all of Dr. Poehlman's prior efforts to explain the discrepancies; it would also underscore that much more boldly the dishonesty with which Poehlman stated, in his several grant applications and to audiences in Burlington and Long Beach (discussed below), that his research was significant precisely because of his use of the doubly-labeled water method to measure TEE. Indeed, all of Dr. Poehlman's grant applications, public presentations, and other communications about his TEE results stated unequivocally and unmistakably that he had actually measured all the subject patients using the doubly-labeled water method. In his November 1999 grant application "Vermont Longitudinal Study of Aging" Dr. Poehlman declared that his experience with -- and ample supply of -- doubly labeled water justified his request for grant funding from the United States Department of Agriculture. (R 1390)

Barely a week later, however, on February 22, 2002, Dr. Poehlman and his lawyers abandoned that explanation and set forth an elaborate, convoluted, and thoroughly implausible account of computer errors, data entry errors by ██████████, innocent miscommunications by

Poehlman, and [REDACTED] that together supposedly resulted in the data irregularities. (R 1092-1116)

In sum, over approximately the past year and a half, Dr. Poehlman has offered numerous inconsistent and often patently contradictory explanations for the appearance of non-existent data and the alteration of legitimate data, including:

- (1) [REDACTED] "modeled" the data and Dr. Poehlman accidentally replaced the true data with the modeled data;
- (2) [REDACTED] made data entry errors;
- (3) Dr. Poehlman's hard drive crashed, corrupting some of the data;
- (4) Dr. Poehlman "imputed" the data;
- (5) Dr. Poehlman "predicted" the data;
- (6) Numerous individuals involved over the data set's life span caused the errors;
- (7) Dr. Poehlman conducted a "power analysis";
- (8) Dr. Poehlman "simulated" the data, creating several data "scenarios";
- (9) Dr. Poehlman reversed data as part of his simulations;
- (10) [REDACTED] deliberately falsified data and e-mailed that data to others using Dr. Poehlman's e-mail account;
- (11) Dr. Poehlman actually calculated TEE values from other variables, using one or more unidentified mathematical formulas from a laundry list of such equations; and
- (12) The data irregularities occurred as the result of a combination of human error and computer error, which, when misunderstood by [REDACTED], led [REDACTED] to mistakenly and maliciously file charges of misconduct.

In light of the evidence gathered by the Panel, the only aspect of Dr. Poehlman's explanations that is credible is that he himself made the data changes. The evidence, and simple common sense, belie Dr. Poehlman's assertions that he altered and created data for a scientifically sound purpose, just as they belie his efforts to ascribe fault for the fictitious data to others.

In the end, there emerges one unassailable explanation for these events that is both wholly plausible and fully consistent with all other evidence before this Panel: that Dr. Poehlman deliberately, purposefully, and surreptitiously falsified and fabricated data to yield results that would be artificially dramatic, consistent with Dr. Poehlman's own oft-expressed theories about

age-related deterioration, and likely to yield him concrete results in the form of articles published and grants awarded.

The Panel's conclusion is not mollified by the presence, within Dr. Poehlman's laboratory, of original paper patient files that contained true data and that were perhaps generally available to laboratory personnel. The reality is that an established and renowned principal investigator with this volume of complex data could easily generate and propagate false values for months, or even years, without anyone catching on. Certainly, unless someone were to discover evidence of misconduct, as [REDACTED] did essentially by accident, there would never be any cause to suspect problems with the data, and no easy way of verifying problems if they were suspected. By all accounts, the task of verifying and correcting the data in this instance was enormous, taking [REDACTED], a [REDACTED] familiar with the spreadsheets, well over a month to accomplish, after [REDACTED] and [REDACTED] had spent hours examining the patient files to discern the patterns of falsification and fabrication in the Excel spreadsheets. Dr. Poehlman is thus not exonerated by the fact that the paper patient files have remained intact.

D. The importance of the 678 project to Dr. Poehlman.

In his submissions and testimony to the Panel, Dr. Poehlman has indicated that Protocol 678 and any publications that might result from it were largely unimportant to him, and that if he did inadvertently share altered data sets with his subordinates, he never intended that the data be published. However, the evidence before the Panel clearly demonstrates that Dr. Poehlman has misstated the significance of Protocol 678 to him and his laboratory.

Dr. Poehlman's assertions to this effect were first presented on January 18, 2001, when he stated, through his lawyer, that "the data at issue was [sic] never seriously considered for inclusion in an article for publication (despite the hopes of [REDACTED] much less submitted to any journal for consideration." (R 322 at fn. 4) Soon thereafter, in his testimony before the Panel on February 9, 2001, Dr. Poehlman described Protocol 678 as follows:

This project in general was not a high priority for me, we were much more involved in other studies that were ongoing. This was the study that we tried to keep going over time, but it was an afterthought, to be quite honest. I was committed to doing longitudinal studies, but we were actually much more focused on our other intense studies that were ongoing.

(R 599-600) Dr. Poehlman also contended that he was not very interested in producing publications from the Protocol 678 dataset and that it was [REDACTED], not Poehlman, who was focused on writing a paper on lipids from that dataset. Thus, Dr. Poehlman testified before the Review Panel as follows:

I want to make it clear that [REDACTED] played no role in the experimental design, the data collection, or the experimental analysis until he was given a copy of a spreadsheet to [REDACTED]

In the summer and early fall of 2000, [REDACTED] and [REDACTED] were also examining these datasets. The examination of these datasets by me are viewed as pedagogical exercises for exploratory analysis to focus these individuals in a particular project, and it was this point that [REDACTED] had stated to me [REDACTED]

For this reason, and actually, due to the lack of other work for him in the lab, I did allow him or assign him to look at one of the lipid databases contained in my possession. Personally I did not believe that there was genuinely new information to be gained from this dataset given that it was a low priority for me.

[REDACTED] wanted - [REDACTED] was very motivated to write a manuscript, but given that [REDACTED] was clearly indicated to me and other individuals as being in [REDACTED] I was unenthusiastic about this. In fact I indicated to [REDACTED] that even for some reason you got a manuscript together I would be left with the revisions, if we had even sent it to a journal, and this was a task I certainly wanted to avoid.

(R 594, 599, 600)

Dr. Poehlman's own words and actions resoundingly refute his suggestions that Protocol 678 was unimportant and that it was only with a degree of reluctance or ambivalence that he permitted [REDACTED] on lipids from the 678 dataset. To start, on June 1, 2000, Dr. Poehlman sent [REDACTED] an e-mail message with a working draft of an introduction to the longitudinal study that would "determine the role of physical activity as a modulator of changes in daily energy expenditure and body composition using direct assessments." (R 1763)

Next, on June 19, 2000, Dr. Poehlman sent [REDACTED] an e-mail message with text relative to longitudinal studies of physical activity. (R 1764) On July 16, 2000, Dr. Poehlman sent to [REDACTED] as an e-mail attachment, the adulterated dataset entitled "RevisedTEE_s." (R 1765) In this dataset, all 136 patients had TEE values for both visits. (R 1714-16) In his accompanying e-mail message, Dr. Poehlman stated:

[REDACTED]

Finally found the corrected TEE file. We need to do the following"

1) I have entered additional TEE's and corrected misentries. . . .

