# Business, long life go together, at least for flies

ne organism seems to thrive by raing the candle at both ends." Wayne State University researcher drawn this and other conclusions

files, and he believes some of these may eventually prove true for humans. "Files and people are clearly very different and yet we use the same genes to do similar things," said Wayne state biological science professor Robert Arking.

SCIENTISTS STUDY files instead of humans, however, because they can compare new fly generations every

few months.

According to Arking's research, the longer-lived fruit files have higher metabolic rates, or burn energy faster, than their shorter-lived counterparts.

"Husbanding your calories is not a recipe for longevity," he said.

"We have also determined that the

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long-lived strains do not age at a slower rate, but rather that they signif-icantly delay the time of the onset of senesence, or aging." Arking explained. "When the files start to age, they age just as fast as the shorter-lived files. But they put off the start of aging. In human terms, It's as if they hit 35 and hold for 30 years.

human terms, It's as if they hit 35 and hold for 30 years.

HIS CONCLUSIONS about longer-lived specimens having higher metabolic rates dash one implication of the popular theory that every organism has a constant amount of energy available to it during its lifetime.

Thus, the theory states, the higher the metabolic rate, the shorter the lifetime.

the necessity of the compared to be true when one compares different species such as an elephant and a shrew," Arking said, "and it was assumed to hold true of the differences in lifespan that we see within any one species.

Scientists study flies instead of humans because they can compare new fly generations every few months.

"It was such a plausible idea that phrases about that theory have even made it into our language — such as burning the candle at both ends." "We have proved that part of the theory wrong." Arking said. "Our long-lived animals are healthler and have a 30 percent higher daily metabolic rate," he said. "They lay more eggs—five times as many—and egg-laying is an energetically very-expensive process for them. Yet they live 60 percent longer.

cess for them. Yet they are ov percen-longer.
"We are not sure exactly what they are doing, except that their higher me-tabolism is due to yet unknown genetic

"The exciting thing will be to find out just how these genetic changes have altered the physiology of the ani-mals so that they are able to be so healthy, so active, so long-lived."

ARKING AND colleague Leo S. Luckinbill, both associate biology pro-fessors at Wayne, began studying aging through fruit files more than six years

Although many believed it couldn't be done, they succeeded in producing a long-lived strain of fruit files. In 1984, Arking and Luckinbill diverged to study different aspects of aging, with Arking taking the genetic and molecu-lar approach.

"We constructed these strains so this we could critically test certain populat theories of aging," said Arking, "because such testing is crucial if we are ever to understand what it is that actually controls the aging process.

Arking and his student assistants are aging, "we know the process is under the control of our genes, of our heredity. I think the onset of senesicence comes when something — likely genes, which are making certain proteins—is turned off.

"In that case, senescence is under positive control—the trick is to delay turning off the switch."

"The Wayne Claim server as faculty assistant and the switch."

"The institute of Genome the server as faculty in the switch."

The institute is 20 years old this year, maintains an extensive program of education, service and research in the field of aging.

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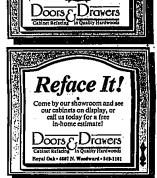
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