Don't fool with these numbers...I spent alot of time over the weekend working on them. I want them pasted into the most current longitudinal worksheet. We will then proceed to do statistical analyses. . . .

This will be an excellent paper.”

(R 1765)

On July 18, 2000, Dr. Poehlman sent an e-mail message to [REDACTED] and [REDACTED] again relative to analysis of the longitudinal TEE data for their paper. (R 1766) On July 28, 2000, Dr. Poehlman sent [REDACTED] an e-mail message with a reminder to include, “in our paper,” reference to an article in the Journal of Applied Physiology. (R 1767) On July 31, 2000, Dr. Poehlman sent [REDACTED] an e-mail message with further thoughts “about things we can do to move ahead the longitudinal paper.” (R 1768) And on August 21, 2000, Dr. Poehlman sent [REDACTED] an e-mail message with some points that [REDACTED] should include in the introduction to their paper. (R 1769-70)

On August 22, 2000, Dr. Poehlman sent an e-mail message to [REDACTED] to which was attached a version of the adulterated dataset labeled Excellongitudinal2. (R 2000, 2002) Dr. Poehlman sent the spreadsheet so that [REDACTED] could write a paper about the very same lipids data that Dr. Poehlman has more recently urged us to view as unworthy of serious scientific attention.

Similarly, on September 7, 2000, Dr. Poehlman sent an e-mail to [REDACTED] and [REDACTED] regarding Poehlman’s “plan for the DEXA longitudinal study.” Dr. Poehlman noted:

We should be able to put together a strong paper within a month or two. [REDACTED] should be used as a reference for [REDACTED] since [REDACTED] has experience with reviewing and writing manuscripts.

(R 153)

On October 2, 2000, Dr. Poehlman sent [REDACTED] an e-mail thanking [REDACTED] for [REDACTED] “hard work” on a paper Poehlman and [REDACTED] were to publish in [REDACTED]. In the same e-mail Dr. Poehlman told [REDACTED] “Let’s move next to your lipid paper!” (R 170)

Next, on October 16, 2000, Dr. Poehlman gave to [REDACTED] as an e-mail attachment, the adulterated dataset identified by this Panel as Excellongitudinal4. In the accompanying e-mail message, Dr. Poehlman wrote:

Looked over and corrected some lipid data. Here is worksheet with corrected values. I would re-calculate means and SD’s for the lipid data. I would include in your tables insulin and glucose as well.

(R 177) Then on October 17, 2000, Dr. Poehlman e-mailed [REDACTED] and [REDACTED] as follows:

I want to meet with both of you to briefly discuss the next step on your papers and to discuss the scientific rationale underlying each of the manuscripts.

Also, I want both of you to work and help each other out on these papers. Both of you will be first authors on your respective manuscripts and co-authors on the other paper, provided that adequate first drafts can be generated.

(R 180)

It is also notable that the Record includes Dr. Poehlman's June 10, 2000, memorandum to the GCRC Advisory Committee, requesting to add 240 subjects to the 678 protocol to be tested over the next three to five years. (R 1526) It is difficult to reconcile Dr. Poehlman's testimony to the Panel that 678 was an "afterthought" with his request to add 240 subjects to the study.

That same request by Dr. Poehlman noted: "We presently have a R01 grant submitted to fund our longitudinal work." (R 1526) Actually, during 1999 and 2000, Dr. Poehlman submitted no less than three applications for federal grant funding to support his longitudinal research, two of which sought \$1,887,500 in Public Health Service funding for the "Vermont Longitudinal Study of Aging."

Dr. Poehlman's longitudinal data were also the centerpiece of the two lectures and slide shows he presented to audiences in Burlington, Vermont, and Long Beach, California, in October and November 2000. (These lectures are discussed further below.) The videotape recording of Dr. Poehlman's Burlington presentation belies any notion that the Protocol 678 data were an "afterthought" or unimportant to him.

In sum, Dr. Poehlman's claim that the 678 study was of no particular significance to him and that he had no strong desire to produce publications from it in the fall of 2000 is simply false. Notwithstanding Dr. Poehlman's labeling Protocol 678 an "afterthought," the study served as the basis for several major grant applications by him. Further, the e-mail communications from Dr. Poehlman to [REDACTED], [REDACTED], and [REDACTED] directly contradict Poehlman's testimony that he was "unenthusiastic" about [REDACTED] writing a longitudinal paper on lipids from the 678 dataset. In fact, Dr. Poehlman was interested enough in producing such a paper, as well as other papers from that dataset, that in August 2000 he provided an altered version of the dataset to [REDACTED] with the request that [REDACTED] write a lipids paper from it.

Finally, in light of Dr. Poehlman's own testimony and the submission he provided from [REDACTED], that he himself did not enter data into spreadsheets or manage databases, it is at least unusual that he "entered additional TEE and corrected misentries" in the dataset and "spent a lot of time over the weekend [of July 14-15, 2000] working on them," especially if 678 was, in fact, of little importance to him. It is also noteworthy that Dr. Poehlman, well in advance of the June or July 2000 time period he testified about, engaged in detailed analysis of the 678 data, directed several individuals to write papers from that data, and prepared two R01 grant applications to PHS and one application to the United States Department of Agriculture. Those grant applications and their relevance to this Investigation are discussed next.

E. Dr. Poehlman included false TEE data in his federal grant applications connected to Protocol 678.

Dr. Poehlman testified before the Review Panel that:

In June and July of 2000 after determining that there was somewhat of enough information to -- to look at some exploratory analysis in our longitudinal study I began, as well as other members in the lab, to examine copies of this longitudinal study.

(R 596) However, the evidence shows that Dr. Poehlman's interest in the longitudinal data -- and his falsification and fabrication of those data -- began well before the summer of 2000, when [REDACTED] over management of the 678 dataset. Contrary to his testimony, it is clear that Dr. Poehlman had been working with the 678 data for some time. That summer, after [REDACTED] and [REDACTED] and Dr. Poehlman entrusted the dataset to [REDACTED], was a turning point only in that the falsified data then began to appear in the Microsoft Excel spreadsheets that [REDACTED] and Poehlman shared with [REDACTED] and [REDACTED].

Earlier, in May 1999, November 1999, and February 2000, Dr. Poehlman authored and submitted, as principal investigator, federal grant applications for his "Vermont Longitudinal Study of Aging" that contained false and fabricated data purportedly derived from repeat measurements of total energy expenditure using doubly labeled water. (R 1312-71, 1372-1452, 1469-1559) Thus, Dr. Poehlman must have taken interest in the data (and conducted his "exploratory analysis") well in advance of the summer of 2000. The first and third grant applications were submitted by Dr. Poehlman to NIH and were assigned identification numbers 1R01 AG17906-01 and 1R01 AG17906-01A1, respectively.

As should be evident from the discussion in the preceding section, the Panel has paid particular attention to Dr. Poehlman's grant applications, first, because he himself untruthfully insisted to us that the data gathered under Protocol 678 were never the subject of any grant application. (Dr. Poehlman's assertion that the data were not gathered with any federal financial support is also deceptive; that topic will be discussed further below.)

It was only through the Panel's investigative efforts, and not with any cooperation from Dr. Poehlman or his lawyers, that we were able to obtain these grant documents at all. Moreover, when we provided Dr. Poehlman with portions of the documents and sought from him his own records, he provided a version of the first R01 grant application that differed from the one actually submitted to the Public Health Service in May 1999. (R 1048-1088)

The Panel's interest in the existence and authenticity of these documents was soon overtaken, however, by our interest in their contents. There are a number of statements by Dr. Poehlman in the "Vermont Longitudinal Study of Aging" grant applications that the Panel found noteworthy. For example, in the February 2000 application, citing "unpublished data," Dr. Poehlman wrote:

We compared this rate of change [between age and physical activity] with 130

individuals first examined in 1993-94 and again in 1998-99. This provided 5.6 yrs of follow-up data (see Table 1 in Preliminary Data Section). Longitudinal changes in physical activity showed a decline of 160 kcal/day/5yr, or 2.5 times the rate of decline observed in cross-sectional data.

(R 1488)

In Figure 2 of this application, he set forth changes in the components of daily energy expenditure he purportedly derived from "recently examined preliminary longitudinal data" from his laboratory. (R 1489) Further on, this application discusses again the existence of T-1 data for 130 individuals, and paired T-1 and T-2 data "for 70 individuals." (R 1493) Dr. Poehlman earlier set forth these same representations as to the number of T-1 and repeat TEE values in the two other grants submitted in May 1999 to NIH and in November 1999 to USDA. (R 1312-13, 1330, 1337-38, 1372, 1374, 1375-76)

Unfortunately, it is not true that there were 130 individuals tested in Dr. Poehlman's laboratory in 1993-94 using doubly-labeled water ("DLW") for total daily energy expenditure. The untainted spreadsheet entitled "678BodyComp&TEE," sent by ██████████ to Dr. Poehlman on July 14, 2000, so that Poehlman could "verify" the data, contains 56 patients with TEE values at T-1, 108 patients with TEE values at T-2, and only 51 patients with TEE values at both T-1 and T-2. (R 192, 205-06)

Similarly, the verified spreadsheet entitled "678DataBaseWithonlyonevisit 1," which ██████████ created in December 2000 after confirming database values against the patient (paper) files, contains 56 patients with TEE values at T-1, 113 patients with TEE values at T-2, and only 54 patients with values at both T-1 and T-2. (R 1636-45) The slight increase in T-2 TEE entries reflects the testing of a few additional subjects between July and December 2000, but at no time were there ever more than 54 paired values for this variable.

In a statement provided by Dr. Poehlman's ██████████ ██████████ to the Review Panel on January 22, 2001, ██████████ expressly noted that only 99 of Dr. Poehlman's study subjects "had DLW in the initial visit under the protocol #557." (R 211) (Protocol 557 was Dr. Poehlman's PHS grant "Energy Metabolism in Alzheimer's Disease," No. R01 AG07857, referenced by ██████████ in his Declaration (R 211, 1948). When ██████████ ██████████ in the midst of the world-wide shortage of DLW, the 678 protocol had accrued only about a hundred subjects with TEE values at T-1 (R 1948-49), some of whom were later deleted from the database.) Dr. Poehlman himself submitted ██████████ statement to this Panel as evidence in support of his cause. (R 364, 448-53) ██████████ is acknowledged by all, including Dr. Poehlman, ██████████ producing the most accurate records of DLW administration at the University of Vermont. (R 94, 192-93, 195-96, 206, 364, 448-53, 2059, 2095, 2134-35, 2172)

More importantly, ██████████ testified that at no time were there more than 54 subjects with TEE values at both T-1 and T-2. (R 211, 214) This figure is the same as ██████████ and is well short of the 70 Poehlman set forth in his grant applications. (Later, in October 2000, the supposed number of paired TEE values, as announced by Poehlman in two public presentations,

had reached 137; those presentations will be discussed further in this Report.)

In his January 7, 2001, e-mail to [REDACTED] shortly after he was formally accused of scientific misconduct, Dr. Poehlman admitted that only this smaller number of patients had actually been tested with doubly labeled water: "I am trying to remember how I predicted total daily energy expenditure (TEE) values in individuals who have no value. That is, I have about 51 individuals who have paired values for [TEE] from doubly labeled water (ie, TEE1 and TEE2)." (R 1759)

Moreover, in his testimony before us on February 9, 2001, Dr. Poehlman explained that "we had run out of doubly labeled water and instead of having a hundred and 50 people we had 50 people." (R 623)

In sum, all three of the grant applications we have reviewed contain TEE data, and tables and statistics based on those data, that could not possibly have been reflective of the true state of Dr. Poehlman's laboratory measurements. Although these falsifications and fabrications were not known to [REDACTED] or other witnesses when these proceedings began, they represent yet another example of scientific misconduct arising out of Dr. Poehlman's longitudinal study of aging. Another example – the fabrication of muscle biopsy results – is discussed next.

F. Dr. Poehlman presented fabricated muscle biopsy data in the federal grant applications he submitted in November 1999 and February 2000.

On May 27, 1999, Dr. Poehlman signed and submitted an application to the Public Health Service for a grant to support the "Vermont Longitudinal Study of Aging." That application included measurements of two women who each had undergone muscle biopsies for the purpose of measuring protein synthesis. (R 1339-40) At that time, the methodology for measuring protein synthesis was still in the developmental stage.

[REDACTED]
[REDACTED]
(R 1846-47)

The response from the National Institutes of Health to Dr. Poehlman's first R01 grant application, AG 17906-01, was not uniformly enthusiastic. Among other concerns, the reviewers questioned Dr. Poehlman's ability to recruit and retain older volunteers who would undergo muscle biopsies on two separate occasions several years apart: "There is also concern that the application does not adequately account for dropouts. . . . The addition of muscle biopsies will have a definite effect on likelihood of dropout." (R 1304)

On November 10, 1999, Dr. Poehlman prepared and submitted to the United States Department of Agriculture an application for a grant to support the "Vermont Study of Aging, Physical Activity and Protein Synthesis." [REDACTED] and the project summary is virtually identical to the one in the application earlier submitted to NIH. In this application, Dr. Poehlman described the results of muscle protein synthesis measurements of five older adults, three men and two women, taken on two occasions, first in 1994 and then in 1999. A graph of the "longitudinal changes in protein synthesis," and a

comment with detailed analysis of these data, is followed by Dr. Poehlman's summary statement:

we have documented our experience to recruit, retain and follow-up older individuals in a longitudinal study; perform measures of energy expenditure, skeletal muscle mass and protein synthesis using stable isotopes and imaging techniques and show preliminary data that support our hypotheses.

(R 1385)

A virtually identical graph and description of these longitudinal muscle biopsies appears in Dr. Poehlman's second R01 "Vermont Longitudinal Study of Aging" application to the Public Health Service, signed by Poehlman on February 25, 2000, and submitted shortly thereafter. (R 1495) This time the NIH reviewers praised the muscle protein synthesis portion of Dr. Poehlman's renewed application: "The investigators provide new, strong preliminary data for 5 members of their cohort showing substantial decreases in protein synthesis over a 5-year period. . . Thus, the study cohort should be sufficiently large to test this hypothesis. . . ." (R 1460)

During the course of its Investigation, this Panel shared with ██████████, for his comment, page 27 of Dr. Poehlman's second NIH application. In his written response and his testimony before the Panel, ██████████ explained why these longitudinal protein synthesis measurements, purportedly derived from muscle biopsies, could not possibly have had a factual basis. In his own words, ██████████ was "deeply alarmed to see these data represented in a grant application ██████████ (R 1847) That is, as ██████████ demonstrated to the Panel, it was impossible for the claimed repeat muscle protein synthesis measurements to have taken place.

Before the Panel called this matter to ██████████ attention, he had never been provided a copy of the renewed NIH grant application as submitted, although he had asked Dr. Poehlman for it "on more than one occasion." (R 1846) ██████████ did provide to the Panel, ██████████ a copy of the May 1999 grant application, which contained the preliminary measurements ██████████ performed on two women. (R 1851-98) He also provided the Panel with a copy of the USDA grant application (R 1372-1452, 1889, 2204), which he noted, "much to [his] alarm," contained the same suspect longitudinal data (R 1851). Dr. Poehlman had apparently provided this grant application to ██████████ after it had been submitted, but ██████████ had not then reviewed it or discovered the false representations. (R 1851, 2201)

In response to this information, Dr. Poehlman has made no effort to persuade the Panel that the repeated muscle protein synthesis measurements had in fact ever been performed. Instead, Dr. Poehlman argued that ██████████ must have been the one to place the false and fabricated representations in the various grant applications, and that ██████████ was falsely accusing Poehlman of doing so. (R 1132-36) The Panel finds Dr. Poehlman's explanation unworthy of belief.

In sum, the totality of the pertinent information in the Record has led the Panel to conclude, by clear and convincing evidence, that Dr. Poehlman fabricated data relative to muscle

protein synthesis measurements and submitted those fabricated data as true to federal funding agencies in two separate grant applications in November 1999 and February 2000.

H. Summary and Conclusion.

The Panel finds, by clear and convincing evidence, that Dr. Poehlman deliberately fabricated and falsified data related to Protocol 678 and employed those fabricated and false data to enhance and exaggerate his research results and improve his chances for publication and federal funding. The Panel expressly finds, beyond any reasonable doubt, that all contrary explanations offered by Dr. Poehlman for these data irregularities are false.

II. Dr. Poehlman published false and fabricated data in the Annals of Internal Medicine in 1995.

As noted earlier in this Report, the Panel's Formal Inquiry process was governed by Section 265.3 of the Officers' Handbook and the federal regulations governing scientific misconduct inquiries, 42 C.F.R., Part 50, Subpart A. During the Formal Inquiry, the Panel on January 30, 2001, interviewed [REDACTED]. A summary of that interview can be found in the Panel's Report of Formal Inquiry. (R 290-92)

In that interview [REDACTED] discussed his concerns about the accuracy of primary data reported in a paper in which Poehlman was the lead author [REDACTED]. That publication, "Changes in Energy Balance and Body Composition at Menopause," was published in the Annals of Internal Medicine 123:673-675, 1995. As explained by [REDACTED] in that interview:

That was a longitudinal study of menopause on thirty-five women [which] was originally cross-sectional and involved women with ages ranging from 19 to approximately 90 and was published in the American Journal of Physiology in 1993. In this 1993 study, many changes were observed to coincide with the menopause transition. Shortly after the publication of this study, [REDACTED]. Several months after [REDACTED] departure [Poehlman] arrived in Maryland. While at Maryland, [Poehlman] submitted a grant to the NIH to examine using a longitudinal design [to test] the effects of the menopause transition on energy expenditure and metabolic function. In this grant, there was preliminary data on menopause-related changes in metabolism, body composition and several other variables. Repeat examinations on these women were conducted over an average time period of six years after their first evaluation. [Poehlman] explained to [REDACTED] that this data was derived from repeated studies (longitudinal) on a subset of women who were studied as part of the 1993 American Journal of Physiology paper. Shortly after the submission of the grant, this data was submitted for publication and was published in its final form in 1995 in the Annals of Internal Medicine [REDACTED]. Some time after publication of the data, [REDACTED] developed concern about the originality of the data. Specifically, [REDACTED] was

concerned that since [Poehlman] was here initially at UVM for only about a six-year period, and they were gathering the first group of patients over several years, it would be difficult for [Poehlman] to obtain six-year follow-ups on those individuals before departing for the University of Maryland. [REDACTED] has produced figures and graphs of the data for which he was provided mean and standard deviation values. However, [REDACTED] has not seen the original data contained in the 1995 Annals of Internal Medicine paper.

(R 291-92)

In its Report of Formal Inquiry, the Panel expressly noted that the question raised as to the accuracy of the data presented in Dr. Poehlman's Annals of Internal Medicine article would be investigated pursuant to Section 265.4 of the Officers' Handbook. (R 6)

Dr. Poehlman responded directly to the Panel on this issue by letter dated November 20, 2001. (R 708-09) His response may be summarized as follows:

- (i) even after he left the University of Vermont in 1993 for the University of Maryland, patients continued to come to the University of Vermont for data collection;
- (ii) the patients discussed in the 1995 Annals of Internal Medicine paper included additional data collected since 1987 up until the paper was published; and
- (iii) he could not locate the actual patient data underlying the Annals paper due to the passage of time and a purported University of Vermont requirement that "all raw data should be stored for a period of 5 years."

On December 18, 2001, the Panel wrote Dr. Poehlman with a number of questions and requests for documents. In that letter, the Panel posed the following four questions of Dr. Poehlman pertaining to the Annals paper:

1. With respect to the subcontract that you recall made this data collection possible, can you please tell us who was the researcher at UVM identified as the principal investigator? Can you recall which individuals were involved in that data collection?
2. To whom were these patients accrued? To which GCRC protocol?
3. Despite diligent efforts, the Panel has been unable to find the data you published in the 1995 Annals article. Can you provide us with any documents, information, recollections, or clues that will help us to find these data? How would we expeditiously locate the actual patient records for the subjects of that article/study?
4. Were the data collected from these 35 or 38 women published, reported, or presented by you at any time following the 1995 Annals article? If so, please

identify the study, publication, or presentation.

(R 722) By letter dated March 15, 2002, Dr. Poehlman provided the Panel with his responses:

I have been painstakingly going through copies of individual subject folders contained in the many boxes which I moved with me. Thus far, I have found handwritten notations in the copies of files of 35 identified and 2 unidentified women indicating they were contacted for followup in the menopause study.

(R 1138) The patient names and any available identifying characteristics that the Panel could glean from Dr. Poehlman's submission have been summarized for the Record. (R 1569-70) Dr. Poehlman also provided the Panel with a memorandum dated March 18, 2002, from [REDACTED]

[REDACTED], dated March 23, 2002. (R 1780-81, 1941-43) Those two statements did not provide the Panel with any concrete assistance in judging whether Dr. Poehlman in fact falsified or fabricated the patient data reported in the Annals paper.

The Panel's efforts to get to the bottom of the concerns about the Annals of Internal Medicine paper have been difficult and time-consuming. On the one hand, the Panel has accorded Dr. Poehlman a strong presumption of innocence as to this charge, as it has with respect to the other charges of scientific misconduct. On the other hand, Dr. Poehlman's own accounts reveal a pattern of falsification and deception relative to this allegation.

One such example of Dr. Poehlman's misrepresentations may be found in his March 15, 2002, letter to the Panel concerning the Annals paper. Dr. Poehlman wrote there that:

Not all subjects were admitted to the Clinical Research Center for the second test. The 1993 paper specifically notes that on the initial visit subjects were tested "after an overnight fast in which the volunteers slept in the Clinical Research Center" (p. E450). However, in the 1995 paper there is no mention of an overnight stay in the Clinical Research Center. This alteration in the text of the methodology section was accurate. [REDACTED] informed me that some of the subjects were tested on a walk-in basis with no overnight stay in the Center.

(R 1140) (emphasis as in original) Dr. Poehlman clearly meant to suggest that some of the 38 patients who were the subject of the Annals paper might not have medical records available relating to the testing because not all were admitted to the General Clinical Research Center (GCRC). Dr. Poehlman's statement and the intended implication are false.

First, it is clear from the Annals paper that all 38 women who were the subject of the article were admitted to the GCRC on an overnight basis. The "Methods" section of the paper states in pertinent part:

Thirty-eight healthy, non-smoking, premenopausal white women (age range, 44 to 48 years) were tested for baseline metabolic characteristics. . . .

Six years later, patients participated in an identical series of metabolic tests, for which identical testing equipment was used.

(R 1566) Similarly, the “Timing and Description of Metabolic Tests” section of the paper states as follows:

The study methods have been previously described (4). Briefly, resting metabolic rate was measured for 45 minutes on the morning (0730 hours) after a 12-hour overnight fast.

(R 1567) These portions of the Annals paper demonstrate that Dr. Poehlman himself acknowledged therein that all 38 women were admitted to the GCRC for both of the metabolic testings, six years apart, that were the focus of the paper.

Moreover, in 1997 Dr. Poehlman published a paper entitled “Menopause-associated changes in plasma lipids, insulin-like growth factor I and blood pressure: a longitudinal study” in the European Journal of Clinical Investigation 27, 322-326, 1997. (R 1571-75) The patients discussed in that article were the same 38 women who were the subject of the Annals of Internal Medicine paper. The 1997 paper expressly states that all 38 women were admitted to the General Clinical Research Center:

Timing and description of tests

All blood draws were performed after an overnight stay in the General Clinical Research Center and after a 12-h fast.

(R 1572)

This instance represents but one example of Dr. Poehlman’s ongoing efforts to distort the facts and deceive this Panel. Another example is Dr. Poehlman’s representations in his letters to the Panel dated November 20, 2001, and March 15, 2002, that the patients discussed in the Annals article were tested after Poehlman left UVM in 1993, pursuant to a subcontract with the University of Maryland. Only one such subcontract, supporting Poehlman’s grant “Energy Metabolism in Alzheimer’s Disease,” AG-07857 (R 1238-1301), funded GCRC data collection during that time, and those subjects did not include menopausal women. The subjects tested at the GCRC under that grant were all elderly, significantly older than the 38 women tested and reported in the Annals paper. The results of that grant were reported in Dr. Poehlman’s article, “Daily energy expenditure in free-living non-institutionalized Alzheimer’s patients,” Neurology, 48:997-1002, 1997. (R 1576-81)

Under the University of Maryland subcontract, all patient tests or data collection performed by [REDACTED] were to be done in connection with the Alzheimer’s study, not as part of a longitudinal metabolic study of menopause as suggested by Dr. Poehlman. Indeed, it would have been inappropriate for Dr. Poehlman to use funds from the Alzheimer’s grant to pay [REDACTED] to conduct unrelated research. Further, even if subjects had been newly accrued at UVM in Poehlman’s absence, they could not possibly have been re-tested

at a “six-year follow-up” before Poehlman published his results in the Annals in 1995.

The Panel also finds unpersuasive Dr. Poehlman’s claim that he cannot produce actual patient data records that would, at a minimum, identify by name, date of birth, and date of testing, the 38 women who were the subject of the Annals paper. Dr. Poehlman on March 15, 2002, wrote to the Panel:

[I]t is contrary to UVM’s own rules and regulations that I am required to provide documentation for a study in which data collection began almost 12 years ago and was completed over 7 years ago. UVM specifically states in the “Guidelines For Responsible Conduct in Research for the Department of Medicine on page 3 of its handout:

“All raw, unedited data supporting published results should be stored for a period of at least 5 years. Specifically, all hard copy (such as laboratory notebooks and computer or other instrument printouts), original specimens, e.g. gels, blots, histologic slides, photographs, and digital media (computer disks) should be available. All computer disk-stored data should be copies [sic] onto additional back-up disks.

(R 1139) (emphasis as in original)

Dr. Poehlman’s argument is without merit. First, the Panel is unimpressed with his invocation of the University’s five-year data retention rule, which, as Dr. Poehlman portrays it, states a minimum requirement; in no way would it be “contrary to UVM’s own rules and regulations” for him to preserve data beyond that term. Indeed, a scientist like Dr. Poehlman, who seeks to build his career on long-term longitudinal research, would be ill-advised to discard raw data at any time, much less in such a short time as five years, merely because a general University rule might arguably allow him to do so.

Second, even if the five-year minimum retention requirement were meaningful in this context, pursuant to it Dr. Poehlman should be able to produce actual data identifying the 35 women as well as the dates and results of the testing. As discussed above, Dr. Poehlman published in 1997 a follow-up study to the Annals paper in the European Journal of Clinical Investigation 27, 322-326, 1997. Moreover, in 2000, Dr. Poehlman published yet another paper, “Body Fat Distribution, the Menopause Transition, and Hormone Replacement Therapy,” Diabetes & Metabolism, 26:12-20, 2000, analyzing data allegedly obtained from the same 38 women. In that paper, Dr. Poehlman discussed and cited the 1995 Annals of Internal Medicine paper:

In the study by Poehlman and colleagues [75], 18 women became post-menopausal over the follow-up, while 17 remained premenopausal. Significant increases in WHR were noted only in women who changed their menopause status.

(R 1584)

Even more importantly, in that paper – published in 2000 – Dr. Poehlman analyzed “preliminary evidence” from his laboratory at UVM and set forth his “unpublished results” from his “6 year follow-up of 38 women.” The discussion that accompanies a graph (Fig. 2) plotting “changes in respiratory quotient” over a six-year period includes this passage:

preliminary evidence from our laboratory showed that the respiratory quotient (RQ) increased in women who became postmenopausal after a 6-yr follow-up, whereas it did not change in women who remained premenopausal (*Fig. 2, Poehlman et al. unpublished results*).

(R 1585) Because these “respiratory quotient” results were not previously published, the University’s “five-year-minimum” rule would require Dr. Poehlman to still have the underlying data in his possession today.

Furthermore, Dr. Poehlman included data about these same menopausal women within a Program Project Grant (PPG) application he submitted to NIH in June 1998 and resubmitted in January 2000. In each application, entitled “Effects of Menopause and Hormone Replacement on Visceral Fat and Insulin Sensitivity,” Dr. Poehlman referenced patient data analyzed in the Annals of Internal Medicine article. (R 1559a-59f). During the Panel’s Formal Inquiry, anticipating Dr. Poehlman’s second re-submission to the NIH of that PPG application, due on February 1, 2001, the Panel’s legal counsel asked Dr. Poehlman on January 22, 2001, for a complete copy of that application in its then-current state. (R 326-27) Dr. Poehlman reported that he had decided not to submit the application, and we thus have no documented evidence of its contents. Nonetheless, both the first and second submissions of that PPG application contain the suspect data first published in the Annals in 1995.

At the request of this Panel, Richard Galbraith, M.D., Ph.D., the Program Director at the General Clinical Research Center, and Diantha Howard, M.S., the Informatics Manager, conducted an exhaustive search to find records of the data reported in the 1995 Annals of Internal Medicine paper. Their January 16, 2002, and March 28, 2002, reports establish that Dr. Poehlman did not retest 38 women six years apart as reported in the Annals article and thereafter. Indeed, after a diligent search, the GCRC officials determined that not a single patient of the 35 identified by Dr. Poehlman in his letter of March 15, 2002, had two admissions to the GCRC between 1986 and 1995, nor did any other women whose ages matched those described in Poehlman’s publications. (R 1818-19, 1822-27)

The Panel therefore finds, by clear and convincing evidence, that Dr. Poehlman intentionally fabricated the patient data analyzed in the 1995 Annals of Internal Medicine, the 1997 European Journal of Clinical Investigation, and the 2000 Diabetes & Metabolism papers and also included those data in June 1998 and January 2000 PPG applications submitted to NIH. The Panel further notes that the papers, as acknowledged therein, were supported by federal funding, including the following grants: National Institute of Aging Grant AG-07857, Research Career and Development Award K04-AG00564, a Predoctoral Training Grant T32-AG00219, and Special Emphasis Research Career Award K01-AG-00657. The studies and resulting

articles were also supported in part by National Institutes of Health General Clinical Research Center Grant RR-109.

III. Dr. Poehlman presented false and fabricated data to public and scientific audiences in October and November 2001.

Early in 2001, during our Formal Inquiry, the Panel learned from [REDACTED] of a second additional instance of possible scientific misconduct on the part of Dr. Poehlman.

[REDACTED] most recent statement to the Panel described an event at the meeting of the North American Association for the Study of Obesity (NAASO) that began in Long Beach, California, on October 29, 2000. At that meeting, Dr. Poehlman received an award from the Lilly pharmaceutical corporation. As part of the award ceremony, Dr. Poehlman presented a PowerPoint slide presentation to an audience of about a hundred meeting attendees. Both [REDACTED] and [REDACTED] (R 2003)

One slide from Dr. Poehlman's presentation, number 72 (R 1732), showed data that [REDACTED] recognized as coming from Protocol 646, [REDACTED]. Those data involved visceral fat loss in menopausal women undergoing weight reduction, with comparative outcomes for women who were or were not taking estrogen supplements. The subject women were asked in a questionnaire whether they were taking estrogen. (R 2003-04)

During the NAASO session, Dr. Poehlman's slide 72 showed a statistically significant relationship between visceral fat loss in women and the use of estrogen. [REDACTED] was "quite struck" by the claim, [REDACTED] showed no significant difference in weight loss between women who reported taking estrogen and those who did not. [REDACTED] doubted then, and continues to doubt, whether estrogen replacement therapy would have such a dramatic effect on weight loss in menopausal women. (R 2004)

After the award presentation, while out running with Dr. Poehlman, [REDACTED] asked where were the data underlying Poehlman's claim, but he received no meaningful response. [REDACTED] then offered Dr. Poehlman accurate, blood-based estrogen values from his own laboratory, which would have provided much more scientifically accurate and reliable measures than the questionnaire responses utilized in Protocol 646. Poehlman expressed no interest in receiving the data offered by [REDACTED]. (R 2005)

The Panel is astonished that a scientist would pass up the opportunity to replace questionnaire data with actual blood levels, particularly after presenting to an audience of scientists a dramatic finding based on recollection or self-reported treatment adherence.

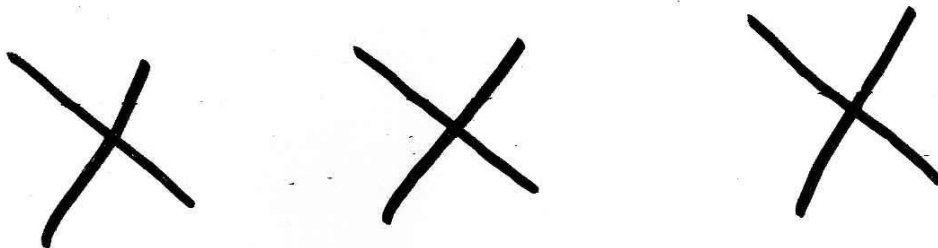
During our investigation, the Panel retrieved the PowerPoint slide presentation from Dr. Poehlman's computer, which revealed that the slides had last been modified on October 28,

2000, one day before the beginning of the NAASO meeting. Those slides are contained within the record in both electronic and paper form. The Panel has concluded, based on [REDACTED] testimony, Dr. Poehlman's failure to adequately rebut that testimony, and the slide itself, that slide 72 describes data that were false and fabricated by Dr. Poehlman.

On November 20, 2001, Dr. Poehlman wrote to the Panel and stated, in response to [REDACTED] statement: "First, [REDACTED] has apparently forgotten that the slide was very clearly labeled hypothesized. A print out of the slide is attached (attachment 1)." (R 710) While Attachment 1 to Dr. Poehlman's letter (R 713) does show a slide labeled "hypothesized," that slide was not so labeled when it was presented in late October 2000 to the Long Beach audience. (R 1732) Neither was it so labeled when Dr. Poehlman presented the same slide to a Burlington audience two weeks earlier on October 17, 2000, at UVM's "Community Medical School." (R 1751) Further, the videocassette recording of Dr. Poehlman's October 17 presentation clearly reveals him telling the audience that these are real, not hypothesized, scientific results.

Several other slides in the PowerPoint presentation include results from the 678 database showing changes in total energy expenditure (TEE), resting metabolic rate (RMR), and physical activity energy expenditure (PAEE) for 137 subjects, male and female, measured at age 60 and again at age 67. (R 1725, 1739-41, 2004) These slides (and the comparable Burlington, Vermont, lecture slides, discussed below) reveal that Dr. Poehlman lied to this Panel when he stated, on February 9, 2001, that he had never presented any data from Protocol 678 in public.

In these slides Dr. Poehlman clearly asserts that he had obtained DLW-derived energy measurements for a total of 137 subjects, first when they were age 60 (on average), and then approximately seven years later. (R 1725) As explained earlier in this Report, at no time have there ever been more than 54 subjects with paired TEE values measured with DLW. These slides thus contain false data, which Dr. Poehlman publicly presented as true to an audience of scientists.



The Panel has retrieved the slides that Dr. Poehlman presented to the Burlington community on October 17, 2000. Many of these earlier-presented slides are identical to those presented at NAASO. Further, the videotape of Dr. Poehlman's Burlington presentation, included within the Investigation Record in Binder III, shows Poehlman clearly and unequivocally telling his audience that 137 subjects were repeat-tested with doubly labeled water on two occasions six years apart. Again, as described earlier in this report, Dr. Poehlman fabricated those data.

The Panel finds, by clear and convincing evidence, that Dr. Poehlman presented false and fabricated data during public presentations in October and November 2000.

IV. Dr. Poehlman has repeatedly and consistently attempted to deceive and mislead the Review Panel.

Throughout the course of this Investigation, Dr. Poehlman has made a concerted effort to attack and undermine the credibility [REDACTED]. This effort might have made some sense very early in the inquiry stages, when [REDACTED] words were the predominant source of inculpatory evidence. However, once Dr. Poehlman testified that he had indeed entered "simulated" or "hypothetical" data into the very spreadsheets that had alarmed [REDACTED] and the others, and once Poehlman testified to this Panel that the "imputed" data displayed exactly those characteristics (insertions and reversals, all hypothesis-confirming) that [REDACTED] had described, [REDACTED] credibility became largely immaterial at the same moment that it was proven worthy. Still, the Panel should note that we do indeed find [REDACTED] to be a credible witness, who has endured with dignity the written assaults of Dr. Poehlman's lawyers.

Dr. Poehlman has not limited his baseless and often ruthless attacks to [REDACTED]. In his December 28, 2001, and January 15, 2002, letters to the Panel's legal counsel, Dr. Poehlman's lawyer accused [REDACTED] of providing "manufactured evidence" after discovering minor and inconsequential differences in two versions of an Excel spreadsheet that [REDACTED] received from Poehlman in July 2000 and later delivered to the Panel. (R 2260-64, 2271-72) Despite Dr. Poehlman's onslaught against [REDACTED] character, the apparent differences in file size are due to peculiarities of the two different e-mail programs [REDACTED] and UVM's e-mail client program) through which the files were accessed. Dr. Poehlman has similarly attacked both [REDACTED] and [REDACTED] instead of addressing honestly the concerns they raised.

The Panel has met in person on more than one occasion with [REDACTED] and [REDACTED], all of whom we find to be credible witnesses. For that reason, and because of the wholly bankrupt value of Dr. Poehlman's credibility, we have adopted as fact many of the other [REDACTED] versions of exchanges and conversations with Poehlman before the formal accusation. Those accounts are believable in their own right; they are also fully consistent both with each other and with all the other evidence we have since gathered. We fully expect that Dr. Poehlman and his lawyers, in response to this Report, will complain bitterly about a purported lack of regard paid to his submissions, and about our willingness to believe his opponents. Quite simply put, Dr. Poehlman's explanations and assertions, apart from those that constitute admissions against his own interest, by and large are not worthy of belief.

For example, in his lawyers' letters, his testimony to the Review Panel, and elsewhere, Dr. Poehlman has repeatedly asserted that there was no PHS funding for any aspect of the collection or analysis of data under Protocol 678. In fact, every aspect of 678 was conducted pursuant to PHS funding. In his appearance before the Panel on February 9, 2001, Dr. Poehlman testified as follows:

[Questioning] by Dr. Charles Irvin:

Q: Eric, this is a very difficult thing and it is also very disruptive to our lives as well, as I can attest to. This data set 678, who is paying for that study? Was it a grant?

A: No.

Q: So you were doing this freelance sort of?

A: It is a freelance thing. I mean most of the – we began the study and still today, you know, it is done mostly on the clinical research center.

Q: Okay. Has any of the data from protocol 678 been used for any other papers or any other grant submission that you can remember?

A: Not that I can remember.

(R 646) That testimony by Dr. Poehlman was misleading, if not intentionally false. The Record contains ample evidence that all the 678 data collection was supported by federal funds, and the data were published in abstracts and papers and contained within at least three grant applications in which Dr. Poehlman sought federal funds.

First, included in the Record is the sworn declaration of [REDACTED], who served as a [REDACTED]. [REDACTED] uncontroverted declaration establishes that (i) the initial patient data collected, referred to as the T-1 data, under the initial stage of Protocol 678 were collected and analyzed pursuant to specific PHS grants; (ii) Dr. Poehlman did author and publish articles using patient data from both the T-1 and T-2 stages of Protocol 678; and (iii) the collection of T-2 data pursuant to Protocol 678 was managed by [REDACTED] pursuant to an NIH Individual National Research Service Award (NRSA), F32. (R 1948-50) Later, in May 2000, after [REDACTED] left [REDACTED] Dr. Poehlman presumably took over as the PI on this grant.

Second, the 678 data were all collected at the General Clinical Research Center. The 678 protocol, entitled "Interaction of Genetics and Aging on Energy Metabolism," with Dr. Poehlman as the principal investigator, is listed in the renewal application for the GCRC Grant (M01 RR00198-37) among the projects utilizing the GCRC facilities. In the 1999 application for IRB renewal of 678, the summary states: "Participants continue to be contacted and recruited back into the study. Data collected is under analysis. One abstract has been produced as a result of this analysis." (R 2250-52)

Third, University accounting records reveal that Dr. Poehlman's salary was supported by Public Health Service grant funds at or near the 85% effort level during the last half of calendar year 2000. During that same time, [REDACTED] assigned to work with the data set in question, [REDACTED], were paid 100% from Public Health Service funds. (R 1920-22, 1932-33)

Fourth, as discussed earlier, false and fabricated TEE data appeared in at least three federal grant applications that Dr. Poehlman submitted, two to the National Institutes of Health and one to the U. S. Department of Agriculture. Furthermore, also as discussed above, other longitudinal data from the 678 protocol were contained within Dr. Poehlman's first and second PPG applications.

Finally, the Record contains an abstract [REDACTED] and Dr. Poehlman at the NAASO Annual Meeting held in October 2000, which is based entirely on the Protocol 678 dataset. (R 1593-94) Thus, Dr. Poehlman's testimony to the Review Panel on February 9, 2001, that he could not remember using any data from Protocol 678 for any papers or grant submissions, is unworthy of belief.

Dr. Poehlman's lack of credibility is also shown by his submission to the Panel of verifiably false and fabricated evidence. For example, on November 20, 2001, in response to [REDACTED] suggestion that Dr. Poehlman had presented suspect data in his slide presentation at Long Beach, Poehlman delivered to us a paper print of one of the suspect slides with the word "hypothesized" superimposed on the slide beneath the graph (R 713), concealing the incorrect probability value Poehlman had placed on the original slide. Dr. Poehlman wrote: "First, [REDACTED] has apparently forgotten that the slide was very clearly labeled hypothesized." (R 710) Had the actual slide been so marked, of course, neither [REDACTED] nor the other attendees at Long Beach would have noticed any irregularity. The Panel has examined the PowerPoint slides themselves, retrieved from Dr. Poehlman's computer, and they show no label identifying the data as "hypothesized." (R 1732)

Not long afterward, on February 14, 2002, Dr. Poehlman submitted a written statement to the Panel, in response to questions that had been put to him on November 20, 2001. The Panel specifically asked for all documents and correspondence relating to Dr. Poehlman's application to the National Institute of Aging for the Vermont Longitudinal Study of Aging. In his February 14 response (mis-dated February 18, 2002), Dr. Poehlman provided a document with the May 27, 1999, face page of the grant application, along with pages 18-57. (R 1048-88) This document is a non-conforming copy of the grant application. Specifically, the version of the grant application provided by Dr. Poehlman had been altered to delete the references to 130 T-1 and 70 repeat TEE test results that were in the federal grant applications that Poehlman actually submitted on May 27, 1999, November 10, 1999, and February 25, 2000. This effort by Dr. Poehlman to deceive the Panel demonstrates his own awareness that the grant applications he actually submitted contained false and fabricated data.

In the same submission on February 14, 2002, Dr. Poehlman rebuked this Panel for our "assumption that 'simulated data' are involved" in the "exploratory exercise" we questioned him about. Noting a "miscommunication," Dr. Poehlman wrote that, with respect to TEE, he did not "simulate" values. (R 978) This assertion, while weakly besmirching the Panel's intelligence and memory, betrays no awareness on Dr. Poehlman's part of his own earlier memorandum to the Panel, dated February 8, 2001, in which he wrote:

In one or more of the spreadsheets I received, I conducted an exploratory exercise with the data. I simulated values with respect to changes in energy expenditure, body

composition and plasma lipids. The purpose of this exercise was to generate hypothetical values with age-related trends and to perform some power analyses.

This exploratory exercise served two purposes. . . .

Second, I used simulated data sets to perform exploratory power analyses. . . .

(R 377) During his appearance before us the following day, Dr. Poehlman testified:

I want to talk about in one of the spreadsheets that I received I conducted an exploratory analysis with the data. I simulated values with respect to predicted changes in energy expenditure, body composition and plasma lipids. . . .

It appears that one of these spreadsheets or several spreadsheets containing—containing these hypothesized or simulated values were sent to [REDACTED]. I don't have a specific recollection of how one spreadsheet was transmitted because there were multiple spreadsheets in my possession.

(R 506-97, 601)

These instances display Dr. Poehlman's contempt not just for the truth, but for this Panel, the University, and his profession.

Conclusion.

In sum, it is with great sadness, but also with complete confidence, that this Panel has concluded, by clear and convincing evidence, that Dr. Poehlman has engaged in scientific misconduct, as alleged, in the following ways:

(1) Beginning as early as May 1999, and continuing through 2000, Dr. Poehlman has falsified and fabricated data collected as part of his longitudinal study of aging (Protocol 678). He has reported those false and fabricated data as true in papers, presentations, and federal grant applications. He has presented those data as true to [REDACTED], [REDACTED], and [REDACTED] for the purpose of encouraging them to write papers, with Poehlman himself as co-author, in which they would unknowingly describe and analyze false and fabricated data.

(2) He has falsified and fabricated data purportedly derived from a longitudinal study of the menopause transition. He has published those false and fabricated data in an article entitled "Changes in Energy Balance and Body Composition at Menopause," Annals of Internal Medicine 123:673-75 (1995). He has since restated, in several other published articles, conclusions based on those false and fabricated data.

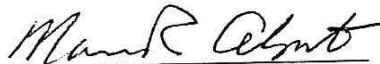
(3) He has publicly presented, in October and November 2000 to audiences in Burlington, Vermont, and Long Beach, California, false and fabricated data from the Annals article, from Protocol 678, and from research into the effects of hormone replacement therapy on weight loss in menopausal women.

In each instance, Poehlman has committed scientific misconduct for the purpose of placing into the scientific literature results that, although unsupported by research, would be consistent with his theories of age-related deterioration, likely to enhance his reputation, and likely to yield him further opportunities for publication and grant funding.

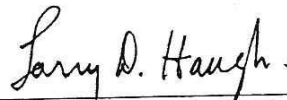
Dated at Burlington, Vermont, this 18th day of April, 2002.




Ralph C. Budd, M.D.



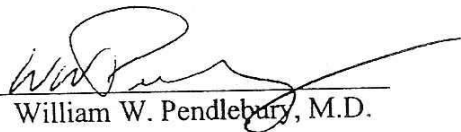
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